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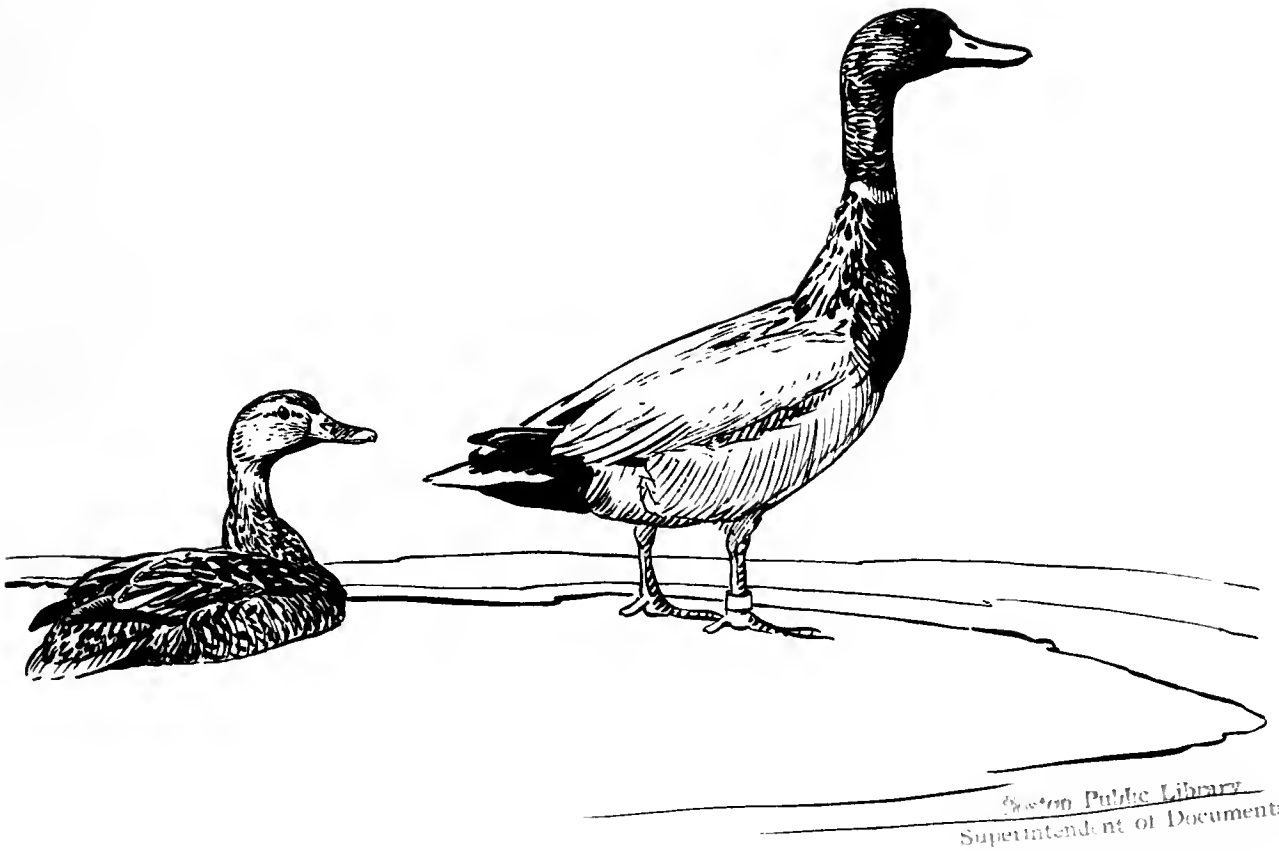
WATERFOWL STATUS REPORT 1972



UNITED STATES DEPARTMENT OF THE INTERIOR
FISH AND WILDLIFE SERVICE
BUREAU OF SPORT FISHERIES AND WILDLIFE
Special Scientific Report—Wildlife No. 166

UNITED STATES DEPARTMENT OF THE INTERIOR
Fish and Wildlife Service
Bureau of Sport Fisheries and Wildlife

WATERFOWL STATUS REPORT, 1972

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OFFICE OF MIGRATORY BIRD MANAGEMENT

in collaboration with

DIVISION OF WILDLIFE RESEARCH

Bureau of Sport Fisheries and Wildlife
Special Scientific Report--Wildlife No.
Washington, D.C. · 1972

For sale by the Superintendent of Documents, U.S. Government Printing Office, Washington, D.C. 20402
Price: $2.10, domestic postpaid; $1.75, GPO Bookstore. Stock No. 2410-00353

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WATERFOWL STATUS REPORT

1972

Information from surveys of the breeding and wintering grounds of waterfowl coupled with data from mail surveys of hunters play a major role in the development of annual hunting regulations for waterfowl. This report presents tabulations of the 1972 waterfowl population and habitat surveys and the results of mail surveys of waterfowl hunters for the 1971-72 season. No status report appeared last year but much of the waterfowl data from 1971 will appear in the tables provided in this 1972 report.

Credit has been given to each individual or organization that submitted a report. Although many of the narrative statements have been briefed, and a few tables deleted or shortened if they contained data submitted previously or in another form, the essential information from each report has been retained to the greatest extent possible. Figure 1 in the Appendix shows breeding ground survey strata for the several areas surveyed by Bureau of Sport Fisheries and Wildlife crews.

WINTER SURVEY

During the first half of January, a survey of waterfowl on their wintering grounds was completed by the Bureau of Sport Fisheries and Wildlife with assistance from State conservation departments, other Federal agencies, and private individuals. All important waterfowl areas in the United States were surveyed. In Mexico, the survey was limited to the west coast wintering grounds of the black brant. Data from these surveys appear in Tables A-1, A-2, and A-3.

PACIFIC FLYWAY

Data supplied by John E. Chattin, Bureau of Sport Fisheries and Wildlife

With the exception of part of Montana, the 1972 winter waterfowl survey was completed on schedule.

Participation in manpower and equipment was similar to prior years, and included 53 Bureau personnel and 151 State people. Thirty-four aircraft flew 220 hours and over 23,000 miles. Additional coverage included 8,500 car miles and 50 boat miles.

Population data appear in Tables A-1 and A-2. Results of the survey showed a general pattern of decrease from record highs of last year. The dabbler duck index was 13 percent below 1971 and 26 percent above the 10-year average. The favored mallard and pintail remained well above the 10-year average. The diving duck index was down about 3 percent from last year, and 28 percent below the average.

Goose populations dropped off 5 percent from last year and are down 12 percent from the 10-year average.

CENTRAL FLYWAY

Data supplied by Raymond J. Buller, Bureau of Sport Fisheries and Wildlife

Except for minor delays due to weather, the Central Flyway survey was completed on schedule. Participation included 165 Bureau personnel, 43 State and one other. Twenty-seven aircraft flew 200 hours and covered a distance of nearly 23,000 miles. Additional coverage included over 12,000 car miles, 17 boat miles, and 4 miles on foot.

Despite some poor weather conditions during the survey, all important wintering areas were covered from the air or the ground. Weather may have caused some shifting of birds, especially geese; however, this is of little consequence since mid-December goose population estimates are used in lieu of January counts.

The dabbling duck index was 68 percent above 1971 and 114 percent above the 10-year average. Mallard and pintail indexes were significantly above 1971 and the 10-year average. The diving duck index was unchanged from 1971 but 48 percent below the average. The redhead index continued to decline. The total duck index was 63 percent above 1971 and 92 percent above the 10-year average.

The mid-December goose population in the flyway continued to increase. Canada geese were responsible for the increase since the blue/snow goose index was unchanged from December 1970. The December 1971 white-fronted goose index was about 52 percent above the January 1971 index.

The coot index was 29 percent above 1971 but 8 percent below average.

MISSISSIPPI FLYWAY

Data supplied by Arthur S. Hawkins and Rossalius C. Hanson, Bureau of Sport Fisheries and Wildlife

Inclement weather in the southern part of the flyway prevented completion of the survey during the designated period, January 3 to 7, spreading the survey over a much longer period and causing uncertainties about some of the results. Torrential rains caused the birds to disperse widely. A delayed coverage always increases the possibility of bird movements in between counting periods which could result either in double counting or in missing the birds entirely.

For these reasons, the figures for ducks, obtained this year in parts of the south, may not be directly comparable with past figures. This was not true in the upper flyway where conditions did not hamper the inventory. The figures for geese shown in this report were obtained during the special goose inventory of mid-December.

We do not have a breakdown of "Bureau, State" and "Other" for participation in this flyway but the numbers of personnel and vehicles involved, and number of miles covered is impressive.

Fifty aircraft, 389 automobiles, and 45 boats were operated by 502 individuals for a total distance of 48,768 miles.

Population data appear in Tables A-1 and A-2. Only in 1963 was the dabbling duck count below that of January 1972. Lower mallard counts were recorded in 1963, 1969, but 1963 was only slightly lower. The proportion of mallards in the dabbler count has not exceeded 54 percent during this 10-year period. This year, mallards composed 53 percent of the dabbler total, suggesting that mallards were not undercounted in comparison with other ducks. This may happen in some years when extensive flooding of bottomlands permits many mallards to hide from the census taker. This year's canvasback figure is the lowest on record and stands at about half the 10-year average and one-third of the 20-year average.

ATLANTIC FLYWAY

Data supplied by C. E. Addy, Bureau of Sport Fisheries and Wildlife

The survey was conducted during the period January 3-10, with the bulk completed by January 6. There were local delays of a day or two days due to adverse weather conditions.

The exceptionally mild fall weather continued through the January survey period. Most of the fresh water areas of the flyway were ice-free so that waterfowl populations were widely scattered. Again this year the swamps of Georgia and South Carolina were flooded. When this occurs, many mallards, black ducks, and wood ducks are not observed by survey crews. Also, windy conditions in some southern areas made counts of diving ducks unreliable on broad waters. Large concentrations of scaup and sea ducks on the ocean off Georgia and South Carolina were noted. These offshore birds were not surveyed and are not included in this report.

Participation in the survey was by 32 Bureau, 88 State, and 11 private individuals, using 31 aircraft, 37 cars, and 16 boats. Routes covered totaled about 28,000 miles.

Population data appear in Tables A-1 and A-2.

While many duck species show declines from last year, it should be kept in mind that in 1972 birds were widely scattered and some were no doubt missed by survey crews. To what extent the decline in scaup can be accounted for in offshore concentrations and shifting to other wintering areas is not known.

The Canada goose population appears to be thriving with close to three-quarters of a million wintering in the flyway. However, again this year, an increased percent occurred in the northern part of the flyway with continued declines indicated from North Carolina south.

The brant population showed about a 50 percent drop from that of last year. A decline was expected because observations during the fall indicated very few young in the population.

The canvasback is still at a very low population level. This is certainly cause for concern.

MEXICO

Data supplied by G. Hortin Jensen and James F. Voelzer,
Bureau of Sport Fisheries and Wildlife

The timing of the survey this year was near normal. It was commenced January 14, 1972, and completed on January 29, 1972. The area covered was the same as that of recent years--the west coast of Baja California and the west mainland coast as far south as Marismus Nacional. During the years of these surveys, weather phenomena has not been observed that would materially affect the movement of waterfowl. Coastal fog can limit observations for a given day, and the survey on Baja California was delayed two days by this factor. An amphibious DeHavilland Beaver was used for the survey with pilot and co-pilot acting as observers.

The notable change this year was the marked increase of ducks in their favored areas, Topolobampo and Pabellon. Twice as many were estimated to be present as last year. The area adjacent to the agricultural land south and southeast of Caliacan was the favored area for ducks this year. The principal species were pintail, teal, and shovelers. Extensive shallow water on mud flats produced the favored habitat.

Brant were of special interest during this survey. Tabulations are divided between the mainland and the Pacific side of Baja California. A moderate decrease of 13 percent from 1971 and a decrease of 8 percent from average was observed this year. The decrease was noted on the mainland as well as on Baja California. For some unexplained reason, northern areas showed an increase over results from last year and the average, while decreases were evident on the most southern areas. Santa Maria, a coastal lagoon supporting the largest population of brant on the mainland, had markedly reduced flocks. Former peak populations of near 18,000 were represented this year by only 2,800 black brant. A small flock of brant was observed at Cocoraquito. It was undoubtedly a transient flock, as this was our first record at this locality.

Over the last several years, as an adjunct to our regular waterfowl survey, pelicans are recorded as observed. This year 33,900 brown pelicans and 9,700 white pelicans were observed in the area surveyed.

BREEDING GROUND SURVEYS

The Migratory Bird Population Station recently completed an exhaustive audit of all field data collected during the aerial and ground surveys of waterfowl. As a result of this audit, plus the elimination of partial segments and the realignment of certain survey boundaries, changes were made in many of the waterfowl population figures and/or water counts from previous years. The corrected data are incorporated in this 1972 report and therefore all figures and tables used here will not agree with previously published data. Where differences are noted, consider the 1972 report as the correct source.

The procedures followed in conducting breeding ground surveys are established in the Bureau's Standard Procedures for Waterfowl Population and Habitat Surveys for prairie and bush areas.

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ALASKA AND YUKON TERRITORY

Data supplied by James G. King
Bureau of Sport Fisheries and Wildlife
and
Dan Timm
Alaska Department of Fish and Game

Spring weather and habitat conditions

Although the first open water and early migrants coincided in late April, snow cover lingered through the first half of May in the interior and almost to the first of June on the tundra and along the Gulf Coast. Ice remained in the lakes even longer. Warm weather came to the interior about May 20 after which temperatures reached the seventies and eighties. Some flooding occurred in most of the river valleys. The result was a shortage of available nest sites in many areas and some confusion for early nesters.

The survey commenced May 21 on the first day of open water at Anchorage's Lake Hood and was completed June 20, three days later than last year. As usual, the survey was held up until the Yukon Delta was at optimum survey condition. By the time we left the coast (Stratum 37) and returned to the interior (Stratum 38) temperatures there had been in the nineties and it was midsummer. Thus in the Koyukuk and Nelchina Valleys many dabblers had deserted. Except in these two areas, survey conditions were normal.

Breeding populations (tables B-1 through B-3)

The 1972 breeding population indexes were up 17 percent for the important Alaskan species. The dabbling duck index increased nearly 30 percent over that of 1971 and remained above the long-term average for the area. The important pintail index was up 49 percent and significant increases were noted in both strata 37 and 38.

Diving duck numbers also increased. Scoters showed important gains over last year but scaup members increased only slightly in the Alaska survey areas.

Production

In stratum 37 and along the coast we clearly had a late year and nesting was obviously delayed for all species. In stratum 38 the situation is more difficult to assess. After what appeared to be a late start, hot weather came so suddenly that production was good there, especially for the divers and later-nesting dabblers.

On the Yukon Delta black brant nesting was delayed by at least 10 days and heavy ice was still present in the larger lakes and tidal sloughs on June 13. Dusky Canada geese on the Copper Delta were delayed by snow cover and nested more than two weeks late.

With an increase in overall breeding population and fair production in stratum 38, we had expected a modest increase in the fall flight of all ducks except oldsquaw.

Nesting conditions were not good for swans and all geese except Lesser Canadas. We certainly had no basis for expecting an increase in geese and brant, and it appeared more likely there would be a decrease in the fall flight.

NORTHERN ALBERTA, NORTHEASTERN BRITISH COLUMBIA, AND NORTHWEST TERRITORIES

Data supplied by James F. Voelzer and G. Hortin Jensen,
Bureau of Sport Fisheries and Wildlife

Spring weather and habitat conditions

Temperatures during the 1971-72 winter were below normal and precipitation levels were above normal throughout most of the Northwest Territories survey area.

Arrival of spring weather was normal in the parklands and lowland portions of northern Alberta and in the Northwest Territories from Great Slave Lake south. Due to an abundance of moisture, nesting conditions appeared optimum. In higher elevations such as the Caribou Hills and Horn Mountains, nesting was delayed due to late ice.

In contrast to the area from Great Slave Lake south, the northern portion of the survey area, including the Barren Lands, was extremely late in opening up. Break-up of the Mackenzie River at Norman Wells was one week behind 1971 and this station received 14-inches of snow on the weekend of May 20 and 21. Although the Mackenzie Delta was open when the surveys were conducted, the surrounding country to the north and east was not expected to thaw for another 10 days to 2 weeks.

Of interest is the fact that water levels in the Athabasca Delta appear to have increased significantly, although not back to the traditional levels. Whether this was a result of increased precipitation in the drainage over the winter or the recently completed dam, or both, is unknown.

Breeding populations (tables B-4 and B-5)

Breeding conditions for arriving waterfowl could best be described as unusual. With the low water cycle of the past several years apparently broken, it appeared that many species, especially mallards, had chosen the prime nesting habitat of Strata 14 and 06 for this season. Pintails forged farther north and were encountered on the edge of winter in all areas. The 1972 mallard index for the Northwest Territories was 28 percent above that of 1971 and 40 percent above average. It was the highest mallard index in the last eleven years. Pintail indexes were +196 percent compared to 1971 and +86 percent to the 10-year average. Total dabblers indicated were +35 over 1971 and 34 percent above average.

Diving duck indexes this year were up 37 percent compared to 1971 and 60 percent above the average. The abundant scaup was up 48 percent over 1971 and was 72 percent above the average index. Many scaup were noted in large flocks and appeared to be awaiting the opening of northern areas.

Both canvasback and redhead numbers appeared well below the long-term averages.

Total ducks exceeded all years back to 1962, with a population of 5,136,200. The previous high was 4,326,500 in 1964. Total ducks increased 35 percent and 38 percent over last year and the 10-year average.

Canada geese were conspicuous by their presence, with an increase of 78 percent over 1971 and 107 percent compared to average. They too appeared to be nesting further south, apparently willing to accept the good habitat conditions available rather than wait out the arrival of spring in the far north.

Stratum 5, the Old Crow Flats in the Yukon Territory, was flown by Jim King and Dan Timm. Their report indicates that at their arrival on June 19, the nesting season for dabblers was much advanced, but divers appeared to be in normal nesting progression for surveys. The Yukon, too, appeared to be extremely late with spring's arrival, making it comparable to the remainder of the far north.

Summer weather and habitat conditions

Along the Arctic coast and 100 miles inland, the habitat was frozen and snow-covered well into June. The late season limited waterfowl production for this area. Climatic factors elsewhere in the survey area were considered to be generally favorable for waterfowl during the brooding season.

There was abundant snow over the winter in much of the Northwest Territories and water conditions were much improved in areas such as the Athabasca Delta area. Habitat conditions appeared good to excellent for breeding waterfowl in the southern portions of the survey unit.

Production (tables B-6 and B-7)

A tabulation of production indexes by stratum appears in Table B-6 . Also, there is a comparison of totals between 1972, 1971, and the average for the past 10 years. Brood indexes decreased approximately 50 percent from last year and from the 10-year average.

Table B-7 shows yearly totals for the past 10 years. The 1972 brood index of 688,000 is one of the lower estimates obtained during the 1963-71 production surveys.

For administrative reasons, northern brood surveys ended earlier in 1972 than in 1971. The change in the 1972 brood index therefore may reflect the advance of the survey period as well as a real change in duck production.

NORTHERN SASKATCHEWAN, NORTHERN MANITOBA, AND SASKATCHEWAN RIVER DELTA

Data supplied by Arthur R. Brazda and Richard A. Gimby,
Bureau of Sport Fisheries and Wildlife

Spring weather and habitat conditions

Fall rains left much of the habitat in a good state, and deep snows added to the better-than-average conditions that were found almost everywhere in the strata surveyed. For the first time in four years, the habitat in western Saskatchewan could be described as good rather than poor to fair. Most of the depressions found in the hilly areas had some water in them as did the forest-type meadows and shallow potholes. At the conclusion of the May survey, however, northwestern Saskatchewan was in dire need of moisture to prevent these water areas from disappearing and to lessen the extreme forest fire hazard. In contrast, water levels elsewhere in the survey area were optimum or even too high as was the case in the Saskatchewan River Delta. During the last three-fourths of the survey, high winds were encountered daily, causing certain problems in completing entire transects.

Breeding populations (tables B-8 and B-9)

Dabbling ducks continued to decline from the high of 1969. Only the gadwall showed an increase over 1971 (10 percent). Significant were the substantial decreases from 1971 for both mallards (28 percent) and pintails (67 percent). The mallard index was the lowest since 1966 and the pintail index, the lowest in the last 11 years. Blue-winged teal were on par with the previous year, but 56 percent below the average. Green-winged teal were 22 percent below 1971, but 24 percent above the average. All dabblers decreased 32 percent from the previous year and 31 percent from the 10-year average.

Among divers, redheads were down 29 percent from 1971 and were 60 percent below the average. Canvasbacks showed an increase of 29 percent over 1971, but were 73 percent below the long-term average. Scaup were up 37 percent and 35 percent respectively. All diving ducks were down 1 percent from 1971, but were 16 percent above the average.

The data presented herein are unadjusted, but the duck index for 1972 is certainly down, especially in the dabbling ducks. More important, the decreases are substantial in the two primary species, mallards and pintails.

Canada geese continued to do well, indicating an increase of 43 percent over the previous year and 54 percent over the 10-year average. Coot, on the other hand, were 64 percent below 1971 and 85 percent below the average. Northwestern Saskatchewan has areas of excellent goose-nesting habitat in normal years, but it is suspected that periodic fires and drought limit the growth of this population. These geese appear to be extremely large, but it is not known to what subspecies they belong.

Summer weather and habitat conditions

July weather for the northern regions of Saskatchewan and Manitoba could be summed up as being "considerably less than desirable." The entire period was characterized by high winds, below normal temperatures, and heavy thunderstorm activity with accompanying low ceilings and numerous rain squalls. The daily average temperature was 6°F below normal in the Prince Albert District and slightly lower in other portions of northern Saskatchewan and all of northern Manitoba. The low recorded in Prince Albert was 34°F on July 19, while the high was 78°F on July 15. It was not believed that the low temperatures adversely affected production in northern Saskatchewan because temperature drops were of short duration; in northern Manitoba however the cold snaps may have done more damage to duck production.

Habitat conditions were varied. In west-central Saskatchewan water levels were down from May and June, but slightly higher than normal for July. Water was high on the Saskatchewan River Delta. In the latter area, "flooding" would have been the correct terminology during the breeding pair survey. In July, this condition had lessened somewhat west of The Pas, Manitoba; however, no improvement was observed east of The Pas.

Due to a warm May-June period, vegetative growth was luxuriant in all strata. This was especially true in the vicinity of shallow water areas, such as string bogs, forest marsh meadows and slow-flowing streams.

Production (tables B-10 and B-11)

The duck brood index was 8 percent below 1971 and 6 percent lower than the 1963-71 average. This year's 5.2 average brood size was smaller than the 5.6 of a year ago and the 5.4 long-term average.

The coot brood index decreased 35 percent from 1971, but remained 18 percent above the average. Canada goose production was not estimated for these strata since only two broods were observed, both in stratum 36.

The late-nesting index for all ducks was 45 percent above that for 1971 and the nine-year average. It should be kept in mind that the value of the late-nesting index decreases substantially in those northern regions.

WESTERN ONTARIO

Data supplied by Morton M. Smith and Everett B. Chamberlain,
Bureau of Sport Fisheries and Wildlife

Spring weather and habitat conditions

Spring was early in western Ontario this year, particularly in the southern portions of the survey area. Precipitation was below normal and water levels were down in many lakes in western Ontario. There were numerous forest fires in Ontario as a result of the dry, warm weather. The 1972 growing season was advanced compared to 1970. There was no Ontario survey in 1971. Survey dates this year were May 25 through June 1, about ten days earlier than the 1970 survey.

Breeding populations (table B-12)

Waterfowl population indexes for 1972 were above those found in 1970 and 36 percent above the 1962-71 average. Nearly all numerically important ducks were above the average levels in 1972. Among the important game ducks, mallard populations were up 27 percent from the average and black ducks were up 85 percent.

Waterfowl production surveys were discontinued in western Ontario. We anticipate better-than-average production from the area because of the increased number of breeders and normal-appearing weather conditions.

SOUTHERN ALBERTA

Data supplied by K. Duane Norman and R. David Purinton,
Bureau of Sport Fisheries and Wildlife

Spring weather and habitat conditions (table B-13)

April was sunny, dry and windy in Calgary but in Edmonton, the weather alternated between cold and mild periods. A snowfall of 6.3 inches on May 21, caused extensive damage throughout Edmonton. The monthly precipitation in Calgary was only one half of normal.

The first half of May was cool and dry in Calgary and cloudy in Edmonton. Mild temperatures were the rule in southern Alberta by the third week of May.

At the beginning of the survey period, snow still covered the ground northwest of Calgary and on May 8, at the time of our goose survey, ice could be found in drifts along the Red Deer, South Saskatchewan, Oldman and Bow Rivers. Water levels in the major rivers and lakes appeared to be about normal.

Good habitat was found west of a line from Lethbridge to Calgary. East of this line, good habitat was only found near the major lakes and reservoirs. Temporary wetlands were abundant in many locations in the grasslands east of Calgary but they were dry long before the first of July.

Aquatic vegetation did not present problems in making observations this year although it had already reached heights of between 8 and 12 inches by the time we had reached the northern portion of stratum 26. The aspens were fully leafed in the eastern portion of the Province but were just beginning to leaf at the western end of the survey area. Overall the quality and quantity of wetlands within the survey area were about the same as last year.

Breeding populations (tables B-14 through B-16)

The data indicated a poor outlook for most species. Gadwall were the only dabbler showing an increase (5 percent) from last year. Greatest decreases were noted in mallards (-14 percent), widgeon (-11 percent), bluewings (-32 percent) and pintail (-22 percent). The pintail increase of 77 percent in stratum 28 was very misleading since sufficient habitat simply was not available for that many nesting birds.

In stratum 27, gadwalls increased 24 percent, greenwings 26 percent and shovelers 30 percent from last year. Looking at long-term averages, increases from the average were noted for gadwalls (+67 percent), greenwings (+64 percent), shoveler (+2 percent) and pintails (+4 percent), but the total for dabblers was down almost 10 percent.

The divers showed a more comforting picture with an increase of 14 percent. Divers increased 22 percent in stratum 26 and increased 14 percent in stratum 27. A decrease of 7 percent was noted for stratum 28. Redheads decreased 2 percent and canvasback 4 percent from last year. Scaup increased 20 percent and bufflehead increased 51 percent. The long-term average indicated a decrease of about 20 percent for canvasback and redheads but increases of 98 percent for ringneck and 33 percent for bufflehead.

The figures showed an increase in total ducks from last year in stratum 28 of 18 percent but show decreases of 30 percent for stratum 26 and 3 percent for stratum 27 and 11 percent for total ducks.

Canada geese continued to show increases (+4 percent). They increased 43 percent in stratum 26 but decreased 46 percent in stratum 27 and 14 percent in stratum 28 from last year. The increase from the average is 117 percent. Increases on the rivers in southern Alberta amounted to about 7 percent from last year.

Coots were up 14 percent from last year but are 42 percent below the average.

Summer weather and habitat conditions (table B-13)

May began quite cool and dry in Calgary, but the temperatures began rising by the middle of the month raising the mean temperature to slightly above normal. Edmonton was pleasant but precipitation there was 51 percent above normal. In contrast Calgary had below-normal rainfall for the month.

June was warm and wet in Alberta with temperatures averaging almost 3° above normal, and precipitation about 50 percent above normal. July was generally cloudy, cool and dry. Only 15 percent of the normal rainfall had been received in Edmonton by May 12, and 39 percent in Clagary by May 18.

Pond numbers in southern Alberta had greatly decreased since May. The pond index decreased 50 percent in stratum 26, 51 percent in stratum 27 and 36 percent in stratum 28 since May. A decrease of 40 percent from last year and a decrease of 26 percent from the average was indicated for the survey area. Greatest decreases were indicated in strata 26 and 27.

Brood habitat was almost non existent south of an east-west line through Hanna. One had to progress northward to an east-west line through Lacombe before good habitat and ducks were found. Excellent habitat over a broad area was not reached until one passed Vermilion but it disappeared soon after passing St. Paul.. The deep permanent lakes and streams and the stock dams in the "Grand Prairie" were the prime habitat in stratum 14. Aquatic vegetation, as in previous years, did not present any problem in visibility until reaching the most northern portion of stratum 26.

Production (tables B-17 and B-18)

The brood index this year was nearly the same as last year. The greatest increase from last year was indicated in stratum 28 (42 percent) but this stratum represented only 11 percent of the total. Almost two-thirds of the broods were found in stratum 27 where the index increased 11 percent from last year. A decrease of 25 percent in brood numbers was indicated in stratum 26 where 26 percent of the broods were observed.

An analysis of the broods indicated that 41 percent were Class I, 34 percent were Class II, 21 percent were Class III and 4 percent were unclassified. The average brood size this year was 5.0, which is 14 percent below last year and 11 percent below the average.

The coot brood index was down 12 percent from last year and down 80 percent from the average. The greatest decrease (69 percent) was noted in stratum 26. Slight increases were made in strata 27 and 28.

The late-nesting index for dabblers showed a decrease of 7 percent from last year, while the late-nesting index for diving ducks decreased 17 percent. The total duck late-nesting index was -14 percent below last year.

The production index for southern Alberta was the lowest since 1968. A reduced flight of ducks from the southern Alberta unit was anticipated.

SOUTHERN SASKATCHEWAN

Data supplied by Rossalius C. Hanson and Douglas S. Benning
Bureau of Sport Fisheries and Wildlife

Spring weather and habitat conditons (table B-19)

Spring this year was probably as near normal as we can expect. Only one really cool morning greeted our survey crews, and that was May 6, when temperatures dropped to 20°F at Swift Current, Moose Jaw, and Regina. Rains were few and far between during the month.

Conditions were good for flying the survey with only three days lost to fog and rain. Winds were moderate throughout except for one day of high winds north and east of North Battleford. Total ponds were fewer in number than those found in the past two years. We were down 20 percent from last year but up from the 1956-1962 average by 21 percent. Habitat from the open prairies to the parklands varied from poor to excellent. A rather strange mixture of too much water and too little water was the result. Heavy snowfall and rapid runoffs in April created the favorable water conditions.

The 1972 nesting conditions appeared to be favorable. Only one cold morning (May 6) was recorded. Whether this had any effect on unincubated eggs is not known. The first broods were seen on May 19. One pintail brood was recorded on that date by the ground crew and two pintail broods by the aerial crew. All were seen in the far western area. This would indicate an almost normal season with waterfowl nesting commencing near mid-April.

Farming activities in the drier areas developed rapidly, and seeding was well along by mid-May. Where sheetwater stood in the fields in the northeast, no wheels were turning even as late as when we finished the survey. Stubble burning was fairly widespread this year because of the dryness and resulted in the loss of many early nests. Soil moisture was variable, definitely deficient in some areas, and elsewhere more than enough. There was little rain during the spring period, further reducing water levels. The only help was the lack of strong hot winds.

Breeding populations (tables B-20 through B-22)

A little over 3 million ducks (3,089,500) were recorded this year compared to 3-1/2 million (3,538,900) last year and 3,838,100 for the long-term average. This was down from 1970 and 1971 but up a little over 1969. Percentage-wise, we were down 13 percent from 1971 and 20 percent from the long-term (1956-1962) average.

Mallards showed no change from last year while pintails were off 33 percent. Another species showing a decline was blue-winged teal, down 44 percent from 1971. Total dabblers were down 15 percent from last year and the long-term average. Divers showed mixed trends. For all practical purposes, there was a very slight gain. Canvasbacks showed a "no change" condition.

Coots were down 19 percent from a year ago. Canada geese continued a gradual increase in the prairies.

Summer weather and habitat conditions (table B-23)

Rainfall from early May to mid-July was generally a little below normal. May was relatively dry but precipitation was better in June and July. The southeast portion of the Province from Weyburn south and east had exceptionally heavy rains in June causing flooded conditions and an overabundance of water as far as agricultural activities were concerned.

Water counts were off from last year by 33 percent, standing at 732,400 but were above the 1956-62 average by 37 percent. Ponds in all strata were down from last year, indicating a continuous drying trend. The greatest losses occurred in the southwest, mid-central, and south-central portions of the southern prairie area. The parklands did better with Stratum 20, the east (including the southeast) showing the smallest declines. The northwest parklands were also showing signs of the drought. The far west was not much worse than in May.

July was characterized by very cool weather, averaging 10° below the normal highs and lows. During three days, July 17-19, the lowest overnight temperatures on record were broken in Saskatchewan. On July 19 the coldest afternoon temperatures on record were established at Estevan. This aided in retaining pond water but was pretty well offset by continuing high winds. Thunderstorms and high water in the southeast were a factor there in nest losses. This was indicated by the lack of broods in those areas, and also nest losses were reported by ground observers. In other areas, no particular nest losses were evident.

Marsh vegetation and aquatics were abundant in the better watered areas. This caused reduced visibility for the aerial crews, no doubt resulting in fewer broods counted as well as smaller numbers of recorded adults. In the dry areas, there was no visibility problem. Receding water levels and lack of ponds concentrated what broods there were on a few areas.

Farm crops were behind schedule because of cool weather and drought conditions. Crop forecasts indicated a reduction in grain production of 15 to 20 percent below normal.

Production (tables B-24 and B-25)

Our final brood index stood at only 3 percent below last year, due to better than expected production in the wet areas. The index stood at 176,000 in 1972 in contrast to 180,800 in 1971. We were off 12 percent from the long-term average (1956-62) of 199,900. The average brood size was 5.2, the same as last year. We saw many broods of only two and three ducklings. On the other hand, this was offset by larger broods of 10-12 ducklings in the II and III age-class. Many flying and Class II and III broods were noted in Strata 19 and 21. Class I broods made up about one-half of those seen in the eastern areas. This indicated a better early hatch in the western areas than in the east.

Late-nesting indexes were down from last year in all strata except stratum 21 in the southeast. The index was down from last year by 34 percent but up from the average by 22 percent. It stood at 154,800 this year compared to 127,100 for the average and 234,400 for 1971. This year's figure is still in the ball park with 1969, and above most figures reported in the sixties.

SOUTHERN MANITOBA

Data supplied by Morton M. Smith and Richard C. Droll
Bureau of Sport Fisheries and Wildlife

Spring weather and habitat conditions (table B-26)

The fall of 1971 was again wet in southern Manitoba. Snowfall through the winter was not unusual but early spring precipitation was sufficient to maintain good water conditions. Weather during the May surveys was mild and pleasant, with clear days and light winds. On only two days were flight operations cancelled due to weather. As of May 23, growing season precipitation (that since April 1) in southern Manitoba was about 20 percent below normal. The number of water areas in southern Manitoba in May 1972 were little changed from those of 1971. There was less July water this year than last.

The first week of May was cold and nighttime lows were in the twenties but temperatures were above average later in the month. Record high temperatures (85° to 90°F) were recorded on two days in mid-May at Brandon. The mean temperature for the period April 1 through May 23, was 1.6°F above normal at ten selected stations in the survey unit. Winds were unusually light during May 1972.

There was no sign of new vegetation in early May, but with the subsequent warm, sunny weather, leafing and emergents developed very rapidly. By mid-May, aspens were generally leafed and emergents were showing in pond basins. The phenology this year was perhaps a week early and was ahead of that of 1971.

Breeding populations (tables B-27 through B-29)

Breeding duck numbers in southern Manitoba in May, were similar to the 1971 counts, but were 50 percent below the 1956-62 period (a series of years of high duck populations in southern Manitoba). The aerial indexes were up for mallards, gadwalls, widgeons, and shovelers but declined for all other species. The mallard index was 14 percent above 1971, but remained 49 percent below the average. Blue-winged teal were down 31 percent from 1971, and 48 percent from the average. The 1972 canvasback index declined 41 percent from 1971 and was 56 below the 1956-62 average. Coots were up 105 percent over 1971, but were 25 percent below the 1956-62 average.

The lone drake index is considered an indicator of the progress and intensity of the nesting effort. The 1972 lone drake index was above that of 1971 and above average for the series of years of survey. Observations indicate the mallard and pintail nesting effort was probably slightly earlier in 1972 than is usual for southern Manitoba, while the canvasback nesting effort seemed slightly delayed.

The total duck index in southern Manitoba for May was nearly equal to that of 1971. Habitat conditions were generally good this spring. May was a warm, sunny month and it appeared the 1972 breeding season was an early one.

Summer weather and habitat conditions (table B-26)

July was unusually cool and record low temperatures were recorded during the month. As of July 17, growing season precipitation (that since April 1) at ten selected stations was 19 percent below normal. Cumulative mean temperatures for the period were still a degree above normal as a result of the warm May weather.

The May survey found water conditions and pond quality better than average in southern Manitoba. The pond counts in July were 19 percent below those of July 1971 and 15 percent below the 1956-62 average. The July pond counts in stratum 24 were unchanged from those of 1971 but the number of ponds in Stratum 25 this July declined sharply from last year's total. Despite decreased precipitation and fewer ponds this year than last, there was good brood water over most of the southern Manitoba unit in 1972.

Production (tables B-30 and B-31)

The 1972 brood index for southern Manitoba was the highest recorded since 1967. It was 65 percent above that of 1971 but remained 31 percent below the 1956-62 average. The average brood size (Class II and III broods only) was 5.2 and is below the norm of 5.7. The production survey this July was completed earlier than usual. A later survey might have yielded a few more broods and a smaller late-nesting index.

The 1972 late-nesting index, which is a measure of broods to come, was 28 percent below that found in 1971. We were not very satisfied with the LNI this year and suspect it was larger than our figures show. Many adult ducks remained on the prairies in southern Manitoba this July, probably as a result of generally good water conditions, drying habitat to the west and a larger May breeding population in the survey unit in 1972. Late nesters were mixed in with the flocks of adults seen (ground studies reported many late nesters), but it was difficult for the air crew to separate true breeders from those adults that were finished for the year.

A forecast index is used to weight and sum the several estimates relating to duck production gathered each July. The 1972 index for southern Manitoba is 79, up slightly from 1971, but still well below the 1956-62 average. Coot production appeared good this July and was above average.

Habitat conditions were good and we believed the 1972 duck crop from southern Manitoba was better than the poor production obtained in 1971. Production from southern Manitoba remained well below average however.

MONTANA

Data supplied by Alva E. Weinrich and James S. Cromwell,
Bureau of Sport Fisheries and Wildlife

Spring weather and habitat conditions (table B-32)

Montana weather was cold with above normal amounts of snow in January and February. March and early April were very mild and warm creating flood conditions. Late April was stormy with alternating snow and rainstorms. May was quite unsettled with rainstorms, hailstorms, and snowstorms. On May 25, four inches of snow fell in the Havre area, a hailstorm was observed near Medicine Lake, and a thunderstorm in the area south of Glasgow. The only area that appeared quite dry in eastern Montana was north of Great Falls. Water conditions elsewhere were from good to excellent. Agricultural operations were delayed by wet field conditions. Summer fallowing and turning stubble under were also delayed which improved chances that early nests would not be destroyed. Snowbanks were still present in the Lewistown area and the area west of Cutbank during the survey. The Cutbank area snowbanks were larger than any in former years of survey. Despite the unusual weather conditions, the season appeared to be well advanced as evidenced by the appearance of duck broods and goose broods. In previous years, we seldom have observed duck broods during the May survey.

Breeding populations (tables B-33 through B-35)

The mallard index was up 37 percent from 1971 and up 22 percent from the 1965-71 average. Pintails showed a 103 percent increase from 1971 and a 21 percent increase above the average. Total ducks were 50 percent above 1971 and 6 percent above the 1965-71 average. The only dabbling duck species to reflect a decline in 1972 were gadwalls, blue-winged teal, and shovelers. We believe these waterfowl indexes reflect real population increases in the units covered by this survey.

The lone drake index for 1972 (Table B-35) is low in view of the numbers of duck broods observed and the general phenology of the season. However, on May 9, in southern Montana, flocks of late migrants were noted and an early brood was observed. The unsettled weather probably was responsible for these contradictions and perhaps not much weight can be given to the lone drake index this year.

Summer weather and habitat conditions (table B-32)

Montana stations reported above normal precipitation for the survey area with the exception of north-central Montana. The May pond index was up 11 percent above 1971 and 33 percent above the average. The moisture carryover was excellent with little decline in the pond index resulting in an 88-percent and a 90-percent increase in July ponds from 1970 (no survey was run in July of 1971) and the average respectively. The survey area had an early spring with early runoff, and good to excellent moisture conditions. June was quite dry. Early July saw

little moisture fall except local thunderstorm activity. About July 20, a good storm with rain and snow passed through the survey area. Crop and hay production in northern central Montana during the July survey period was poor with crops turning brown from lack of rainfall. Elsewhere, crop and hay production was good to excellent. Pond vegetation was generally heavy. The nesting season was early as evidenced by the numbers of broods observed in the May surveys and the age classes of broods in the July survey. Temperatures in June and July were below normal further helping to conserve water.

Production (table B-36)

The Montana survey unit had more breeding ducks in 1972 than in 1971. Duck production in 1972 was up from 1970 and 29 percent above the average. Average brood size was larger than average. The class composition of the broods was Class I, 12 percent; Class II, 37 percent; Class III, 51 percent. A good number of broods observed were able to fly and possibly some were missed by being mixed with or mistaken for flocks of adult ducks.

The total late-nesting index was up markedly from 1970 and 182 percent above the average. The increases were most apparent in mallard, widgeon, and pintail of the dabblers and canvasback and scaup of the divers. Gadwalls, blue-winged teal, and shovelers had a decrease in the late-nesting index from 1970 and the average.

Suitable habitat was available and this, plus more breeders and favorable conditions, resulted in improved waterfowl production in the Montana survey area.

NORTH AND SOUTH DAKOTA

Data supplied by Gerald Pospichal, Edgar Ferguson,
A. E. Weinrich, J. S. Cromwell,
Thomas Sechrist, and Richard Basler,
Bureau of Sport Fisheries and Wildlife

Spring weather and habitat conditions (tables B-37 and B-38)

Temperature and precipitation data for North and South Dakota indicated generally below normal precipitation and temperatures through the fall and winter of 1971-72. In early March, a warming trend over the Dakotas melted all snow and caused an early breakup. Runoff was light, however. April turned cold again with below normal precipitation in North Dakota except for two mid-April snows which improved conditions. Above normal precipitation in the southern one-half of South Dakota improved pothole conditions during April. Heavy rains and hail were common over both States in May causing flooding and damage in many areas.

In North Dakota, pond indexes showed an increase of 17 percent over 1971 and an increase of 69 percent over the 1960-69 average. Except for the year 1970, pothole numbers were the highest since 1960. Water quality however, was marginal in the east part of stratum 30 and in stratum 29. South Dakota showed a 60-percent increase in pond numbers over 1971 and a 61-percent increase over the 1960-69 average. Water quality appeared good over most of the State. Nesting cover, both over-water and field, appeared adequate. The wet fields, which delayed burning and seeding in the eastern two-thirds of North Dakota and South Dakota favored the stubble-nesting ducks.

Dead aquatic vegetation hindered aerial observations to a greater degree than in past years. New growth was not a problem to aerial observation except in the northern part of North Dakota.

Breeding populations (tables B-39 through B-44)

The long-term trends in North and South Dakota waterfowl breeding populations are shown in Tables B-39 and B-40. Waterfowl population indexes by species for North Dakota indicate no change in total ducks from 1971 but a population 28 percent higher than the 1960-69 average. Compared to 1971, the following species showed declines: mallard, 6 percent; gadwall, 9 percent; blue-winged teal, 19 percent; shoveler, 16 percent; and scaup, 3 percent. Increases over 1971 were noted in green-winged teal, 127 percent; pintail, 27 percent; redhead, 12 percent; canvasback, 100 percent; ruddy, 17 percent, and coot, 32 percent. All species except coot showed populations higher than the 1960-69 average. In South Dakota all ducks showed increases over 1971 except gadwalls and redheads. Total ducks were up 32 percent above the average but coots were down 16 percent.

The 1972 lone drake index for South Dakota (61 percent) indicates the second latest nesting season since 1960. In Strata 32 and 33, the lone drake indexes were about normal but in Stratum 34, indexes were later than normal. Mallard nesting was later than both in 1970 and 1971 and later than the average of the preceding years. the state-wide pintail lone drake index was the lowest since 1960, again pulled down by late nesting in Stratum 34. In North Dakota, nesting was well advanced with a state-wide lone drake index of 82 percent, the second highest since 1960. The mallard index of 84 percent was the highest since 1960. Pintail at 81 percent was higher than 1971 and above the average. Canvasback at 76 percent was higher than the previous five years. At the end of the breeding pair survey all factors indicated a year of above-average production in the Dakotas.

Summer weather and habitat conditions (tables B-38 and B-39)

During the latter part of June and July, precipitation was far below normal and hot dry winds dropped July pothole numbers in North Dakota to 31 percent below 1971 and 14 percent below the average. Though water levels dropped in South Dakota, pothole numbers were still 29 percent higher than 1971 and 11 percent above the July average. The delay in farming operations was a boon to the early nesters as evidenced by the numbers of Class II and III broods observed. No grain harvest operations were noted this year during the survey although some fields in South Dakota were almost ready. Hay crops were heavy because of the excellent rain during May and early June and hay-cutting was in progress from 10 days to 2 weeks earlier than 1971. Nest losses due to haying could be high in the late-nesting and re-nesting efforts. Grain crops were late in eastern North Dakota and in some areas no seeding was done because of the wet field conditions. Pond levels in both states were sufficient to last through the brood season. Brood visibility was hampered by heavy pond vegetation, probably to the same extent as occurred in 1971.

Production (tables B-45 and B-46)

The duck brood index for North Dakota was 38 percent above 1971 and 15 percent above the average. Average brood size was down slightly, 5.5 as compared to 5.6 in 1971, and the average of 6.0. Coot broods were up 12 percent over 1971 and 2 percent over the average. South Dakota experienced the best brood production year since 1966. The duck brood index was up 123 percent from 1971 and 94 percent above the average. The coot

brood index was up over 500 percent above 1971. Average brood size was down slightly, 5.3 compared to 5.6 in 1971 and the average of 5.7.

The late-nesting index in North Dakota was up 52 percent over 1971 and up 16 percent over the average. South Dakota showed a late-nesting index of 81 percent over 1971 and 60 percent above the average.

Both North and South Dakota experienced the best waterfowl production in recent years. The Forecast Index which sums the various factors influencing production shows a rating of 109 for 1972 compared to an average of 100 and a rating of 77 in 1971. Ground studies in South Dakota supported this forecast. The contribution of the Dakotas to the fall flight was above average.

MINNESOTA

Data supplied by Robert L. Jessen,
Minnesota Department of Natural Resources

Weather and habitat conditions

Weather conditions for aerial census were better than usual. Overcast skies and calm winds during the time flights were made in the western portion of the State were especially conducive to good visibility.

Habitat conditions, as evidenced by ponds, were generally good. Fall rains in west-central Minnesota predisposed the area to good habitat conditions early. Elsewhere, south of Thief River Falls, heavy spring rains maintained numerous ponds and a considerable number of casual water areas during the period of survey. The northwestern portion of Minnesota was unusually dry in sharp contrast to the rest of the state.

Estimated ponds numbers within survey strata I, II, and III was 200,000. This is 18 percent more ponds than were recorded in 1971.

Breeding populations (tables B-47 and B-48)

The breeding waterfowl index for Minnesota was 170,000 and consisted of 15,000 coot and 155,000 ducks. Major duck indexes were 54,000 mallards, 51,000 blue-winged teal and 11,000 ring-necked ducks. These index values did not include birds missed by aerial observation.

The visibility of birds this year was judged on the basis of air-ground comparison routes. Overall visibility increased by a third with teal showing an unusual rate of half being tallied by the aerial crew. Improved flying conditions and abundance of open temporary ponds were both conducive to an increased proportion of birds seen. The calculated rate, however, is likely to be somewhat high, as evidenced by several aerial tallies for mallards and ring-necked ducks which exceeded ground counts.

Adjusting aerial indexes for birds not seen suggested mallards declined for the second year to a level substantially below that recorded in the 1968-1970 period. The decline in teal recorded this year was likely exaggerated due to an inflated visibility factor.

In summary, the 1972 state-wide aerial waterfowl breeding pair survey was conducted under good weather conditions for flying. Most of the State had an abundance of water with pond numbers a fifth higher than in 1971. High visibility of birds disguised actual declines calculated on the basis of aerial and ground comparisons. Overall duck numbers declined one fifth with a slightly higher decrease noted for blue-winged teal and a slightly lower decrease in number of mallards. An early June tally of drakes indicated that the nesting season was progressing normally.

The precision with which the breeding indexes are developed has been calculated and described with 80-percent confidence limits. Those calculations suggest an overall accuracy of about $\pm$ 14 percent.

WASHINGTON

Data supplied by Robert Jeffrey and Ellis Bowhay,
Washington Department of Game

Weather and habitat conditions

The number of potholes in the far-eastern scabland regions was the lowest since 1968, but still near average. Water conditons improved as one moved westward, with Okanogan County potholes described as being in excellent condition. For the stratum, the number of May potholes was 20 percent above average. By mid-July there were 16 percent more water bodies than during the 1962-71 period.

Sporadic, heavy rainfall alternating with hot weather caused considerable valley flooding during the duck nesting season. But weather and cover conditions favored a high nesting success, which obscured any losses to flooding.

Breeding populations (table B-49)

The duck breeding potential was 7 percent above the 1967-71 average. Mallards were up 14 percent and made up nearly one-half of the dabbler index. The wood duck ran counter to the general trend and continued a long-term decline. Most duck species declined from the high adult levels of 1971.

Production (table B-50)

The State production index for all ducks was 422,400, which was 6 percent higher than the 1962-71 average and 1 percent above 1971 production. This estimate is based upon a new index which was developed for the 10-year period in 1971 and resulted in a considerable shift in relative importance of production strata and an overall downward adjustment of the production estimate, amounting to about 12 percent.

Young ducks made up 60 percent of the index, up from 53 percent in 1971. Dabblers, as a group, experienced a high nesting success.

The pothole habitat contributed only 41 percent of the duck production index, as compared with 46 percent in 1971. Irrigated lands contributed 14 percent, compared with 17 percent in 1971. Western Washington and other habitat in eastern Washington produced enough ducks to slightly more than offset the declines in pothole and irrigation strata.

The production index for Canada geese was 12,400, up 13 percent from 1971 and 19 percent above the 10-year average. All sections of the Columbia River showed increased nesting. However, a severe pool level pull-down of the river by the Corps of Engineers on April 21 coincided with the peak of goose hatching. The draw-down provided access to nesting islands by ground predators. A report on the full effect of this predation on goose production was not available, but a downward revision in the river index was expected.

CALIFORNIA

Data supplied by V. C. Simpson, H. A. George, F. M. Kozlik,
and J. R. LeDonne
California Department of Fish and Game

Weather and habitat conditions

Habitat conditions in northeastern California were good for the fourth consecutive year. Dry weather conditions prevailed during the spring, but the runoff from winter snows maintained the permanent water impoundments and most marsh areas. Some of the temporary habitat still had ample water to produce birds. Although the birds were early in arriving back on the breeding grounds, both Canada geese and ducks nested about on schedule.

Precipitation was below normal in the Central Valley with amounts running less than one-half to three-quarters of normal. Since this area is mostly composed of artificial and regulated water impoundments such as rice fields, grasslands and pastures, the effects of weather and rain influences waterfowl production indirectly only as it relates to farming operations. Field preparations started early, but rice seeding was about normal. With the early spring many of the birds had left the winter grounds by the first part of March.

Most of the waterfowl production occurring in California is found in northeastern California and on the rice lands of the Sacramento Valley. Other areas covered by this survey are: Suisun Marsh, the Grasslands, and rice and pasture areas of the Central San Joaquin Valley. Other smaller areas produce some ducks, but the accumulated total is of little significance during years of normal rainfall and runoff.

Breeding populations and production (tables B-51 and B-52)

The breeding ground survey for 1972 was conducted in essentially the same manner as in previous years, consisting of complete aerial coverage of the "Great Basin" section in northeastern California and aerial transects in the Sacramento Valley, San Joaquin Valley and Bay area. On the Klamath Basin National Wildlife Refuge, ground counts were made by refuge personnel and supplemented with aerial survey work.

Where transects were used, the same routes were followed with two observers and a pilot. The plane was flown at 65 to 100 miles per hour and approximately 150 feet above the terrain. The observers covered an eighth-of-a-mile strip on each side of the plane recording the number of pairs and single males observed.

Where complete coverage was accomplished, the same procedure was followed except that consecutive strips or passes were made across the individual marshes or reservoirs.

The survey flights in the Central Valley were conducted on May 20 and 21, while northeastern California was flown from May 30 through June 3.

Comparable figures of nesting pairs of waterfowl and fall population indexes are presented for each area for this year and last in tables B-51 and B-52.

UTAH

Data supplied by Albert F. Regenthal
Utah Division of Wildlife Resources

Weather and habitat conditions

The early winter of 1971-72 was above average in precipitation in the northern part of the State and below average in the southern sectors. After January precipitation there was somewhat below normal. The Great Salt Lake rose to its highest water level since the mid-1930's. Natural marsh areas around the lake were in generally good conditions although some marsh vegetation was lost along the lake shores and outside the managed areas because of the high and/or salty water. Wetland habitat throughout the remainder of the State remained in good to excellent condition throughout the spring and early summer.

Reservoir storage, with some exceptions in the southern part of the State was in generally favorable condition.

Breeding populations and production

Ducks: Ground counts are made to determine trends in breeding ducks on all of the State's waterfowl management areas. Aerial transects prior to 1971 covered approximately 108.6 square miles of the major breeding habitat in Utah. Since 1971 the transects in Utah County have been abandoned because of changing land-use patterns and deterioration of habitat. Transects now cover an area of 90.6 square miles. Both ground counts and aerial transects are made annually to determine trends in breeding ducks. No effort is made to census duck broods by either ground or aerial means.

Aerial surveys indicate an alarming decrease of breeding ducks on the northern Utah trend areas. Ground counts on the managed marshes showed a slight increase in breeding birds over 1971 levels. The results of aerial surveys are more a reflection of the higher water level of Salt Lake with a resultant dispersion of birds from the transect lines than an indicator of bird populations. Inundation and the intrusion of salt water caused by the rise in the lake level over the past two years has resulted in the loss of a fairly substantial amount of vegetation in the marshes outside the managed areas and along the eastern and northern shores of Salt Lake.

Breeding populations of all major nesting species were considered normal. No major shifts in species composition between northern and southern breeding areas was apparent.

Tables B-53 through B-55 indicate the total number of birds observed, breeding pairs censused and species composition of breeding waterfowl on Utah marshes during the spring of 1972.

Canada Geese: Brood counts were made on several trend areas annually to determine the relative status of this species. Both aerial and ground surveys were used depending upon accessibility of the areas.

Canada goose production on the key trend areas in Utah increased markedly over 1971 levels. Both breeding pairs and goslings returned to numbers essentially equal to the 10-year average. There was some question of the validity of the estimates made in 1970 and 1971. The striking increases in 1972, following the large decrease from 1970 to 1971, would seem to indicate that the 1971 estimates were low.

Table B-56 lists breeding pairs and goslings production on trend areas for the period 1966-1972.

COLORADO

Data supplied by Michael R. Szymczak
Colorado Division of Wildlife

Weather and habitat conditions

Generally dry conditions were found throughout most of Colorado's major waterfowl breeding areas. The San Luis Valley, Colorado's most important duck breeding area, continued in a dry cycle which began in 1971. The run off from the snow pack in the mountains surrounding North Park produced only fair water conditions. Marshes and drainage basins in the Cache la Poudre and South Platte River Valleys were dry and river flows extremely low. Low water along the rivers in northern Colorado was detrimental to duck nesting, but did insure that island-nesting Canada geese would not be threatened by flooding.

Breeding populations and production (tables B-57 through B-60)

The reduction in the number of breeding pairs in Colorado's two major breeding areas, the San Luis Valley and North Park, resulted in the smallest breeding pair total recorded for the State since 1964. The 47,300 breeding pairs are nearly 20 percent below the long-term average. Only in the Cache la Poudre Valley were more breeding pairs observed in 1972 than in 1971.

The mallard, although recording a decrease in total numbers from its 1971 level, increased in terms of the composition of the total breeding population. Three species, the gadwall, redhead, and widgeon recorded major declines from the 1971 level on a percentage basis. All species, except the green-winged teal decreased in number.

The post-nesting season Moffat County population of Canada geese was estimated to be approximately 1,400 birds in 1972. The total is 8-percent below the 1971 level. Production estimates for Moffat County in 1972 were down approximately 16 percent from 1971 levels. The lower estimates were mainly a result of a decline in brood sizes on the Yampa and Little Snake Rivers rather than a reduction in the estimated number of nesting pairs. Production on the Green River increased substantially over the 1971 level in the Brown's Park area and remained stable in the Dinosaur National Monument area.

Canada goose gosling production in 1972 in north-central Colorado was down approximately 17 percent from the 1971 level. Only Fort Collins recorded an increase among the five trend areas. The greatest decline was measured in the Boulder area. The total number of geese observed on the trend areas in 1972 was essentially unchanged from both the 1971 total and the three-year average.

NEBRASKA

Data supplied by John Sweet and George Schildman,
Nebraska Game and Parks Commission

Weather and habitat conditions

Much of the Sandhills and the rainwater basin areas were extremely dry during the winter and early spring. All of the State received rain during the first half of May. Amounts ranged from less than 2 inches to an excess of 7 inches, however, most of the rain occurred after migration. At the time of the surveys, (May 11-18 in Sandhills and May 19-20 in rainbasin area), water conditions were much improved and habitat exceeded the supply of breeding ducks. The most rainfall occurred in the northern and northeastern Sandhills and eastern rainbasin area.

Breeding populations (table B-61)

The total population of 103,900 was 3 percent below 1971, and 5 percent below the previous 5-year average. The Sandhill population was calculated at 91,700, a 5- percent decrease from 1971. In the rainbasin area, the duck breeding population was calculated at 12,300, a 15 percent increase over 1971. For both areas combined, dabbling ducks were down 13 percent and divers were up 93 percent from 1971. Blue-winged teal showed a 4 percent increase and shovelers an 18-percent increase. Mallards, gadwalls and pintails showed decreases of 31, 36, and 29 percent respectively.

MISSOURI

Data supplied by Kenneth M. Babcock,
Missouri Conservation Department

Weather and habitat conditions

Spring temperatures were higher than normal but precipitation was below normal through June. Many streams and impoundments fell to rather low levels. Statewide, stream levels were about equally divided between low and normal levels.

Production

The stream float method was used principally for obtaining an estimate of wood duck production in Missouri. A three-year survey on 194 miles of channelized streams was completed. Only two adult wood ducks were seen on these channels during the three-year period. These were formerly good wood duck production streams. Wood duck nesting studies in southeast Missouri provided measurements in a marsh-impoundment area of normally good production as did the banding program in this area and in northeast Missouri.

Wood duck broods noted per mile on 277 miles of stream floats was 0.23 and average brood size was 5.4. The population count was 1.72 and nesting effort per mile was 0.41. A summation of all measurements indicated a 7-percent increase above last year and 10-percent increase above the ten year average for Missouri. Missouri has been utilizing a locally developed Survey Evaluation index for several years as a means of comparing nesting and productivity of wood ducks from year to year. This index is based on five nesting-production indexes compiled from all the data acquired on the stream float surveys. Wood duck populations and production were up about 7-percent from last year's measurements. Nesting efforts of mallards and blue-winged teal were not significant although successful production continued to be noted throughout the State.

WATERFOWL KILL SURVEY

Data supplied by Samuel M. Carney, Elwood M. Martin,
and Michael F. Sorensen
Bureau of Sport Fisheries and Wildlife

INTRODUCTION

This report includes estimates of waterfowl hunting activity and success during the 1971 season and compares them with similar estimates for the 1970 season. Estimates for both years were derived from information obtained from three sources: 1) the Postal Service's report of duck stamp sales, 2) the Bureau's Mail Questionnaire Survey of United States Waterfowl Hunters, and 3) the Bureau's Waterfowl Parts Collection Survey.

PROCEDURES

A relatively complete explanation of procedures followed in 1969 may be found in Special Scientific Report--Wildlife No. 138. Similar sample selection and stratification procedures were followed in 1970 and 1971. Major adjustments to data include those for activity by hunters less than 16 years old who are not surveyed (table C-1) and those used to compensate for memory and prestige biases (table C-2).

Administrative Reports

Figures in this report are based on final duck stamp sales figures. In Administrative Report 216 of the Migratory Bird Populations Station, preliminary estimates based on sales of duck stamps through the third quarter of fiscal year 1971 were made available for the annual waterfowl regulations meetings in early August. Age, sex, and species composition at the State level are not included here but were presented in Administrative Reports 217 and 218.

For ducks and coots, bias adjusted estimates of bag by species and total retrieved and unretrieved kill estimates are presented in table C-3. Estimates of retrieved, unretrieved, and total goose kill are in table C-4. Daily duck bag and possession limits, season lengths, and estimated numbers of potential waterfowl hunters, together with average and total numbers of days hunted, and ducks and geese bagged, unadjusted for response bias, are presented by State for each flyway in tables C-5, C-7, C-9, and C-11. Duck stamp sales and their breakdown into non-hunters, and active (hunting one or more days) and successful (bagging at least one duck, goose, or coot) waterfowl hunters, are summarized by State for each flyway in tables C-6, C-8, C-10, and C-12. The proportion of the total duck harvest that occurred after the September teal season is shown in table 13.

A brief resume of hunter activity and success by flyway and the nation for 1971, showing degree of change from the previous year, follows:

Alaska

Duck stamp sales totaled 14,423 (+11 percent), and 73,100 ducks (+15 percent), 900 coots (+80 percent), and 16,800 geese (+10 percent) were bagged during 71,100 hunter-days afield (+32 percent). Those persons buying duck stamps for hunting hunted an average of 4.6 days (+19 percent) and bagged an average of 6.2 ducks (+4 percent) and 1.3 geese (-1 percent) each. The estimates for Alaska are recorded in tables C-3, C-4, C-5, and C-6.

Pacific Flyway

Duck stamp sales totaled 438,146 (-4 percent), and 3,969,600 ducks (-10 percent), 151,200 coots (-39 percent), and 330,400 geese (-26 percent) were bagged during 3,097,100 hunter-days afield (-7 percent). Those persons buying duck stamps for hunting hunted an average of 6.6 days (-2 percent) and bagged an average of 11.1 ducks (-5 percent) and 0.9 geese (-22 percent) each. The estimates for the Pacific Flyway are recorded in tables C-3, C-4, C-5, and C-6.

Central Flyway

Duck stamp sales totaled 464,635 (+6 percent), and 2,779,200 ducks (-7 percent), 80,700 coots (-10 percent), and 413,100 geese (-22 percent) were bagged during 3,409,800 hunter-days afield (+5 percent). Those persons buying duck stamps for hunting hunted an average of 7.2 days (+5 percent) and bagged an average of 7.7 ducks (-12 percent) and 1.0 geese (-27 percent) each. The estimates for the Central Flyway are recorded in tables C-3, C-4, C-7, and C-8.

Mississippi Flyway

Duck stamp sales totaled 1,003,791 (virtually unchanged), and 5,461,500 ducks (-16 percent), 428,800 coots (-41 percent), and 380,600 geese (-28 percent) were bagged during 7,177,300 hunter-days afield (-5 percent). Those persons buying duck stamps for hunting hunted an average of 6.7 days (-4 percent) and bagged an average of 6.8 ducks (-16 percent) and 0.4 geese (-27 percent) each. The estimates for the Mississippi Flyway are recorded in tables C-3, C-4, C-9, and C-10.

Atlantic Flyway

Duck stamp sales totaled 505,063 (+2 percent), and 1,729,700 ducks (-12 percent), 161,400 coots (+12 percent), and 337,900 geese (+12 percent) were bagged during 2,964,400 hunter-days afield (+2 percent). Those persons buying duck stamps for hunting hunted an average of 5.7 days (+1 percent) and bagged an average of 3.9 ducks (-13 percent) and 0.8 geese (+11 percent) each. The estimates for the Atlantic Flyway are recorded in tables C-3, C-4, C-11, and C-12.

United States

Duck stamp sales totaled 2,426,058 (+1 percent), and 14,013,100 ducks (-12 percent), 823,000 coots (-32 percent), and 1,478,800 geese (-19 percent) were bagged during 16,719,800 hunter-days afield (-2 percent). Those persons buying duck stamps for hunting hunted an average of 6.5 days (-2 percent) and bagged an average of 7.1 ducks (-12 percent) and 0.7 geese (-18 percent) each. The estimates for the United States are recorded in tables C-3, C-4, C-11, and C-12.

APPENDIX

A. WATERFOWL WINTER SURVEY TABLES

TABLE A-1.--Winter survey, January 1972 - waterfowl by species and flyway

(nearest hundreds)

Species	Pacific Flyway	Central Flyway	Mississippi Flyway	Atlantic Flyway	Total
Ducks:					
Dabblers:					
Mallard	2,594,700	3,398,000	2,794,000	186,600	8,973,300
Black duck	---	---	143,900	269,800	413,700
Mottled duck	---	42,000	53,000	1,100	96,100
Gadwall	26,900	341,000	570,500	15,000	953,400
American widgeon	689,700	375,400	300,900	71,500	1,437,500
Green-winged teal	265,600	494,700	511,000	77,400	1,348,700
Blue-winged teal[1]	2,500	68,800	97,000	6,400	174,700
Shoveler	497,800	267,200	174,900	10,500	950,400
Pintail	2,919,000	1,416,000	643,500	107,800	5,086,300
Subtotal	6,996,200	6,403,100	5,288,700	746,100	19,434,100
Divers:					
Redhead	15,000	114,400	6,200	134,900	270,500
Canvasback	48,200	18,500	21,500	90,900	179,100
Scaup	93,800	48,900	920,500	429,100	1,492,300
Ring-necked duck	5,100	8,600	80,600	65,200	159,500
Goldeneye	39,900	18,100	20,700	54,300	133,000
Bufflehead	33,500	8,400	2,200	46,700	90,800
Ruddy duck	79,100	7,000	26,900	38,100	151,100
Subtotal	314,600	223,900	1,078,600	859,200	2,476,300
Miscellaneous:					
Eider	---	---	---	67,000	67,000
Scoter	116,400	---	---	148,600	265,000
Oldsquaw	300	---	---	25,000	25,300
Merganser	25,600	81,400	---	51,600	158,600
Subtotal	142,300	81,400	---	292,200	515,900
Unidentified:	32,000	43,600	46,600	32,900	155,100
Total ducks	7,485,100	6,752,000	6,413,900	1,930,400	22,581,400

[1] Includes cinnamon teal.

TABLE A-1.--Winter survey, January 1972 - waterfowl by species and flyway--continued

(nearest hundreds)

Species	Pacific Flyway	Central Flyway	Mississippi Flyway	Atlantic Flyway	Total
Geese:					
Blue/Snow goose	436,200	389,100	937,300	82,300	1,844,900
Ross' goose	30,700	---	---	---	30,700
White-fronted goose	100,700	32,100	45,800	---	178,300
Canada goose	117,300	443,300	594,000	700,200	1,854,800
Lesser Canada goose	108,200	---	---	---	108,200
Cackling goose	102,100	---	---	---	102,100
Total geese	894,900	864,500	1,577,100	782,500	4,119,000
Brant:					
Black brant	5,400	---	---	---	5,400
American brant	---	---	---	73,300	73,300
Total brant	5,400	---	---	73,300	78,700
Swans:					
Mute swan	---	---	---	1,500	1,500
Whistling swan	82,900	Tr.[1]	600	62,800	146,300
Trumpeter swan	200	100	---	---	300
Total swans	83,100	100	600	64,300	148,100
Coots:					
American coot	545,000	260,400	466,600	378,400	1,650,400
Grand total	9,013,500	7,877,000	8,458,200	3,228,900	28,577,600

[1] Less than 50.

TABLE A-2.--Winter survey, January 1972 - waterfowl by state and flyway

(nearest hundreds)

State	Ducks	Geese[2]	Brant[2]	Swans[2]	Coots	Total
Pacific Flyway:						
Washington	1,078,400	74,500	4,300	1,500	16,100	1,174,800
Oregon	459,300	74,200	1,000	6,300	44,300	585,100
Idaho	1,000,700	17,000	---	100	8,600	1,026,400
Nevada	18,200	4,200	---	300	3,900	26,600
California	4,748,900	713,900	---	74,500	447,400	5,984,700
Utah	51,100	2,700	---	300	4,300	58,400
Arizona	25,700	4,900	---	Tr.	17,200	47,800
Montana	61,300	2,300	---	100	3,100	66,800
Wyoming	4,200	200	---	Tr.	---	4,400
Colorado	17,600	1,000	---	---	---	18,600
New Mexico	19,600	Tr.[3]	---	---	Tr.	19,600
Mexico[1]						
Flyway total	7,485,000	894,900	5,300	83,100	554,900	9,013,200
Central Flyway						
Montana	39,700	500	---	---	---	40,200
Wyoming	142,300	1,300	---	Tr.	---	143,600
North Dakota	2,200	100	---	---	---	2,300
South Dakota	157,300	22,200	---	100	Tr.	179,600
Nebraska	366,000	20,000	---	---	---	386,000
Colorado	344,400	142,100	---	---	---	486,500
Kansas	807,700	182,400	---	---	---	990,100
Oklahoma	384,000	65,800	---	---	2,200	452,000
New Mexico	221,700	25,700	---	Tr.	4,500	251,900
Texas	4,286,700	404,300	---	Tr.	253,700	4,944,700
Flyway total	6,752,000	864,400	---	100	260,400	7,876,900

[1] See table A-3 for Mexico.
[2] All species.
[3] Less than 50.

TABLE A-2.--Winter survey, January 1972 - waterfowl by state and flyway--continued

(nearest hundreds)

State	Ducks	Geese	Brant	Swans	Coots	Total
Mississippi Flyway:						
Minnesota	18,100	19,200	---	Tr.	---	37,300
Wisconsin	19,200	19,400	---	---	100	38,700
Michigan	40,700	11,800	---	100	800	53,400
Iowa	163,900	380,900	---	---	---	544,800
Missouri	318,200	296,300	---	---	3,500	618,000
Illinois	325,700	253,000	---	---	---	578,700
Indiana	32,000	14,900	---	---	100	47,000
Ohio	190,300	29,700	---	500	---	220,500
Arkansas	1,200,600	1,200	---	---	40,000	1,241,800
Mississippi	159,000	3,600	---	---	20,900	183,500
Louisiana	3,488,100	454,200	---	---	368,100	4,310,400
Alabama	77,000	33,600	---	---	18,300	128,900
Kentucky	23,500	20,500	---	---	---	44,000
Tennessee	357,500	38,800	---	---	14,800	411,100
Flyway total	6,413,800	1,577,100	---	600	466,600	8,458,100
Atlantic Flyway:						
Maine	63,100	600	---	---	---	63,700
New Hampshire	3,500	5,300	---	Tr.	---	8,800
Vermont	4,400	600	---	---	---	5,000
Massachusetts	113,900	17,200	2,900	200	200	131,500
Connecticut	28,700	1,500	---	100	Tr.	30,300
Rhode Island	24,700	1,900	---	400	---	27,000
New York	151,100	44,800	14,900	500	1,600	198,000
New Jersey	191,500	75,900	48,600	700	700	268,800
Pennsylvania	48,300	26,300	---	100	3,400	78,100
Delaware	41,200	93,400	700	2,500	1,700	138,800
Maryland	250,400	449,000	3,200	39,700	3,600	742,700
Virginia	128,400	54,100	2,800	3,100	23,900	209,500
West Virginia	2,700	200	---	---	100	3,000
North Carolina	129,900	74,900	200	17,000	66,800	288,600
South Carolina	288,900	8,800	---	Tr.	99,300	397,000
Georgia	45,100	400	---	---	14,300	59,800
Florida	414,600	900	---	---	162,800	578,300
Flyway total	1,930,400	855,800	73,300	64,300	378,400	3,228,900

TABLE A-3.--Winter waterfowl survey, west coast of Mexico, 1972

Species	1971	1972	Percent change 1971-72
Ducks:			
Dabblers:			
Mallard	Tr.[1]	---	---
Gadwall	18,400	7,900	- 57
American widgeon	34,900	64,700	+ 85
Green-winged teal	55,000	87,400	+ 59
Blue-winged teal	6,000	89,100	+1,385
Shoveler	61,500	127,300	+ 107
Pintail	159,000	614,600	+ 287
Black-bellied tree duck	7,000	6,100	- 13
Fulvous tree duck	1,900	2,800	+ 47
Subtotal	343,700	999,900	+ 191
Divers:			
Redhead	25,100	21,800	- 13
Canvasback	1,200	3,000	+ 150
Scaup	30,800	41,300	+ 34
Goldeneye	600	100	- 83
Bufflehead	1,100	1,400	+ 27
Ruddy duck	17,600	11,500	- 35
Subtotal	76,400	79,100	+ 4
Miscellaneous:			
Mergansers	1,900	5,700	+ 200
Scoters	2,200	3,500	+ 59
Total ducks	424,200	1,088,200	+ 157
Geese:			
Snow goose	600	500	- 17
Whitefronted goose	2,300	200	- 91
Canada goose	---	---	---
Subtotal	2,900	700	- 76
Brant:			
Black brant	136,700	119,400	- 13
Coots:			
American coot	56,900	51,500	- 9
Grand total	620,700	1,259,800	+ 103

[1] Less than 50.

TABLE B-1.--Alaska - 10 year trend in breeding population indexes by species, 1963 - 1972

(index numbers in thousands)

Species	1963	1964	1965	1966	1967	1968	1969	1970	1971	1972	Average
Ducks:											
Dabblers:											
Mallard	83	67	27	32	42	76	53	134	64	79	66
Am. widgeon	27	36	40	32	59	133	144	174	123	130	90
Gr.-winged teal	2	10	14	17	24	45	41	63	22	20	26
Shoveler	5	7	4	5	6	32	21	33	24	19	16
Pintail	378	379	240	250	247	622	294	409	273	407	350
Subtotal	495	499	325	336	378	908	523	813	506	655	544
Divers:											
Canvasback	17	11	21	17	15	43	21	22	22	42	23
Scaup	585	562	355	425	314	498	488	441	450	485	460
Goldeneye	10	9	9	13	38	35	39	25	31	9	22
Bufflehead	37	32	29	22	30	21	26	44	25	26	29
Subtotal	649	614	414	477	397	597	574	532	528	562	534
Miscellaneous:											
Scoter	165	148	190	252	250	301	246	220	231	296	230
Eider	11	20	27	14	16	7	6	9	9	3	12
Oldsquaw	94	92	49	79	87	133	93	90	111	104	93
Subtotal	270	260	266	345	353	441	345	319	351	403	335
Total Ducks	1,414	1,373	1,005	1,158	1,128	1,946	1,442	1,664	1,385	1,620	1,413

TABLE B-2.--Alaska - comparative status of waterfowl breeding population indexes by species and stratum, 1971 - 1972

(index numbers in thousands)

Species	Stratum 37	Stratum 38	Total 1971-1972	Average 1963-1972	Percent Change From 1971	Percent Change From Ave.
Ducks:						
Dabblers:						
Mallard	16	63	64	79	66	+ 23	+ 20
Am. widgeon	36	94	123	130	90	+ 6	+ 44
Gr-winged teal	5	15	22	20	26	- 10	- 23
Shoveler	3	16	24	19	16	- 21	+ 19
Pintail	198	209	273	407	350	+ 49	+ 16
Subtotal	258	397	506	655	544	+ 29	+ 20
Divers:						
Canvasback	1	41	22	42	23	+ 91	+ 83
Scaup	217	268	450	485	460	+ 8	+ 5
Goldeneye	4	5	31	9	22	- 71	- 59
Bufflehead	2	24	25	26	29	+ 4	- 10
Subtotal	224	338	528	562	534	+ 6	+ 5
Miscellaneous:						
Scoter	175	121	231	296	230	+ 28	+ 29
Eider	3		9	3	12	- 67	- 75
Oldsquaw	89	15	111	104	93	- 6	+ 11
Subtotal	267	136	351	403	335	+ 15	+ 20
Total ducks	749	871	1,385	1,620	1,413	+ 17	+ 15

TABLE B-3.--Alaska - whistling swan breeding population indexes, 1963 - 1972

(index numbers in thousands)

	1963	1964	1965	1966	1967	1968	1969	1970	1971	1972	10-year Average
Square miles sampled	468	414	208	212	210	212	212	212	212	212	
Number counted	567	481	298	256	208	213	367	227	220	286	
Population index	64	50	62	52	43	43	75	46	45	59	60

TABLE B-4.-- Northern Alberta, northeastern British Columbia, and Northwest Territories --10-year trend in waterfowl breeding population indexes by species, 1963 - 1972

(Index numbers in thousands)

Species	1963	1964	1965	1966	1967	1968	1969	1970	1971	1972
Ducks:										
Dabblers:										
Mallard	462.8	509.7	334.5	388.6	303.3	378.0	312.9	382.1	433.4	552.8
Gadwall	0.0	5.3	2.8	.8	2.2	1.7	4.5	6.7	2.0	7.1
American widgeon	154.7	217.5	166.1	203.7	106.5	102.6	140.5	174.5	175.7	168.6
Green-winged teal	108.8	144.8	88.7	139.3	76.5	86.4	37.9	57.0	87.2	100.7
Blue-winged teal	13.9	46.9	28.6	26.6	6.7	.8	2.5	2.1	10.9	13.9
Shoveler	46.7	134.5	63.5	63.1	48.9	37.5	26.5	29.8	51.8	59.2
Pintail	128.7	186.6	203.0	99.2	76.7	120.4	50.0	74.8	75.1	222.0
Subtotal	915.6	1245.3	887.2	921.3	620.8	727.4	574.8	727.0	836.1	1124.3
Divers:										
Redhead	6.0	29.8	4.6	6.4	11.5	6.8	3.9	6.9	5.4	7.3
Canvasback	43.4	27.6	17.6	75.3	14.8	47.9	32.1	19.4	24.4	11.4
Scaup	1546.4	1485.4	1430.9	1797.0	1877.6	1433.5	1712.2	1623.2	1887.4	2784.2
Ring-necked duck	42.1	45.8	81.8	63.1	45.6	35.4	21.0	46.9	48.3	23.0
Goldeneye	12.7	67.9	98.0	13.0	23.6	17.9	16.2	14.2	14.2	25.5
Bufflehead	104.4	135.8	152.9	185.6	134.6	137.0	181.0	156.9	241.7	195.2
Subtotal	1755.0	1792.3	1785.8	2140.4	2107.7	1678.5	1967.5	1868.8	2221.4	3046.6

TABLE B-4.--Northern Alberta, northeastern British Columbia, and Northwest Territories--10-year trend in waterfowl breeding population indexes by species, 1963 - 1972 -- continued

(Index numbers in thousands)

Species	1963	1964	1965	1966	1967	1968	1969	1970	1971	1972
Miscellaneous:										
Oldsquaw	88.6	274.3	165.7	302.8	253.2	116.5	304.7	161.1	142.7	62.2
Scoter	609.9	944.4	759.2	628.0	650.6	615.5	844.9	908.4	587.7	872.9
Ruddy	3.9	1.6	1.7	2.9	3.3	.2	1.5	1.6	2.4	4.5
Merganser	87.6	68.6	77.9	152.8	56.9	21.6	34.5	43.8	19.1	25.7
Subtotal	790.0	1288.9	1004.5	1086.5	964.0	753.8	1185.6	1114.9	751.9	965.3
Total ducks	3460.6	4326.5	3677.5	4148.2	3692.5	3159.7	3727.9	3710.7	3808.4	5136.2
Geese:										
White-fronted goose	.1	10.8	2.9	1.0	3.8	21.7	15.4	0.0	15.8	1.8
Canada goose	40.5	3.3	12.5	26.5	21.2	13.5	15.9	24.2	22.6	40.3
Swans:										28.2
Coost:										
American coot	6.4	3.8	1.8	7.4	1.5	20.4	9.0	2.2	2.9	7.2
** Grand total	3507.6	4344.4	3694.7	4183.1	3719.0	3215.3	3768.2	3737.1	3850.7	5185.5

** Does not include Swans

TABLE B-5.--Northern Alberta, northeastern British Columbia, and Northwest Territories - waterfowl breeding population indexes by species and stratum, 1971 - 1972.

(Index numbers in thousands)

Species	Stratum										Total		10-year average	Percent change from:	
	05	06	07	08	09	10	11	12	14	15	1971	1972		1971	average
Ducks:															
Dabblers:															
Mallard	.3	132.6	24.2	22.6	33.9	10.6	6.6	0.0	307.1	15.1	433.4	552.8	396.1	+27.5	+39.6
Gadwall	--	0.6	--	--	--	--	--	0.0	3.6	2.9	2.0	7.1	2.9	+255.0	+144.8
American Widgeon	4.3	20.0	13.9	1.2	16.9	18.8	16.5	0.0	72.6	4.4	175.7	168.6	159.4	-4.0	+5.8
Green-winged Teal	.8	23.2	5.9	1.2	3.9	3.1	1.3	0.0	58.4	2.9	87.2	100.7	88.6	+15.5	+13.7
Blue-winged Teal	--	1.2	--	--	.9	--	--	0.0	10.6	1.2	10.9	13.9	16.2	+27.5	-14.2
Shoveler	.6	12.2	--	1.2	1.7	--	.4	0.0	36.4	6.7	51.8	59.2	56.8	+14.3	+4.2
Pintail	6.9	46.9	40.6	4.9	4.8	42.7	9.1	0.0	59.7	6.4	75.1	222.0	119.4	+195.6	+85.9
Subtotal	12.9	236.7	84.4	31.1	62.1	75.2	33.9	0.0	548.4	39.6	836.1	1124.3	1903.6	+34.5	+34.0
Divers:															
Redhead	--	--	--	--	--	--	--	0.0	5.9	1.4	5.4	7.3	11.4	+35.2	-36.0
Canvasback	4.4	1.2	--	--	1.7	--	--	0.0	1.8	2.3	24.4	11.4	31.4	-53.3	-63.7
Scaup	28.3	675.6	312.9	348.1	396.8	590.4	81.2	0.0	336.6	14.3	1187.4	2784.2	1621.0	+48.3	+71.8
Ring-necked duck	--	3.8	1.1	--	3.0	--	1.3	0.0	12.9	.9	48.3	23.0	47.2	-52.4	-51.3
Goldeneye	3.4	1.7	1.1	1.2	.9	--	.4	0.0	16.2	.6	14.2	25.5	36.8	+79.6	-30.7
Bufflehead	.2	39.4	16.0	8.6	24.8	1.2	--	0.0	102.3	2.7	241.7	195.2	155.5	-19.2	+25.5
Subtotal	36.3	721.7	331.1	357.9	427.2	591.6	82.9	0.0	475.7	22.2	2221.4	3046.6	1903.6	+37.1	+60.0

NOTE: Stratum 12 not flown in 1972 due to late season and early reporting date.

TABLE B-5.--Northern Alberta, northeastern British Columbia, and Northwest Territories - waterfowl breeding population indexes by species and stratum, 1971 - 1972, (continued).

(Index numbers in thousands)

Species	05	06	07	08	09	10	11	12	14	15	Total 1971	Total 1972	10-year average	Percent change from: 1971	Percent change from: average
Ducks:															
Miscellaneous:															
Oldsquaw	2.6	1.2	2.1	16.5	--	38.4	.9	0.0	.5	--	142.7	62.2	196.8	-56.4	-68.4
Scoter	18.9	125.0	127.1	105.9	67.4	370.8	18.5	0.0	38.8	.6	587.7	872.9	714.8	+48.5	+22.1
Ruddy duck	--	--	--	--	--	--	--	0.0	4.1	.4	2.4	4.5	1.9	+87.5	+136.8
Merganser	.2	1.2	1.1	8.6	.9	4.3	.4	0.0	7.0	2.0	19.1	25.7	62.2	+34.6	-58.7
Subtotal	21.7	127.4	130.3	131.0	68.3	413.5	19.8	0.0	50.4	3.0	751.9	965.3	975.7	+28.4	-1.1
Total ducks	70.9	1085.8	545.8	520.0	557.6	1080.3	136.6	0.0	1074.5	64.8	3809.4	5136.2	3718.5	+34.8	+38.1
Geese:															
White-fronted goose	1.8	--	--	--	--	--	--	0.0	--	--	15.8	1.8	7.2	-88.6 *	-75.0*
Canada goose	--	13.3	16.0	--	--	4.7	.4	0.0	5.9	--	22.6	40.3	19.5	+78.3	+100.7
Swans:	--	--	1.1	19.0	--	4.3	3.3	0.0	.5	--	--	28.2			
Coots:															
American coot	--	--	--	--	--	--	--	0.0	5.4	1.8	2.9	7.2	6.0	+148.3	+20.0
** Grand Total	72.7	1099.1	562.8	520.0	557.6	1085.0	137.0	0.0	1085.8	66.6	3850.7	5185.5	3751.2	+34.5	+38.2

* Not reliable due to Stratum 12 and transect 11-01 not being flown because of late season and early reporting date.

** Does not include Swans

TABLE B-6.--Northern Alberta, northeastern British Columbia, and Northwest Territories - duck brood indexes by stratum compared to previous year and long-term average, 1972.

(index numbers in thousands)

	Stratum								Totals		Percent change from:	
	06	07	08	09	10	11	14	15	1972	1971	1971	Average
Broods Observed	50.0	15.0	5.0	17.0	40.0	--	47.0	55.0	229.0	612.0	--	--
Brood Size	4.95	6.33	5.33	5.12	4.44	--	4.89	4.93	4.95	5.73	--	--
Index	118.7	118.3	68.5	75.8	163.8	--	128.6	14.0	687.7	1388.9	-49.51	-56.22
Average Index	166.8	92.2	129.2	127.6	322.9	68.1	293.9	22.5	1223.2			

TABLE B- 7.-- Northern Alberta, northeastern British Columbia, and Northwest Territories - long-term trend in duck brood indexes, July 1963-1972.

(Index numbers in thousands)

Stratum	Yearly Average*	1963	1964	1965	1966	1967	1968	1969	1970	1971	1972
06	166.8								214.8	167.0	118.7
07	92.2	151.3	490.9	399.4	357.3	104.5	502.7	223.3	53.3	105.0	118.3
08	129.2								209.9	109.2	68.5
09	127.6	104.3	225.7	76.3	156.3	34.8	119.5	80.3	231.5	171.8	75.8
10	322.9	186.0	415.1	240.0	344.8	333.2	312.1	414.0	305.0	515.4	163.8
11	68.1	8.5	55.5	99.1	79.2	70.4	96.2	64.2	57.3	82.3	***
14	293.9	***	***	***	***	***	***	493.1	346.3	207.8	128.6
15	22.5	21.1	9.5	12.8	21.1	19.9	29.4	33.4	34.7	30.4	14.0
Total	1223.2	471.2**	1196.7**	827.6**	958.7**	562.8**	1059.9**	1308.3	1452.8	1388.9	687.7

* Based on the number of years for which data is available

** Incomplete totals

*** No data

TABLE B-8.--Northern Saskatchewan and northern Manitoba - 10-year trend in waterfowl breeding population indexes by species, 1962-1972

(index numbers in thousands)

Species	1962	1963	1964	1965	1966	1967	1968	1969	1970	1971	1972
Ducks:											
Dabblers:											
Mallard	207	200	281	256	176	427	388	450	605	330	237
Black duck	8	1	10	2	1	6	4	0	1	0	0
Gadwall	8	9	14	20	13	24	24	27	14	10	11
American widgeon	41	42	58	49	41	33	63	71	113	96	49
Green-winged teal	13	11	37	20	19	21	20	36	31	40	31
Blue-winged teal	43	45	101	23	15	21	76	50	58	20	20
Shoveler	15	14	59	27	22	11	14	18	22	13	11
Pintail	17	28	42	14	19	15	26	38	59	30	10
Subtotal	351	338	602	408	307	558	614	690	904	539	369
Divers:											
Redhead	18	16	37	26	17	36	38	16	32	14	10
Canvasback	11	40	84	32	26	31	38	12	47	7	9
Scaup	237	230	351	288	208	342	343	370	469	312	426
Ring-necked duck	60	117	53	77	109	92	138	109	157	179	94
Goldeneye	53	21	12	19	22	4	11	42	65	36	28
Bufflehead	37	25	24	12	20	34	72	52	63	101	75
Subtotal	413	449	561	453	401	540	641	600	834	649	642

TABLE B-8.--Northern Saskatchewan and northern Manitoba - 10-year trend in waterfowl breeding population indexes by species, 1962-1972

(index numbers in thousands)

Species	1962	1963	1964	1965	1966	1967	1968	1969	1970	1971	1972
Miscellaneous:											
Merganser	103	120	69	130	74	135	101	131	120	94	103
Scoter	27	8	20	13	29	24	62	89	25	36	59
Ruddy duck	17	6	1	5	4	7	19	5	2	2	3
Subtotal	147	134	90	149	108	165	182	225	147	132	165
Total ducks	912	920	1,254	1,012	815	1,263	1,437	1,515	1,884	1,320	1,176
Geese:											
Canada goose	5	5	7	19	10	15	16	25	13	14	20
Coots:	8	23	20	22	12	24	122	8	15	11	4
Grand total	925	948	1,281	1,053	837	1,302	1,575	1,548	1,912	1,345	1,200

TABLE B-9. --Northern Saskatchewan and northern Manitoba - comparative status of waterfowl breeding population indexes by species and stratum, 1972

(index numbers in thousands)

Species	Stratum				Total		Average	Percent change from	
	36	17	16	48	1971	1972	1962-1971	1971	Average
Ducks:									
Dabblers:									
Mallard	39	64	88	46	330	237	332	-28	-28
Black duck	0	0	0	0	0	0	3	0	-100
Gadwall	6	3	2	0	10	11	17	+10	-35
American widgeon	7	16	19	7	96	49	59	-49	-17
Green-winged teal	4	12	8	7	40	31	25	-22	+24
Blue-winged teal	12	2	5	1	20	20	45	0	-56
Shoveler	8	0	2	1	13	11	22	-15	-50
Pintail	6	1	3	0	30	10	29	-67	-66
Subtotal	82	98	127	62	539	369	532	-32	-31
Divers:									
Redhead	7	1	2	0	14	10	25	-29	-60
Canvasback	4	2	3	0	7	9	33	+29	-73
Scaup	65	108	130	123	312	426	315	+37	+35
Ring-necked duck	13	47	26	8	179	94	109	-47	-14
Goldeneye	3	11	8	6	36	28	28	-35	0
Bufflehead	8	16	27	24	101	75	44	-26	+70
Subtotal	100	185	196	161	649	642	554	-1	+16

TABLE B-9.--Northern Saskatchewan and northern Manitoba - comparative status of waterfowl breeding population indexes by species and stratum, 1972

(index numbers in thousands)

Species	Stratum				Total		Average	Percent change from	
	36	17	16	48	1971	1972	1962-1971	1971	Average
Miscellaneous:									
Merganser	9	22	40	32	94	103	108	+7	-5
Scoter	1	45	12	1	36	59	33	+64	+79
Ruddy duck	2	0	1	0	2	3	7	+50	-57
Subtotal	12	67	53	33	132	165	148	+25	+11
Total ducks	194	350	376	256	1,320	1,176	1,234	-11	-8
Geese:									
Canada goose	2	9	8	1	14	20	13	+43	+54
Coots:									
American coot	2	1	1	0	11	4	27	-64	-85
Grand total	198	360	385	257	1,345	1,200	1,274	-11	-6

TABLE B-10.--Northern Saskatchewan and northern Manitoba - long-term trend in waterfowl brood and late-nesting indexes by species, July 1963-1972

(index numbers in thousands)

SPECIES	1963	1964	1965	1966	1967	1968	1969	1970	1971	1972
Broods:										
Duck brood index	79	167	53	108	193	245	300	185	170	157
Average brood size 1/	5.0	5.4	5.3	5.4	5.2	5.9	5.5	5.6	5.6	5.2
Coot brood index	2	7	8	12	9	23	9	13	20	13
Late-nesting index:2/										
DUCKS:										
Dabblers:										
Mallard	45	36	28	22	31	30	40	46	37	44
Black duck	2	1	1	2	2	-	4	-	-	-
Gadwall	2	3	2	1	1	1	6	3	1	6
American Widgeon	6	8	6	6	2	1	12	11	22	13
Green-winged teal	4	2	1	-	1	-	6	3	6	7
Blue-winged teal	3	4	3	1	1	1	5	6	2	5
Shoveler	1	1	1	1	1	1	7	4	1	3
Pintail	4	4	3	3	5	2	18	3	1	1
Subtotal	69	57	43	37	43	36	96	73	70	79
Divers:										
Redhead	4	6	2	1	1	1	4	1	2	1
Canvasback	2	1	2	2	1	-	1	1	-	-
Scaup	33	33	21	19	26	16	44	23	13	29
Ring-necked duck	13	13	21	19	8	5	23	18	17	19
Goldeneye	1	2	-	1	1	-	5	3	4	5
Bufflehead	3	2	3	5	5	3	12	16	4	23
Subtotal	57	54	49	47	42	26	86	61	39	77
Miscellaneous:										
Ruddy duck	2	2	1	1	-	-	-	1	1	1
Merganser	13	13	12	9	4	5	11	11	11	15
Scoter	1	-	-	1	-	1	17	-	1	6
Other	-	-	-	-	-	-	-	-	-	-
Subtotal	15	14	13	11	4	6	28	12	14	22
Total Ducks	140	127	105	95	89	67	210	146	123	178

1/ Class II and III broods only.

2/ As indicated by adult pairs and singles.

TABLE B-11.--Northern Saskatchewan and northern Manitoba - waterfowl brood and late-nesting indexes by stratum compared to previous year and long-term average, 1972.

(index numbers in thousands)

SPECIES	Stratum				Total			Percent Change From	
	16	17	36	48	Previous Year	Current Year	Average	Previous Year	Average
Broods:									
Duck brood index	64	36	20	37	170	157	167	-7.6	- 6.0
Average brood size 1/	5.3	5.5	5.3	5.0	5.6	5.2	5.4	-7.1	- 3.7
Coot brood index	4	0	9	0	20	13	11	-35.0	+18.2
Late-nesting index: 2/									
Dabblers:									
Mallard	19	9	13	3	37	44	35	+18.9	+25.7
Black duck	0	0	0	0	0	0	1	0	-100.0
Gadwall	2	0	4	0	1	6	2	+500.0	+200.0
American widgeon	6	3	1	3	22	13	8	-40.9	+62.5
Green-winged teal	2	1	1	3	6	7	3	+16.7	+133.3
Blue-winged teal	2	0	3	0	2	5	3	+150.0	+66.7
Shoveler	2	0	1	0	1	3	2	+200.0	+50.0
Pintail	0	0	1	0	1	1	5	0	+80.0
Subtotal	33	13	24	9	70	79	58	+12.9	+36.2
Divers:									
Redhead	0	0	1	0	2	1	2	-50.0	-50.0
Canvasback	0	0	0	0	0	0	1	0	-100.0
Scaup	4	14	4	7	13	29	25	+123.1	+16.0
Ring-necked duck	4	8	5	2	17	19	15	+11.8	+26.7
Goldeneye	2	0	1	2	4	5	2	+25.0	+150.0
Bufflehead	9	9	Tr.	5	4	23	6	+425.0	+283.3
Subtotal	19	31	11	16	39	77	51	+97.4	+51.0
Miscellaneous:									
Ruddy duck	0	0	1	0	1	1	1	0	0
Merganser	2	6	2	5	11	15	10	+36.4	+50.0
Scoter	2	1	1	2	1	6	2	+500.0	+200.0
Other	0	0	0	0	0	0	0	0	0
Subtotal	4	7	4	7	14	22	13	+57.1	+69.2
Total Ducks	56	51	39	32	123	178	123	+44.7	+44.7

1/ Class II and III broods only.
2/ As indicated by adult pairs and singles.

TABLE B-12.--Northern and western Ontario (stratum 18) 10-year trend in waterfowl breeding populations indexes by species, 1962-1972, unadjusted for visibility bias

(index numbers in thousands)

Species	1962	1963	1964	1965	1966	1967	1968	1969	1970[1]	1972	62-71 Average	Percent change from: Average
Ducks:												
Dabblers:												
Mallard	112.3	53.1	59.9	14.6	42.2	46.6	33.3	38.5	43.5	56.3	44.4	+ 27
Black duck	43.5	12.8	18.9	11.1	4.5	11.8	29.1	22.5	10.0	30.3	16.4	+ 85
Gadwall	---	---	1.4	---	---	3.7	---	---	---	---	0.5	---
Am. widgeon	6.5	2.0	2.9	3.5	3.2	0.7	6.2	1.8	---	2.1	2.7	- 22
Gr.-winged teal	4.0	4.7	5.7	---	2.6	3.0	1.2	---	12.3	2.1	3.4	- 38
Bl.-winged teal	---	---	0.7	---	---	0.7	0.6	---	4.7	---	0.7	---
Shoveler	---	---	---	---	---	1.5	---	---	---	---	0.2	---
Pintail	---	1.3	---	---	0.6	---	1.8	1.2	1.8	2.4	0.7	+242
Subtotal	166.3	73.9	89.5	29.2	53.1	68.0	72.2	64.0	72.3	93.2	69.0	+ 35
Divers:												
Redhead	---	---	---	---	---	---	---	0.6	---	---	0.1	---
Canvasback	---	0.6	0.7	---	---	0.7	---	---	---	---	0.2	---
Scaup	41.4	35.7	54.2	27.1	43.8	47.8	74.6	49.8	40.3	73.7	41.5	+ 76
Ring-necked duck	41.4	25.1	15.7	16.7	56.4	28.1	0.6	7.1	14.1	7.2	20.5	- 65
Goldeneye	60.0	36.0	21.4	1.4	19.5	14.8	96.3	29.4	18.4	43.7	29.7	+ 47
Bufflehead	8.8	12.1	---	1.4	1.9	3.0	23.2	16.8	39.2	8.7	10.6	- 18
Subtotal	151.6	109.5	92.0	46.6	121.6	94.4	194.7	103.7	112.0	133.3	102.6	+ 30

TABLE B-12.--Northern and western Ontario (stratum 18) 10-year trend in waterfowl breeding populations indexes by species, 1962-1972, unadjusted for visibility bias--continued

(index numbers in thousands)

Species	1962	1963	1964	1965	1966	1967	1968	1969	1970[1]	1972	62-71 Average	Percent change from: Average
Miscellaneous:												
Oldsquaw	---	---	---	---	---	---	2.4	---	---	---	0.2	---
Scoters	---	2.0	---	---	1.9	---	47.3	---	7.4	17.9	6.5	+175
Ruddy duck	2.7	---	---	---	---	---	0.6	5.9	0.6	---	0.4	---
Merganser	97.4	90.1	69.9	49.3	113.5	124.0	93.4	138.5	92.7	116.2	86.9	+ 34
Subtotal	100.1	92.1	69.9	49.3	115.4	124.0	143.7	144.4	100.7	134.1	94.0	+ 43
TOTAL DUCKS	418.0	275.5	251.4	125.1	290.1	286.4	410.6	312.1	285.0	360.7	265.6	+ 36
Geese:												
Canada goose	2.8	1.0	---	6.3	0.3	3.0	4.2	6.1	4.7	4.4	---	---
GRAND TOTAL	420.8	276.5	251.4	131.4	290.4	289.4	414.8	318.2	289.7	365.1	268.3	+ 36

1 No survey 1971.

TABLE B-13.--Southern Alberta - long-term trend in pond indexes by stratum with comparisons to average and previous year, May and July 1972

(index numbers in thousands)

	Year	Stratum 26	Stratum 27	Stratum 28	Total
May	1963	189.5	686.4	59.4	935.3
	1964	153.6	438.4	112.5	704.5
	1965	297.3	723.9	102.6	1123.8
	1966	282.4	569.2	71.5	923.1
	1967	304.3	418.8	140.4	863.5
	1968	103.2	397.2	91.8	592.2
	1969	212.9	457.0	70.6	740.5
	1970	229.7	531.9	62.4	824.0
	1971	202.5	471.2	48.6	722.0
	1972	138.8	579.4	54.5	772.7
Average 1956-1962		239.4	512.6	90.4	842.4
Percent change:					
1972 from 1971		-31.4	+23.0	+12.1	+ 7.0
1972 from ave.		-42.0	+13.0	-39.7	- 8.3
July	1963	179.4	687.4	78.8	945.6
	1964	104.3	252.1	78.6	435.0
	1965	263.8	704.3	127.2	1095.3
	1966	187.3	339.4	66.6	593.3
	1967	200.6	416.8	108.2	725.6
	1968	90.3	224.0	65.9	380.2
	1969	121.6	258.0	41.0	420.6
	1970	115.0	457.5	38.4	610.9
	1971	148.4	458.9	42.3	649.6
	1972	69.9	286.3	34.7	390.9
Average 1956-1962		117.2	365.3	44.9	527.4
Percent change:					
1972 from 1971		-52.9	-37.6	-18.0	-39.8
1972 from ave.		-40.4	-21.6	-22.7	-25.9

TABLE B-14.--Southern Alberta - 10-year trend in waterfowl breeding population indexes by species, 1963-1972

(index numbers in thousands)

Species	1963	1964	1965	1966	1967	1968	1969	1970	1971	1972
Ducks:										
Dabblers:										
Mallard	806.3	857.7	368.7	612.0	626.6	488.3	557.9	673.4	888.5	762.6
Gadwall	87.0	100.2	63.6	115.2	146.8	189.6	152.9	94.6	158.0	165.7
American widgeon	151.6	220.1	61.7	136.4	169.8	118.2	109.6	161.5	173.1	153.0
Green-winged teal	16.5	29.2	16.9	35.9	43.2	58.2	46.1	41.5	80.0	74.9
Blue-winged teal	75.2	121.4	85.5	120.7	159.2	84.2	61.6	84.4	194.1	131.2
Shoveler	192.6	216.8	101.5	178.7	208.9	126.9	205.9	147.7	206.0	191.1
Pintail	360.7	280.6	351.8	439.0	564.5	151.2	584.2	529.0	719.0	554.9
Subtotal	1689.9	1826.0	1049.7	1637.9	1919.0	1216.6	1718.2	1732.1	2418.7	2033.4
Divers:										
Redhead	47.5	52.6	32.1	51.9	59.5	30.5	43.8	27.9	39.7	39.1
Canvasback	55.4	68.1	44.0	35.7	42.3	25.7	34.5	55.3	47.8	46.1
Scaup	314.1	349.8	179.0	211.8	236.0	224.8	284.4	270.3	285.0	341.6
Ring-necked duck	3.6	4.1	5.1	3.5	14.8	5.2	5.9	9.7	18.7	12.7
Goldeneye	0.9	4.0	2.9	2.1	0.0	1.6	2.7	1.3	6.0	4.8
Bufflehead	20.4	23.9	32.6	22.1	28.0	21.9	32.5	23.7	25.9	39.1
Subtotal	441.9	502.5	295.7	327.1	380.6	309.7	403.8	388.2	423.1	483.4

TABLE B-14.--Southern Alberta - 10-year trend in waterfowl breeding population indexes by species, 1963-1972--continued

(index numbers in thousands)

Species	1963	1964	1965	1966	1967	1968	1969	1970	1971	1972
Ducks:										
Miscellaneous:										
Scoter	34.7	42.3	20.1	28.8	31.5	26.4	26.3	34.7	17.5	18.4
Ruddy duck	13.1	32.4	19.0	20.6	26.0	19.8	15.7	17.8	17.1	25.4
Mergansers	0.0	8.0	6.5	7.0	0.6	2.6	0.7	4.0	2.0	1.5
Subtotal	47.8	82.7	45.6	56.4	58.1	48.8	42.7	56.5	36.6	45.3
Total ducks	2179.6	2411.2	1391.0	2021.4	2357.7	1575.1	2164.7	2176.8	2878.4	2562.1
Geese:										
Canada goose	6.0	6.9	5.0	3.9	7.5	3.4	4.3	6.4	11.1	11.5
Coots:										
American coot	66.7	93.0	50.0	53.6	121.7	70.2	106.0	95.0	66.3	75.7
Grand total	2252.3	2511.1	1446.0	2078.9	2486.9	1648.7	2275.0	2278.2	2955.8	2649.3

TABLE B-15 .--Southern Alberta - comparative status of waterfowl breeding population indexes by species and stratum, 1972

(index numbers in thousands)

Species	Stratum			Total		Average	Percent change from	
	26	27	28	1971	1972	1956-62	1971	Average
Ducks:								
Dabblers:								
Mallard	194.2	494.6	73.8	888.5	762.6	1040.8	- 14.2	- 26.7
Gadwall	51.4	101.3	13.0	158.0	165.7	99.3	+ 4.9	+ 66.9
American widgeon	44.0	93.0	16.0	173.1	153.0	194.6	- 11.6	- 21.4
Green-winged teal	8.1	65.0	1.8	80.0	74.9	45.8	- 6.4	+ 63.5
Blue-winged teal	24.0	99.3	7.9	194.1	131.2	153.6	- 32.4	- 14.6
Shoveler	60.8	107.6	22.7	206.0	191.1	186.8	- 7.2	+ 2.3
Pintail	224.1	213.8	117.0	719.0	554.9	536.1	- 22.8	+ 3.5
Subtotal	606.6	1174.6	252.2	2418.7	2033.4	2257.0	- 15.9	- 9.9
Divers:								
Redhead	10.7	24.7	3.7	39.7	39.1	50.0	- 1.5	- 21.8
Canvasback	6.4	37.9	1.8	47.8	46.1	57.3	- 3.6	- 19.5
Scaup	68.0	259.8	13.8	285.0	341.6	311.1	+ 19.8	+ 9.8
Ring-necked duck	2.5	8.7	1.5	18.7	12.7	6.4	- 32.1	+ 98.4
Goldeneye	0.8	3.7	0.3	6.0	4.8	8.2	- 20.0	- 41.5
Bufflehead	1.5	37.4	0.2	25.9	39.1	29.3	+ 51.0	+ 33.4
Subtotal	89.9	372.2	21.3	423.1	483.4	462.3	+ 14.2	+ 4.6

TABLE B-15 .--Southern Alberta - comparative status of waterfowl breeding population indexes by species and stratum, 1972--continued

(index numbers in thousands)

Species	Stratum			Total		Average	Percent change from	
	26	27	28	1971	1972	1956-62	1971	Average
Ducks:								
Miscellaneous:								
Scoter	0.8	17.6	0.0	17.5	18.4	47.4	+ 5.1	- 61.2
Ruddy duck	8.3	16.0	1.1	17.1	25.4	21.2	+ 48.5	+ 19.8
Merganser	1.0	0.2	0.3	2.0	1.5	5.2	- 25.0	- 71.2
Subtotal	10.1	33.8	1.4	36.6	45.3	73.8	+ 23.8	- 38.6
Total ducks	706.6	1580.6	274.9	2878.4	2562.1	2793.1	- 11.0	- 8.3
Geese:								
Canada goose	7.0	1.4	3.1	11.1	11.5	5.3	+ 3.6	+117.0
Coots:								
American coot	8.0	57.4	10.3	66.3	75.7	131.6	+ 14.2	- 42.5
Grand total	721.6	1639.4	288.3	2955.8	2649.3	2930.0	- 10.4	- 9.6

TABLE B-16.--Southern Alberta - lone drake index: long-term trend expressed as a percentage of total drakes, 1963-1972

Year	Mallard	Pintail	Canvasback	Total
1963	84.99	85.25	80.08	84.86
1964	85.28	88.14	52.65	84.57
1965	82.07	75.17	65.02	77.85
1966	80.97	74.99	56.09	77.94
1967	83.60	64.14	70.60	79.63
1968	64.11	62.13	27.78	62.46
1969	86.71	82.48	68.58	84.14
1970	78.22	80.70	61.48	78.49
1971	80.69	74.95	62.52	77.66
1972	73.65	72.54	49.60	72.40

TABLE B-17.--Southern Alberta - 10-year trend in waterfowl brood and late-nesting indexes by species, 1963-1972

(index numbers in thousands)

Species	1963	1964	1965	1966	1967	1968	1969	1970	1971	1972
Broods:										
Duck brood index	259.0	247.7	132.0	216.9	201.7	120.4	207.4	121.1	124.6	125.6
Average brood size[1]	5.7	5.7	6.0	6.5	5.9	4.6	5.9	5.5	5.8	5.0
Coot brood index	26.4	25.6	22.3	46.8	31.9	2.6	16.7	15.3	16.7	14.7
Late-nesting index[2]										
Dabblers:										
Mallard	1.8	3.3	14.2	17.3	16.6	16.9	10.6	16.4	21.1	16.7
Gadwall	1.2	1.1	9.5	8.2	7.9	10.8	2.6	15.5	8.5	4.3
American widgeon	0.1	1.1	6.1	3.2	2.7	4.9	3.4	3.8	2.2	4.2
Green-winged teal	0.0	0.0	0.5	2.9	7.5	2.7	7.7	6.6	8.0	14.1
Blue-winged teal	0.1	0.4	8.3	5.8	3.2	4.1	8.2	7.3	7.5	10.3
Shoveler	1.4	1.4	9.6	5.8	9.2	3.1	3.5	6.4	5.7	3.2
Pintail	0.1	0.3	8.6	14.0	9.5	6.1	13.7	7.2	11.8	7.3
Subtotal	4.7	7.6	56.8	57.2	56.6	48.6	49.7	63.2	64.8	60.1

TABLE B-17.--Southern Alberta - 10-year trend in waterfowl brood and late-nesting indexes by species, 1963-1972--continued

(index numbers in thousands)

Species	1963	1964	1965	1966	1967	1968	1969	1970	1971	1972
Divers:										
Redhead	0.2	0.2	3.0	1.4	2.2	1.2	2.0	1.8	3.2	1.4
Canvasback	0.0	0.7	0.7	0.8	0.0	1.7	1.4	0.4	1.2	0.2
Scaup	1.6	3.0	13.2	12.1	9.4	9.0	16.5	19.6	17.1	17.1
Ring-necked duck	0.0	0.0	0.0	0.0	0.3	0.0	0.0	0.7	2.1	0.7
Goldeneye	0.0	0.0	0.2	0.2	0.0	0.9	0.4	0.0	0.0	0.0
Bufflehead	0.0	0.0	0.0	0.0	0.0	0.0	0.2	0.0	0.0	0.2
Subtotal	1.8	3.9	17.1	14.5	11.9	12.8	20.5	22.5	23.6	19.6
Miscellaneous:										
Scoter	0.0	0.2	0.2	0.2	0.0	3.0	0.7	1.2	0.0	0.0
Ruddy duck	3.3	1.2	6.6	9.2	2.6	5.5	3.7	5.3	14.2	8.3
Mergansers	0.0	0.0	0.0	0.0	0.2	0.5	0.0	0.0	0.0	0.0
Subtotal	3.3	1.4	6.8	9.4	2.8	9.0	4.4	6.5	14.2	8.3
Total ducks	9.8	12.9	80.7	81.1	71.3	70.4	74.6	92.2	102.6	88.0

1 Class II and III broods only
2 As indicated by adult pairs and singles

TABLE B-18.--Southern Alberta - waterfowl brood and late-nesting indexes by stratum compared to previous year and long-term average, 1972

(index numbers in thousands)

Species	Stratum			Total		Average	Percent change from	
	26	27	28	1971	1972	1956-62	1971	Average
Broods:								
Duck brood index	33.2	78.5	13.9	124.6	125.6	315.1	+ 0.8	- 60.1
Average brood size[1]	4.8	5.2	4.9	5.8	5.0	5.6	- 13.8	- 10.7
Coot brood index	1.2	12.9	0.6	16.7	14.7	75.2	- 12.0	- 80.4
Late-nesting index[2]								
Dabblers:								
Mallard	5.3	7.1	4.3	21.1	16.7	4.8	- 20.8	+247.9
Gadwall	1.1	2.1	1.1	8.5	4.3	2.0	- 49.4	+115.0
American widgeon	1.2	2.5	0.5	2.2	4.2	0.9	+ 90.9	+366.7
Green-winged teal	1.8	11.5	0.8	8.0	14.1	0.2	+ 76.2	+695.0
Blue-winged teal	2.1	7.6	0.6	7.5	10.3	1.7	+ 37.3	+505.9
Shoveler	1.2	1.2	0.8	5.7	3.2	1.0	- 43.8	+220.0
Pintail	3.2	1.8	2.3	11.8	7.3	1.1	- 38.1	+563.6
Subtotal	15.9	33.8	10.4	64.8	60.1	11.7	- 7.2	+413.7

TABLE B-18.--Southern Alberta - waterfowl brood and late-nesting indexes by stratum compared to previous year and long-term average, 1972--continued

(index numbers in thousands)

Species	Stratum			Total		Average	Percent change from	
	26	27	28	1971	1972	1956-62	1971	Average
Divers:								
Redhead	0.9	0.5	0.0	3.2	1.4	0.4	- 56.2	+250.0
Canvasback	0.2	0.0	0.0	1.2	0.2	0.2	- 83.3	NC
Scaup	4.8	10.4	1.9	17.1	17.1	8.6	NC	+ 98.8
Ring-necked duck	0.0	0.7	0.0	2.1	0.7	0.1	- 66.7	+600.0
Goldeneye	0.0	0.0	0.0	0.0	0.0	0.1	NC	-
Bufflehead	0.0	0.2	0.0	0.0	0.2	0.2	+100.0	NC
Subtotal	5.9	11.8	1.9	23.6	19.6	9.6	- 16.9	+104.2
Miscellaneous:								
Scoter	0.0	0.0	0.0	0.0	0.0	0.1	NC	-
Ruddy duck	1.4	6.9	0.0	14.2	8.3	3.7	- 41.5	+124.3
Mergansers	0.0	0.0	0.0	0.0	0.0	0.0	NC	NC
Subtotal	1.4	6.9	0.0	14.2	8.3	3.8	- 41.5	+118.4
Total ducks	23.2	52.5	12.3	102.6	88.0	25.1	- 14.2	+250.6

1 - Class II and III broods only
2 - As indicated by adult pairs and singles

TABLE B-19.-- Long-Term Trend and Comparative Status of May Pond Indexes

Unadjusted for Visibility Bias
(index numbers in thousands)

Year	Stratum					Total
	A-West (19)	A-East (20)	B-West (21)	B-East (22)	C (23)	
1956	729.4	1,091.7	315.9	473.3	103.1	2,713.4
1957	344.2	842.4	164.1	482.9	72.9	1,906.5
1958	367.8	740.1	210.0	373.7	108.2	1,799.8
1959	159.9	222.4	57.6	249.9	79.4	769.2
1960	394.8	681.7	166.3	787.8	90.0	2,120.6
1961	170.9	68.2	96.4	166.6	54.5	556.6
1962	352.2	247.1	181.6	502.5	51.2	1,334.6
1963	267.7	325.3	144.5	225.1	43.1	1,005.7
1964	202.4	699.2	123.6	251.9	40.6	1,317.7
1965	457.7	534.3	246.2	377.8	84.2	1,700.2
1966	399.3	771.2	235.4	463.4	89.3	1,958.6
1967	527.2	631.0	216.1	572.6	149.3	2,096.2
1968	222.1	177.2	127.2	220.0	35.8	782.3
1969	599.4	419.0	296.6	431.6	107.4	1,854.0
1970	794.6	889.7	301.4	778.9	111.2	2,875.8
1971	516.1	977.7	306.7	488.9	125.6	2,415.0
1972	319.3	625.3	314.5	623.6	56.5	1,939.2
Average 1956 to 1962	359.9	556.2	170.3	433.8	79.9	1,600.1
Percent Change 1972 from Previous Year	- 38.1	- 36.0	+ 2.5	+ 27.6	- 55.0	- 19.7
Percent Change 1972 from 1956-62 Average	- 11.3	+ 12.4	+ 84.7	+ 43.8	- 29.3	+ 21.2

TABLE B-20.--Long-Term Trend in Waterfowl Breeding Population Indexes by Species (index numbers in thousands)

Unadjusted for Visibility Bias

Species	1955	1956	1957	1958	1959	1960	1961	1962	1963
Ducks									
Dabblers:									
Mallard	2,011.8	2,428.1	2,309.0	3,079.9	1,562.0	1,652.3	956.4	654.3	768.6
Black duck	0.3		0.7						
Gadwall	111.5	115.9	114.7	50.0	63.0	68.5	35.1	65.4	101.6
Am.Widgeon	230.2	289.6	198.1	308.8	164.8	130.9	83.9	47.7	73.3
Gr.-winged teal	51.7	60.0	31.9	25.5	16.4	27.5	12.3	5.6	8.8
Bl.-winged teal	369.0	385.2	314.3	248.8	179.5	152.4	106.2	46.1	63.1
Shoveler	344.5	390.8	304.7	194.7	143.6	287.4	111.8	27.6	100.8
Pintail	1,743.2	1,912.3	1,122.6	772.2	336.9	571.5	213.7	210.9	267.3
Wood duck									
Subtotal	4,862.2	5,581.9	4,396.0	4,679.9	2,466.2	2,890.5	1,519.4	1,057.6	1,383.4
Divers:									
Redhead	78.9	150.8	114.1	61.0	45.5	48.4	24.8	56.9	15.4
Canvasback	172.0	213.0	212.6	173.9	59.2	68.4	88.3	91.5	45.7
Scaup	459.0	557.2	448.0	311.0	410.2	240.1	244.0	170.4	76.3
R.-necked duck	17.8	6.6	5.1	7.2	22.0	8.0	4.1		8.8
Goldeneye	5.1	6.3	6.0	4.5	5.8	7.5	5.2	2.4	1.2
Bufflehead	8.2	7.2	13.7	7.5	11.4	12.1	10.1	1.6	9.7
Subtotal	741.0	941.1	799.5	565.1	554.1	384.5	376.5	322.8	157.1
Miscellaneous:									
Scoter	10.7	17.6	1.2	19.8	10.4	9.6	6.2		5.2
Ruddy duck	44.0	56.4	33.1	22.0	80.1	30.9	24.9	13.3	10.5
Merganser	0.3				0.3	6.8	1.6		4.5
Subtotal	55.0	74.0	34.3	41.8	90.8	47.3	32.7	13.3	20.2
TOTAL DUCKS	5,658.2	6,597.0	5,229.8	5,286.8	3,111.1	3,322.3	1,928.6	1,393.7	1,560.7
Geese									
Canada goose	1.0	0.1		2.7	1.4	2.8	2.2	2.7	1.9
Coots									
American coot	350.6	489.4	382.2	143.0	155.5	96.9	69.0	55.7	27.2
GRAND TOTAL	6,009.8	7,086.5	5,612.0	5,432.5	3,268.0	3,422.0	1,999.8	1,452.1	1,589.8

TABLE B-20.-- Long-Term Trend in Waterfowl Breeding Population Indexes by Species (continued)

Unadjusted for Visibility Bias

Species	1964	1965	1966	1967	1968	1969	1970	1971	1972
Ducks									
Dabblers:									
Mallard	704.0	570.0	881.5	998.6	964.9	937.1	1,185.4	1,373.0	1,375.4
Black duck								0.2	
Gadwall	150.1	136.1	117.3	189.1	177.8	217.3	174.8	161.5	132.0
Am.Widgeon	91.9	84.6	110.8	211.8	122.2	227.7	185.1	186.8	159.3
Gr.-winged teal	8.5	13.3	14.9	37.9	24.1	40.6	89.4	46.6	30.6
Bl.-winged teal	130.4	112.5	152.5	205.6	110.2	144.4	190.9	196.4	115.1
Shoveler	186.3	117.8	258.0	256.2	176.6	296.5	322.3	290.6	283.8
Pintail	267.2	308.3	520.6	578.6	294.6	686.4	899.0	963.3	650.1
Wood duck									
Subtotal	1,538.4	1,342.6	2,055.6	2,477.8	1,870.4	2,550.0	3,046.9	3,218.4	2,746.3
Divers:									
Redhead	32.5	32.2	46.0	48.7	43.9	40.6	56.0	48.8	55.9
Canvasback	56.7	61.4	93.2	71.3	64.3	80.4	130.2	126.2	118.3
Scaup	74.1	106.5	125.3	107.3	85.3	136.1	110.8	99.4	112.6
Ring-necked duck	5.5	11.5	8.1	4.7	0.9	2.6	6.1	4.1	4.6
Goldeneye	0.8	2.7	3.7	3.7	6.9	2.4	4.5	4.4	1.5
Bufflehead	10.9	18.1	11.8	12.7	24.5	27.1	15.3	9.8	30.9
Subtotal	180.5	232.4	288.1	248.4	225.8	289.2	322.9	292.7	323.8
Miscellaneous:									
Scoter	8.4	10.8	3.9	2.3	8.8	4.4	0.7	7.2	4.0
Ruddy duck	10.8	10.4	22.0	12.4	18.1	12.9	10.4	20.0	15.4
Merganser	1.2	2.4			0.5	0.6	4.4	0.6	
Subtotal	20.4	23.6	25.9	14.7	27.4	17.9	15.5	27.8	19.4
TOTAL DUCKS	1,739.3	1,598.6	2,369.6	2,740.9	2,123.6	2,857.1	3,385.3	3,538.9	3,089.5
Geese									
Canada goose	3.6	2.5	3.2	1.6	1.0	5.3	4.1	8.8	10.0
Coot									
American coot	43.9	54.9	61.6	91.0	91.7	138.5	158.6	154.7	125.1
GRAND TOTAL	1,786.8	1,656.0	2,434.4	2,833.5	2,217.3	3,000.9	3,548.0	3,702.4	3,224.6

SOUTHERN SASKATCHEWAN

TABLE B-21.-- Comparative Status of Waterfowl Breeding Population Indexes By Species and Stratum (index numbers in thousands) Unadjusted for Visibility Bias

SPECIES	A-West	A-East	B-West	B-East	C	TOTAL Previous Year	TOTAL Current Year	Average 1956 to 1962	Percent Change From Previous Year	Percent Change From Average
Ducks	(19)	(20)	(21)	(22)	(23)					
Dabblers:										
Mallard	450.4	245.1	285.3	312.5	82.1	1,373.0	1,375.4	1,806.0	+ 0.2	- 23.8
Black duck						0.2		0.1		
Gadwall	69.0	16.7	21.7	17.5	7.1	161.5	132.0	73.2	- 18.3	+ 80.3
American widgeon	55.6	29.4	42.6	23.6	8.1	186.8	159.3	174.8	- 14.7	- 8.9
Green-winged teal	5.0	10.4	3.8	10.9	0.5	46.6	30.6	25.6	- 34.3	+ 19.5
Blue-winged teal	24.7	34.8	25.3	25.0	5.3	196.4	115.1	204.6	- 41.4	- 43.7
Shoveler	84.5	44.8	61.8	80.2	12.5	290.6	283.8	208.6	- 2.3	+ 36.1
Pintail	265.1	97.2	101.6	127.3	58.9	963.3	650.1	734.3	- 32.5	- 11.5
Wood duck										
Subtotal	954.3	478.4	542.1	597.0	174.5	3,218.4	2,746.3	3,227.2	- 14.7	- 14.9
Divers:										
Redhead	10.9	5.9	13.9	19.7	5.5	48.8	55.9	71.6	+ 14.6	- 21.9
Canvasback	29.2	16.2	40.7	29.1	3.1	126.2	118.3	129.5	- 6.3	- 8.7
Scaup	31.5	12.6	40.7	20.2	7.6	99.4	112.6	340.1	+ 13.3	- 66.9
Ring-necked duck	0.1	1.2	1.5	0.7	1.1	4.1	4.6	7.6	+ 12.2	- 39.5
Goldeneye		0.1	0.7	0.7		4.4	1.5	5.3	- 65.9	- 71.7
Bufflehead	2.2	0.9	19.6	7.7	0.5	9.8	30.9	9.1	+215.3	+239.6
Subtotal	73.9	36.9	117.1	78.1	17.8	292.7	323.8	563.2	+ 10.6	- 42.5
Miscellaneous:										
Scoter			4.0			7.2	4.0	9.3	- 44.4	- 57.0
Ruddy duck	0.7	4.6	4.7	5.4		20.0	15.4	37.1	- 23.0	- 58.5
Merganser						0.6		1.3		
Subtotal	0.7	4.6	8.7	5.4		27.8	19.4	47.7	- 30.2	- 59.3
TOTAL DUCKS	1,028.9	519.9	667.9	680.5	192.3	3,538.9	3,089.5	3,838.1	- 12.7	- 19.5
Geese										
Canada goose	1.1		0.7	3.4	4.8	8.8	10.0		+ 13.6	
Coot										
American coot	26.5	34.2	22.3	40.0	2.1	154.7	125.1	198.9	- 19.1	- 37.1
GRAND TOTAL	1,056.5	554.1	690.9	723.9	199.2	3,702.4	3,224.6	4,037.0	- 12.9	- 20.1

TABLE B-22.-- Lone Drake Long-Term Trend Expressed As Percentage of Total Drakes

(Mallards, Pintails, and Canvasbacks)

Unadjusted for Visibility Bias

Year	Mallard	Pintail	Canvasback	Total
1956	76.44	82.68	63.21	78.46
1957	83.49	85.97	75.44	83.83
1958	79.38	81.33	73.68	79.55
1959	74.58	69.44	46.39	72.96
1960	85.92	82.47	71.57	84.65
1961	73.90	69.94	44.97	71.90
1962	51.66	36.35	39.83	47.32
1963	82.81	82.92	77.77	82.59
1964	85.21	82.32	65.64	83.47
1965	82.11	83.69	68.02	81.77
1966	81.75	82.66	77.57	82.98
1967	86.80	82.13	56.50	83.80
1968	80.24	75.50	47.65	77.88
1969	88.37	85.10	64.14	85.92
1970	82.10	78.28	65.35	79.60
1971	79.33	76.58	64.68	77.62
1972	81.14	78.24	60.52	79.12

TABLE B-23.--Southern Saskatchewan - long-term pond indexes by stratum and comparison to average and previous year, July 1955 to 1972

(index numbers in thousands)

Year	Stratum					Total
	A-West (19)	A-East (20)	B-West (21)	B-East (22)	C (23)	
July:						
1955	374.5	1,020.3	138.6	385.5	120.5	2,039.4
1956	210.1	512.4	120.9	228.0	34.8	1,106.2
1957	127.6	297.7	59.0	162.5	18.9	665.7
1958	69.1	154.9	57.0	97.2	18.4	396.7
1959	123.0	208.6	40.1	107.1	31.5	510.2
1960	136.8	300.5	47.3	117.3	16.9	618.7
1961	51.1	50.6	41.0	40.1	10.3	193.1
1962	62.6	104.5	29.9	46.9	12.4	256.3
1963	227.8	240.5	93.0	115.6	41.6	718.5
1964	99.2	267.7	33.5	93.5	13.1	507.0
1965	289.1	214.1	112.4	211.5	88.7	915.8
1966	239.9	238.2	149.0	379.1	72.9	1,079.0
1967	192.6	132.3	86.4	164.5	44.6	620.6
1968	88.5	54.5	66.3	117.3	15.9	342.4
1969	357.0	227.7	125.4	187.0	63.0	960.1
1970	568.2	396.8	278.3	414.8	70.1	1,728.2
1971	335.9	233.6	159.1	323.7	41.9	1,094.2
1972	155.1	199.1	116.4	236.6	25.2	732.4
Average 1956-1962	111.5	232.7	56.5	114.2	20.5	535.4
Percent change:						
1972 from 1971	- 53.8	- 14.8	- 26.8	- 26.9	- 39.9	- 33.1
1972 from average	+ 39.1	- 14.4	+106.0	+107.2	+ 22.9	+ 36.8

TABLE B-24.--Southern Saskatchewan - 10-year trend in waterfowl brood and late-nesting indexes by species, July 1972

(index numbers in thousands)

Species	1963	1964	1965	1966	1967	1968	1969	1970	1971	1972
Broods:										
Duck brood index	46.1	67.5	47.3	96.6	95.4	79.1	177.9	131.0	180.8	176.0
Average brood size[1/]	5.5	5.8	5.9	5.8	5.4	4.9	5.6	5.4	5.2	5.2
Coot brood index									35.5	27.2
Late-nesting index[2/]										
Dabblers:										
Mallard	23.1	23.4	45.8	44.4	25.7	23.0	46.1	115.2	63.9	46.6
Gadwall									18.4	12.2
American widgeon									15.2	12.4
Green-winged teal									13.2	11.5
Blue-winged teal									26.9	17.5
Shoveler									10.5	3.2
Pintail									42.9	15.7
Subtotal	55.5	36.2	109.1	109.8	91.8	57.7	154.1	328.1	191.0	119.1
Divers:										
Redhead									3.0	4.8
Canvasback									4.0	2.1
Scaup									13.2	13.8
Ring-necked duck										0.5
Goldeneye										
Bufflehead									0.9	0.5
Subtotal	7.1	10.5	9.9	17.3	10.9	8.4	17.0	39.3	21.1	21.7

TABLE B-24.--Southern Saskatchewan - 10-year trend in waterfowl brood and late-nesting indexes by species, July 1972--continued

(index numbers in thousands)

Species	1963	1964	1965	1966	1967	1968	1969	1970	1971	1972
Ducks:										
Miscellaneous									22.3	14.0
Total	69.3	50.7	123.5	139.1	113.2	72.5	176.9	373.6	234.4	154.8

[1]Class II and III broods only
[2]As indicated by adult pairs and singles

TABLE B-25.--Southern Saskatchewan - waterfowl brood and late-nesting indexes by stratum compared to previous year and long-term average, 1972

(index numbers in thousands)

Species	Stratum					Total			Percent change from--	
	A-West (19)	A-East (20)	B-West (21)	B-East (22)	C (23)	Previous year	Current year	1958 to 1964	1971	Average
Broods:										
Duck brood index	57.4	21.1	49.7	40.5	7.3	180.8	176.0	199.9	- 2.7	- 12.0
Average brood size[1/]	5.1	5.6	5.4	5.1	4.2	5.2	5.2	5.1	NC	+ 2.0
Coot brood index	2.8	7.5	6.0	10.9	0.0	35.5	27.2	48.1	- 23.4	- 43.5
Late-nesting index[2/]										
Dabblers:										
Mallard	19.9	10.3	8.0	5.1	3.3	63.9	46.6	53.3	- 27.1	- 12.6
Gadwall	5.0	1.0	2.5	2.7	1.0	18.4	12.2	6.9	- 33.7	+ 76.8
American widgeon	3.7	1.4	0.9	5.1	1.3	15.2	12.4	7.4	- 17.8	+ 67.6
Green-winged teal	2.3	0.9	2.5	5.8		13.2	11.5	1.1	- 12.9	+900.0+
Blue-winged teal	8.7	2.3	3.4	3.1		26.9	17.5	20.2	- 34.9	- 13.4
Shoveler	1.4	0.6		0.7	0.5	10.5	3.2	4.6	- 65.9	- 30.4
Pintail	5.2	2.2	3.9	4.4		42.9	15.7	7.0	- 63.4	+124.3
Subtotal	46.2	18.7	21.2	26.9	6.1	191.0	119.1	100.5	- 37.6	+ 18.5
Divers:										
Redhead	2.0	0.9	0.9		1.0	3.0	4.8	2.8	+ 60.0	+ 71.4
Canvasback	0.8	0.4	0.9			4.0	2.1	2.2	- 47.5	- 4.6
Scaup	5.6	1.4	2.1	0.7	4.0	13.2	13.8	12.1	+ 4.6	+ 14.1
Ring-necked duck			0.5				0.5	0.4		+ 25.0
Goldeneye								0.3		
Bufflehead			0.5			0.9	0.5	0.3	- 44.4	+ 66.7
Subtotal	8.4	2.7	4.9	0.7	5.0	21.1	21.7	18.1	+ 2.8	+ 19.9

TABLE B-25.--Southern Saskatchewan - waterfowl brood and late-nesting indexes by stratum compared to previous year and long-term average, 1972--continued

(index numbers in thousands)

Species	Stratum					Total			Percent change from--	
	A-West (19)	A-East (20)	B-West (21)	B-East (22)	C (23)	Previous year	Current year	1958 to 1964	1971	Average
Ducks:										
Miscellaneous	2.3	1.6	3.0	7.1		22.3	14.0	8.5	- 37.2	+ 64.7
Total	56.9	23.0	29.1	34.7	11.1	234.4	154.8	127.1	- 34.0	+ 21.8

[1]Class II and III broods only
[2]As indicated by adult pairs and singles

TABLE B-26.--Southern Manitoba - long-term trend in pond indexes by stratum with comparisons to 1956-62 average and previous year, May and July, 1972

(index numbers in thousands)

	Year	Stratum 24(A)	Stratum 25(B)	Total 24 & 25
May	1962	143	306	449
	1963	323	331	654
	1964	436	315	751
	1965	353	451	804
	1966	404	492	896
	1967	337	532	869
	1968	127	228	355
	1969	225	244	469
	1970	412	401	813
	1971	406	393	799
	1972	338	462	800
Average 1956 through 1962		227	357	634
Percent change:				
1972 from 1971		-17	+18	NC
1972 from 1956-62 average		+49	+29	+26
July	1962	104	121	225
	1963	158	169	327
	1964	224	223	447
	1965	141	250	391
	1966	181	231	412
	1967	108	169	277
	1968	52	109	161
	1969	167	186	353
	1970	225	192	417
	1971	188	217	405
	1972	188	141	329
Average 1956 through 1962		162	226	388
Percent change:				
1972 from 1971		NC	-35	-19
1972 from 1956-62 average		+16	-38	-15

TABLE B-27.--Southern Manitoba - 10-year trend in waterfowl breeding population indexes by species, 1963-1972

(Index numbers in thousands)

Species	1963	1964	1965	1966	1967	1968	1969	1970	1971	1972
Ducks:										
Dabblers:										
Mallard	186.7	177.5	151.9	202.2	203.7	138.3	164.0	201.1	150.3	171.9
Black duck	1.4	0.3	0.1	---	---	0.5	---	---	2.2	---
Gadwall	14.4	11.8	8.7	15.3	23.3	15.3	8.0	13.6	8.2	13.6
American widgeon	15.3	21.6	23.6	26.8	32.4	24.4	26.8	12.6	4.1	18.0
Green-winged teal	4.9	0.4	3.3	3.6	6.1	4.5	15.5	6.9	9.8	9.5
Blue-winged teal	47.8	42.2	33.2	27.3	64.9	36.0	47.9	82.9	69.5	48.2
Shoveler	34.7	40.6	33.1	30.0	45.4	24.2	44.4	42.9	16.5	32.3
Pintail	63.0	45.4	54.3	40.8	62.1	21.2	68.6	72.6	49.0	39.2
SUBTOTAL	368.2	339.8	308.2	346.6	437.9	264.4	375.2	432.7	307.6	332.7
Divers:										
Redhead	35.8	44.9	49.9	47.0	32.0	17.0	24.3	26.2	23.7	20.5
Canvasback	31.9	41.8	43.9	40.0	36.0	19.3	29.4	21.9	27.9	16.6
Scaup	100.5	78.9	70.8	80.9	86.4	60.5	45.4	74.5	52.8	36.6
Ring-necked duck	7.1	2.0	3.3	0.6	3.8	1.9	1.7	2.5	---	3.6
Goldeneye	1.1	1.7	2.8	0.6	4.6	1.7	1.7	3.9	7.7	1.7
Bufflehead	5.9	4.3	8.2	6.9	13.3	5.0	10.8	3.6	6.5	4.5
SUBTOTAL	182.3	163.3	178.9	176.0	176.1	105.4	113.3	132.6	118.6	83.5
Miscellaneous:										
Ruddy duck	15.5	13.5	15.7	21.3	15.6	17.4	8.9	14.5	9.6	5.0
Scoters	1.3	0.6	1.1	2.1	1.8	0.2	---	0.3	---	---
Mergansers	---	8.9	3.4	2.0	---	0.1	0.3	1.2	0.2	2.5
Other	---	---	---	---	---	0.1	---	---	---	---
SUBTOTAL	16.8	18.0	20.2	25.4	17.4	17.8	9.2	16.0	9.8	7.5
TOTAL DUCKS	567.3	521.4	507.3	548.0	631.4	387.6	497.7	581.3	436.0	423.7
TOTAL COOTS	57.1	63.1	14.3	28.3	37.2	45.8	58.7	96.8	30.1	61.8
GRAND TOTAL:	624.4	584.5	521.6	576.3	668.60	433.4	556.4	678.1	466.1	490.5

TABLE B-28.--Southern Manitoba - comparative status of waterfowl breeding population indexes by species and stratum, 1972

(Index numbers in thousands)

Species	1972 Stratum 24(A)	1972 Stratum 25(B)	Totals (Strata 24 & 25 Combined) 1972	Totals (Strata 24 & 25 Combined) 1971	Average 1956-62	Percent Change 1972 From: 1971	Percent Change 1972 From: 1956-62 Average
Ducks:							
Dabblers:							
Mallard	82.7	89.2	171.9	150.3	354.2	+ 14	- 51
Black duck	---	---	---	.2	.1	---	---
Gadwall	8.8	4.8	13.6	8.2	7.3	+ 66	+ 86
American widgeon	9.6	8.4	18.0	4.1	35.6	+339	- 49
Green-winged teal	5.3	4.2	9.5	9.8	3.8	- 3	+150
Blue-winged teal	28.7	19.5	48.2	69.5	92.6	- 31	- 48
Shoveler	15.4	16.9	32.3	16.5	35.3	+ 96	- 8
Pintail	24.0	15.2	39.2	49.0	79.2	- 20	- 51
Subtotal	174.5	158.2	332.7	307.6	608.1	+ 8	- 45
Divers:							
Redhead	11.5	9.0	20.5	23.7	23.9	- 14	- 14
Canvasback	10.3	6.3	16.6	27.9	37.4	- 41	- 56
Scaup	17.4	19.2	36.6	52.8	151.0	- 31	- 76
Ring-necked duck	1.9	1.7	3.6	---	7.2	---	- 50
Goldeneye	---	1.7	1.7	7.7	6.9	- 78	- 75
Bufflehead	1.4	3.1	4.5	6.5	2.9	- 31	+ 55
Subtotal	42.5	41.0	83.5	118.6	229.3	- 30	- 64

TABLE B-28.-- Southern Manitoba - comparative status of waterfowl breeding population indexes by species and stratum, 1972 -- continued

(Index numbers in thousands)

Species	1972 Stratum 24(A)	1972 Stratum 25(B)	Totals (Strata 24 & 25 Combined) 1972	Totals (Strata 24 & 25 Combined) 1971	Average 1956-62	Percent change from: 1971	Percent change from: 1956-62 Average
Miscellaneous:							
Scoter	---	---	---	---	3.7	---	---
Ruddy duck	2.5	2.5	5.0	9.6	11.5	- 48	- 57
Merganser	.2	2.3	2.5	0.2	0.1	+1,150	+2,400
Other	---	---	---	---	---	---	---
Subtotal	2.7	4.8	7.5	9.8	15.3	+ 341	- 51
Total ducks	219.7	204.0	423.7	436.0	852.7	- 3	- 50
Geese:							
Canada goose	---	5.0	5.0	2.8	---	+ 79	---
Coots:							
American coot	46.8	15.0	61.8	30.2	82.2	+ 105	- 25
Grand Total	266.5	224.0	490.5	469.0	934.9	+ 5	- 50

TABLE B-29.--Southern Manitoba - lone drake index: Long-term trend expressed as a percentage of total drakes, 1955-1972

Unadjusted for visibility bias

Year	Mallard	Pintail	Canvasback	Percent lone drakes[1]
1955				87.5
1956	81.5	81.0	46.2	79.4
1957	91.2	85.5	68.5	88.9
1958	83.0	81.1	73.3	81.9
1959	71.8	69.7	41.7	70.0
1960	90.9	82.0	66.4	86.5
1961	71.5	65.0	33.7	67.5
1962	64.3	59.0	45.6	62.0
1963	85.2	80.7	79.0	83.7
1964	82.1	71.3	66.3	78.0
1965	79.1	63.6	68.0	73.8
1966	87.3	74.3	81.2	84.6
1967	86.7	74.6	78.6	83.4
1968	73.4	66.0	73.4	72.5
1969	89.6	84.6	93.4	91.3
1970	82.4	72.6	79.1	79.8
1971	73.6	58.3	59.9	68.7
1972	81.4	75.3	73.8	79.8

[1]Lone drakes include only mallards, pintails, and canvasback.

TABLE B-30.--Southern Manitoba - 10-year trend in waterfowl brood and late-nesting indexes by species, July 1963-1972

(index numbers in thousands)

Species	1963	1964	1965	1966	1967	1968	1969	1970	1971	1972
Broods:										
Duck brood index	33.5	26.5	23.0	31.5	31.0	15.1	25.3	21.9	16.2	26.7
Average brood size[1]	5.4	5.0	5.6	5.3	5.1	4.7	6.1	5.7	4.8	5.2
Coot brood index	3.9	14.0	16.8	9.5	14.1	3.1	17.5	14.6	14.1	14.7
Late-nest index:[2]										
Dabblers:										
Mallard	11.4	9.6	13.7	6.6	6.7	3.9	13.6	13.0	16.3	13.1
Gadwall	2.7	.7	1.2	.5	1.8	.4	1.4	1.3	2.4	1.6
American widgeon	5.0	1.3	4.9	1.2	5.4	.5	1.2	2.0	2.9	.5
Green-winged teal	.2	.1	1.0	.4	--	--	1.6	.5	.9	1.0
Blue-winged teal	2.7	5.4	2.4	2.8	2.2	5.6	5.5	5.4	5.2	2.8
Shoveler	.3	6.2	1.4	.8	.5	.4	2.4	1.3	.7	1.6
Pintail	2.3	.4	.8	2.2	.7	.1	1.6	3.0	2.3	.9
Subtotal	24.6	23.0	25.4	14.5	17.3	10.9	27.3	26.5	30.7	21.5
Divers:										
Redhead	.7	2.0	1.1	1.7	1.3	.3	2.0	1.8	.6	.9
Canvasback	1.2	.4	.4	.4	1.3	.4	.1	.2	.5	.2
Scaup	2.4	2.7	3.3	1.4	1.2	2.0	4.0	2.6	1.1	1.6
Ring-necked duck	.2	--	.1	--	.1	--	.1	--	.3	.7
Goldeneye	.2	.1	--	--	--	--	--	--	--	--
Bufflehead	--	.1	.1	--	--	--	--	--	--	--
Subtotal	29.3	5.3	5.0	3.5	3.9	2.7	6.2	4.6	2.5	3.4

TABLE B-30.--Southern Manitoba - 10-year trend in waterfowl brood and late-nesting indexes by species, July 1963-1972, continued

(index numbers in thousands)

Species	1963	1964	1965	1966	1967	1968	1969	1970	1971	1972
Miscellaneous:										
Ruddy duck	8.5	7.2	5.5	9.0	3.4	.4	7.9	5.7	3.3	1.5
Other	--	.1	.1	--	--	--	--	--	.2	--
Total	62.4	35.6	36.0	27.0	24.6	14.0	41.4	36.8	36.7	26.4

1 Class II and III broods only.

2 As indicated by adult pairs and singles.

TABLE B-31.--Southern Manitoba - 1972 waterfowl brood and late-nesting indexes by stratum compared to previous year and 1956-62 average.

(index numbers in thousands)

Species	1971 Stratum 24(A)	1971 Stratum 25(B)	1972 Stratum 24(A)	1972 Stratum 25(B)	Totals Strata A and B combined 1971	Totals Strata A and B combined 1972	1956-62 Average	Percent change from: 1971	Percent change from: 1956-62 average
Broods:									
Duck brood index	5.7	10.5	14.9	11.8	16.2	26.7	39.0	+ 65	- 31
Average brood size[1]	5.4	4.4	5.6	4.6	4.8	5.2	5.7	--	--
Coot brood index	8.2	5.9	7.9	6.8	14.1	14.7	9.5	+ 04	+ 55
Late-nesting index:[2]									
Dabblers:									
Mallard	9.6	6.8	8.3	4.8	16.3	13.1	15.6	- 19	- 19
Gadwall	.8	1.6	1.1	.5	2.4	1.6	1.0		
American widgeon	1.5	1.1	.5	--	2.9	.5	2.9		
Green-winged teal	.7	.5	.5	.5	.9	1.0	.6		
Blue-winged teal	3.6	1.6	2.1	.7	5.2	2.8	8.8	- 46	- 68
Shoveler	.3	.5	1.1	.5	.7	1.6	.9		
Pintail	.8	1.1	.9	--	2.3	.9	2.7		
Subtotal	17.4	13.2	14.5	7.0	30.7	21.5	32.5	- 30	- 34
Divers:									
Redhead	.3	.5	.5	.4	.6	.9	1.5		
Canvasback	.2	.2	.2	--	.5	.2	1.0		
Scaup	.3	1.0	1.2	.4	1.1	1.6	4.1		
Ring-necked duck	.2	.2	.3	.4	.3	.7	.5		
Goldeneye	--	--	--	--	--	--	.3	--	--
Bufflehead	--	--	--	--	--	--	.4	--	--
Subtotal	1.0	1.9	2.2	1.2	2.5	3.4	7.8	+ 36	- 56

TABLE B-31 .--Southern Manitoba - 1972 waterfowl brood and late-nesting indexes by stratum compared to previous year and 1956-62 average, continued

(index numbers in thousands)

Species	1971 Stratum 24(A)	1971 Stratum 25(B)	1972 Stratum 24(A)	1972 Stratum 25(B)	Totals Strata A and B combined 1971	Totals Strata A and B combined 1972	1956-62 Average	Percent change from: 1971	Percent change from: 1956-62 average
Miscellaneous:									
Ruddy duck	2.9	.2	.8	.7	3.3	1.5	4.0	- 55	- 62
Other	--	.2	--	--	.2	--	.3	--	--
Subtotal	2.9	.4	.8	.7	3.5	1.5	4.3	- 57	- 65
Total	21.2	15.5	17.5	8.9	36.7	26.4	44.6	- 28	- 41

1 Class II and III broods only.

2 As indicated by adult pairs and singles.

TABLE B-32 .--Montana - long-term trend in May and July indexes by stratum with comparisons to average and previous year.
(index numbers in thousands)
unadjusted for visibility bias

May ponds	Strata 40	Strata 41	Total
Year			
1965	108.7	123.8	232.5
1966	94.8	109.6	204.5
1967	75.8	92.0	167.8
1968	63.3	52.9	116.2
1969	109.8	144.3	254.1
1970	146.5	112.6	259.1
1971	132.9	122.7	255.6
1972	131.7	151.2	282.9

Average total 1965-71 (-212.8)
% change from 1971 (+11%)
% change from average (+33%)

July ponds			
1966	63.9	64.4	128.2
1967	67.5	57.6	125.1
1968	56.6	43.2	99.8
1969	91.2	93.1	184.4
1970	78.3	59.4	137.7
1972	133.0	124.3	257.0

Average total 1966-1970 (- 135.0)
% change from 1970 (+88%)
% change from average (+90%)

TABLE B-33.--Montana - trend in waterfowl breeding population indexes by species, 1965-1972

(index numbers in thousands)

Species	1965	1966	1967	1968	1969	1970	1971	1972
Ducks:								
Dabblers:								
Mallard	223.3	338.2	179.9	133.9	167.7	185.3	160.3	220.1
Gadwall	55.5	58.8	36.3	41.0	35.8	20.6	18.4	5.9
American widgeon	23.2	32.3	38.4	49.8	53.6	59.4	36.3	81.1
Green-winged teal	9.0	8.4	11.5	9.5	3.5	11.0	4.7	12.2
Blue-winged teal	32.5	35.9	18.2	14.1	34.1	23.5	20.1	4.4
Shoveler	24.3	36.8	34.8	33.2	40.1	24.8	23.7	23.0
Pintail	145.2	161.1	134.3	42.2	78.9	102.0	61.5	125.1
Subtotal	513.0	671.5	453.4	323.7	413.7	426.6	325.0	471.8
Divers:								
Redhead	2.7	.7	10.6	1.6	2.4	1.8	1.9	-
Canvasback	2.0	.4	1.0	2.6	3.7	2.6	3.6	5.0
Scaup	18.8	30.6	24.9	17.5	31.5	24.1	8.8	26.0
Ring-necked duck	1.4	.4	3.4	1.4	.2	-	-	-
Goldeneye	-	.4	-	-	.2	-	-	2.0
Bufflehead	.6	.7	.2	1.1	.6	.2	-	.5
Subtotal	25.5	37.0	40.1	24.2	38.6	28.7	14.3	33.5
Miscellaneous:								
Scoter	-	-	.2	-	-	-	-	-
Ruddy duck	-	1.8	1.2	1.2	12.1	.5	.7	3.1
Merganser	-	-	3.2	.3	-	-	-	-
Subtotal	-	1.8	4.6	1.5	12.1	.5	.7	3.1
Total ducks	539.1	710.3	498.1	349.4	464.4	455.8	340.0	509.8
Geese:								
Canada goose	3.4	-	8.1	7.6	7.7	9.1	11.1	1.4
Coots:								
American coot	3.9	-	6.4	19.0	8.7	6.4	2.7	4.0
Grand total	546.4	710.3	512.6	376.0	480.8	471.3	353.8	515.2

TABLE B-34.--Montana - comparative status of waterfowl breeding population indexes by species and stratum, 1972

(index numbers in thousands)

Species	Stratum		Total		1965-71 Average	Percent change from:	
	40	41	1971	1972		1971	average
Ducks:							
Dabblers:							
Mallard	81.9	138.2	160.3	220.1	198.3	37	22
Gadwall	1.7	4.2	18.4	5.9	38.0	-68	-85
American widgeon	24.5	56.6	36.3	81.1	41.9	123	94
Green-winged teal	4.8	7.4	4.7	12.2	8.2	160	49
Blue-winged teal	1.9	2.5	20.1	4.4	25.5	-78	-83
Shoveler	5.5	17.5	23.7	23.0	31.1	-3	-26
Pintail	18.3	106.8	61.5	125.1	103.6	103	21
Subtotal	138.6	333.2	325.0	471.8	446.6	45	8
Divers:							
Redhead	-	-	1.9	-	3.6	-	-
Canvasback	2.7	2.3	3.6	5.0	2.3	39	117
Scaup	8.4	17.6	8.8	26.0	22.3	195	17
Ring-necked duck	-	-	-	-	1.0	-	-
Goldeneye	1.1	.9	-	2.0	.1	-	1900
Bufflehead	.4	.1	-	.5	.4	-	25
Subtotal	12.6	20.9	14.3	33.5	29.7	134	13
Miscellaneous:							
Scoter	-	-	-	-	-	-	-
Ruddy duck	3.1	-	.7	3.1	2.5	143	24
Merganser	-	-	-	-	.6	-	-
Subtotal	3.1	-	.7	3.1	3.1	143	NC
Total ducks	155.4	354.4	340.0	509.8	479.4	50	6
Geese:							
Canada goose	.4	1.0	11.1	1.4	6.7	-87	-81
Coots:							
American coot	1.1	2.9	2.7	4.0	7.7	48	-48
Grand total	156.9	358.3	353.8	515.2	493.8	46	4

TABLE B-35.--Montana - lone drake index: long-term trend expressed as a percentage of total drakes, 1965-1972

Year	Mallard	Pintail	Total
1965	69.7	76.1	72.3
1966	79.1	85.9	81.2
1967	78.4	87.2	82.4
1968	72.0	83.7	75.2
1969	66.3	69.4	62.7
1970	74.5	82.4	77.5
1971	80.2	87.0	82.1
1972	66.0	77.0	71.0

TABLE B-36.--Montana - waterfowl brood and late-nesting indexes by stratum compared to previous year and 1965-69 average.

(index numbers in thousands)
unadjusted for visibility bias

Species	Stratum 40		Stratum 41		Total		Average	Percent Change from	
	1970	1972	1970	1972	1970	1972	1966-70	1970	Average
Broods:									
Duck Brood Index	17.7	23.0	28.5	46.0	46.2	69.0	53.6	49	29
Average brood size 1/	5.4	5.19	5.4	5.63	5.4	5.52	4.6	2	20
Coot brood index	0.2	.5	0.1	2.2	0.3	2.7	0.7	800	286
Late nesting index 2/									
Dabblers:									
Mallard	0.7	6.7	0.7	6.3	1.3	13.0	5.2	900	150
Gadwall	0.4	.4	0.7	.5	1.1	.9	1.6	-18	-44
American widgeon	0.9	2.7	0.3	4.8	1.2	7.5	2.4	525	212
Green-winged teal	-	1.3	-	.4	-	1.7	0.1	-	1,600
Blue-winged teal	-	-	1.2	.4	1.2	.4	1.8	-67	-78
Shoveler	1.6	.2	0.8	.3	2.4	.5	1.0	-79	-50
Pintail	1.1	2.5	1.2	3.9	2.3	6.4	1.1	260	482
Subtotal	4.7	13.8	4.7	17.6	9.4	31.4	13.1	234	140
Divers:									
Redhead	-	-	-	-	-	-	-	-	-
Canvasback	-	.5	0.7	3.3	0.7	3.8	0.1	443	3,700
Scaup	-	2.7	0.7	1.3	0.7	4.0	0.2	471	1,900
Ring-necked duck	-	-	-	-	-	-	0.1	-	-
Goldeneye	-	-	-	-	-	-	-	-	-
Bufflehead	-	-	-	.3	-	.3	-	-	-
Subtotal	-	3.2	1.3	4.9	1.3	8.1	0.5	523	1,520
Miscellaneous:									
Ruddy Duck	-	-	0.4	.1	0.4	.1	0.3	-75	-67
Other	-	-	0.4	-	0.4	-	-	-	-
TOTAL LNI	4.7	17.0	6.5	22.6	11.2	39.6	14.0	253	182
Coots:									
American coot	-	-	-	-	-	-	-	-	-

1/ Class II and III broods only

2/ As indicated by adult pairs and singles

TABLE B-37. --North Dakota - long-term trend in pond indexes by stratum and comparisons to average and previous years.

/index numbers in thousands/

Year	Stratum			Total
	29	30	31	
May:				
1960	9.6	345.0	17.6	372.2
1961	9.6	63.5	11.8	84.9
1962	17.4	225.6	25.5	268.5
1963	17.4	351.2	58.3	426.9
1964	10.4	151.1	29.4	190.9
1965	13.9	303.6	61.4	378.9
1966	36.5	441.9	68.6	547.0
1967	29.9	481.1	50.1	561.1
1968	11.7	262.6	54.0	328.3
1969	31.6	494.6	89.5	615.7
1970	29.2	592.6	101.5	723.3
1971	18.9	416.8	109.4	545.1
1972	35.3	473.2	130.9	639.4
Average 1960-1969	18.8	312.0	46.6	377.4
Percent change from 1971	+86.8	+13.5	+19.6	+17.3
Percent change from average	+87.7	+51.7	+180.9	+69.4
July:				
1966	12.2	202.4	50.4	265.0
1967	16.7	230.0	39.7	286.4
1968	20.5	224.0	40.8	285.3
1969	20.1	433.9	75.2	529.2
1970	23.2	342.1	46.1	411.4
1971	9.7	293.5	104.4	407.6
1972	10.4	229.8	71.8	312.0
Average 1966-1971	17.1	287.6	59.4	364.1
Percent change from 1971	+7.2	-21.7	-31.1	-30.6
Percent change from average	-39.2	-20.1	+20.9	-14.3

TABLE B-38.--South Dakota - long-term trend in pond indexes by stratum and comparisons to average and previous years.

/index numbers in thousands/

Year	Stratum 32	33	34	Total
May:				
1960	63.8	110.4	53.1	227.3
1961	34.2	48.1	33.1	115.4
1962	95.7	152.4	69.5	317.6
1963	106.9	142.1	80.2	329.2
1964	56.7	79.2	62.0	197.9
1965	53.0	100.2	84.5	237.7
1966	79.7	143.5	94.5	317.7
1967	66.5	132.5	90.2	289.2
1968	61.1	146.0	71.8	278.9
1969	111.7	263.7	156.5	531.9
1970	58.9	183.4	161.3	403.6
1971	85.4	132.8	146.4	364.6
1972	93.7	284.3	205.5	583.5
Average 1960-1969	72.9	209.4	79.5	361.8
Percent change from 1971	+9.7	+114.1	+40.4	+60.0
Percent change from average	+28.5	+35.8	+158.5	+61.3
July:				
1966	35.2	76.5	67.6	179.3
1967	56.8	139.2	101.7	297.7
1968	48.3	90.5	56.7	195.5
1969	75.9	192.3	89.1	357.3
1970	52.6	98.3	77.6	228.5
1971	70.5	117.7	115.1	303.3
1972	59.4	129.0	148.4	336.8
Average 1966-1971	56.5	119.1	84.6	260.2
Percent change from 1971	-15.7	+9.6	+28.9	+29.4
Percent change from average	+5.1	+8.3	+75.4	+11.0

TABLE B-39.--North Dakota - 10-year trend in waterfowl breeding population indexes by species, 1972
(index numbers in thousands)

Species	1962	1963	1964	1965	1966	1967	1968	1969	1970	1971	1972
Ducks:											
Dabblers:											
Mallard	79.2	274.3	133.5	174.8	191.7	267.7	112.2	195.6	302.6	215.3	202.5
Gadwall	52.0	107.8	32.0	82.6	115.6	156.4	98.6	98.2	104.1	96.9	88.2
American widgeon	1.0	3.8	1.7	--	5.1	11.9	4.0	17.5	13.2	12.3	10.4
Green-winged teal	--	--	--	--	11.4	8.9	2.3	11.6	29.6	4.8	10.9
Blue-winged teal	67.9	105.3	85.9	127.4	103.2	138.6	86.1	147.5	107.7	124.5	100.2
Shoveler	54.9	71.9	28.9	70.1	59.8	89.2	37.6	101.8	101.6	71.1	59.9
Pintail	79.6	105.5	55.8	128.2	84.4	152.6	47.4	148.8	303.0	128.7	163.2
Subtotal	334.6	668.6	337.8	583.1	571.2	825.3	388.2	721.0	961.8	653.6	635.3
Divers:											
Redhead	13.8	26.3	15.2	28.2	36.2	25.2	18.1	39.9	36.1	28.6	32.2
Canvasback	1.3	14.6	15.3	13.8	34.1	16.1	10.1	33.1	16.5	9.2	18.4
Scaup	35.0	13.1	.8	11.1	7.9	10.9	9.0	18.8	17.1	17.4	16.8
Ring-necked duck	--	1.1	--	--	1.4	--	--	.4	1.5	.5	.5
Goldeneye	--	--	--	--	.3	--	--	--	--	--	.2
Bufflehead	--	--	--	--	--	--	--	--	.7	--	1.0
Subtotal	50.1	55.1	31.3	53.1	79.9	52.2	37.2	92.2	71.9	55.7	69.1
Miscellaneous											
Ruddy duck	4.8	8.1	1.8	3.2	8.0	9.4	5.6	12.4	19.5	11.8	13.8
Merganser	--	--	--	--	--	--	--	1.2	--	--	.5
Subtotal	4.8	8.1	1.8	3.2	8.0	9.4	5.6	13.6	19.5	11.8	14.3
TOTAL DUCKS	389.5	731.8	370.9	639.4	659.1	886.9	431.0	826.8	1053.2	721.1	718.7
Geese:											
Canada goose	--	--	--	--	--	4.1	--	.1	--	--	--
Coots											
American coot	58.6	56.5	7.9	69.0	97.6	92.5	93.6	53.8	73.7	41.8	55.2
GRAND TOTAL	448.1	788.3	378.8	708.4	756.7	983.5	524.6	880.7	1126.9	762.9	773.9

TABLE B-40.--South Dakota - 10-year trend in waterfowl breeding population indexes by species, 1972
(index numbers in thousands)

Species	1962	1963	1964	1965	1966	1967	1968	1969	1970	1971	1972
Ducks:											
Dabblers:											
Mallard	161.2	262.7	145.3	155.1	100.5	128.6	152.0	206.0	185.1	160.5	198.8
Gadwall	29.3	73.7	23.1	45.6	50.7	45.3	59.1	73.7	59.9	47.7	52.8
American widgeon	3.0	.8	1.9	--	4.1	17.2	12.5	18.0	11.8	11.5	49.7
Green-winged teal	2.2	.8	--	--	1.9	3.0	6.5	6.0	23.9	7.4	9.0
Blue-winged teal	74.8	169.0	121.1	115.2	73.8	42.3	59.6	118.0	103.6	80.5	175.2
Shoveler	81.7	64.8	32.9	28.3	26.4	21.6	38.0	66.0	60.1	39.0	77.9
Pintail	137.3	72.8	30.5	44.8	50.8	63.2	41.5	87.0	123.8	71.4	158.3
Subtotal	489.5	644.6	354.8	389.0	308.2	321.2	369.2	574.7	568.2	418.0	721.7
Divers:											
Redhead	11.9	13.6	12.7	16.0	12.3	3.8	6.7	16.5	10.1	14.4	12.2
Canvasback	1.6	2.5	4.7	2.2	4.2	2.2	1.5	10.0	3.6	1.9	9.5
Scaup	17.7	9.8	1.1	19.8	16.5	5.5	11.1	7.2	38.9	4.2	23.9
Ring-necked duck	--	.5	--	--	.9	.4	--	--	.8	.2	--
Goldeneye	--	--	--	--	--	--	--	--	--	--	.3
Bufflehead	--	--	--	--	.2	.4	--	--	--	--	.5
Subtotal	31.2	26.4	18.5	38.0	34.1	12.3	19.3	33.7	53.4	20.7	46.4
Miscellaneous											
Ruddy duck	2.5	2.6	.8	.5	2.0	--	3.1	1.6	9.2	6.2	7.7
Merganser	--	--	--	--	.5	--	--	--	--	--	--
Subtotal	2.5	2.6	.8	.5	2.5	--	3.1	1.6	9.2	6.2	7.7
TOTAL DUCKS	523.2	673.6	374.1	427.5	344.8	333.5	391.6	610.0	630.8	444.9	775.8
Geese:											
Canada goose	--	--	--	--	.4	.2	--	1.5	.2	.4	1.1
Coots:											
American coot	40.3	26.8	33.3	17.7	27.1	12.3	53.9	34.0	33.8	11.7	36.7
GRAND TOTAL	563.5	700.4	407.4	445.2	372.3	346.0	445.5	645.5	664.8	457.0	813.6

TABLE B-41.--North Dakota - comparative status of waterfowl breeding population indexes by species and stratum, 1972

(index numbers in thousands)

Species	Stratum 29	Stratum 30	Stratum 31	Total 1972	Total 1971	Average 1960-69	Percent Change from 1971	Percent Change from Average
Ducks:								
Dabblers:								
Mallard	12.2	138.9	51.4	202.5	215.3	162.2	- 6	+ 25
Gadwall	4.1	82.6	1.5	88.2	96.9	79.6	- 9	+ 11
American widgeon	.6	3.4	6.4	10.4	12.3	5.3	- 15	+ 96
Green-winged teal	--	7.2	3.7	10.9	4.8	3.6	+127	+203
Blue-winged teal	8.1	82.3	9.8	100.2	124.5	95.3	- 19	+ 5
Shoveler	4.1	52.0	3.8	59.9	71.1	58.2	- 16	+ 3
Pintail	9.6	102.0	51.6	163.2	128.7	99.5	+ 27	+ 71
Subtotal	38.7	468.4	128.2	635.3	653.6	503.7	- 3	+ 26
Divers:								
Redhead	--	32.2	--	32.2	28.6	22.5	+ 12	+ 43
Canvasback	--	17.4	1.0	18.4	9.2	15.0	+100	+ 23
Scaup	--	14.7	2.1	16.8	17.4	13.8	- 3	+ 22
Ring-necked duck	--	.5	--	.5	.5	.4	NC	+ 20
Goldeneye	--	--	.2	.2	--	--	--	--
Bufflehead	--	--	1.0	1.0	--	--	--	--
Subtotal	--	64.8	4.3	69.1	55.7	51.7	+ 24	+ 34
Miscellaneous:								
Ruddy duck	--	13.8	--	13.8	11.8	6.9	+ 17	+100
Merganser	--	--	.5	.5	--	.1	--	--
Subtotal	--	13.8	.5	14.3	11.8	7.0	+ 21	+104
TOTAL DUCKS	38.7	547.0	133.0	718.7	721.1	562.4	- .3	+ 28
Geese:								
Canada goose	--	--	--	--	--	--	--	--
Coots:								
American coot	1.4	45.6	8.2	55.2	41.8	61.5	+ 32	- 10
GRAND TOTAL	40.1	592.6	141.2	773.9	762.9	623.9	+ 1	+ 24
Ponds	35.3	473.2	130.9	639.4				

TABLE B-42.--South Dakota - comparative status of waterfowl breeding population indexes by species and stratum, 1972

(index numbers in thousands)

Species	Stratum 32	Stratum 33	Stratum 34	Total 1972	Total 1971	Average 1960-69	Percent Change from 1971	Percent Change from Average
Ducks:								
Dabblers:								
Mallard	16.7	69.0	113.1	198.8	160.5	192.8	+ 24	+ 3
Gadwall	4.3	46.1	2.4	52.8	47.7	57.2	+ 11	- 8
American widgeon	.5	.4	48.8	49.7	11.5	7.1	+332	+600
Green-winged teal	.7	7.5	.8	9.0	7.4	2.7	+ 22	+233
Blue-winged teal	20.3	108.1	46.8	175.2	80.5	132.8	+118	+ 32
Shoveler	12.1	48.1	17.7	77.9	39.0	60.9	+100	+ 28
Pintail	6.2	49.7	102.4	158.3	71.4	94.6	+122	+ 67
Subtotal	60.8	328.9	332.0	721.7	418.0	548.1	+ 73	+ 32
Divers:								
Redhead	.7	11.5	--	12.2	14.4	16.5	- 15	- 26
Canvasback	.3	6.0	3.2	9.5	1.9	4.9	+400	+ 94
Scaup	1.5	8.2	14.2	23.9	4.2	15.7	+469	+ 52
Ring-necked duck	--	--	--	--	.2	.3	--	--
Goldeneye	--	--	.3	.3	--	--	--	--
Bufflehead	--	--	.5	.5	--	--	--	--
Subtotal	2.5	25.7	18.2	46.4	20.7	37.4	+124	+ 24
Miscellaneous:								
Ruddy duck	1.0	6.7	--	7.7	6.2	2.8	+ 24	+175
Merganser	--	--	--	--	--	.1	--	--
Subtotal	1.0	6.7	--	7.7	6.2	2.9	+ 24	+165
TOTAL DUCKS	64.3	361.3	350.2	775.8	444.9	588.4	+ 74	+ 32
Geese:								
Canada goose	--	--	1.1	1.1	.4	--	+175	--
Coots:								
American coot	5.7	27.2	3.8	36.7	11.7	43.8	+214	- 16
GRAND TOTAL	70.0	388.5	355.1	813.6	457.0	632.2	+ 78	+ 29
Ponds	93.7	284.3	205.5	583.5				

TABLE B-43.--North Dakota - lone drake index: Long-term trend expressed as a percentage of total drakes, 1960-1972

Year	Mallard	Pintail	Canvasback	Total
1960	78.67	81.94	42.10	79.36
1961	66.11	80.83	100.00	72.52
1962	60.35	83.75	100.00	71.43
1963	72.40	76.76	73.07	73.69
1964	79.02	82.40	83.33	80.26
1965	73.18	80.66	67.65	76.31
1966	69.76	68.63	76.67	69.47
1967	78.65	78.33	76.19	78.45
1968	71.76	69.67	67.74	70.94
1969	78.24	64.94	49.91	69.66
1970	83.69	85.18	74.03	84.17
1971	81.51	78.86	74.00	80.71
1972	83.9	80.7	76.4	82.2

TABLE B-44.--South Dakota - lone drake index: Long-term trend expressed as a percentage of total drakes, 1960-1972

Year	Mallard	Pintail	Canvasback	Total
1960	69.03	70.83	80.00	69.79
1961	56.79	76.75	59.97	62.93
1962	68.58	82.11	37.49	74.55
1963	81.44	80.93	33.33	80.78
1964	53.81	63.69	44.42	55.33
1965	71.98	81.72	75.00	73.31
1966	66.12	76.96	28.26	68.73
1967	64.08	85.88	54.17	70.81
1968	71.10	64.94	49.91	69.66
1969	66.99	76.73	74.13	68.18
1970	71.66	69.90	61.11	70.85
1971	78.19	81.20	31.02	78.56
1972	69.5	58.4	76.4	61.1

TABLE B-45.--North Dakota - waterfowl brood and late-nesting indexes by stratum and compared to previous years and the long-term average, 1972

(index numbers in thousands)

	Stratum			Total		Average	Percent Change from	
	29	30	31	1972	1971	1966-71	1971	Average
Broods:								
Duck brood index[1]	1.7	37.4	12.6	51.7	37.4	44.8	+38.2	+ 15.4
Average brood size	4.5	5.4	6.1	5.5	5.6	6.0	- 1.8	- 8.3
Coot brood index	--	13.8	1.3	15.1	13.5	14.8	+11.8	+ 2.0
Late-nesting index[2]								
Dabblers:								
Mallard	.6	13.2	.7	14.5	14.3	16.9	+ 1.4	- 16.5
Gadwall	--	14.4	.7	15.1	9.8	10.5	+ 54.1	+ 43.8
American widgeon	--	.4	.9	1.3	.4	.6	+225.0	+116.7
Green-winged teal	--	.1	--	.1	.8	1.3	- 87.5	- 92.3
Blue-winged teal	--	10.8	.9	11.7	6.9	7.8	+ 69.6	+ 50.0
Shoveler	--	--	.2	.2	--	.5	--	- 60.0
Pintail	--	.7	1.1	1.8	1.2	2.5	+ 50.0	- 28.0
Subtotal	.6	39.6	4.5	44.7	33.4	40.1	+ 33.4	+ 11.5
Divers:								
Redhead	--	1.3	--	1.3	.3	1.3	+333.3	NC
Canvasback	--	.3	--	.3	--	--	--	--
Scaup	--	.6	--	.6	.6	.4	NC	+ 50.0
Ring-necked duck	--	--	--	--	--	--	--	--
Goldeneye	--	--	--	--	--	--	--	--
Bufflehead	--	--	--	--	--	--	--	--
Subtotal	--	2.2	--	2.2	.9	1.7	+144.4	+ 29.4
Miscellaneous:								
Ruddy duck	--	8.8	--	8.8	2.4	6.2	+266.7	+ 41.9
Other	--	--	--	--	--	--	--	--
GRAND TOTAL	.6	50.6	4.5	55.7	36.7	48.0	+ 51.8	+ 16.0

[1]Class II and III broods only

[2]As indicated by adult pairs and singles

TABLE B-46.--South Dakota - waterfowl brood and late-nesting indexes by stratum and compared to previous years and the long-term average, 1972

(index numbers in thousands)

	Stratum			Total		Average	Percent Change from	
	32	33	34	1972	1971	1966-71	1971	Average
Broods:								
Duck brood index[1]	3.9	23.9	30.8	58.6	26.3	30.2	+122.8	+ 94.0
Average brood size	6.1	5.7	4.9	5.3	5.6	5.7	- 5.3	- 7.0
Coot brood index	.9	2.9	2.8	6.6	1.0	2.8	+560.0	+135.7
Late-nesting index[2]								
Dabblers:								
Mallard	2.4	9.9	7.8	20.1	13.0	14.8	+ 54.6	+ 35.8
Gadwall	1.8	7.6	2.2	11.6	7.3	8.1	+ 53.5	+ 43.2
American widgeon	--	--	4.0	4.0	--	1.6	--	+150.0
Green-winged teal	--	--	--	--	--	.8	--	--
Blue-winged teal	2.4	5.2	3.0	10.6	7.5	5.4	+ 41.3	+ 96.3
Shoveler	--	--	.5	.5	--	.9	--	- 44.4
Pintail	--	--	4.3	4.3	2.1	1.7	+104.8	+152.9
Subtotal	6.6	22.7	21.8	51.1	29.9	33.3	+ 70.9	+ 53.4
Divers:								
Redhead	--	1.3	--	1.3	--	.4	--	+225.0
Canvasback	--	--	--	--	--	.1	--	--
Scaup	--	--	--	--	--	.2	--	--
Ring-necked duck	--	--	--	--	--	--	--	--
Goldeneye	--	--	--	--	--	--	--	--
Bufflehead	--	--	--	--	--	--	--	--
Subtotal	--	1.3	--	1.3	--	.7	--	+ 85.7
Miscellaneous:								
Ruddy duck	.4	4.6	--	5.0	1.9	1.9	+163.1	+163.1
Other	--	--	--	--	--	.1	--	--
GRAND TOTAL	7.0	28.6	21.8	57.4	31.8	36.0	+ 80.5	+ 59.4

[1]Class II and III broods only

[2]As indicated by adult pairs and singles

TABLE B-47.--Minnesota - waterfowl breeding population indexes for 1972.

Species	Stratum[1/] 1	2	3	4	State total
Ducks					
Dabblers:					
Mallard	11,029	16,616	21,492	5,243	54,380
Black duck	---	132	---	---	132
Gadwall	179	---	852	---	1,031
American widgeon	---	---	284	146	430
Green-winged teal	120	132	189	146	587
Blue-winged teal	12,374	14,289	22,723	1,172	51,098
Shoveler	299	927	1,041	---	2,267
Pintail	418	794	189	88	1,489
Wood duck	1,315	1,192	2,272	---	4,779
Subtotal	25,734	34,622	49,042	6,795	116,193
Divers:					
Redhead	1,136	2,913	1,515	234	5,798
Canvasback	418	265	1,420	---	2,103
Scaup[2/]	1,793	2,979	7,290	1,142	13,204
Ring-necked duck	3,467	2,913	3,787	469	10,636
Ruddy duck	1,046	1,655	2,840	---	5,541
American goldeneye[3/]	149	---	---	703	852
Subtotal	8,009	10,725	16,852	2,548	38,134
Total ducks	33,746	45,347	65,897	9,344	154,334
Coots	3,736	4,502	7,101	---	15,339
TOTAL	37,482	49,849	72,998	9,344	169,673

1/ The strata given here represent the following:
1 - High density of lake basins
2 - Medium density of lake basins
3 - Low density of lake basins
4 - Roseau and Red Lake bog region in northwestern Minnesota

2/ Many scaup are still migrating north and will not breed in Minnesota.

3/ American goldeneyes tallied in stratum 4 largely represent nonbreeders on large lakes.

TABLE B-48.--Minnesota - breeding population estimates[1/] for ducks in Minnesota during the years 1968 to 1972.

Year	Mallard	Blue-winged teal	All ducks
1968	110,000	160,000	390,000
1969	101,000	162,000	369,000
1970	111,000	153,000	316,000
1971	96,000	153,000	331,000
1972	69,000	100,000	258,000

1/ Estimates are adjusted by ground comparisons for birds not seen.

TABLE B-49.--Washington - Duck and coot breeding population indexes by species and stratum

Species	Stratum				Total			Percentage Change	
	W. Wash.	Potholes	Irrigation	Highlands*	1972	1971	1962-71 Average	From Average	From 1971
Dabblers									
Mallard	33,100	15,650	10,930	11,530	71,210	73,380	62,710	+ 14%	- 3%
Gadwall		3,750		410	4,160	6,600	3,580	+ 16%	- 37%
Widgeon	580	6,970	860	1,560	9,970	13,180	9,250	+ 8%	- 24%
Gr.-winged teal	440	1,850	770	430	3,490	5,280	3,550	- 2%	- 34%
Bl.-winged& Cinn. teal	4,320	10,940	9,210	2,860	27,330	30,500	24,200	+ 13%	- 10%
Shoveler	440	3,740	530	470	5,180	8,370	4,580	+ 13%	- 38%
Pintail	300	3,930	800	770	5,800	8,330	4,750	+ 22%	- 30%
Wood duck	7,190	320	50	190	7,750	12,020	14,800	- 48%	- 36%
Subtotal	46,370	47,150	23,150	18,220	134,890	157,660	127,420	+ 6%	- 14%
Divers									
Redhead		7,440	1,300	1,570	10,310	15,090	7,850	+ 31%	- 32%
Canvasback		320		170	490	590	190	+158%	- 2%
Scaup		3,060	290	1,870	5,220	7,040	7,260	- 28%	- 26%
Ring-necked duck		1,970		1,280	3,250	2,230	1,290	+152%	+ 46%
Goldeneye		270	50	1,830	2,150	1,870	2,400	- 10%	+ 15%
Bufflehead	60	400	220	240	920	450	260	+254%	+104%
Ruddy duck	100	5,240	820	1,530	7,690	10,300	6,780	+ 13%	- 25%
Subtotal	160	18,700	2,680	8,490	30,030	37,570	26,030	+ 15%	- 20%
Mergansers									
American Merganser	30	40		170	240	230	280	- 14%	+ 4%
Hooded Merganser	1,500			40	1,540	1,560	2,500	- 38%	- 1%
Subtotal	1,530	40		210	1,780	1,790	2,780	- 36%	- 1%
Unidentified	210		100		310				
TOTAL DUCKS	48,270	65,890	25,930	26,920	167,010	197,020	156,230	+ 7%	- 15%
Coot	3,540	17,740	7,060	70	28,410	30,630	17,140	+ 66%	- 7%
GRAND TOTAL	51,810	83,630	32,990	26,990	195,420	227,650	173,370	+ 13%	- 14%

*The indexes for Palouse-type streams are included with those of the northeastern highlands.

TABLE B-50.--Washington - Waterfowl production indexes

Species	1972	1971	1962-71 Average	From Average	From 1971
Dabblers					
Mallard	185,700	165,900	172,000	+ 8%	+ 12%
Gadwall	13,500	15,500	9,500	+ 42%	- 13%
Widgeon	30,200	32,200	25,200	+ 20%	- 6%
Gr.-winged teal	11,200	12,600	9,800	+ 14%	- 11%
Bl.-winged & Cinn. teal	77,100	64,500	63,500	+ 21%	+ 20%
Shoveler	15,300	18,100	12,400	+ 23%	- 15%
Pintail	16,800	18,500	13,000	+ 29%	- 9%
Wood duck	19,100	25,800	39,500	- 52%	- 26%
Subtotal	368,900	353,100	344,900	+ 7%	+ 15%
Divers					
Redhead	17,500	25,800	16,200	+ 8%	- 32%
Canvasback	500	600	200	+150%	- 17%
Scaup	7,000	10,000	9,800	- 29%	- 30%
Ring-necked duck	4,400	3,200	1,900	+132%	+ 38%
Goldeneye	7,700	5,600	7,000	+ 10%	+ 38%
Bufflehead	900	400	300	+200%	+ 125%
Ruddy duck	11,100	15,300	11,400	- 3%	- 27%
Subtotal	49,100	60,900	46,800	+ 5%	- 19%
Mergansers					
American Merganser	500	300	500	No change	+ 67%
Hooded Merganser	3,400	3,600	6,400	- 47%	- 6%
Subtotal	3,900	3,900	6,900	- 43%	No change
Unidentified	400				
TOTAL DUCKS	422,300	417,900	398,600	+ 6%	+ 1%
TOTAL GEESE	12,400	10,950	10,420	+ 19%	+ 13%
Canada goose					
Coot	52,300	47,400	31,700	+ 65%	+ 10%

TABLE B-51.--California - waterfowl nesting pair index, 1971 and 1972.

Species	Sacramento Valley 1971	Sacramento Valley 1972	Suisun Marsh 1971	Suisun Marsh 1972	North San Joaquin Valley 1971	North San Joaquin Valley 1972	South San Joaquin Valley 1971	South San Joaquin Valley 1972	Northeastern California 1971	Northeastern California 1972	Klamath Basin 1971	Klamath Basin 1972	Total 1971	Total 1972
Ducks:														
Dabblers:														
Mallard	101,900	99,400	3,860	3,120	8,510	5,200	2,580	1,420	18,750	26,910	5,160	4,060	140,760	140,110
Gadwall	1,200	400	1,850	880	1,340	1,940	120	130	5,600	10,900	4,680	5,400	14,790	19,650
Cinnamon teal	8,520	4,330	2,060	1,160	1,440	2,190	750	830	5,710	6,620	3,330	5,630	21,810	20,760
Shoveler	360	0	560	120	240	0	30	90	910	540	5,580	1,670	5,680	2,420
Pintail	770	620	320	360	260	160	100	130	4,380	8,290	909	1,040	6,730	10,600
Subtotal	112,750	104,750	8,650	5,640	11,790	9,490	3,580	2,600	35,350	53,260	17,650	17,800	189,770	193,540
Divers:														
Canvasback									60	20	700	420	760	440
Redhead									2,980	2,020	2,480	2,870	5,870	5,070
Scaup	180	180	90	0	120	0	20	0	1,080	470	1,010	810	2,090	1,280
Ruddy duck	3,750	720	330	440	240	50	140	30	690	400	3,690	4,420	8,840	6,060
Subtotal	3,930	900	420	440	360	50	160	30	4,810	2,910	7,880	8,520	17,560	12,850
Miscellaneous:	890	180	30	0	0	290	120	0	960	580	1,600	230	3,600	1,280
Total ducks	117,570	105,830	9,100	6,080	12,150	9,830	3,860	2,630	41,120	56,750	27,130	26,550	210,930	207,670
Canada goose:	237,820	78,520	15,370	10,840	8,030	7,480	5,370	11,700	21,800	20,000			25,360	24,450
Coot:	0				0	0			11,890	5,500			247,540	121,400

TABLE B-52.--California - waterfowl fall population index, 1971 and 1972.

Species	Sacramento Valley 1971	Sacramento Valley 1972	Suison Marsh 1971	Suison Marsh 1972	North San Joaquin Valley 1971	North San Joaquin Valley 1972	South San Joaquin Valley 1971	South San Joaquin Valley 1972	North-eastern California 1971	North-eastern California 1972	Klamath Basin 1971	Klamath Basin 1972	Total 1971	Total 1972
Ducks:														
Dabblers:														
Mallard	24,440	23,800	2,050	1,250	1,190	960	2,890	4,140	670	530	940	520	32,140	31,200
Gadwall	240	80	270	390	590	290	710	1,390	620	620	50	50	2,480	2,820
Cinnamon teal	2,280	1,160	390	590	660	370	880	1,020	420	630	270	320	4,900	4,090
Shoveler	80	0	60	0	180	40	150	90	380	200	10	40	860	370
Pintail	200	160	70	40	100	120	770	1,450	150	130	40	50	1,330	1,980
Subtotal	27,200	25,200	2,840	2,270	2,720	1,780	5,400	8,090	2,240	2,110	1,310	980	41,710	40,430
Divers:														
Canvasback							10	10	70	50			80	60
Redhead							440	300	420	350			970	690
Scaup	40	40	30	0	30	0	180	80	120	80	10	0	300	160
Ruddy duck	840	160	60	20	120	160	120	70	870	610	50	10	2,060	1,030
Subtotal	880	200	90		150	160	750	460	1,480	1,090	60	10	3,410	1,940
Miscellaneous:	200	40	0	70	10		190	120	290	30	40	0	730	260
Total ducks	28,280	25,440	2,930	2,360	2,880	1,940	6,340	8,670	4,010	3,230	1,410	990	45,850	42,630
Canada goose:	41,880	17,040	1,750	1,630	2,820	1,990			720	780	990	2,150	1,480	1,950
Coot:									2,490	1,130			51,920	24,860

TABLE B-53.--Species composition of breeding populations of waterfowl in northern and southern Utah, 1968-1972 as determined from ground survey data.

Species	Northern Utah					Southern Utah				
	1968	1969	1970	1971	1972	1968	1969	1970	1971	1972
Redhead	30.7	34.6	36.1	35.0	19.2	20.7	17.5	15.4	17.8	16.1
Mallard	11.3	10.4	9.5	10.1	9.1	13.3	14.7	16.1	16.7	21.1
Cinnamon teal	15.5	10.0	6.1	7.0	18.4	15.7	17.3	18.5	14.4	12.5
Gadwall	12.4	17.4	19.2	21.3	17.4	15.2	13.6	14.9	17.2	15.4
Ruddy duck	13.1	14.6	4.1	5.0	11.2	10.3	10.5	7.7	8.2	6.0
Pintail	8.3	7.1	1.4	9.1	11.4	10.1	9.7	11.2	11.0	13.9
Shoveler	7.1	6.0	2.0	7.9	6.7	7.1	7.5	7.0	7.9	8.9
Green-winged teal	1.6	0.3	0.3	1.2	0.6	1.5	0.7	1.3	1.6	0.9
Blue-winged teal	0.7	0.5	0.3	2.4	4.4	3.0	6.6	5.8	3.3	3.3
American widgeon	tr.	0.1	0.1	---	1.2	1.3	0.8	1.3	1.6	1.0
Scaup	0.0	0.0	0.5	1.0	0.0	1.8	0.6	0.4	0.3	0.4
Bufflehead	0.0	0.0	0.2	---	0.1	0.0	0.5	0.1	---	0.0
Canvasback	0.0	0.0	0.1	---	0.3	tr.	0.0	0.1	---	tr.
Goldeneye	0.0	0.0	0.1	---	0.0	0.0	0.0	0.1	---	tr.
Ring-necked duck	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.4
TOTAL	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%

TABLE B-54--Trends in dike line breeding pair counts made on four state waterfowl management areas, 1968-1972.

Species	Ogden Bay					Farmington Bay					Public Shooting Grounds					Clear Lake				
	1968	1969	1970	1971	1972	1968	1969	1970	1971	1972	1968	1969	1970	1971	1972	1968	1969	1970	1971	1972
Canada goose	75	61	28	45	65	75	62	39	59	60	9	8	5	12	24	8	14	3	7	7
Mallard	321	490	347	459	476	8	16	37	20	35	14	16	84	137	146	32	82	204	127	135
Gadwall	210	490	360	454	510	40	76	79	243	295	30	16	47	76	256	104	136	121	114	105
Pintail	159	290	222	238	204	52	44	34	72	89	13	11	19	152	403	57	54	144	76	74
Cinnamon teal	483	710	403	684	721	75	144	338	263	240	30	20	60	53	161	57	217	294	116	126
Redhead	520	790	266	264	288	316	354	638	153	413	263	244	261	330	470	169	183	215	181	144
Shoveler	142	250	135	254	284	13	57	22	175	65	12	10	8	85	60	41	86	97	96	118
Green-winged teal	3	5	7	8	11	1	0	3	33	4	1	0	7	14	256	3	25	71	13	17
Blue-winged teal	22	18	17	20	19	2	0	6	4	3	0	11	3	4	16	7	7	23	17	13
Ruddy duck	31	260	148	222	182	218	197	581	419	330	30	17	47	134	168	53	57	147	101	72
American widgeon	0	0	0	0	0	1	0	5	14	4	2	0	5	35	67	1	1	14	14	4
Goldeneye	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1	0	0
Scaup	0	0	0	0	0	0	0	0	25	0	0	0	0	0	0	3	1	2	0	0
Bufflehead	0	0	0	0	0	0	0	0	5	3	0	0	0	0	0	0	0	0	0	0
Canvasback	0	0	1	0	0	0	0	1	13	15	0	0	0	0	2	0	0	1	0	0
TOTAL	1885	3354	1905	2648	2660	738	950	2028	1498	1556	404	347	546	1032	2029	535	863	1337	862	815

TABLE B-55.--Utah - Trend figures obtained from aerial surveys, 1968 - 1972.*

Route Flows	Square Miles Sampled	Total Ducks Counted					Ducks Per Square Mile				
		1968	1969	1970	1971	1972	1968	1969	1970	1971	1972
Box Elder County	48.0	2,943	3,509	3,614	3,745	2,142	61.3	73.1	75.3	78.0	44.6
Weber County	15.5	1,092	1,801	1,891	1,927	928	70.4	130.1	122.0	124.3	59.9
Davis County	14.2	1,007	1,410	1,520	1,514	966	70.9	100.7	107.4	106.6	68.0
Jordan River Clubs	6.2	560	714	903	875	231	90.3	119.0	145.6	141.3	37.3
Sale Lake County	6.7	163	676	540	585	141	24.3	112.7	80.6	81.3	21.0
Utah County	18.0	733	448	450	---	---	40.7	24.9	25.0	----	----
TOTAL	108.6**	6,498	8,558	8,919	8,646	4,408	59.8	79.2	82.1	95.4	48.7

* Utah County transect dropped in 1971.

** 90.6 square miles sampled since 1971.

TABLE B-56.--Breeding pairs and production of Canada geese on trend areas in Utah, 1966 - 1972.

Area	1966		1967		1968		1969		1970		1971		1972	
	Br.Pr.	Young	Br.Pr.	Young	Br.Pr.	Young	Br.Pr	Young	Br.Pr.	Young	Br.Pr.	Young	Br.Pr.	Young
Cutler Res.	20	103	24	106	23	140	40	210	20	103	9	34	31	167
Public Shooting Grounds	11	53	7	32	13	65	8	33	5	19	12	60	24	89
Bear River Refuge and Vicinity	404	1939	201	1024	315	1486	277	1092	400	1688	144	734	285	1467
Ogden Bay WMA	94	497	85	373	143	644	61	246	28	125	45	203	65	260
Farmington Bay WMA	76	378	78	360	75	359	62	277	39	162	59	269	60	284
Scipio Reservoir	5	22	2	12	5	26	3	15	3	8	6	24	8	46
Redmond Lake	12	57	10	57	5	26	7	33	7	44	9	25	13	54
Gunnison Res.	9	51	4	19	5	29	6	14	9	40	7	15	7	32
Clear Lake WMA	7	28	7	31	8	38	6	29	3	11	7	28	7	28
Mona Reservoir	9	38	9	26	3	13	4	16	5	24	7	30	4	16
Wales Reservoir	28	132	9	44	3	21	2	12	6	30	6	30	10	48
Rich Co. (Bear River)	87	410	83	444	114	525	69	344	29	192	85	406	72	417
Browns Park WMA	--	--	--	--	34	174	23	115	22	53	9	25	17	75
TOTALS	762	3708	518	2478	746	3546	568	2436	574	2509	405	1883	603	2971

TABLE B-57.--Summary of Colorado duck breeding ground population estimates in selected areas, 1972.

Area	Total Estimated Breeding Pairs			Percent Change	
	1972	1971	Long-Term Average 1/	From 1971	From Long-Term Average
San Luis Valley	23,509	30,272	27,813	-22.3	-15.5
North Park 2/	8,922	14,711	17,989	-39.4	-50.4
South Platte Valley	7,019	8,672	6,009	-19.1	+16.8
Cache la Poudre Valley	4,630	3,115	3,022	+48.6	+53.2
Yampa Valley	1,857	2,340	2,867	-20.6	-35.2
Brown's Park	1,339	1,581	1,029	-15.3	+30.1
Totals	47,276	60,691	58,729	-22.1	-19.5

1/ San Luis Valley and North Park averages are based on results of 1964 through 1971 and 1968 through 1971 surveys, respectively, because of changes in survey methods utilized prior to those dates. Figures for other areas are 18-year averages.
2/ Aerial counts corrected by species from visibility ratios obtained in the San Luis Valley.

TABLE B-58.--Species composition of Colorado's 1972 duck breeding population.

Species	Number of breeding pairs			Percent Species Composition		
	1972	1971	1954-1971 Average 1/	1972	1971	1954-1971 Average
Mallard	22,504	24,150	28,121	47.6	39.8	56.7
Blue-winged and Cinnamon teal	6,532	7,901	4,759	13.8	13.0	9.6
Gadwall	4,666	9,884	5,155	9.9	16.3	10.4
Pintail	3,073	3,862	3,419	6.5	6.4	6.9
Green-winged teal	2,094	1,923	2,294	4.4	3.2	4.6
Shoveler	4,152	4,354	2,074	8.8	7.2	4.2
Redhead	1,802	4,276	1,813	3.8	7.0	3.7
American widgeon	1,331	2,640	853	2.8	4.3	1.7
Other Divers	1,122	1,701	1,142	2.4	2.8	2.3
Total	47,276	60,691	49,630			

1/ Species composition computed from data from all areas for the 18 year period regardless of changes in survey methods.

TABLE B-59.--Estimated number of Canada goose goslings, Moffat County, Colorado 1972.

Area	No. of Goslings			Percent Change	
	1972	1971	1956-1971 Average	From 1971	From 1956-1971 Average
Yampa River	117	173	142	- 32.4	- 17.6
Green River					
Brown's Park	139	101	49	+ 37.6	+183.7
Dinosaur Nat'l Monument 1/	136	136	113	- 0.0	+ 20.4
Little Snake River	61	132	80	- 50.0	- 26.3
TOTAL	453	542	384	- 16.4	+ 18.0

1/ Area first surveyed in 1970.
2/ Not included in survey until 1962.

TABLE B-60.--Total number of Canada goose goslings produced in north-central Colorado production trend areas, 1972.

Area	No. of Goslings			Percent Change	
	1972	1971	1969-1971 Average	From 1971	From 1969-1971 Average
Wellington	219	301	286	-27.2	-23.4
Fort Collins	318 1/	255	250	+24.7	+27.2
Loveland	74	125	75	-40.8	- 1.3
Boulder	199	357	251	-44.3	-20.7
Denver	294	296	275	- 0.7	+ 6.9
Total	1,104	1,334	1,137	-17.2	- 2.9

1/ Includes 23 birds raised at Ft. Collins Wildlife Research Center.

TABLE B-61.--Nebraska - duck breeding population and species composition 1971 and 1972.

(index numbers in thousands)

Species	1971 Population	1972 Population	Percent 1972 Population	Percent Change from 1971
Dabblers:				
Blue-winged teal	33,527	34,906	33.6	+ 4
Mallard	26,420	18,058	17.4	- 31
Shoveler	12,385	14,640	14.1	+ 18
Pintail	8,724	6,193	5.9	- 29
Gadwall	13,277	8,497	8.2	- 36
Green-winged teal	490	244	.2	- 50
American widgeon	812	234	.2	- 71
Sub-total	95,635	82,772	79.6	- 13
Divers:				
Redhead	5,474	785	.7	- 85
Canvasback	260	---	---	- ---
Scaup	2,386	5,384	5.2	+ 125
Bufflehead	---	389	.4	+ ---
Ruddy duck	2,837	14,580	14.0	+ 413
Sub-total	10,957	21,138	20.4	+ 93
TOTAL DUCKS	106,592	103,910	100.0	- 2

C. WATERFOWL HARVEST DATA TABLES

TABLE C-1--Factors used to adjust survey statistics to include the activities of junior hunters

	Junior hunter adjustment factors			
Estimate	Pacific Flyway & Alaska	Central Flyway	Mississippi Flyway	Atlantic Flyway
Ducks bagged (including sea ducks)	1.04985	1.06055	1.04655	1.03621
Geese bagged	1.04508	1.04110	1.03369	1.02402
Coots bagged	1.09415	1.10147	1.09034	1.08302
Days hunted	1.08708	1.08559	1.07003	1.05174
Ducks lost	1.06152	1.07053	1.05699	1.03641
Geese lost	1.07411	1.07067	1.03738	1.01573
Coots lost	1.10685	1.10400	1.10282	1.08247

TABLE C-2--Factors used to adjust survey statistics for memory and prestige bias

	Memory and prestige response bias factors			
Estimate	Pacific Flyway & Alaska	Central Flyway	Mississippi Flyway	Atlantic Flyway
Ducks bagged (including sea ducks)	0.78952	0.73902	0.77656	0.86925
Geese bagged	0.85159	0.86838	0.84800	0.80428
Coots bagged	0.59248	0.78878	0.63668	0.60692

TABLE C-3--Total retrieved (by species) and unretrieved duck and coot kill in the United States during the 1970 and 1971 hunting seasons (retrieved kill estimates adjusted for response bias; all estimates include kill by junior hunters)[1]

	Season	Alaska	Pacific Flyway	Central Flyway	Mississippi Flyway	Atlantic Flyway	United States total
Retrieved duck kill:							
Mallard	1970	20,200	1,314,500	1,069,500	2,495,600	355,200	5,255,100
	1971	22,000	1,288,000	1,172,100	2,189,200	348,900	5,020,200
	Percent change	+ 9	- 2	+ 10	- 12	- 2	- 4
Domestic mallard	1970	0	900	400	2,900	5,300	9,400
	1971	100	1,700	400	6,500	6,300	14,800
	Percent change	++	+ 89	0	+124	+ 19	+ 57
Black duck	1970	0	0	200	124,700	297,700	422,600
	1971	0	0	200	105,900	290,900	396,900
	Percent change	0	0	0	- 15	- 2	- 6
Black X mallard	1970	0	0	100	9,500	12,000	21,700
	1971	0	0	0	3,900	5,700	9,600
	Percent change	0	0	--	- 59	- 53	- 56
Mottled duck	1970	0	0	106,600	75,300	33,500	215,500
	1971	0	0	56,300	47,700	14,600	118,600
	Percent change	0	0	- 47	- 37	- 56	- 45
Gadwall	1970	500	115,400	304,200	336,700	24,400	781,200
	1971	600	134,100	316,400	287,700	16,900	755,600
	Percent change	+ 20	+ 16	+ 4	- 15	- 31	- 3
American widgeon	1970	9,000	493,700	222,900	260,200	79,200	1,065,000
	1971	13,800	478,700	184,800	191,900	48,100	917,400
	Percent change	+ 53	- 3	- 17	- 26	- 39	- 14

Note: Individual columns rounded separately. Totals do not check exactly as result.

TABLE C-3--Total retrieved (by species) and unretrieved duck and coot kill in the United States during the 1970 and 1971 hunting seasons (retrieved kill estimates adjusted for response bias; all estimates include kill by junior hunters)--continued[1]

	Season	Alaska	Pacific Flyway	Central Flyway	Mississippi Flyway	Atlantic Flyway	United States total
Retrieved duck kill, continued:							
Green-winged teal	1970	8,200	568,300	429,000	547,400	176,600	1,729,500
	1971	8,500	483,500	313,000	333,100	147,600	1,285,700
	Percent change	+ 4	- 15	- 27	- 39	- 16	- 26
Blue-winged and cinnamon teal	1970	300	66,600	186,300	622,400	79,600	955,200
	1971	0	65,700	216,500	579,800	43,700	905,600
	Percent change	--	- 1	+ 16	- 7	- 45	- 5
Shoveler	1970	2,400	281,500	105,600	164,900	15,100	569,500
	1971	2,900	237,400	86,800	90,800	11,500	429,400
	Percent change	+ 21	- 16	- 18	- 45	- 24	- 25
Pintail	1970	13,900	1,248,300	276,000	266,500	56,400	1,861,100
	1971	17,700	970,000	161,500	125,000	26,100	1,300,400
	Percent change	+ 27	- 22	- 41	- 53	- 54	- 30
Wood duck	1970	0	29,400	55,600	679,600	357,900	1,122,400
	1971	0	33,100	39,200	571,900	281,700	925,900
	Percent change	0	+ 13	- 29	- 16	- 21	- 18
Redhead	1970	100	40,800	68,900	91,800	13,900	215,400
	1971	0	51,600	59,900	86,000	23,000	220,500
	Percent change	--	+ 26	- 13	- 6	+ 65	+ 2
Canvasback	1970	600	55,600	22,300	46,000	19,000	143,500
	1971	100	55,000	14,700	39,100	32,900	141,700
	Percent change	- 83	- 1	- 34	- 15	+ 73	- 1

Note: Individual columns rounded separately. Totals do not check exactly as result.

TABLE C-3--Total retrieved (by species) and unretrieved duck and coot kill in the United States during the 1970 and 1971 hunting seasons (retrieved kill estimates adjusted for response bias; all estimates include kill by junior hunters)--continued[1]

	Season	Alaska	Pacific Flyway	Central Flyway	Mississippi Flyway	Atlantic Flyway	United States total
Retrieved duck kill, continued:							
Greater scaup	1970	1,600	10,900	800	22,700	70,400	106,400
	1971	800	17,500	1,800	26,900	56,300	103,300
	Percent change	- 50	+ 61	+125	+ 19	- 20	- 3
Lesser scaup	1970	700	21,200	37,900	274,600	43,500	377,800
	1971	1,200	32,700	79,000	320,800	84,500	518,200
	Percent change	+ 71	+ 54	+108	+ 17	+ 94	+ 37
Ring-necked duck	1970	100	20,700	43,500	306,600	138,500	509,400
	1971	100	18,200	27,300	300,400	79,200	425,300
	Percent change	0	- 12	- 37	- 2	- 43	- 17
Goldeneyes	1970	1,600	33,400	5,600	33,600	23,700	97,900
	1971	1,400	18,900	5,800	37,300	26,300	89,600
	Percent change	- 13	- 43	+ 4	+ 11	+ 11	- 8
Bufflehead	1970	1,000	34,400	18,000	53,000	47,800	154,300
	1971	800	30,700	19,800	49,700	62,500	163,600
	Percent change	- 20	- 11	+ 10	- 6	+ 31	+ 6
Ruddy duck	1970	0	50,800	12,200	29,000	6,300	98,200
	1971	0	41,200	12,800	27,800	12,100	93,900
	Percent change	0	- 19	+ 5	- 4	+ 92	- 4
Oldsquaw	1970	0	400	100	4,900	13,500	19,000
	1971	1,200	200	0	1,900	14,300	17,600
	Percent change	++	- 50	--	- 61	+ 6	- 7

Note: Individual columns rounded separately. Totals do not check exactly as result.

TABLE C-3--Total retrieved (by species) and unretrieved duck and coot kill in the United States during the 1970 and 1971 hunting seasons (retrieved kill estimates adjusted for response bias; all estimates include kill by junior hunters)--continued[1]

	Season	Alaska	Pacific Flyway	Central Flyway	Mississippi Flyway	Atlantic Flyway	United States total
Retrieved duck kill, continued:							
Eiders	1970	0	0	0	500	13,700	14,200
	1971	200	0	0	0	13,900	14,100
	Percent change	++	0	0	--	+ 1	- 1
Scoters	1970	2,500	500	400	3,900	44,300	51,600
	1971	1,200	2,300	1,100	4,500	49,300	58,400
	Percent change	- 52	+360	+175	+ 15	+ 11	+ 13
Hooded merganser	1970	100	3,500	4,700	30,400	24,200	63,000
	1971	100	2,600	4,400	28,200	21,800	57,100
	Percent change	0	- 26	- 6	- 7	- 10	- 9
Other mergansers	1970	100	3,900	1,600	8,300	17,200	31,100
	1971	300	6,400	5,200	4,700	10,400	27,100
	Percent change	+200	+ 64	+225	- 43	- 40	- 13
Other ducks	1970	500	1,600	100	700	2,300	5,200
	1971	200	300	300	1,000	1,100	2,900
	Percent change	- 60	- 81	+200	+ 43	- 52	- 44
Total:	1970	63,400	4,396,300	2,972,500	6,491,700	1,971,200	15,895,200
	1971	73,100	3,969,600	2,779,200	5,461,500	1,729,700	14,013,100
	Percent change	+ 15	- 10	- 7	- 16	- 12	- 12

Note: Individual columns rounded separately. Totals do not check exactly as result.

TABLE C-3--Total retrieved (by species) and unretrieved duck and coot kill in the United States during the 1970 and 1971 hunting seasons (retrieved kill estimates adjusted for response bias; all estimates include kill by junior hunters)--continued[1]

	Season	Alaska	Pacific Flyway	Central Flyway	Mississippi Flyway	Atlantic Flyway	United States total
Unretrieved duck kill:	1970	10,500	813,400	614,800	1,439,400	472,500	3,350,700
	1971	11,700	723,400	641,100	1,305,300	414,200	3,095,700
	Percent change	+ 11	- 11	+ 4	- 9	- 12	- 8
Total duck kill:	1970	73,900	5,210,900	3,586,100	7,931,300	2,443,700	19,246,000
	1971	84,800	4,693,100	3,420,300	6,766,800	2,143,800	17,108,700
	Percent change	+ 15	- 10	- 5	- 15	- 12	- 11
Retrieved coot kill:	1970	500	248,000	89,900	727,600	144,500	1,210,400
	1971	900	151,200	80,700	428,800	161,400	823,000
	Percent change	+ 80	- 39	- 10	- 41	+ 12	- 32
Unretrieved coot kill:	1970	100	118,900	37,000	197,700	39,500	393,200
	1971	300	86,400	41,700	121,000	46,600	296,000
	Percent change	+200	- 27	+ 13	- 39	+ 18	- 25
Total coot kill:	1970	500	366,900	126,900	925,400	183,900	1,603,600
	1971	1,300	237,500	122,300	549,900	208,000	1,119,000
	Percent change	+160	- 35	- 4	- 41	+ 13	- 30

Note: Individual columns rounded separately. Totals do not check exactly as result.

[1]Includes ducks bagged during all special duck seasons except the experimental October San Luis Valley season in Colorado in 1970.

TABLE C-4--Total retrieved (by species) and unretrieved goose kill in the United States during the 1970 and 1971 hunting seasons (retrieved kill estimates adjusted for response bias; all estimates include kill by junior hunters)

	Season	Alaska	Pacific Flyway	Central Flyway	Mississippi Flyway	Atlantic Flyway	United States total
Retrieved kill:							
Canada goose[1]	1970	10,200	223,800	221,000	196,500	270,300	921,700
	1971	12,200	179,200	193,400	194,700	258,700	838,200
	Percent change	+ 20	- 20	- 12	- 1	- 4	- 9
Snow goose	1970	1,100	141,700	185,500	102,500	0	430,700
	1971	600	109,200	119,100	52,200	100	281,200
	Percent change	- 45	- 23	- 36	- 49	++	- 35
Blue goose	1970	0	0	98,300	188,300	700	287,300
	1971	0	0	60,800	113,600	0	174,500
	Percent change	0	0	- 38	- 40	--	- 39
White-fronted goose	1970	1,300	74,900	26,800	41,600	0	144,600
	1971	2,900	35,400	39,800	20,100	0	98,200
	Percent change	+123	- 53	+ 49	- 52	0	- 32
Brant	1970	1,300	400	0	200	29,700	31,500
	1971	400	2,900	0	0	79,100	82,300
	Percent change	- 69	+625	0	--	+166	+161

Note: Individual columns rounded separately. Totals do not check exactly as result.

TABLE C-4--Total retrieved (by species) and unretrieved goose kill in the United States during the 1970 and 1971 hunting seasons (retrieved kill estimates adjusted for response bias; all estimates include kill by junior hunters)--continued

	Season	Alaska	Pacific Flyway	Central Flyway	Mississippi Flyway	Atlantic Flyway	United States total
Retrieved kill, continued:							
Others and unknown	1970	1,400[2]	5,200[3]	0	0	0	6,700
	1971	700[2]	3,700[3]	0	0	0	4,400
	Percent change	- 50	- 29	0	0	0	- 34
Total:	1970	15,300	445,900	531,600	529,000	300,700	1,822,500
	1971	16,800	330,400	413,100	380,600	337,900	1,478,800
	Percent change	+ 10	- 26	- 22	- 28	+ 12	- 19
Unretrieved kill:	1970	3,000	71,100	77,600	83,400	44,200	279,300
	1971	2,600	56,100	69,900	55,300	44,300	228,300
	Percent change	- 13	- 21	- 10	- 34	0	- 18
Total kill:	1970	18,200	517,000	609,100	612,500	345,000	2,101,800
	1971	19,400	386,500	483,000	436,000	382,200	1,707,100
	Percent change	+ 7	- 25	- 21	- 29	+ 11	- 19

Note: Individual columns rounded separately. Totals do not check exactly as result.

[1]Include all subspecies.
[2]Emperor goose.
[3]Ross' goose.

TABLE C-5--Waterfowl hunting activity and bags of ducks and geese in Alaska and the Pacific Flyway during the 1970 and 1971 hunting seasons (estimates unadjusted for response bias; totals include activity by junior hunters)

State and hunting season	Daily duck bag and possession limits	Days in duck season	Number of adult hunters (potential)	Days per adult hunter	Total hunter-days	Seasonal duck bag per adult hunter	Total duck bag	Seasonal goose bag per adult hunter	Total goose bag
Alaska:									
1970	6-18	105	12,840	3.87	54,000	5.96	80,400	1.34	17,900
1971	6-18	105	14,260	4.59	71,100	6.18	92,600	1.32	19,700
Percent change			+ 11	+ 19	+ 32	+ 4	+ 15	- 1	+ 10
Arizona:									
1970	6-12	93[1]	14,100	4.57	70,000	5.77	85,400	0.14	2,100
1971	6-12	93	15,340	4.90	81,800	6.89	110,900	0.09	1,500
Percent change			+ 9	+ 7	+ 17	+ 19	+ 30	- 36	- 29
California:									
1970	7-7	--[2]	187,240	7.40	1,505,400	15.84	3,113,400	1.69	331,200
1971	7-7	--[2]	170,610	6.95	1,289,500	14.64	2,621,900	1.39	247,700
Percent change			- 9	- 6	- 14	- 8	- 16	- 18	- 25
Colorado:[3]									
1970	6-12	93	3,900	5.05	21,400	6.13	25,000	0.19	800
1971	6-12	93	4,480	5.39	26,200	7.96	37,400	0.14	600
Percent change			+ 15	+ 7	+ 22	+ 30	+ 50	- 26	- 25
Idaho:									
1970	7-7	93	31,710	5.62	193,600	10.45	347,900	0.50	16,600
1971	7-7	93	33,470	7.01	255,000	11.01	386,800	0.44	15,500
Percent change			+ 6	+ 25	+ 32	+ 5	+ 11	- 12	- 7

TABLE C-5--Waterfowl hunting activity and bags of ducks and geese in Alaska and the Pacific Flyway during the 1970 and 1971 hunting seasons (estimates unadjusted for response bias; totals include activity by junior hunters)--continued

State and hunting season	Daily duck bag and possession limits	Days in duck season	Number of adult hunters (potential)	Days per adult hunter	Total hunter-days	Seasonal duck bag per adult hunter	Total duck bag	Seasonal goose bag per adult hunter	Total goose bag
Montana:[3]									
1970	6-12	93	20,530	5.12	114,300	7.55	162,800	0.34	7,200
1971	6-12	93	19,700	5.47	117,100	7.20	148,900	0.38	7,800
Percent change			- 4	+ 7	+ 2	- 5	- 9	+ 12	+ 8
Nevada:									
1970	6-12	93	14,230	5.19	80,300	9.91	148,100	0.59	8,700
1971	6-12	93	14,800	5.57	89,700	9.48	147,300	0.59	9,100
Percent change			+ 4	+ 7	+ 12	- 4	- 1	0	+ 5
New Mexico:[3]									
1970	6-12	93	800	4.45	3,900	5.53	4,700	0.20	200
1971	6-12	93	950	4.27	4,400	4.02	4,000	0.04	tr.
Percent change			+ 19	- 4	+ 13	- 27	- 15	- 80	--
Oregon:									
1970	6-12	93	61,030	6.39	424,200	8.14	521,300	1.20	76,400
1971	6-12	93	58,090	6.25	394,700	8.01	488,400	0.74	45,100
Percent change			- 5	- 2	- 7	- 2	- 6	- 38	- 41
Utah:									
1970	6-12	93	35,680	7.16	277,800	10.91	408,500	0.34	12,500
1971	6-12	93	37,260	5.84	236,700	11.22	438,700	0.20	7,800
Percent change			+ 4	- 18	- 15	+ 3	+ 7	- 41	- 38

TABLE C-5--Waterfowl hunting activity and bags of ducks and geese in Alaska and the Pacific Flyway during the 1970 and 1971 hunting seasons (estimates unadjusted for response bias; totals include activity by junior hunters)--continued

State and hunting season	Daily duck bag and possession limits	Days in duck season	Number of adult hunters (potential)	Days per adult hunter	Total hunter-days	Seasonal duck bag per adult hunter	Total duck bag	Seasonal goose bag per adult hunter	Total goose bag
Washington:									
1970	6-12	93	83,570	6.86	623,100	8.37	734,100	0.75	65,800
1971	6-12	93	75,750	7.19	592,200	7.93	630,900	0.65	51,700
Percent change			- 9	+ 5	- 5	- 5	- 14	- 13	- 21
Wyoming:[3]									
1970	7-7	90	1,630	5.54	9,800	10.90	18,600	1.23	2,100
1971	6-12	91	1,780	5.12	9,900	6.81	12,700	0.66	1,200
Percent change			+ 9	- 8	+ 1	- 38	- 32	- 46	- 43
Flyway total:									
1970	--	--	454,420	6.73	3,323,800	11.67	5,569,800	1.10	523,600
1971	--	--	432,230	6.59	3,097,100	11.08	5,027,900	0.86	388,000
Percent change			- 5	- 2	- 7	- 5	- 10	- 22	- 26

[1]Indicates split season.
[2]Varies by zone.
[3]Includes only that portion of the State lying within the Pacific Flyway.

TABLE C-6--Total numbers of duck stamps sold and their proportionate distribution among nonhunters, active hunters, and successful hunters in Alaska and the Pacific Flyway during the 1970 and 1971 hunting seasons

State	1970--Final sales report				1971--Final sales report			
	Total duck stamps sold	Percent sold to nonhunters	Percent of potential adult waterfowl hunters who were: Active	Successful	Total duck stamps sold	Percent sold to nonhunters	Percent of potential adult waterfowl hunters who were: Active	Successful
Alaska	12,936	0.75	66	54	14,423	1.12	70	55
Arizona	14,199	0.71	76	56	15,465	0.79	76	54
California	188,861	0.86	85	72	173,474	1.65	84	72
Colorado[1]	3,913	0.37	81	67	4,514	0.86	83	68
Idaho	31,768	0.17	78	69	33,640	0.52	81	68
Montana[1]	20,600	0.32	78	62	19,896	0.99	78	63
Nevada	14,361	0.92	83	67	15,029	1.52	81	64
New Mexico[1]	807	0.55	77	54	962	0.83	77	53
Oregon	61,343	0.51	81	64	58,730	1.09	81	64
Utah	35,946	0.75	89	78	37,588	0.87	87	76
Washington	84,112	0.64	82	66	77,067	1.71	82	65
Wyoming[1]	1,635	0.29	76	68	1,781	0.30	82	67
Flyway total	457,545	0.68	83	69	438,146	1.36	83	69

[1]Includes only that portion of the State lying within the Pacific Flyway.

TABLE C-7--Waterfowl hunting activity and bags of ducks and geese in the Central Flyway during the 1970 and 1971 hunting seasons (estimates unadjusted for response bias; totals include activity by junior hunters)[1]

State and hunting season	Daily duck bag and possession limits	Days in duck season	Number of adult hunters (potential)	Days per adult hunter	Total hunter-days	Seasonal duck bag per adult hunter	Total duck bag	Seasonal goose bag per adult hunter	Total goose bag
Colorado:[2]									
1970	Points[3]	90	37,180	6.86	277,100	5.27	193,700	0.96	37,000
1971	Points[3]	90[4]	42,830	7.97	370,800	6.59	299,400	0.78	34,900
Percent change			+ 15	+ 16	+ 34	+ 25	+ 55	- 19	- 6
Kansas:									
1970	5-10	70[4]	60,310	7.74	506,400	7.43	475,300	0.77	48,200
1971	5-10	70[4]	63,480	7.92	546,000	8.96	603,300	0.76	50,100
Percent change			+ 5	+ 2	+ 8	+ 21	+ 27	- 1	+ 4
Montana:[2]									
1970	Points[3]	90	7,720	6.57	55,100	7.41	60,700	0.57	4,600
1971	Points[3]	90	8,260	5.71	51,200	8.02	70,300	0.64	5,500
Percent change			+ 7	- 13	- 7	+ 8	+ 16	+ 12	+ 20
Nebraska:									
1970	Points[3]	--[5]	48,680	7.49	395,900	9.01	465,200	0.70	35,300
1971	Points[3]	--[5]	50,420	7.79	426,100	7.84	419,300	1.04	54,700
Percent change			+ 4	+ 4	+ 8	- 13	- 10	+ 49	+ 55
New Mexico:[2]									
1970	Points[3]	86	5,770	5.30	33,200	7.22	44,700	0.45	2,700
1971	Points[3]	86	6,310	5.78	39,600	6.90	46,200	0.58	3,800
Percent change			+ 9	+ 9	+ 19	- 4	+ 3	+ 29	+ 41
North Dakota:									
1970	5-10	70	49,950	7.13	386,700	9.44	499,900	1.85	96,200
1971	5-10	70	53,330	7.34	424,700	9.36	529,100	2.29	126,900
Percent change			+ 7	+ 3	+ 10	- 1	+ 6	+ 24	+ 32

TABLE C-7--Waterfowl hunting activity and bags of ducks and geese in the Central Flyway during the 1970 and 1971 hunting seasons (estimates unadjusted for response bias; totals include activity by junior hunters)--continued[1]

State and hunting season	Daily duck bag and possession limits	Days in duck season	Number of adult hunters (potential)	Days per adult hunter	Total hunter-days	Seasonal duck bag per adult hunter	Total duck bag	Seasonal goose bag per adult hunter	Total goose bag
Oklahoma:									
1970	Points[3]	70[4]	34,030	6.93	256,200	7.08	255,400	0.48	16,800
1971	Points[3]	70[4]	35,620	6.44	249,200	7.57	286,100	0.32	11,800
Percent change			+ 5	- 7	- 3	+ 7	+ 12	- 33	- 30
South Dakota:									
1970	Points[3]	--[5]	41,100	7.95	354,800	7.70	335,700	1.79	76,700
1971	Points[3]	--[5]	46,370	8.42	423,700	10.19	500,900	1.47	71,200
Percent change			+ 13	+ 6	+ 19	+ 32	+ 49	- 18	- 7
Texas:									
1970	Points[3]	70	144,320	5.88	921,400	10.68	1,634,900	1.94	291,900
1971	Points[3]	70	146,640	5.17	822,800	6.08	946,000	0.74	113,700
Percent change			+ 2	- 12	- 11	- 43	- 42	- 62	- 61
Wyoming:[2]									
1970	Points[3]	90	6,480	7.21	50,800	8.02	55,200	0.41	2,800
1971	Points[3]	90[4]	7,680	6.68	55,700	7.37	60,100	0.40	3,200
Percent change			+ 19	- 7	+ 10	- 8	+ 9	- 2	+ 14
Flyway total:									
1970	--	--	435,520	6.85	3,237,600	8.70	4,020,700	1.35	612,200
1971	--	--	460,900	7.21	3,409,800	7.69	3,760,700	0.99	475,700
Percent change			+ 6	+ 5	+ 5	- 12	- 6	- 27	- 23

[1]Includes regular and all special duck seasons except the 1970 experimental San Luis Valley season in Colorado; regulations summarized for regular season only.
[2]Includes only that portion of the State lying within the Central Flyway.
[3]Limits based on a point system with each type of duck assigned a point value.
[4]Indicates split season.
[5]Season length varies by zone.

TABLE C-8--Total numbers of duck stamps sold and their proportionate distribution among nonhunters, active hunters, and successful hunters in the Central Flyway during the 1970 and 1971 hunting seasons

State	1970--Final sales report				1971--Final sales report			
	Total duck stamps sold	Percent sold to nonhunters	Percent of potential adult waterfowl hunters who were:		Total duck stamps sold	Percent sold to nonhunters	Percent of potential adult waterfowl hunters who were:	
			Active	Successful			Active	Successful
Colorado[1]	37,316	0.37	87	69	43,203	0.86	84	64
Kansas	60,633	0.54	86	71	63,756	0.44	83	69
Montana[1]	7,744	0.32	81	69	8,345	0.99	81	70
Nebraska	48,774	0.20	85	72	50,898	0.94	86	70
New Mexico[1]	5,800	0.55	81	73	6,362	0.83	82	68
North Dakota	50,015	0.14	88	82	53,600	0.51	88	76
Oklahoma	34,184	0.46	83	66	36,049	1.18	80	62
South Dakota	41,220	0.29	85	74	46,670	0.65	88	78
Texas	144,932	0.42	83	71	148,047	0.95	78	57
Wyoming[1]	6,502	0.29	83	74	7,705	0.30	86	72
Flyway total	437,120	0.36	85	72	464,635	0.79	83	67

[1]Includes only that portion of the State lying within the Central Flyway.

TABLE C-9--Waterfowl hunting activity and bags of ducks and geese in the Mississippi Flyway during the 1970 and 1971 hunting seasons (estimates unadjusted for response bias; totals include activity by junior hunters)[1]

State and hunting season	Daily duck bag and possession limits	Days in duck season	Number of adult hunters (potential)	Days per adult hunter	Total hunter-days	Seasonal duck bag per adult hunter	Total duck bag	Seasonal goose bag per adult hunter	Total goose bag
Alabama:									
1970	6-12	55	16,830	6.06	109,000	6.03	106,200	0.18	3,100
1971	6-12	50	12,880	5.23	72,100	5.22	70,400	0.09	1,300
Percent change			- 23	- 14	- 34	- 13	- 34	- 50	- 58
Arkansas:									
1970	4-8	45	55,950	7.89	472,100	13.23	774,700	0.03	1,800
1971	4-8	50	55,620	8.57	510,000	12.14	706,600	0.04	2,200
Percent change			- 1	+ 9	+ 8	- 8	- 9	+ 33	+ 22
Illinois:									
1970	Points[2]	55	83,130	7.50	667,000	6.73	585,200	0.53	45,600
1971	Points[2]	50	81,560	6.63	578,500	4.79	409,000	0.48	40,900
Percent change			- 2	- 12	- 13	- 29	- 30	- 9	- 10
Indiana:									
1970	6-12	55	29,110	5.68	177,000	3.88	118,100	0.14	4,100
1971	4-8	50[3]	32,370	6.10	211,200	4.55	154,100	0.18	6,100
Percent change			+ 11	+ 7	+ 19	+ 17	+ 30	+ 29	+ 49
Iowa:									
1970	Points[2]	55	65,430	7.59	531,400	6.68	457,600	0.98	66,500
1971	Points[2]	50	67,680	7.93	574,100	7.06	500,200	0.92	64,600
Percent change			+ 3	+ 4	+ 8	+ 6	+ 9	- 6	- 3
Kentucky:									
1970	4-8	45	10,590	6.81	77,100	5.60	62,000	1.02	11,200
1971	4-8	50	11,380	7.03	85,500	4.51	53,700	1.03	12,200
Percent change			+ 7	+ 3	+ 11	- 19	- 13	+ 1	+ 9

TABLE C-9--Waterfowl hunting activity and bags of ducks and geese in the Mississippi Flyway during the 1970 and 1971 hunting seasons (estimates unadjusted for response bias; totals include activity by junior hunters)--continued[1]

State and hunting season	Daily duck bag and possession limits	Days in duck season	Number of adult hunters (potential)	Days per adult hunter	Total hunter-days	Seasonal duck bag per adult hunter	Total duck bag	Seasonal goose bag per adult hunter	Total goose bag
Louisiana:									
1970	6-12	55[3]	128,490	9.25	1,271,300	19.41	2,610,400	2.03	269,800
1971	6-12	50[3]	119,980	7.24	929,500	11.63	1,460,400	0.63	78,600
Percent change			- 7	- 22	- 27	- 40	- 44	- 69	- 71
Michigan:									
1970	6-12	55	130,960	5.71	799,900	3.53	483,200	0.23	31,300
1971	Points[2]	50	110,770	5.80	687,300	3.46	401,100	0.23	26,500
Percent change			- 15	+ 2	- 14	- 2	- 17	0	- 15
Minnesota:									
1970	4-8	45	172,520	6.08	1,121,600	6.92	1,250,000	0.36	64,100
1971	4-8	50	178,560	6.54	1,248,800	7.69	1,437,300	0.34	63,200
Percent change			+ 4	+ 8	+ 11	+ 11	+ 15	- 6	- 1
Mississippi:									
1970	4-8	45[3]	26,430	6.61	186,800	11.44	316,400	0.08	2,100
1971	4-8	50	28,950	5.66	175,300	7.35	222,800	0.07	2,200
Percent change			+ 10	- 14	- 6	- 36	- 30	- 13	+ 5
Missouri:									
1970	6-12	55	58,040	6.66	413,800	6.31	383,100	1.05	62,700
1971	4-8	50	58,950	6.54	412,700	5.66	349,500	1.11	67,500
Percent change			+ 2	- 2	- 3	- 10	- 9	+ 6	+ 8
Ohio:									
1970	6-12	55[3]	42,360	6.52	295,700	4.49	199,200	0.31	13,600
1971	6-12	50[3]	43,970	5.82	274,000	3.26	149,900	0.18	8,400
Percent change			+ 4	- 11	- 7	- 27	- 25	- 42	- 38

TABLE C-9--Waterfowl hunting activity and bags of ducks and geese in the Mississippi Flyway during the 1970 and 1971 hunting seasons (estimates unadjusted for response bias; totals include activity by junior hunters)--continued[1]

State and hunting season	Daily duck bag and possession limits	Days in duck season	Number of adult hunters (potential)	Days per adult hunter	Total hunter-days	Seasonal duck bag per adult hunter	Total duck bag	Seasonal goose bag per adult hunter	Total goose bag
Tennessee:									
1970	4-8	45	28,100	7.90	237,700	9.34	274,700	0.30	8,800
1971	4-8	50	33,590	7.74	278,300	8.93	314,000	0.19	6,500
Percent change			+ 20	- 2	+ 17	- 4	+ 14	- 37	- 26
Wisconsin:									
1970	6-12	55	151,040	7.25	1,171,700	4.67	739,000	0.25	39,300
1971	4-8	50	158,670	6.71	1,139,900	4.84	803,800	0.42	68,700
Percent change			+ 5	- 7	- 3	+ 4	+ 9	+ 68	+ 75
Flyway total:									
1970	--	--	998,980	7.05	7,531,900	8.00	8,359,800	0.60	624,000
1971	--	--	994,930	6.74	7,177,300	6.75	7,032,900	0.44	448,900
Percent change			0	- 4	- 5	- 16	- 16	- 27	- 28

[1]Includes regular and all special duck seasons; regulations summarized for regular season only.
[2]Limits based on a point system with each type of duck assigned a point value.
[3]Indicates split season.

TABLE C-10--Total numbers of duck stamps sold and their proportionate distribution among nonhunters, active hunters, and successful hunters in the Mississippi Flyway during the 1970 and 1971 hunting seasons

State	1970--Final sales report				1971--Final sales report			
	Total duck stamps sold	Percent sold to nonhunters	Percent of potential adult waterfowl hunters who were:		Total duck stamps sold	Percent sold to nonhunters	Percent of potential adult waterfowl hunters who were:	
			Active	Successful			Active	Successful
Alabama	16,933	0.63	84	64	12,909	0.22	78	55
Arkansas	56,108	0.29	89	76	55,656	0.07	86	69
Illinois	83,982	1.01	86	67	82,706	1.39	82	58
Indiana	29,352	0.81	82	57	32,769	1.22	82	53
Iowa	65,822	0.59	87	72	68,401	1.05	87	72
Kentucky	10,608	0.20	84	60	11,390	0.13	87	63
Louisiana	129,046	0.43	83	73	120,874	0.74	82	68
Michigan	131,404	0.34	86	60	111,785	0.91	85	59
Minnesota	173,877	0.78	90	77	179,624	0.59	90	78
Mississippi	26,526	0.37	85	72	29,055	0.35	82	65
Missouri	58,452	0.70	86	70	59,435	0.81	84	66
Ohio	43,508	2.65	87	63	45,075	2.45	85	55
Tennessee	28,123	0.08	89	69	33,677	0.25	87	67
Wisconsin	151,524	0.32	87	65	160,435	1.10	85	67
Flyway total	1,005,265	0.62	87	69	1,003,791	0.88	85	67

TABLE C-11--Waterfowl hunting activity and bags of ducks and geese in the Atlantic Flyway and in the United States during the 1970 and 1971 hunting seasons (estimates unadjusted for response bias; totals include activity by junior hunters)[1]

State and hunting season	Daily duck bag and possession limits	Days in duck season	Number of adult hunters (potential)	Days per adult hunter	Total hunter-days	Seasonal duck bag per adult hunter	Total duck bag	Seasonal goose bag per adult hunter	Total goose bag
Connecticut:									
1970	4-8	49[2]	15,450	5.45	88,600	3.84	61,200	0.17	2,800
1971	4-8	49[2]	16,870	5.24	93,000	3.28	57,200	0.15	2,500
Percent change			+ 9	- 4	+ 5	- 15	- 7	- 12	- 11
Delaware:									
1970	4-8	50[2]	12,300	7.50	97,000	5.35	68,200	3.28	41,300
1971	4-8	50[2]	12,830	7.41	100,000	4.98	66,200	3.85	50,600
Percent change			+ 4	- 1	+ 3	- 7	- 3	+ 17	+ 23
Florida:									
1970	Points[3]	56	43,730	6.42	295,300	10.19	461,600	0.03	1,600
1971	Points[3]	57	33,070	5.10	177,300	6.13	210,200	0.02	800
Percent change			- 24	- 21	- 40	- 40	- 54	- 33	- 50
Georgia:									
1970	4-8	50	13,890	4.94	72,100	5.40	77,700	0.02	300
1971	3-6	60	15,340	5.19	83,800	4.71	74,900	0.02	300
Percent change			+ 10	+ 5	+ 16	- 13	- 4	0	0
Maine:									
1970	4-8	50[2]	18,050	5.46	103,700	6.37	118,600	0.05	1,000
1971	4-8	50[2]	18,120	5.29	100,900	5.84	108,900	0.17	3,100
Percent change			0	- 3	- 3	- 8	- 8	+240	+210

TABLE C-11--Waterfowl hunting activity and bags of ducks and geese in the Atlantic Flyway and in the United States during the 1970 and 1971 hunting seasons (estimates unadjusted for response bias; totals include activity by junior hunters)--continued[1]

State and hunting season	Daily duck bag and possession limits	Days in duck season	Number of adult hunters (potential)	Days per adult hunter	Total hunter-days	Seasonal duck bag per adult hunter	Total duck bag	Seasonal goose bag per adult hunter	Total goose bag
Maryland:[4]									
1970	4-8	50[2]	36,880	7.56	293,200	3.66	139,700	3.83	144,800
1971	3-6	60[2]	34,100	7.46	263,000	4.54	157,800	3.18	107,900
Percent change			- 8	- 1	- 10	+ 24	+ 13	- 17	- 25
Massachusetts:									
1970	4-8	50[2]	29,630	5.12	159,500	3.89	118,500	0.24	7,200
1971	4-8	40	25,400	5.48	146,500	3.33	87,000	0.26	6,800
Percent change			- 14	+ 7	- 8	- 14	- 27	+ 8	- 6
New Hampshire:									
1970	4-8	50[2]	9,730	5.15	52,700	2.52	25,400	0.07	700
1971	4-8	50[2]	9,910	5.78	60,200	2.83	29,000	0.13	1,400
Percent change			+ 2	+ 12	+ 14	+ 12	+ 14	+ 86	+100
New Jersey:									
1970	Points[3]	60[2]	33,920	5.08	181,200	3.78	132,900	1.34	46,500
1971	Points[3]	60[2]	42,570	5.78	258,900	4.18	184,400	1.74	76,000
Percent change			+ 26	+ 14	+ 43	+ 11	+ 39	+ 30	+ 63
New York:									
1970	--[5]	--[5]	107,130	5.60	631,400	3.48	385,600	0.59	65,300
1971	--[5]	--[5,2]	114,040	5.61	673,300	3.01	355,300	0.89	103,400
Percent change			+ 6	0	+ 7	- 14	- 8	+ 51	+ 58

TABLE C-11--Waterfowl hunting activity and bags of ducks and geese in the Atlantic Flyway and in the United States during the 1970 and 1971 hunting seasons (estimates unadjusted for response bias; totals include activity by junior hunters)--continued[1]

State and hunting season	Daily duck bag and possession limits	Days in duck season	Number of adult hunters (potential)	Days per adult hunter	Total hunter-days	Seasonal duck bag per adult hunter	Total duck bag	Seasonal goose bag per adult hunter	Total goose bag
North Carolina:[4]									
1970	3-6	60	31,660	6.41	213,600	5.26	172,600	0.41	13,400
1971	3-6	60	29,900	6.21	195,100	4.89	151,300	0.40	12,500
Percent change			- 6	- 3	- 9	- 7	- 12	- 2	- 7
Pennsylvania:									
1970	3-6	60	79,600	4.36	364,700	1.81	149,200	0.32	26,100
1971	3-6	60	87,900	4.72	436,700	2.11	192,300	0.37	33,600
Percent change			+ 10	+ 8	+ 20	+ 17	+ 29	+ 16	+ 29
Rhode Island:									
1970	4-8	50	3,490	6.43	23,600	4.72	17,000	0.15	500
1971	4-8	50	4,250	7.48	33,400	5.34	23,500	0.19	800
Percent change			+ 22	+ 16	+ 42	+ 13	+ 38	+ 27	+ 60
South Carolina:									
1970	4-8	50	21,590	6.31	143,200	7.15	160,000	0.08	1,800
1971	4-8	50	20,630	7.00	151,900	5.52	118,000	0.05	1,000
Percent change			- 4	+ 11	+ 6	- 23	- 26	- 38	- 44
Vermont:									
1970	4-8	50	7,360	5.74	44,500	5.17	39,400	0.17	1,300
1971	4-8	50	8,700	6.18	56,600	4.67	42,100	0.44	3,900
Percent change			+ 18	+ 8	+ 27	- 10	+ 7	+159	+200

TABLE C-11--Waterfowl hunting activity and bags of ducks and geese in the Atlantic Flyway and in the United States during the 1970 and 1971 hunting seasons (estimates unadjusted for response bias; totals include activity by junior hunters)--continued[1]

State and hunting season	Daily duck bag and possession limits	Days in duck season	Number of adult hunters (potential)	Days per adult hunter	Total hunter-days	Seasonal duck bag per adult hunter	Total duck bag	Seasonal goose bag per adult hunter	Total goose bag
Virginia:[4]									
1970	4-8	50	22,530	5.51	131,300	5.71	133,200	0.84	19,300
1971	3-6	60	20,540	5.75	123,800	6.11	127,000	0.66	15,200
Percent change			- 9	+ 4	- 6	+ 7	- 5	- 21	- 21
West Virginia:									
1970	4-8	50[2]	2,080	4.17	9,100	3.13	6,700	0.12	200
1971	3-6	60[2]	1,800	5.16	9,800	2.53	4,700	0.09	200
Percent change			- 13	+ 24	+ 8	- 19	- 30	- 25	0
Flyway total:									
1970	--	--	489,010	5.65	2,904,700	4.47	2,267,500	0.75	374,100
1971	--	--	496,000	5.68	2,964,400	3.87	1,989,800	0.83	420,100
Percent change			+ 1	+ 1	+ 2	- 13	- 12	+ 11	+ 12
United States total:									
1970	--	--	2,390,770	6.65	17,052,000	8.06	20,298,200	0.87	2,151,800
1971	--	--	2,398,350	6.50	16,719,800	7.11	17,903,900	0.71	1,752,400
Percent change			0	- 2	- 2	- 12	- 12	- 18	- 19

[1]Includes regular and all special duck seasons; regulations summarized for regular season only.
[2]Indicates split season.
[3]Limits based on a point system with each type of duck assigned a point value.
[4]Washington, D. C., hunters and kill allocated to Maryland, North Carolina, and Virginia.
[5]Varies by zone.

TABLE C-12--Total numbers of duck stamps sold and their proportionate distribution among nonhunters, active hunters, and successful hunters in the Atlantic Flyway and in the United States during the 1970 and 1971 hunting seasons

State	1970--Final sales report				1971--Final sales report			
	Total duck stamps sold	Percent sold to nonhunters	Percent of potential adult waterfowl hunters who were: Active	Successful	Total duck stamps sold	Percent sold to nonhunters	Percent of potential adult waterfowl hunters who were: Active	Successful
Connecticut	15,779	2.07	77	53	17,389	2.97	78	50
Delaware	12,503	1.65	87	69	12,987	1.21	83	66
District of Columbia	2,274	1.95	83	63	3,420	1.64	80	64
Florida	44,543	1.82	83	69	33,576	1.50	80	62
Georgia	14,005	0.82	81	61	15,429	0.55	84	60
Maine	18,182	0.71	84	70	18,534	2.23	83	65
Maryland	36,090	1.76	85	67	32,646	2.12	85	65
Massachusetts	29,993	1.21	81	56	26,106	2.69	79	50
New Hampshire	9,880	1.53	85	52	9,973	0.63	82	53
New Jersey	35,002	3.09	83	58	43,673	2.52	84	57
New York	108,582	1.34	80	55	116,371	2.00	80	53
North Carolina	31,730	0.53	84	65	30,151	1.31	85	64
Pennsylvania	81,074	1.82	86	54	89,350	1.62	86	54
Rhode Island	3,509	0.68	77	56	4,354	2.39	76	59
South Carolina	21,659	0.30	86	69	20,731	0.49	87	66
Vermont	7,435	0.98	84	55	8,758	0.63	88	60
Virginia	22,044	1.03	82	63	19,757	1.48	82	63
West Virginia	2,103	1.22	78	58	1,858	3.04	84	55
Flyway total	496,387	1.48	83	60	505,063	1.79	83	58
United States total[1]	2,409,253	0.76	85	67	2,426,058	1.14	84	66

[1]Does not include stamps sold at the Philatelic Agency, in Hawaii, or in Puerto Rico.

TABLE C-13--Proportions of the total duck harvest occurring after the September teal season in certain States during 1969, 1970, and 1971

Flyway State	Proportion in Regular Season 1969	1970	1971
Atlantic			
Maine	--	.9418	.9566
Mississippi			
Alabama	.9651	.9801	.9631
Arkansas	.9850	.9868	.9907
Illinois	.9398	.9321	.9335
Indiana	.9523	.9288	.9210
Iowa	.8008	--	--
Louisiana	.8975	.9047	.9114
Mississippi	.9909	.9891	.9880
Missouri	.9174	.9065	.9271
Ohio	.9538	.9567	.9381
Tennessee	--	.9927	.9695
Central			
Colorado	.9775	.9641	.9507
Kansas	.8788	.8624	.9071
Montana	.9723	.9320	--
Nebraska	.8630	.8941	--
New Mexico	.9597	.9476	.9439
North Dakota	.8876	--	--
Oklahoma	.9685	.9410	.9547
Texas	.9443	.9661	.9589
Wyoming	.9407	--	--

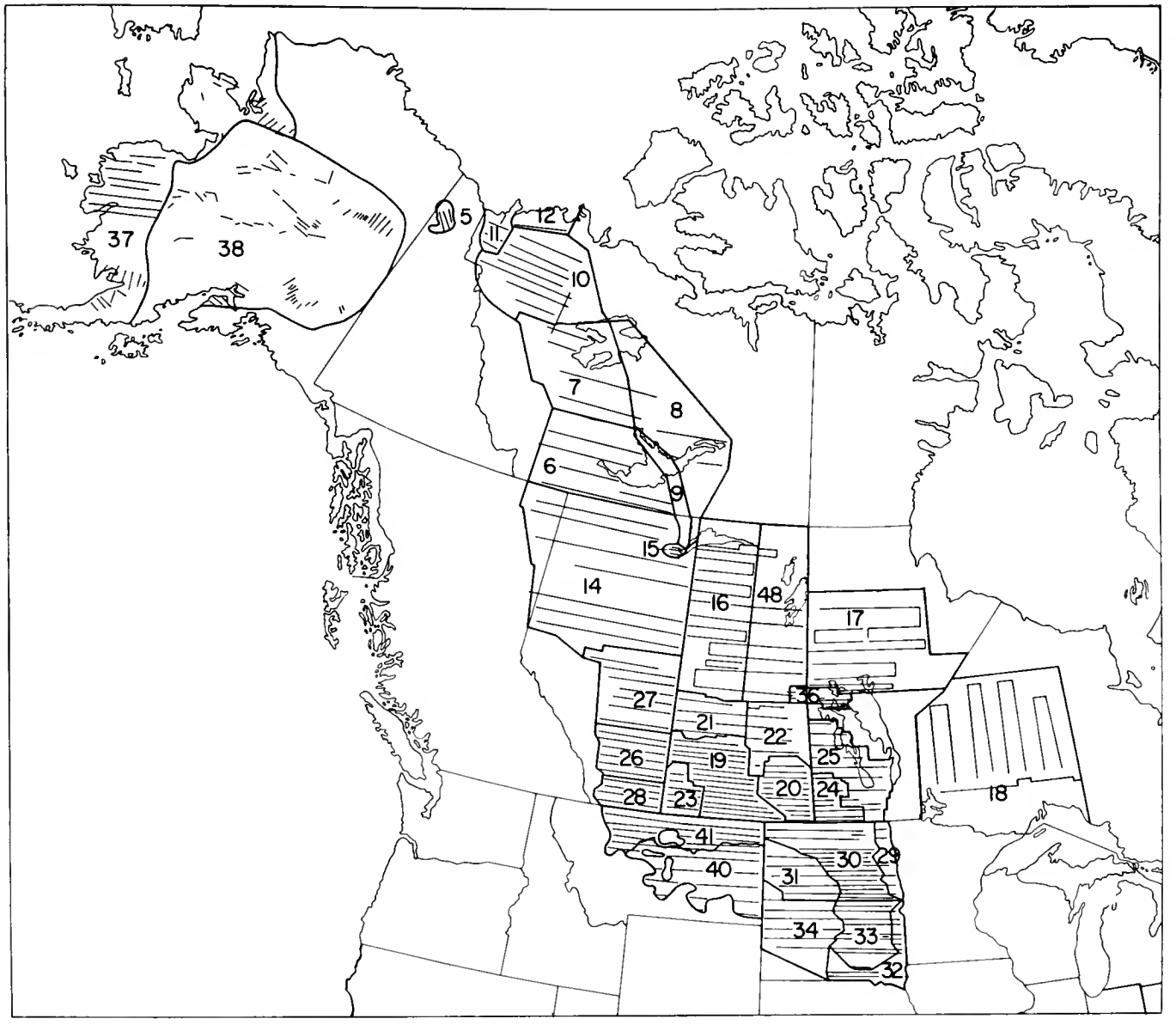

Figure 1.--Waterfowl Breeding Population and Production Aerial Survey Transects and Strata

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As the Nation's principal conservation agency, the Department of the Interior has basic responsibilities for water, fish, wildlife, mineral, land, park, and recreational resources. Indian and Territorial affairs are other major concerns of America's "Department of Natural Resources."

The Department works to assure the wisest choice in managing all our resources so each will make its full contribution to a better United States -- now and in the future.

CONSERVATION PLEDGE

I give my pledge
as an American to save
and faithfully to defend from
waste the natural resources of
my country—its soil and
minerals, forests,
waters, and
wildlife.