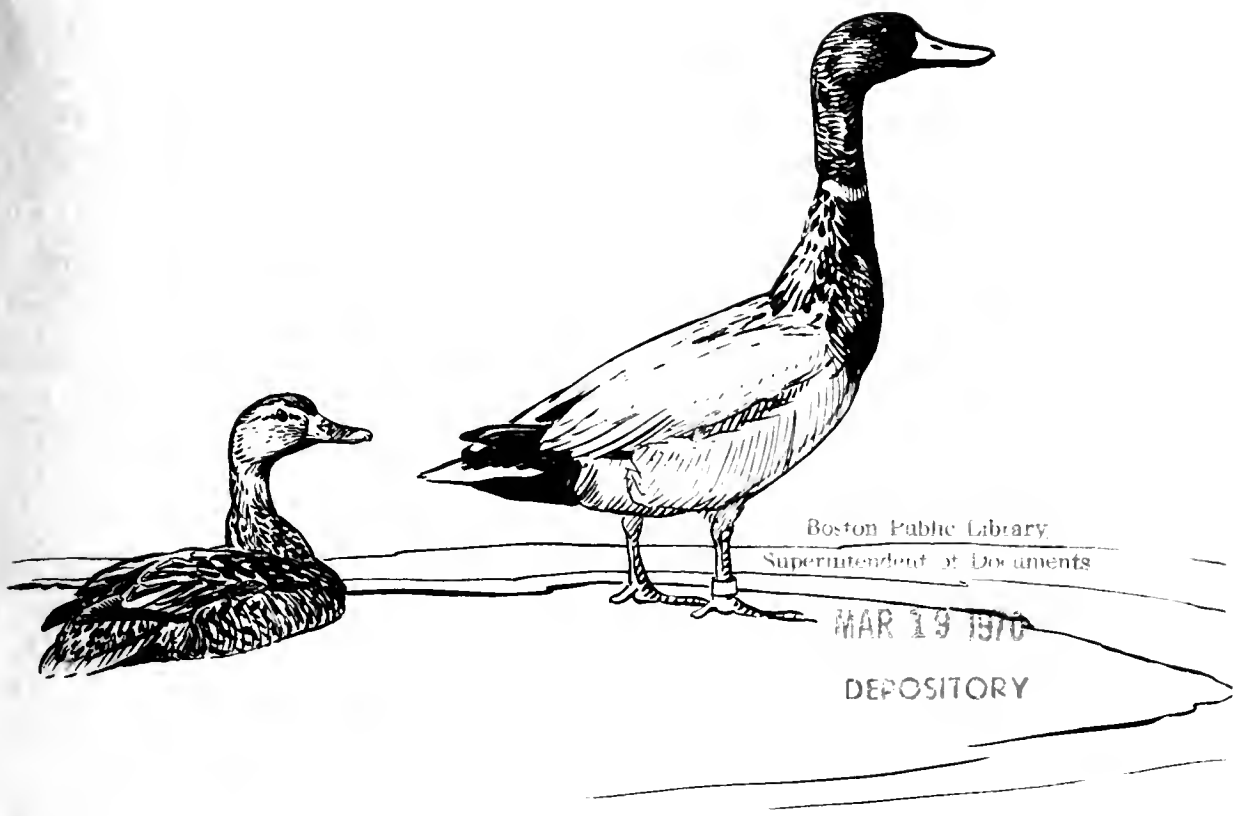
WATERFOWL STATUS REPORT 1969



UNITED STATES DEPARTMENT OF THE INTERIOR
FISH AND WILDLIFE SERVICE
BUREAU OF SPORT FISHERIES AND WILDLIFE
Special Scientific Report--Wildlife No. 128

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WATERFOWL STATUS REPORT 1969

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DIVISION OF MANAGEMENT AND ENFORCEMENT

in collaboration with

DIVISION OF WILDLIFE RESEARCH

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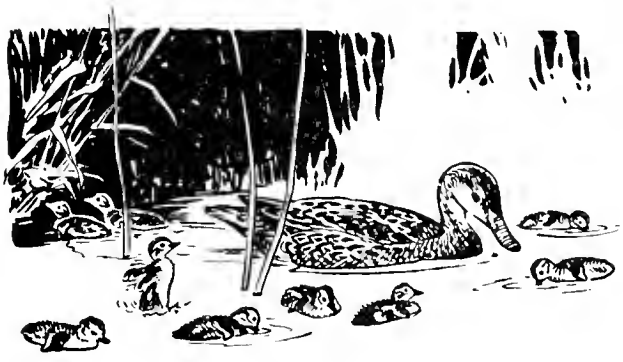

1969

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 1969 waterfowl population and habitat surveys and the results of mail surveys of waterfowl hunters for the 1968-69 season.

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.

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. These data are presented in Tables A-1 and A-2.

PACIFIC FLYWAY

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

Weather conditions during the 1969 winter survey were rather extreme in most areas. Temperatures were low and ice and snow were prevalent. Delays in survey initiation and completion due to the inclement weather were common in many areas. The survey of the west coast of Mexico was for black brant and therefore did not cover all waterfowl areas.

The count of total waterfowl for the Flyway was about 12 percent below the total for 1968. Dabbling ducks were down 10 percent from the previous year but diving ducks were 1 percent above their 1968 winter level. Survey counts of large Canada geese were little changed from 1969. Lesser Canadas were down nearly 49 percent while cackling geese showed a 64 percent increase from a year ago. The count of white-fronted geese was about 61 percent higher than in 1968 and black brant, counted in Mexico as well as in the States, decreased 7 percent from 1968. The extreme changes indicated between 1968 and 1969 for several of the above goose populations likely reflect incomplete counts in one year or the other rather than real changes in population size. As has been indicated in previous reports, goose surveys in the Central Valley of California have been incomplete in several recent years because of bad weather, haze, and/or smog.

CENTRAL FLYWAY

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

Although adverse weather was encountered in much of the Flyway at some time during the survey, frozen habitat, and the late mallard drake season in Montana, Wyoming, and Colorado served to concentrate birds to make surveying easier in the northern and western parts of the Flyway. Winter habitat and food conditions ranged from severe in North Dakota to excellent in central and southern portions of the Flyway. The interior highlands and east coast of Mexico were not surveyed in 1969.

The winter survey count of total waterfowl in the Flyway suggested a 15 percent decrease from 1968. Dabbling ducks appeared to be about one-third below last year while divers showed an increase of 7 percent from 1969. Canada geese were about 15 percent below their level in 1968 but whitefronts increased 40 percent from that year.

Blue and snow geese showed increases of 99 and 30 percent, respectively. As in the Pacific Flyway, goose counts in the Central Flyway sometimes do not reflect true population changes but rather reveal incomparability in surveys between years. A related problem has been that varying proportions of birds occur in Mexico from year to year at survey time.

MISSISSIPPI FLYWAY

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

The 1969 winter survey in the Mississippi Flyway was completed during the scheduled period with only normal operational difficulties in contrast to the difficult experience of 1968. Winter weather, ranging from near zero temperatures and blowing snow to freezing drizzle, delayed the start of the survey in the north but did not prevent its completion under favorable conditions later in the week. Most northern lakes and streams were frozen with snow depths up to 20 inches in Minnesota. These conditions plus widespread fall plowing restricted the winter range for waterfowl drastically in northern areas. The southern wintering grounds had cold clear weather and flooded river bottoms at survey time.

The 1969 winter survey suggested an increase of 17 percent in total waterfowl from 1968. Dabbling ducks showed a 5 percent increase from 1969 while divers were up 71 percent from a year ago. The survey count of Canada geese suggested an increase of 25 percent from 1968. Counts of white-fronted geese indicated a 14 percent decline from last year. Together, blue and snow geese appeared to be down about 24 percent from 1968.

ATLANTIC FLYWAY

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

During the survey period, waters were more open than they were in 1968 when most tidal marshes from Virginia north were frozen. Coastal marshes were mostly open this year but many shallow inland fresh waters were closed from North Carolina north. Although birds were not concentrated to the extent of last year in the northern half of the Flyway, field observers felt that coverage was adequate and comparable. Drought conditions from South Carolina to northern Florida probably made birds more visible by

forcing them onto open water. Southern Florida had extremely high water which had the reverse effect. Due to inclement weather, the survey was interrupted in various parts of the Flyway, but the general 1969 coverage is believed to be reasonably comparable to a "normal" year. However, a special Canada goose survey was made in the principal concentration area of Delaware, Maryland, Virginia, and North Carolina.

Dabbling ducks showed a 9.4 percent increase over last year. Game divers increased 29 percent from 1968. Fewer sea ducks were tallied this year, due primarily to the lack of eiders being present close to shore at the time of the survey. Canada geese showed an increase of about 10 percent from last year. However, this figure may be a bit inflated compared to last year due to the fact that a special survey was made in the principal concentration areas. Over a third fewer brant were recorded than in 1968. On the otherhand, snow geese and swan showed increases.

In Puerto Rico, 315 ducks and coot were recorded compared to 2,000 last year. Of the total, 173 were coot and the rest largely widgeon, blue-winged teal, and ruddy.

BREEDING GROUND SURVEYS

ALASKA AND YUKON TERRITORY

Data supplied by James G. King and Wesley Moholt,
Bureau of Sport Fisheries and Wildlife

Spring weather and habitat conditions

The past winter was extremely cold over most of Alaska with deep ice and light snowfall. Winter broke early, most of the snow evaporated and the ice went out at Nenana eight days earlier than the fifty year average. Arriving birds found plenty of open water and bare, dry habitat in most nesting areas. We have not had as early a spring since 1958.

There was no flooding anywhere this year. The big rivers remained very low and by the time of the survey we could not even find a creek that was out of its banks. Without flooding or run off lakes in the interior (stratum 38) continued to dry up and we have lost quite a few lakes in the past year.

On the Yukon flats, water levels were still not as low as they were in 1960. The lakes of the tundra country (stratum 37) appeared normal in number and water level.

This year, the willows, aspens, and other deciduous trees were all leafed out at the time of the survey except in the Bristol Bay area. In the recent past very little green has been out by this time. Survey timing, however, was optimum as we were right behind the retreating ice in all areas.

By contrast, the Old Crow flats (stratum 05) did not have an early spring. There was a great deal of ice there and the birds were poorly distributed at the time of survey. To get an optimum survey we should have waited about a week and done it on June 14, as we did last year.

In short, weather and habitat appeared to be optimum this year in all areas except Old Crow which may be a little late.

Breeding populations (tables B-1 through B-5)

The Alaska duck breeding population appeared to be down by 26 percent from last year. However, in 1968 we speculated that we had had a big influx of drought displaced ducks from the Canadian Prairies. This year's survey coupled with the knowledge of good conditions in southern Canada would tend to confirm that theory. The overall duck population was about at the point of the ten-year average and is up 28 percent from 1967.

All species were up from 1967 except bufflehead, eider, and scoter. These species are probably unaffected by conditions in Canada and the decrease in bufflehead and eider may only indicate the sample is inadequate. The decrease in scoter may result from the fact that the survey was about a week earlier than in the past several years and many scoter had not completed migration. Dabblers were up 38 percent from 1967. All species were down from 1968 except goldeneye and bufflehead and here again sample size may be too small on these two species.

On the Old Crow flats, breeding populations were close to the ten-year average but down somewhat from 1967 as well as 1968. Poor survey conditions (too much ice) could account for some of the apparent decrease. The Yukon flats 100 miles southwest down the Porcupine River were 100 percent ice free on May 22 and the Old Crow flats were still 60 percent ice covered on June 7 so possibly some ducks remained or diverted a few miles south.

Summer weather and habitat conditions

June and July were extremely dry in the interior and on the Yukon flats lakes continued to dry up. Forest fires raged through the interior in the worst fire season since 1957. Nearly one-third of the Yukon flats burned during this period. Some nests were undoubtedly burned but duck broods were observed on most lakes within the burn area. None of the thirty-four lakes where we conduct brood counts were within the burn; however, water levels were down about one foot in all lakes and nine of the thirty-four lakes (22 percent) had dried up completely. Lakes not dried up appeared to be in optimum condition for ducks. Water levels in general were still above what they were in 1960. Conversely water levels in the Tetlin area were up slightly, possibly due to thunder shower activity. On the Yukon Delta, July was unusually wet following the early, dry spring. The net result is that weather and habitat conditions are not uniform or typical rendering an assessment of production rather difficult.

Production (table B-6)

Since the low of 1964, there has been a steady increase in numbers of broods observed on the study plots at Tetlin and on the Yukon flats. The breeding population this year appeared in excellent condition in spite of a marked decrease from the inflated population of 1968. Moderate increases in production of all species was expected. Such increase appears to have occurred in mallard, widgeon and lesser scaup. Green-winged teal and canvasbacks seem to have held their own and pintail and shoveler may be down somewhat.

The brood counts on the Yukon flats plots were particularly interesting because about 27 percent of the lakes had dried up. Of the remaining lakes, the medium sized lakes generally produced fewer birds than last year and the large lakes produced much more. In short, there appears to have been a considerable redistribution of the breeding population, but our study areas are not large enough to be sure that we accurately documented this redistribution. Even with the reduced water areas within the plots there were more broods than we have ever recorded before.

NORTHERN ALBERTA, NORTHEASTERN BRITISH COLUMBIA, AND NORTHWEST TERRITORIES

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

Spring weather and habitat conditions

Generally, winter precipitation over our survey area was light and below normal--north central Alberta being the exception. Flow in the rivers reflected this precipitation deficit.

Some larger lakes in central Alberta were free of ice at survey time. However, Margaret Lake in northern Alberta and all larger lakes to the north were still frozen. Edges of larger lakes were open and these, along with ice-free smaller lakes, provided available habitat for waterfowl. At the end of the survey Great Slave Lake was about one-third open and gave portent of an early, complete opening. Only the northeastern section of stratum 10, the northern, treeless Mackenzie Delta of stratum 11, and the western part (Eskimo Lakes) of stratum 12 were still in the throes of winter and of little service to waterfowl at survey time.

The Mackenzie River opened very early and the water level was down five feet. Only small remnants of floe ice were observed, and the channel to Inuvik opened just prior to our arrival, June 5. Many inner ponds of the Mackenzie Delta were still ice-covered.

Snowfall of 3-6 inches occurred at Fort Nelson, British Columbia, and across northern Alberta in late May. In early June, rain, freezing rain, and snow were evident in northern strata. Remnants

of a morning snowfall were present at Inuvik on our arrival. Low clouds, rain, and snow were prevalent for several days followed by unseasonably warm weather (70-90 degrees) over northern sections around Norman Wells, Inuvik, and Fairbanks, Alaska.

The general aspects of these weather patterns and their effects on the habitat allowed waterfowl to move northward earlier this year. Thus, early nesting species--primarily puddle ducks--were able to initiate breeding activities by mid-May. (Two broods were observed at Yellowknife on June 9.) Later migrations were greeted by a recession, and limited areas were still unavailable for waterfowl activities in June. Small, residual flocks of northern species (swan, snow geese, and white-fronted geese) were observed farther south this year. Swan are nesting farther south, as regularly frequented areas of tundra and delta were unusable because of ice and snow. In the Northwest Territories, the flush of spring, followed by a recession, leaves the northern Alberta season advanced over normal; the southern Northwest Territories and down the Mackenzie River to Fort McPherson is a little advanced or normal; and the Mackenzie Delta and the north coast are later by approximately two weeks.

Breeding populations (tables B-7 and B-8)

With habitat improvement in the prairies and parklands, waterfowl were induced to remain and breed therein. With reduced continental populations, we had fewer ducks in the north. As a result, nearly all northern strata showed a decrease in dabbling ducks. Their index dropped 27 percent from last year and 50 percent from the ten-year average. The only important species to increase over last year was the widgeon (+50 percent). Otherwise, the general situation with other species was a decrease of over 25 percent from 1968, as well as significant decreases from the ten-year averages.

Total diving ducks increased over last year by 14 percent but were only 1 percent higher than average. The primary increase was in scaup. Sea ducks and mergansers were 57 percent above 1968 but 6 percent below the average data.

Coots occurred as far north as the Athabasca Delta but their population was low. Swan apparently adjusted to weather conditions and were nesting in normal numbers but a little farther south. White-fronted geese were easily spotted this year, with the ice and snow background on the tundra, and the indicated increase is the probable result. Indexes for geese are always suspect because of fragmentary data.

Summer weather and habitat conditions

Abnormally cold conditions persisted in the Yukon and the adjacent area of the Northwest Territories from January to March. Portent of an early spring was apparent, due to above normal temperatures in April. This early advance of spring weather continued in southern sections and the waterfowl breeding season was early, especially in northern Alberta. Colder, below-normal temperatures of May normalized the season in the lower Mackenzie Valley, and to the east the spell of winter was evident as late as June. The summer brooding season of late July and August was colder than normal by as much as 7 degrees F, and mean temperatures were in the 50 degrees range in the south to 40 degrees near the Arctic coast.

Precipitation was light and below normal over most parts of the survey area beginning in January and continuing into the beginning of summer. Lack of run-off caused minimum flow in rivers, and shipping along the Mackenzie River experienced navigation problems by mid-summer. This pattern was changing in late June and by July and August precipitation was heavy in the northern Arctic. After two days of rain, snow appeared on higher eminences around Normal Wells on July 26. This pattern continued into August. Inuvik reported 6.46 inches of precipitation which was the greatest monthly amount ever recorded. Also, an 18 inch snowfall was recorded in August.

In summary, a season, initially early, remained so in the southern parts of our survey area; but the northern sections tailed off to normalcy during the egg-laying and incubation periods. Brooding seasons north of Great Slave Lake experienced frequent rainy periods and temperatures were below normal. The late break-up of the Eskimo Lakes and associated area to east and south bordering the precambrian removed this area from effective waterfowl production this year. The southern sections of the survey area were favorable to waterfowl production.

Production (tables B-9 and B-10)

Total broods observed was 7 percent below 1968 but 29 percent above average. The 1969 duckling index for combined strata was 768,000 compared to 856,000. The percent change was a decrease of 10 percent from 1968 and a decrease of 3 percent from average. The brood size was identical for both years and this year the age classes were well advanced, 81 percent being Class II and III. Seasonal aspects for 1969 were similar to 1968, except that the brooding season was cooler with more rain and some snow.

Brood surveys were initiated this year in strata 13 and 14 of northern Alberta. Expansion of these data estimate 990,000 ducklings were produced in stratum 13, and 318,000 in stratum 14. With an early season and no subsequent adverse factors, these estimates should represent good to excellent production from the breeding pairs present. Approximately 75 percent of broods observed were Class II and III. Comparative data will have to await accumulation of several years data.

NORTHERN SASKATCHEWAN, NORTHERN MANITOBA, NORTHERN ONTARIO, AND SASKATCHEWAN RIVER DELTA

Data supplied by Arthur R. Brazda, Robert W. Slattery, E. B. Chamberlain, and E. G. Wellein, Bureau of Sport Fisheries and Wildlife

Spring weather and habitat conditions

The winter was characterized generally by normal to slightly above normal snow levels and below normal temperatures. Spring came early and rapidly to the North with an ice breakup that was probably as early as any year on record. Temperatures were high in April, with more normal readings being evident in May and June. Precipitation was generally lacking during the entire period, except for two snowstorms at Lynn Lake and Thompson, Manitoba, on May 30 and June 11. The latter deposited up to four inches of snow at Thompson and was accompanied by temperatures in the mid-20's and low 30's. At no time through the conclusion of the survey were there extended periods of drizzle and cold temperatures.

Habitat conditions and water levels can be summed up as being optimum in Manitoba and the Saskatchewan River Delta, good in eastern Saskatchewan, and fair to good in western Saskatchean. Very little vegetative development was observed during the first half of the survey; however, by the time we arrived in western Saskatchewan, leaf development on the birch, poplar, and willow was almost complete.

As in 1968, habitat conditions in the Grand Rapids impoundment southeast of The Pas were excellent.

In western Saksatchewan, north of 55°00" latitude, water levels in most of the larger lakes were still two to four feet below normal, although there has been some improvement over the poor conditions of 1968.

Breeding populations (tables B-11 and B-12)

For the third year in a row, the duck breeding population indexes for these five northern strata remained high. The total duck index was less than 1 percent above last year, but 51 percent higher than the ten-year average. Dabblers increased 10 percent over 1968 and 68 percent over the average. Of primary interest were the moderate increases over 1968 shown for the mallard and pintail, 18 percent and 26 percent respectively. For the same two species, the percent change from the ten-year average was plus 71 percent and 56 percent. Divers decreased 14 percent from 1968 but indicated an increase of 37 percent above the ten-year average. Dabbling ducks indicated increases in strata 16, 17, 36, and 48, decreasing in 18. Divers decreased in all strata except 16 and 17.

The decrease in the coot index, minus 93 percent from 1968 and 68 percent from the ten-year average, was as phenomenal as was the increase in 1968 over 1967. There have been substantial fluctuations before, but nothing as drastic as this.

Summer weather and habitat conditions

Weather conditions and temperatures reverted back to normal in June and July from the abnormal high temperatures of April and May. Ice breakup at many localities in this general area were the earliest recorded. With the exception of the snowstorm on June 11 and 12 in the Lynn Lake-Thompson, Manitoba area, precipitation in measurable amounts was lacking in all strata.

The waterfowl habitat deteriorated throughout the region surveyed, with the most noticeable effect being observed in the northwest quarter of Saskatchewan. In this area, water levels in many of the large lakes were reaching the low ranges of 1968, and many forest-type potholes and tamarac-dwarf birch marshes were dry or nearly so.

Although nesting conditions were optimum during the breeding pair survey, much of the habitat in the Saskatchewan River Delta was inundated by the time of the production survey.

Permanent loss of habitat through drainage is continuing in the Meadow Lake region and the Saskatchewan River Delta.

Production (tables B-13 and B-14)

The duck brood index was approximately 29 percent below 1968, but 10 percent above the eight year average. The average brood size was the same as the previous year and just slightly below (2 percent) that of the long-term average. The 1969 coot brood index was 70 percent lower than that of 1968 and 39 percent below the average. Data for Canada geese is lacking from the tables, but nine broods were observed in all strata as compared with six in 1968.

The late nesting index for all species was 81 percent above 1968, though about normal when compared with previous years, 1962-1969. Dabbling ducks were 76 percent higher than 1968 and 20 percent over the eight year average. For divers, the increase was 88 percent over the previous year and 21 percent below the long-term average. Considerable difficulty was experienced in determining lone drakes in the eastern portion of the Saskatchewan River Delta as the western fringe of the Grand Rapids impoundment was congested with a multitude of moulting birds of all species, though mallards and scaup were most numerous.

The fall flight from these four strata will probably be less than that of 1968, but not to the degree that the 1969 data indicates. Due to the extremely early nesting season and the relatively large number of broods observed in early June during the breeding pair survey, it can be assumed that a certain percentage of the broods were flying by the time the production survey was conducted. Also, some production will be exacted from the late nesters, especially in the southern regions of the four strata.

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-15)

Spring began on the first of April. The mean high was 57.2 degrees--normal for the month is 49.2 degrees. Most of the 2.22 inches of precipitation fell after the 22nd. There was little precipitation during May and the temperatures were mild.

From all reports, we expected to find habitat conditions the best they have ever been. However, instead we found conditions in stratum 28 very similar to those normally encountered during July. The pond index decreased 25 percent from last year and was 27 percent below the 10-year average. Conditions did not measurably improve until we had progressed northward to the Red Deer River. Islands of good habitat were found around the Brooks-Tilley area, near Conrad, Calgary, and the Milk River Ridge.

North of the Red Deer River conditions were excellent and perhaps the best they have been for the past five or six years. The numbers of wetlands were not greatly increased but the quality was improved measurably. Good quality wetlands were found northwest of Empress in an area not normally expected to be good waterfowl habitat. The water index in Stratum 26 increased 107 percent from last year but was only 3 percent above the 10-year average. The numbers of stratum 27 ponds were 8 percent below the long-term average but 3 percent greater than last year. A pond count was made in stratum 13 this year and it indicates that there are about 4 ponds per square mile as compared to 15 ponds per square mile in stratum 27.

All of the major lakes were brim full or nearly so. Sullivan Lake now extends about five miles farther north than it has for the past five years. Dowling Lake although not filled to capacity was greatly improved over last year.

Aquatic vegetation had already gotten a nice start by May 1. This year's growth of whitetop had emerged between 6 and 8 inches above the surface of the water by mid-May. Last year's growth was quite heavy and covered the water's surface. Visibility however was not appreciably reduced by this factor. Ice was observed only on Pigeon Lake this year and it had completely disappeared by May 10. This year's season appears to have been about 17 days ahead of normal.

Breeding populations (tables B-16 through B-20)

The total duck population index increased 46 percent from last year but was still about 4 percent below the average. The most dramatic increase was in the pintail index which increased 297 percent. Mallards increased 17 percent. The blue-winged teal index was 28 percent below last year and 51 percent below the average. Green-winged teal decreased 14 percent from 1968 and gadwall 17 percent from last year. Ruddy ducks decreased 35 percent from last year and 45 percent from the average. The redhead breeding population index doubled while that for canvasbacks increased 25 percent from 1968.

In stratum 13, the duck index decreased 12 percent from last year and is 42 percent below the average. Mallards increased 10 percent, bluewings 40 percent, shovelers 133 percent, and pintail 39 percent. The other dabblers decreased nearly 50 percent causing the overall dabbler index to drop 3 percent from last year. Scaup decreased 29 percent and redheads decreased 20 percent. The total decrease in the diver index is 12 percent from last year.

The coot index increased 100 percent from last year in the lower three strata but decreased 76 percent in stratum 13. The long-term decrease in stratum 13 was 74 percent. The long-term increase in the lower three strata was 41 percent.

The Canada goose population increased 100 percent but no change is indicated in the long-term average. A survey of the rivers south of Red Deer indicates an increase of 12 percent from last year.

The lone drake index of 84 compared favorably with the indexes recorded during the early 1960's and late 1950's. The mallard index in stratum 13 was slightly higher at 90. These high indexes confirmed other observations indicating a normal or slightly early nesting season.

Summer weather and habitat conditions (table B-15)

May, in southern Alberta, was pleasantly warm and very much like spring. June was a record breaking month with periods of very warm weather as well as four days of record low temperatures. July was generally cloudy and cool.

Waterfowl habitat conditions as reflected by the pond indexes indicated an increase of 36 percent in May over last year. The July ponds also increased over last year--24 percent. July ponds increased 36 percent in stratum 26 and 43 percent in stratum 27, but decreased 38 percent in stratum 28. The decrease in the pond index since May has been 43 percent in the survey area.

In stratum 28, good habitat existed, as usual, in the Milk Ridge and at Murray Lake. Other islands of good habitat were found in the western third of the Cypress Hills, in the southwestern part of Pakowki Lake, near Conrad, and immediately south of Stirling Lake.

The areas of good habitat in stratum 26 were relatively few and were found in the Brooks area at the DU projects and in the large lakes, in the Crowfoot drainage east of Calgary, in the Berry Creek reservoirs, in the western edge of the Wintering Hills, and in the Sounding Creek drainage. Aquatic vegetation was quite heavy in most of the type III wetlands and in some instances completely choked the pothole. Recent thunderstorm activity has brought back many type III potholes that had already gone dry this year.

In 27 there were permanent wetlands. The results of recent thunderstorms were not quite so obvious in this stratum as elsewhere. Most of the type III wetlands were heavily choked with vegetation making it difficult to see the ducks and more than a glimmer of water. Sounding Lake, Wavy Lake, and Beaverhill Lake contained heavy concentrations of adult birds as well as young of the year that are already flying.

Production (tables B-21 and B-22)

The unadjusted breeding pair survey data indicated an increase of 44 percent from last year in southern Alberta. The production data indicate a slightly greater increase of 50 percent. The average brood size increased from 5.2 to 5.9. The duck brood index increased 74 percent in stratum 26 from last year and increased 27 percent in stratum 27. The greatest increase is found in stratum 28--167 percent. The survey area brood index was still down about 43 percent from the average. The coot brood index increased nearly 681 percent.

The class composition of the broods in the survey area indicated that Class I and II broods each comprised 33 percent of the total broods. There were more Class I broods than there were last year and fewer Class II broods. However, there were considerably more Class III broods which comprised 26 percent of the total.

The late-nesting index for southern Alberta increased six percent from last year and almost 180 from the average. Mallards and gadwall indicated a decrease from last year of 48 percent and 70 percent respectively. Widgeon and canvasback each indicated about a 25 percent decrease. The greatest increases were noted in the indexes of greenwings (185 percent), pintail (129 percent), bluewings (70 percent), scaup (62 percent), redhead (17 percent), and shoveler (15 percent).

SOUTHERN SASKATCHEWAN

Data supplied by Rossalius C. Hanson and Walter S. Okamoto,
Bureau of Sport Fisheries and Wildlife

Spring weather and habitat conditions (table B-23)

The wet fall of 1968, coupled with above-normal snow, put the pond count up considerably over last year. The May pond index for the area this year was 1,862,700. This was 133 percent above last year and 12 percent above the average.

The spring was early and probably was a week to two weeks ahead of normal. Early nesters got a good start in mid-April and hatching was evident by mid-May. The weather, especially temperatures during this period, was favorable for satisfactory nesting. A little light snowfall occurred on May 15 and 19 and there were one or two mornings of below freezing temperatures. Neither of these factors appeared to have done any appreciable harm to the early nesting effort. Near the end of our survey period, vegetative growth came along rapidly.

Breeding populations (tables B-24 through B-26)

The breeding population index of all ducks this year was up 31 percent over last year and down only 10 percent from the long-term average. The index was higher than at any time since 1960. However, mallards showed no change from last year and were still 32 percent below the average. Pintails were up 125 percent and shovelers were up 56 percent over last year. Canvasbacks showed some gain over a year ago, but most divers were down from the long-term average. Indications were that many ducks had spread out from the better watered parkland areas of past years into the newly watered areas.

Dispersal from the parklands could not account for the entire increase in pintails and other dabblers. It must be assumed that the prairies siphoned off birds that have gone farther north in past years, maybe even Alaskan birds in the case of the pintails. Even so, the birds were sparse and well distributed. We had many ponds with no ducks.

Canada geese noted this year in singles and pairs, indicating nesting efforts, were seen in the largest number ever recorded in the history of the aerial survey. The index was 6,900 compared to the previous high of 3,600 in 1963. Coots with an index of 141,300 were the best since the late 50's.

The lone drake index based on three species--mallard, pintail, and canvasback--was the highest on record. It compares with the year 1960, the second highest on record. It would appear that the early nesters were taking advantage of the good water and not standing idly by.

Summer weather and habitat conditions (table B-27)

Shower and thunderstorm activity helped to maintain water levels in temporary and permanent ponds in areas affected by them. This was fairly general but, by no means, did it cover the whole prairie area. Precipitation was generally near normal at most reporting stations. If it hadn't been for good general rains in the areas south of Saskatoon at the end of June and in early July, we would have been short of pond water in those areas. That section had dried out considerably in May and early June. At the mid-June date, shortages were evident in most areas. In late July, habitat was in good shape except in parts of the parkland areas north and east of Regina to Yorkton, locally around Wynyard, Kamsack, Hudson Bay, Melfort, and Nipawin. In those strata, there are still some excellent water areas apparently replenished by local thundershowers.

The pond index was 972,300 ponds. This was 161 percent over last year but still below the 11-year average by 33 percent. Vegetation in ponds was heavy with adequate nesting and brood cover during this period. No shortage of cover or food was evident. Farm crops were slightly behind during the early part of the period but caught up later.

Production (tables B-28 and B-29)

The duck brood index was 195,000, a 140 percent increase over last year and only 22 percent below the 11-year average. This was the largest brood index since 1958.

The average brood size was 5.6 which was an increase from last year of 12 percent from the long-term average of 10 percent. The 1969 Class I broods made up 13.4 percent of the hatch, Class II 53.4 percent, and Class III 33.2 percent. This compared to 1968 figures of Class I 33.8 percent, Class II 42.9 percent, and Class III 23.3 percent. This substantiates aerial and other ground observations of a successful early hatch and a sizeable show of strength with later nesters (Class II broods). The 1969 Class I broods were lower percentage-wise but numerically were as strong as last year. This indicates that the late nesters, certain divers and other second nesting attempts, will be equally important in the total hatch. Early in the season, we did not have much hope for a strong late nesting effort because of the excellent early nesting season. This later evidence gives hope to a well rounded hatch including early, middle, and late nesting efforts.

We know that we missed a number of early hatched flying pintail broods. They were reported both by ground observers and noted by the aerial crews. It was impossible to record them from aerial

observations because of the inability to separate them as distinct broods when they were in flight. In other instances, masses of Class III broods on the water were so intermingled that separating them to broods was impossible. In addition, heavy vegetation obscured Class I and II broods still using this type of habitat. Therefore, the brood count can be considered to be a conservative count.

Species-wise, we know from ground reports and observations that canvasbacks and pintails were very successful in early brood productions. Such other species as gadwall, shovelers, and scaup were equally successful later in the season. We expect other species to have done equally well but cannot substantiate their success. The mallard situation was a perplexing one. We had about the same number of breeding pairs in May as were present a year ago. Mallard broods were in evidence but not in such numbers as noted in other species. It's difficult to determine just what their situation was. We can speculate that they were equally successful as the other early nesters--canvasbacks and pintails--but their numerically reduced numbers didn't attract our attention as it has in years of former abundance.

The coot brood index was 40,600. This was 67 percent over last year but still 42 percent below the long-term average.

The late-nesting index was 178,200. This compared to a long-term average figure of 98,600, an increase of 81 percent. Compared to last year, it was up 127 percent. With water conditions holding up, generally, the success of late nesters should be assured.

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-30)

The summer and fall rains in 1968, plus the heavy winter snow, produced an accumulated moisture surplus in Manitoba this spring. A good frost seal formed last winter and the runoff this spring was very fast. The result was generally good to excellent water

conditions for waterfowl in southern Manitoba. Growing season precipitation, that since April 1, 1969, was below normal at selected stations in southern Manitoba.

May 1969 was characterized by cool nights and mild days. Early morning temperatures were generally near freezing during the survey period. Mean temperatures for May were below normal across southern Manitoba. The first hot weather occurred the fourth week in May.

This season was early. A heavy snow pack covered the ground until early April when a warm spell, with temperatures to 68°, melted all of it in a week. Potholes were open when we arrived on May 3 and aspens and willows were starting to leaf in the southern areas. The phenology this May is a week to 10 days ahead of 1968 (considered a normal year).

Due to the wet fall in 1968, very little land was fall plowed. The extensive runoff this spring, plus early May showers, kept farmers out of fields until the second week of May. Field operations in Manitoba are quite late this year. Soil moisture is generally excellent but some lowland areas are waterlogged and will not be planted this year.

There are many ponds in southern Manitoba and water levels are generally high. The 1969 pond counts were 27 percent above those of 1968, but are 31 percent below the average of the last 16 years.

Breeding populations (tables B-31 through B-33)

Breeding duck numbers in southern Manitoba in May 1969 were 28 percent higher than in 1968 but still 22 percent below the average of the last 16 years.

Counts for most species increased in Manitoba this May compared to last. The important mallard was up 19 percent over 1968, yet remains 39 percent below the average. The 1969 pintail, blue-winged and green-winged teal, shoveler, redhead, and canvasback populations were all up substantially over those of May 1968. Of this group only the greenwing index was above the long-term average.

Coot numbers increased by 26 percent this year in southern Manitoba. The coot index declined slightly in stratum 25, but a marked increase in stratum 24 resulted in the overall gain for the survey area.

Summer weather and habitat conditions (table B-30)

Late June and July were wet in southern Manitoba, but growing season precipitation in southern Manitoba was only slightly above

normal as of July 17. Temperatures for May, June, and July have been below normal in southern Manitoba. The mean temperature for June at Winnipeg was 54 degrees and was the coldest on record.

The July 1969 pond count was 110 percent above the 1968 count but remained 19 percent below the long-term average for southern Manitoba. Vegetation was sparse in May, but many ponds were grown through with emergents and aquatics in July. "Brood visibility" was below average this July due to heavy vegetation and increased water levels in July.

Production (tables B-34 and B-35)

The 1969 brood index for southern Manitoba was 63 percent higher than that of 1968 but 23 percent below the 15-year average. The average brood size, 6.1 ducklings per Class II and III broods, the largest since 1960.

The 1969 coot brood index was 447 percent higher than that of 1968 and 98 percent higher than the 15-year average. It was obvious that there were many coots in southern Manitoba this year.

The 1969 index to late-nesting, which is the "measure of broods to come" was 172 percent above that of 1968 and very near the long-term average. This was surprising, since 1969 was an early nesting season in southern Manitoba and in early years we do not expect substantial late nesting or renesting efforts. Most of the late nesters were found in the central portion of stratum 25 and were counted in the period following the heavy rains of late June and early July. We saw little indication of late nesting during the last week of surveys in stratum 25.

MONTANA

Data supplied by Alva E. Weinrich and Eugene V. Cofer,
Bureau of Sport Fisheries and Wildlife and Dale Witt,
Montana Fish and Game Department

Spring weather and habitat conditions (table B-36)

The past winter was one of the coldest on record over most of northern and eastern Montana, and it remained cold into April. The last major storm occurred the last week of April. Snowfall

was unusually heavy with several stations reporting record or near record totals. When the weather warmed up, vegetation greened up and grew rapidly. Crop outlooks are generally good.

Water indexes were up 42 percent from the 1965-68 average. The stock dam index in stratum 40 and 41 is the best it has ever been as were stream indexes. The pothole index in stratum 41 was slightly below the record since the surveys began. It should be pointed out that the major increase in stream and pothole indexes were of the temporary and semipermanent category and their usefulness depends upon additional storms. The overall water index is 116 percent above last year.

Breeding populations (tables B-37 through B-39)

The total population index increased 34 percent from last year, but is still 10 percent below the average. Mallards were well above last year and as good as they have been since the surveys started. Pintails were above last year, but below 1967. Scaup showed a marked increase this year and divers as a whole were well above the 5-year average; however, divers make up roughly 10 percent or less of the total population. Canada geese made a good increase and each year more are observed.

This year's lone drake index on mallards and pintails was well below the average, as was the total lone drake index. This indicates that the breeding season was not very well advanced, generally, yet groups of up to 6 and 8 lone drakes were observed. Canada goose broods were not showing up either until towards the end of the survey indicating that they were behind by about two weeks. The long cold winter and spring retarded both duck and goose breeding activity. This year's nesting should be a successful one and I doubt that late nesting will be as great as in previous years.

Summer weather and habitat conditions (table B-36)

With the exception of the local area north of Great Falls and east of Cut Bank, Montana precipitation was 1 to 2 inches over normal for the survey area with most of this falling in July. Late May and the month of June were quite dry and crop and range conditions were not as good as they should have been. During the period of June 7-13, snowfall of up to 5 inches fell in Great Falls and there was freezing weather with temperatures down to 24 degrees at nights in the Lewistown and Billings area which also affected range and crop growth. A number of severe hailstorms occurred throughout the survey areas in July.

Vegetation in potholes and around the edges of stockdams appeared heavier than usual making it difficult at times to see ducks and/or broods. The water index was the highest it has ever been for July with increase of 84.3 percent over 1968 and 58.6 percent above average.

Production (table B-40)

The production data indicated a duck brood index increase of 60 percent over last year and 32 percent above average. Average brood size was up 21.1 percent to a record 5.33 from last year. The coot brood index decreased sharply from last year but is relatively unimportant in this survey area as is diving duck production. The broods in the survey area were predominately Class III--57.4 percent of the total. Class II broods were 27.3 percent and Class I were 15.3 percent of the total. Many of the Class III broods were flying. Stratumwise, 24 percent of the broods were in stratum 40 and 76 percent were observed in stratum 41.

The total late nesting index increased from last year 122.3 percent and was 113 percent above average. Mallards increased nearly 300 percent for the greatest change. Widgeon and blue-wing teal were up 72 percent and 30 percent, respectively. Pintail were up 70 percent and shovelers were up 171 percent. Scaup were the only diver observed with a slight late nesting index.

Canada goose populations and production (table B-41)

Hi-Line Unit: The trend during the early nesting season was down slightly from last year. This year's population would be about the same or slightly higher than the long-term average. The production trend in this unit was increased from last year. This year's production in this unit is one of the best ever recorded.

South Central Unit: The population trend during the nesting season for this unit is up again from last year. No reliable production data are available. Banding is still needed in this area to determine if these geese are part of the Hi-Line population. Banding attempts last year were unsuccessful.

East Slope Unit: The population trend during the nesting season was similar to the previous year. The production trend in this unit was down slightly from last year but was still improved over the long-term average. Production fell off greatly on Tiber Reservoir and appears to be associated with the low water levels on the spillway and will remain low for an indefinite period. This

lower reservoir level and the weed growth coming in on the mud flats may be the reason for the increased use of the area by non-breeding geese.

Helena Unit: The population trend during the nesting season was nearly the same, or possibly down slightly from last year. The production trend for this unit was up considerably from the previous year. This increase was the result of improved production on Canyon Ferry Reservoir and the section of the Missouri River immediately above the reservoir. The geese nesting on the river between the reservoir and Toston bridge apparently use Canyon Ferry for a brooding area.

Upper Missouri Unit: The population trend during the nesting season was up from last year. No production counts were made in this unit.

Flathead Valley Unit: The breeding population and production for this unit was up from recent years, but is still down from peak years.

No. goslings	1961	1962	1963	1964	1965	1966	1967	1968	1969
	577	448	357	358	365	360	380	396	495

It is the feeling of workers in the areas that the recent restrictions on the season length may be instrumental in lowering the mortality rate and thereby permitting the population to increase.

NORTH AND SOUTH DAKOTA

Data supplied by Gerald Pospichal and Donald N. Frickie,
Bureau of Sport Fisheries and Wildlife

Spring weather and habitat conditions (table B-42)

Below normal temperatures, high winds, and heavy snows, prevailed through January, February, and March. Drifting snow filled pothole basins and in excess of 18 inches of snow on the level was common in parts of both States. The cold weather continued through the first week in April in South Dakota and until mid-April in North Dakota. Warm south winds arrived to bring off one of the fastest melts and runoffs in recent years. Extensive flooding,

causing high property loss, occurred in most major river systems in North Dakota and worked southward as the month progressed. What appeared would be a late spring, became one that was "normal to advanced" in most of the area. Initial migrants were behind schedule in arriving, but when they did appear in mid to late April, they began nesting efforts immediately. Broods of pintails and mallards began to emerge by May 20th and more broods were observed during this survey than at any time during the past five years.

The pond indexes showed increases of 98 percent from 1968 and 124 percent from the long-term average. Year by year comparisons show numbers of potholes in 1969 to be higher than any year since 1959. Water quality, except for scattered pockets in south-central South Dakota and eastern and northwest North Dakota, was excellent.

Trees leafed out early and pond vegetation had growths of 4 to 6 inches by May 25, however, because of the high water levels visibility was not adversely affected.

Breeding populations (tables B-43 through B-46)

Breeding population indexes were the highest since records began in 1960, up 103 percent from 1968 and up 75 percent from the long-term average. All species except coot, which dropped 36 percent from 1968, but were up 18 percent from the average, showed substantial increases. Both ducks and coots appeared to be nesting this year (observed as pairs, as single birds, or in the case of coots, on nests) whereas last year a large portion of both coots and ducks were present in large flocks on the larger water areas. Mallards and gadwalls showed increases of 62 percent and 17 percent, respectively from 1968 and increases of 28 percent and 74 percent from the average. Bluewings, shovelers, and pintails were present respectively in numbers 106 percent, 206 percent, and 230 percent over 1968 and 75 percent, 106 percent, and 89 percent over the long-term average. Similar high increases of 146 percent and 296 percent were noted for redheads and canvasback over 1968 and 130 percent and 238 percent over the average. The less common species, widgeon, green-winged teal, and ruddy also showed large increases.

The area lone drake index for 1969 was slightly above 1968 and quite comparable to the preceeding years. This indicates a slightly advanced season from 1968 which is further substantiated by the above-normal numbers of broods observed toward the end of the survey period.

Summer weather and habitat conditions (table B-42)

Except for the northeast section of South Dakota, a below-normal precipitation cycle began in March and continued into late

June. Soil moisture had reached a critical point as far as crops, hayland, and pasture were concerned. Above-normal, heavy rains began in late June and continued through mid-July in northern and eastern parts of the State. Pothole levels in eastern, central, and north-central South Dakota were restored to near-spring levels. Vegetation was dense and aerial observations were hampered to a greater degree than in past years.

In North Dakota, the dry-spell also began in March and continued till late June. Soil moisture reserves were nearly exhausted and crops were at a critical stage when saved by the heavy timely rains in late June and early July. Unfortunately, high winds and hail accompained these rains and damage to crops and waterfowl production occurred in scattered parts of the State. Except for eastern North Dakota (stratum 29) and scattered areas in stratum 30, water levels were restored and are much improved over July of 1968. These should hold for the current broods on the water and for late nesters.

North Dakota July ponds were up 85 percent from 1968 and up 84 percent from the 1967-68 average. South Dakota showed an increase of 82 percent from 1968 and 41 percent from the average.

Hay cutting was nearly completed in South Dakota by mid-July and the small grain harvest had begun in the southern parts of the State. Haying began in North Dakota by this time and grain swathing was in progress by the end of the month.

Production (tables B-47 and B-48)

The July production survey showed an increase of 82 percent in duck broods over 1968 and an increase of 30 percent over the 1959-1968 average. Duck brood size increased 7 percent from 1968 and increased 8 percent as compared to the average. Coot broods in these strata showed increases of 146 percent in both comparisons. North Dakota increases in duck broods of 88 percent from 1968 and 34 percent from the 1967-1968 average were noted. Coot broods increased 153 percent from 1968 and 36 percent from the average. In South Dakota, duck broods were up 86 percent from 1968 and 77 percent from the 1967-1968 average. Coot broods indicated respective increases of 108 percent and 74 percent. As indicated by the age distribution of the broods, (Class I - 12 percent, Class II - 50 percent, Class III - 27 percent, unaged - 11 percent), the early nesting attempts were very successful. Banding crews in both States were much more successful in trapping locals than in 1968 when the effort was disbanded for lack of bandable birds.

A strong late-nesting effort was indicated in both North and South Dakota in 1969. The index was up 194 percent over 1968 and up 54 percent over the 1959-1968 average in strata 30 and 33.

South Dakota probably because of its greater recovery in pothole numbers and quality over the past few years, shows a stronger late-nesting effort than North Dakota.

MINNESOTA

Data supplied by Robert L. Jessen,
Minnesota Department of Conservation

Weather and habitat conditions

Extensive spring flooding, especially in south-central and southwestern Minnesota, was followed by below normal rainfall over most parts of the State. A notable exception to this was sizeable region extending roughly in a triangular fashion from Benson to Morris to Graceville in western Minnesota. Here, heavy rains flooded marshlands well above ordinary high water levels, roadways were under water and many temporary ponds created in fields.

Temperatures above normal in the early portion of the spring were followed by below normal temperatures in late May and June.

Foliage development of trees was perhaps a week early due to the warmer than normal early spring temperatures. Aquatic plant growth, however, was not so noticeable because of high water levels in the more permanent pond basins.

The estimated number of natural ponds containing water increased from 165,000 in 1968 to 217,000 in 1969, an increase of about a third more ponds this year.

Breeding populations (tables B-49 and B-50)

The unadjusted waterfowl breeding population index for Minnesota was 60,000 mallards, 47,000 blue-winged teal, and 7,000 ring-necked ducks. The total number of all ducks was 158,000. The unadjusted coot index was 20,000.

Adjustments of the breeding population index for visibility of birds indicate that 60 percent of the mallards were seen by aerial census, 29 percent of the blue-winged teal, and 72 percent of the ring-necked ducks. This is higher proportions of birds seen by the aerial crew this year than in 1968.

The adjusted number of breeding waterfowl in the State is estimated at 360,000 birds, a number which closely approximates those seen in 1968.

The number of mallards, blue-winged teal, and ring-necked ducks remained little changed from those estimated in 1968. The numbers of pintail and shoveler noted this year, while few in total, were greater than last year's.

The proportion of lone drakes in the census was noticeably greater this year than last. Ninety percent of the mallard pairs were evidenced by drakes this year in comparison with 75 percent last year.

CHIPPEWA NATIONAL FOREST, MINNESOTA

Data supplied by Jay Janecek, Robert Chesness, and Robert Greig, Minnesota Conservation Department, John Mathisen and Gary Sieren, U.S. Forest Service, and Lew Cowardin, David Gilmer, and Harry Pinkham, Bureau of Sport Fisheries and Wildlife

Habitat conditions

Due to heavy snow conditions throughout the winter months, the water levels have remained quite high in the Chippewa Forest area during the spring. On July 9, 1969, the water level at the Winnibigoshish Dam was 10.40 feet which is normal high for water levels in the summer.

Submergent vegetation was about the same as the past two years and the wild rice growth appears to be good to excellent in most areas.

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

The six main species of breeding ducks on the Chippewa National Forest area have been the mallard, widgeon, goldeneye, blue-winged teal, ring-necked duck, and wood duck. Other ducks will include merganser, redhead, scaup, and green-winged teal.

The brood average of Class III mallards for the total survey area in 1969 was 5.7 as compared to the all time average of 6.6. Incomplete broods and maternal hens have not been included.

This year's waterfowl survey indicated a 60 percent decrease in the total number of observed and calculated ducks as compared with the par year of 1939-40. Slightly above normal water levels throughout the census area and high winds which prevailed over the area for three days preceding the survey may be factors which have influenced the count.

WASHINGTON

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

Weather and water conditions

Abundant snowfall and a good runoff in eastern Washington filled potholes to their highest levels in twelve years. May pothole numbers were 96 percent above that of 1968 and 63 percent above the 1962-68 average. Statewide, warm weather and good soil moisture produced better-than-average nesting and brood conditions.

Breeding populations (table B-53)

In 1969, there were about 147,000 adult ducks on the breeding grounds of Washington. This was 22 percent more than in the spring of 1968. Mallards responded to the renewed breeding habitat, but not to the extent that pintails, shovelers, and the three teal species did. The wood duck population and the small breeding population of gadwall both declined.

Production (table B-54)

The State production index for all ducks was 430,500, up 40 percent from that of 1968. Young ducks made up 65 percent of the index, up from 61 percent in 1968 and 59 percent in 1967. By far the largest increase, a plus 134 percent, occurred in the far eastern pothole area. Douglas and Okanogan County potholes showed

moderate gains in duck production, as did western Washington. Production from irrigated lands and in the northeastern highlands changed but little.

The production index for Canada geese was 13,200, up 13 percent from that of 1968. Nesting success was improved in the river habitat, with the exceptions of hydroelectric construction areas on the Snake River, and on the newly formed John Day Pool.

OREGON

Data supplied by Chester E. Kebbe,
Oregon Game Commission

Weather and habitat conditions

The drying trend of the past four years in southeastern Oregon, the region containing the major waterfowl production areas in the State, was broken to some extent in 1969. Heavy spring runoffs from deep snowpacks and late spring rains caused most of the lakes, potholes, and reservoirs to fill to capacity and created the best waterfowl habitat conditions since 1965. The cool wet spring prevented rapid evaporation and stabliized water levels in the newly created ponds and marshes.

Production (tables B-55 and B-56)

Canada goose production surveys were conducted on 19 ground transects and covered the major breeding areas in the State. Results indicate production to be comparable with 1968 but 20 percent below the previous five-year average.

Duck production on a Statewide basis is approximately 5 percent greater than in 1968 and up 30 percent from the low production year of 1967. A major shift of breeding birds apparently occurred from permanent water areas to newly restored habitat. Production in the Klamath Basin declined 75 percent while in the improved marshes of Malheur Refuge production jumped 70 percent from 1968. Production of dabblers increased 25 percent with teal, gadwalls, and pintails showing the greatest improvement. All divers showed a decline in overall production.

IDAHO

Data supplied by Elmer R. Norberg,
Idaho Fish and Game Department

Weather and habitat conditions

A heavy snow pack accumulated in the mountainous portion of Idaho during the early part of the 1968-69 winter period. Relatively low temperatures during the winter allowed the snow pack to accumulate at the lower elevations as well as in the high back country areas.

From approximately mid-March on, comparatively dry weather conditions prevailed. The runoff from the lower elevation streams was quite rapid and produced flood conditions in portions of southern Idaho during a part of April and early May. This period was followed by a cooling trend which again stabilized the runoff and reduced stream flow fluctuations.

Breeding populations (table B-57)

The Canada goose breeding population in the Snake River portion of southwestern Idaho was down 28 percent from that of the previous year and down 20 percent from the previous year in the Lower Payette River drainage. It was down 20 percent and 9 percent respectively from the long-term average for these two areas. The available breeding population trend information for southeastern Idaho indicates that the population was slightly above that of last year and the long-term average.

Production (table B-58)

Western Idaho Canada goose production was down 20 percent in 1969 from 1968 and 26 percent from the long-term average. Eastern Idaho production was down 13 percent from 1968 and down 27 percent from the long-term average. Combined eastern-western production was down 18 percent from 1968 and 26 percent from the long-term average.

In eastern Idaho, reduced Canada goose production was particularly noticed on both the Henry's Fork of the Snake River and Island Park Reservoir.

Duck brood production in the Blackfoot Reservoir area was excellent. A total of 138 observed broods averaged 7.2 young per brood.

CALIFORNIA

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

Weather and habitat conditions

Water and habitat conditions in northeastern California were good this year and were similar to the excellent conditions of 1967. Almost all of the permanent water impoundments and marshes were full from runoff. In addition, many swales and low-lying meadows had ample water to produce birds. The spring was late and delayed Canada goose nesting about two weeks.

The Central Valley received above normal amounts of rainfall and this, together with the record snow pack runoff from the Sierra Nevada Mountains, caused flooding in many valley areas. Similar to 1967, floodwater poured onto the farmlands in the basins of Tulare, Hacienda, and Buena Vista Lakes. Thousands of ducks and coots remained to nest in these areas that are normally dry farmlands and not usually covered by the survey. This flooded area has water and weather conditions ideal for botulism and as a result much of the production can be nullified with botulism losses.

Normally most of the nesting habitat in the Central Valley is composed of artificial and regulated water impoundments such as rice fields, grasslands, and pasture areas. This year with good water conditions many birds scattered out to nest in a variety of temporary habitat.

Wintering populations of waterfowl left the State on schedule with most of the birds leaving the Central Valley by the first part of April. Rice planting was delayed about two weeks because of the wet fall and winter which held up ground preparation.

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: the Suisun Marsh, the Grasslands, and rice and pasture areas of the central San Joaquin Valley. Normally, other areas are of little significance; but this year, as mentioned above, birds were attracted to these outlying areas to nest.

Breeding populations and production (tables B-59 and B-60)

Nesting pairs of Canada geese were about the same as in 1968, while a 12 percent increase in the fall population was noted.

Ducks showed an increase of 25 percent in nesting pairs and a 19 percent increase in the fall population index. Nesting pairs and the fall population index of coots were down 11 percent.

UTAH

Data supplied by John E. Nagel,
Utah Division of Fish and Game

Weather and habitat conditions

The winter of 1968-69 provided Utah with above average amounts of precipitation. Heavy runoff created optimum nesting conditions for waterfowl throughout the State. All managed marsh areas were in excellent condition when breeding waterfowl returned this spring. Natural marsh areas around the Great Salt Lake and wetland areas in eastern and southern Utah were enhanced by heavy prerunoff. Wetland habitat throughout the State remained in excellent condition throughout the spring and early summer.

Continued periods of rain through the end of June has placed little demand on waters stored in irrigation reservoirs. This has resulted in sustained high flows into managed marsh areas in northern Utah and slower than average deterioration of natural marsh areas. Average amounts of precipitation during the summer should allow wetland habitat to remain in excellent condition throughout the rest of the summer and into the fall hunting season.

Breeding populations and production (tables B-61 through B-63)

Aerial surveys indicate a substantial increase in breeding ducks on northern Utah trend areas. Ground counts on managed marsh areas also reflect no increase in breeding birds from 1968 levels. Better habitat conditions throughout the State and especially in areas immediately adjacent to developed marsh areas accounted for significant increases in the number of birds utilizing these areas and in the amount of habitat available to breeding waterfowl. This is essentially the same type of situation experienced in both 1967 and 1968.

Breeding populations of mallards, ruddy ducks, and shovelers on major census areas can be considered as normal. Redheads and gadwalls increased from 1968 levels. No major shift in species composition between northern and southern breeding areas was noted.

Canada goose brood counts made during this spring indicate below average production of Great Basin Canada geese throughout the State. Major production areas in northern Utah including Bear River Migratory Bird Refuge indicate substantial decrease in numbers of breeding pair and goslings. Production areas throughout the same downward trend. Breeding pairs of geese are down approximately 24 percent and the number of goslings produced declined 33 percent from 1968 levels.

WYOMING

Data supplied by George Wrakestraw and Leonard Serdiuk, Wyoming Game and Fish Commission

Weather and habitat conditions

Generally speaking, habitat was definitely limited over much of Wyoming this year. A dry fall and spring resulted in fewer water areas throughout much of eastern Wyoming. Some runoff from spring snow storms replenished water supplies in a part of northeastern Wyoming, but this occurred after the peak of migration and was not general over the major nesting areas. During the breeding pair survey, a great deal of pessimism was felt for the welfare of duck broods which were soon to appear. This pessimism was dispelled by heavy rains throughout much of eastern Wyoming during late May and early June. Conditions improved significantly during a three week period and there appears to be adequate water areas to assure brood survival.

Weather and habitat conditions were generally ideal for Canada geese. Some nest flooding occurred on the Snake River and Green River, but was limited to short stretches of both streams.

Breeding populations (tables B-64 and B-65)

The estimated duck breeding pair population for 1969 showed a decline of 8 percent from 1968, but recorded an increase of

47 percent from the long-term average. Only mallards, teal, scaup, and ruddy ducks showed an increase over 1968.

Grouped birds observed during the survey were added to the pairs observed to arrive at a total duck figure by species. A decrease of 20 percent was recorded for total ducks from 1968. However, we did find 29 percent more ducks than the average.

Coots and mergansers were also less abundant than in 1968.

A slight drop from 1968 is recorded in total number of geese observed, but the count is still considerably above the long-term average. A comparison of pairs observed on the survey areas for the past seven years showed that paired birds, the productive segment of the population, continued to increase.

Production

Below average water and habitat conditions existed this spring. Many reservoirs and stockponds were recharged by late May and early June rains, but this occurred long after the peak of migration. However, these storms did insure adequate water for brood survival. Production success has remained good throughout Wyoming.

It is concluded that the fall flight of ducks from Wyoming will be below that of 1968, but will still be above average.

Canada geese in western Wyoming showed a decrease from 1968. Eastern Wyoming flocks offset this to a great degree. The decline appeared to be in the yearling age class. Breeding pairs were in plentiful supply and it is concluded that production remains high, but the fall flight of geese from Wyoming will be somewhat below the 1968 level and above average.

COLORADO

Data supplied by Michael R. Szymczak,
Colorado Division of Game, Fish and Parks

Weather and habitat conditions

Weather and conditions for waterfowl nesting were generally good in most areas of the State. The winter snow pack was considered normal in most areas with heavy snows on some west slope drainages.

High water created some goose nest flooding problems on the Yampa River. Water conditions were considered better than average for duck nesting in North Park, Brown's Park, and the Yampa and Cache la Poudre Valleys. Water in the South Platte and San Luis Valleys was not as favorable as in the previous year.

Breeding populations and production (tables B-66 and B-67)

The total duckbreeding population was down about 5 percent from the 1968 level. Only North Park and the Cache la Poudre Valley showed increases from 1968 levels. The most significant decline occurred in the South Platte Valley where the number of pairs recorded were less than one-half of the previous year's total.

A significant change in species composition of breeding ducks was recorded in 1969. The percent of mallards in the breeding population declined and the percent of teals, particularly green-winged teal, increased. A change in observers may have been partially responsible for this change in composition.

Total flock size and production of Canada geese in northwestern Colorado show a decrease from the record high numbers of 1968. Fewer adult birds were present on all sections except the Little Snake River. More nesting pairs were recorded in 1969, but brood sizes were relatively smaller resulting in a decline in total production. Undoubtedly, high water on the Yampa River had a detrimental effect on production. Figures presented for 1969 for the Green River may not be comparable to those of 1968 as a less intensive survey was conducted this year.

Expected fall flights of ducks from Colorado's 1969 production will be above average but slightly less than in 1968. Water conditions appear very favorable for brood survival.

Production of geese in northwestern Colorado was below the 1968 level indicating a slight decline in the fall flight.

NEBRASKA

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

Weather and habitat conditions

Water conditions were generally poor throughout the sandhills during both the May breeding pair survey and July brood survey. Some portions in the west and southwestern areas were in fair condition due to water carried over from the previous season and from some local spring and early summer rains. The May water index was 4 percent below the 1968 May index, but 6 percent above the 1967 index. The 1969 July water index was 14 percent below the 1968 July index and 38 percent below the 1967 index.

Water conditions in the rain basin area were the best since the drouth began eight or nine years ago, and are good in the western portion and excellent in the eastern. The water index was 40 percent above last year. Except in the northeastern part, the water conditions were excellent through July.

Weather conditions were comparatively cool during most of the spring and early summer until the second week of July. Most of the sandhills production area received freezing temperatures on June 2 and on June 14.

Breeding populations (tables B-68 through B-70)

Breeding pair transects were flown over the sandhills production area during the period May 11 through May 19, 1969, and on May 23 in the rain water basin area. The 1969 sandhills breeding population index was calculated to be 100,592 ducks. This figure represents a 4 percent increase from 1968. In the rain basins, the duck breeding population was calculated to be 14,035, a 25 percent increase over 1968. The two areas combined have a calculated breeding population of 114,630 ducks, a 6 percent increase over 1968.

Production (table B-71)

Aerial brood transects were flown over the sandhills production area during the period July 9 through July 17, 1969.

A total of 33 broods with 162 ducklings was observed. Good counts were obtained on all broods. The number of broods was down 3 percent. There were about 5 ducklings/brood as compared to 6 in 1968.

The hatch in the sandhills production area has been irregular, with both flying young and newly hatched Class I ducklings in evidence during late July. Age class percentages for the ducklings sighted on the aerial survey were 52, 32, and 16 respectively, for the age Classes I, II, and III.

Blue-winged teal had a poor production year, but mallard and shoveler had a good production year.

Brood transects were not flown in the rain water basin production area. Ground observations indicated excellent production of mallard, blue-winged teal, and shoveler.

Duck production in the sandhills will be essentially the same as that of 1968, and in the rain basin area it will be increased several times that of last year. Statewide production will be significantly greater than 1968. Calculations based largely on ground determination indicate an increase of 8 to 10 percent.

MISSOURI

Data supplied by Richard W. Vaught,
Missouri Conservation Department

Weather and habitat conditions

Weather and water conditions have been definitely unusual this year. Daily maximum and minimum temperatures fluctuated drastically from February on through June. Temperatures of 18 to 19 degrees occurred throughout the State during the normal waterfowl laying period. Heavy and continued rainfall broke all existing records for northern and southwestern Missouri. Rainfall in south central and southeast Missouri was below normal. Prime brood habitat did not appear to be seriously affected.

Production

The stream float method was used primarily for evaluating data on wood duck production in Missouri. Some streams could not be checked due to flood conditions. Wood duck nesting box studies in southeast Missouri provided measurements in an area of good production and one subject to almost drouth conditions.

The number of wood duck broods noted per mile on 231 miles of stream floats was 0.24 for a new high. Average brood size was the highest noted in seven years. Population counts on the streams were also higher than normal.

Wood duck nesting attempts and success in artificial nest boxes were also higher in the marsh areas checked in southeast Missouri. Most waterfowl area managers indicated they believed wood duck populations to be equal to those of last year. However, their opportunity to observe production this year was seriously hampered by flood conditions.

Nesting efforts of mallards and blue-winged teal are insignificant although successful production is noted in all parts of the State. Wood duck production in Missouri this year is higher than last year. Production by any other species of duck is insignificant.

WATERFOWL KILL SURVEY

Data supplied by Elwood M. Martin, Samuel M. Carney,
Robert L. Croft, and Charles H. Lobdell
Bureau of Sport Fisheries and Wildlife

Scope and Methods

This report presents estimates of waterfowl hunting activity and success, including bag by species, for the 1968 waterfowl season and compares each estimate with its 1967 season counterpart (Special Scientific Report -- Wildlife No. 122). These estimates are based on information obtained through the Bureau's annual Cooperative Waterfowl Parts Collection and Mail Questionnaire Surveys of United States Waterfowl Hunters. Duck stamp sales figures were provided by the Post Office Department. Preliminary estimates, based on reports of duck stamp sales through the third quarter of fiscal year 1969, were made available for the annual waterfowl regulations meetings in early August in Administrative Report 172. Final estimates, based on total sales for all four quarters, are presented here.

Survey procedures are comparable to those used previously (Special Scientific Report -- Wildlife No. 99). As usual, except for Washington, D. C., all hunting activity and harvest estimates have been assigned to the State in which the hunter purchased his duck stamp. In most cases, this is also the State in which the hunting occurred. When it is not, the indicated distribution of hunting effort among States may be somewhat disproportionate as appears to be the case with the very conservative goose bag estimate obtained for Illinois this season, compared to the registered goose kill (unpublished data).

Corrections in the Minnesota duck species composition have resulted in adjustments in the species totals for 1967, and incorrect entries for canvasbacks and for total ducks in the Atlantic Flyway which appeared in the previous report have also been corrected. For more detailed species composition data by State, see Administrative Reports 169 (ducks) and 173 (geese). The latter report also contains information on goose age ratios, while additional data on the duck bag appears in Administrative Reports 170 (sex ratios) and 171 (age ratios).

Separate reports provide estimates of waterfowl hunting activity and success during the 1967 September teal season (Administrative Report 155), the whistling swan season in Utah (Administrative Report 168), and the experimental October season in Colorado's San Luis Valley (Administrative Report 175) which are not included in this report. However, hunting activity and harvest during the various special scaup seasons, the extended sea duck season of 108 days in most coastal areas of the Atlantic Flyway, the 1967 late black duck season in Maine, Massachusetts, and New Hampshire, and the 1968 late mallard drake season in the Central Flyway portions of Colorado, Montana, and Wyoming are included in the estimates presented here. The species composition of the bag in these States has been adjusted by weighting parts collection survey data with figures from special season questionnaire surveys. Weighting factors for the late mallard drake season were supplied by Colorado, Montana, and Wyoming State wildlife agency personnel.

Results

Table C-1 summarizes bias-adjusted duck and coot bag estimates by species for each flyway and Alaska, together with unretrieved and total kill figures for ducks and coots. Table C-2 presents information on retrieved, unretrieved, and total goose kill in the same manner. Approximately 8,090,000 ducks were bagged in the United States during the 1968 season, 35 percent less than during the previous season. The number of coots bagged during the 1968 season is estimated to have been about 426,000, 44 percent fewer than during the previous season. The total 1968 season bag of 934,000 geese is 18 percent below the 1967 figure. With the exception of the wood duck, for which a 6 percent increase was recorded, these rather substantial decreases were reflected in the bags of all major and most minor species of ducks and geese, as well as coots.

Daily duck bag and possession limits, season lengths, and estimated numbers of potential adult 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 beginning with Alaska and the Pacific Flyway in table C-3. Duck stamp sales records, together with figures showing their breakdown into nonhunters and active and successful waterfowl hunters, are also summarized by State for each flyway beginning with Alaska and the

Pacific Flyway in table C-4. Final reports indicate that 1,829,631 duck stamps were sold in 1968, 5 percent less than in 1967, and that waterfowl hunting provided about 10,397,000 hunter-days of recreation in 1968 for a decrease of 14 percent from the previous season.

A brief resume of hunter activity and success by flyway for 1968, showing degree of change from the previous year, follows.

Alaska

Duck stamp sales totaled 12,411 (+20 percent) and 70,100 ducks (no change), 400 coots (-20 percent), and 10,300 geese (-6 percent) were bagged during 54,400 hunter-days afield (+4 percent). Those persons buying duck stamps for hunting hunted an average of 4.1 days (-15 percent) and bagged a total of 6.9 ducks (-17 percent) and 0.9 geese (-23 percent) each. The estimates for Alaska are contained in tables C-1, C-2, C-3, and C-4.

Pacific Flyway

An estimated 3,026,600 ducks (-31 percent), 87,100 coots (-43 percent), and 284,800 geese (-11 percent) were bagged in 2,492,800 hunter-days (-5 percent), with 395,387 duck stamps (+4 percent) being sold. Potential adult hunters reported averages of 5.8 hunter-days (-8 percent), 9.3 ducks bagged (-33 percent), and 0.8 geese bagged (-14 percent). Pacific Flyway estimates are shown in tables C-1, C-2, C-3, and C-4.

Central Flyway

Duck stamp sales totaled 323,693 (-10 percent), with 1,194,400 ducks (-41 percent), 31,100 coots (-52 percent), and 184,200 geese (-34 percent) having been bagged in 1,757,000 hunter-days (-24 percent). Potential adult hunters hunted an average of 5.0 days (-15 percent) for a total retrieved kill of 4.7 ducks (-35 percent) and 0.6 geese (-27 percent) each. Figures for the Central Flyway are shown in tables C-1, C-2, C-5, and C-6.

Mississippi Flyway

With duck stamp sales of 713,378 (-12 percent), 2,435,500 ducks (-46 percent), 246,400 coots (-44 percent), and 248,000 geese (-26 percent) were bagged in 4,104,100 hunter-days (-20 percent), and averages of 5.4 days (-9 percent) 4.2 ducks bagged (-38 percent), and 0.4 geese bagged (-15 percent) per potential adult hunter were recorded. Estimates for the Mississippi Flyway appear in tables C-1, C-2, C-7, and C-8.

Atlantic Flyway

Totals of 1,362,900 ducks (+1 percent), 60,600 coots (-40 percent), and 206,300 geese (+7 percent) were bagged during 1,988,300 hunter-days (+4 percent), with averages of 5.0 days (-2 percent), 4.0 ducks bagged (-5 percent), and 0.7 geese bagged (no change) being registered per potential adult hunter, as duck stamp sales reached 384,762 (+7 percent). The Atlantic Flyway figures are recorded in tables C-1, C-2, C-9, and C-10.

APPENDIX

A. WATERFOWL WINTER SURVEY TABLES

TABLE A-1.--Winter survey, January 1969 - waterfowl by species and flyway /nearest hundreds/

Species	Pacific Flyway	Central Flyway	Mississippi Flyway	Atlantic Flyway	Total
Ducks:					
Dabblers:					
Mallard	1,405,700	1,662,400	2,123,700	216,700	5,408,500
Black duck	--	Tr.[1]	149,100	330,700	479,800
Mottled duck	--	10,200	70,200	800	81,200
Gadwall	39,900	70,500	987,200	20,900	1,118,500
American widgeon	638,800	86,500	435,800	98,100	1,259,200
Green-winged teal	222,700	137,800	1,104,000	75,600	1,540,100
Blue-winged teal	4,300	2,100	46,300	13,500	66,200
Shoveler	258,200	30,500	270,700	21,800	581,200
Pintail	1,685,200	405,500	687,400	131,500	2,909,600
Wood duck	900	--	--	--	900
Subtotal	4,255,700	2,405,500	5,874,400	909,600	13,445,200
Divers:					
Redhead	6,200	145,700	26,900	84,800	263,600
Canvasback	62,700	6,500	31,100	133,300	233,600
Scaup	102,000	43,300	1,421,400	743,300	2,310,000
Ring-necked duck	3,300	3,700	226,500	131,400	364,900
Goldeneye	43,900	17,700	43,700	80,300	185,600
Bufflehead	43,200	6,000	6,000	49,300	104,500
Ruddy duck	159,700	2,700	28,100	47,800	238,300
Subtotal	421,000	225,600	1,783,700	1,270,200	3,700,500
Miscellaneous:					
Eider and Scoter	108,400	--	100	128,700	237,200
Oldsquaw	900	--	2,800	4,700	8,400
Merganser	20,100	55,000	56,900	39,200	171,200
Subtotal	129,400	55,000	59,800	172,600	416,800
Unidentified	43,200	11,200	3,000	23,400	80,800
Total ducks	4,849,300	2,697,300	7,720,900	2,375,800	17,643,300

TABLE A-1.--Winter survey, January 1969 - waterfowl by species and flyway--continued

Species	Pacific Flyway	Central Flyway	Mississippi Flyway	Atlantic Flyway	Total
Geese:					
Snow goose	413,300	327,300	51,300	62,800	854,700
Blue goose	--	126,500	223,500	900	350,900
Ross' goose	19,600	100	--	--	19,700
White-fronted goose	114,200	16,700	21,000	--	151,900
Canada goose	142,800	262,000	555,200	678,800	1,934,600
Cackling goose	104,000	--	--	--	104,000
Total geese	793,900	732,600	851,000	742,500	3,120,000
Brant:	143,200[2/]	--	--	130,900	274,100
Swans:					
Whistling swan	74,900	Tr.	--	62,000	136,900
Trumpeter swan	800	100	--	--	900
Total swans	75,700	100	--	62,000	137,800
Coots:	402,100	155,700	1,023,100	356,400	1,937,300
Grand total	6,264,200	3,585,700	9,595,000	3,667,600	23,112,500

[1/] Tr. = less than 51
[2/] Includes west coast of Mexico

TABLE A-2.--Winter survey, January 1969 - waterfowl by state and flyway

/nearest hundreds/

State	Ducks	Geese	Brant	Swans	Coots	Total
Pacific Flyway:						
Washington	787,200	35,800	10,100	1,600	10,500	845,200
Oregon	225,200	55,200	400	3,700	17,100	301,600
Idaho	512,700	7,800	--	300	10,500	531,300
Nevada	21,800	6,100	--	2,000	6,000	35,900
California	3,148,900	679,100	200	66,200	335,000	4,229,400
Utah	44,100	2,900	--	1,400	4,600	53,000
Arizona	15,900	3,600	--	Tr.	9,800	29,300
Montana	70,800	1,400	--	400	8,700	81,300
Wyoming	4,200	500	--	Tr.	Tr.	4,700
Colorado	9,000	1,200	--	--	--	10,200
New Mexico	10,000	200	--	--	Tr.	10,200
Mexico (west coast)	--	--	132,500	--	--	132,500
Flyway total	4,849,800	793,800	143,200	75,600	402,200	6,264,600
Central Flyway:						
Montana	59,700	2,800	--	--	--	62,500
Wyoming	48,900	600	--	--	--	49,500
North Dakota	2,900	Tr.	--	--	--	2,900
South Dakota	82,500	9,800	--	100	Tr.	92,400
Nebraska	260,200	6,500	--	--	--	266,700
Colorado	273,300	56,200	--	--	--	329,500
Kansas	584,700	155,400	--	--	--	740,100
Oklahoma	244,000	46,300	--	--	4,100	294,400
New Mexico	85,000	15,700	--	--	4,600	105,300
Texas	1,056,000	439,400	--	Tr.	147,000	1,642,400
Flyway total	2,697,200	732,700	--	100	155,700	3,585,700

TABLE A-2.--Winter survey, January 1969 - waterfowl by state and flyway--continued

/nearest hundreds/

State	Ducks	Geese	Brant	Swans	Coots	Total
Mississippi Flyway:						
Minnesota	10,000	9,000	--	--	--	19,000
Wisconsin	27,900	3,300	--	--	--	31,200
Michigan	70,800	8,100	--	--	--	78,900
Iowa	37,700	1,500	--	--	--	39,200
Indiana	10,400	900	--	--	--	11,300
Ohio	115,800	22,100	--	--	100	138,000
Missouri	244,000	145,400	--	--	--	389,400
Illinois	164,600	233,600	--	--	--	398,200
Kentucky	17,700	39,000	--	--	--	56,700
Tennessee	382,800	54,400	--	--	9,000	446,200
Arkansas	1,030,500	5,800	--	--	21,300	1,057,600
Louisiana	5,294,400	289,900	--	--	956,300	6,540,600
Mississippi	227,200	2,100	--	--	18,600	247,900
Alabama	87,100	35,900	--	--	17,800	140,800
Flyway total	7,720,900	851,000	--	--	1,023,100	9,595,000
Atlantic Flyway:						
Maine	50,700	700	--	--	--	51,400
New Hampshire	3,900	1,200	--	--	--	5,100
Vermont	1,800	--	--	--	--	1,800
Massachusetts	110,900	9,300	400	--	--	120,600
Rhode Island	23,100	1,000	--	--	--	24,100
Connecticut	29,900	500	Tr.	--	--	30,400
New York	166,300	5,200	20,000	--	200	191,700
Pennsylvania	16,300	8,600	--	--	--	24,900
New Jersey	179,700	5,100	78,200	--	--	263,000
West Virginia	3,900	--	--	--	--	3,900
Delaware	17,600	60,700	3,100	Tr.	--	81,400
Maryland	381,200	409,100	1,500	36,400	2,200	830,400
Virginia	134,600	101,700	27,400	Tr.	--	263,700
North Carolina	226,400	121,400	300	25,600	80,500	454,200
South Carolina	295,200	12,500	--	--	43,100	350,800
Georgia	52,800	500	--	--	11,100	64,400
Florida	681,500	5,000	--	--	219,300	905,800
Flyway total	2,375,800	742,500	130,900	62,000	356,400	3,667,600

B. WATERFOWL BREEDING GROUND SURVEY TABLES

TABLE B-1.--Alaska - 10-year trend in breeding population indexes by species, 1960-1969

/index numbers in thousands/

Species	1960	1961	1962	1963	1964	1965	1966	1967	1968	1969	Average
Ducks:											
Dabblers:											
Mallard	78	108	60	83	67	27	32	42	76	53	63
American widgeon	26	42	42	27	36	40	32	59	133	114	55
Green-winged teal	1	4	2	2	10	14	17	24	45	41	16
Shoveler	7	17	7	5	7	4	5	6	32	21	11
Pintail	356	440	476	378	379	240	250	247	622	294	368
Subtotal	468	611	587	495	499	325	336	378	908	523	513
Divers:											
Canvasback	19	6	7	17	11	21	17	15	43	21	18
Scaup	597	657	657	585	562	355	425	314	498	488	514
Goldeneye	27	26	33	10	9	9	13	38	35	39	24
Bufflehead	24	31	39	37	32	29	22	30	21	26	29
Subtotal	667	720	736	649	614	414	477	397	597	574	585
Miscellaneous:											
Scoter	324	316	225	165	148	190	252	250	301	246	242
Eider	17	30	11	11	20	27	14	16	7	6	16
Old Squaw	90	87	69	94	92	49	79	87	133	93	87
Subtotal	431	433	305	270	260	266	345	353	441	345	345
Total ducks	1,566	1,764	1,628	1,414	1,373	1,005	1,158	1,128	1,946	1,442	1,442

TABLE B-2.--Alaska - comparative status of waterfowl breeding population indexes by species and stratum, 1968-1969

/index numbers in thousands/

Species	Stratum		Total		Average	Percent change from		
	37	38	1968	1969	1960-69	1967	1968	Average
Ducks:								
Dabblers:								
Mallard	20	33	76	53	63	+ 26	- 30	- 16
American widgeon	31	83	133	114	55	+144	- 14	+107
Green-winged teal	17	24	45	41	16	+ 71	- 9	+156
Shoveler	5	16	32	21	11	+250	- 34	+ 91
Pintail	166	128	622	294	368	+ 19	- 53	- 20
Subtotal	239	284	908	523	513	+ 38	- 42	+ 2
Divers:								
Canvasback	--	21	43	21	18	+ 40	- 51	+ 17
Scaup	205	283	498	488	514	+ 55	- 2	- 5
Goldeneye	15	24	35	39	24	+ 3	+ 11	+ 63
Bufflehead	4	22	21	26	29	- 13	+ 24	- 10
Subtotal	224	350	597	574	585	+ 45	- 4	- 2
Miscellaneous:								
Scoter	183	63	301	246	242	- 2	- 18	+ 2
Eider	6	--	7	6	16	- 62	- 14	- 62
Old Squaw	82	11	133	93	37	+ 7	- 30	+ 7
Subtotal	271	74	441	345	345	- 2	- 22	none
Total ducks	734	708	1,946	1,442	1,442	+ 28	- 26	none

TABLE B-3.--Alaska - whistling swan breeding population indexes, 1960-1969

/index numbers in thousands/

	1960	1961	1962	1963	1964	1965	1966	1967	1968	1969	10-year average
Square miles sampled	604	548	492	468	414	208	212	210	212	212	
Number counted	710	759	470	567	481	298	256	208	213	367	
Population index	79	79	56	64	50	62	52	43	50	75	61

TABLE B-4.--Old Crow Flats, Yukon - 10-year trend in waterfowl breeding population index by species, 1960-1969

/index numbers in thousands/

Species	1960	1961	1962	1963	1964	1965	1966	1967	1968	1969	Average
Ducks:											
Dabblers:											
Mallard	2	4	4	2	--	1	1	3	2	1	2
American widgeon	9	9	6	7	4	5	9	15	13	14	9
Green-winged teal	1	2	1	--	1	--	--	Tr.	1	Tr.	1
Shoveler	1	--	--	--	--	--	--	--	1	--	--
Pintail	37	16	6	10	6	4	2	9	24	9	12
Subtotal	50	31	17	19	11	10	12	27	41	24	24
Divers:											
Canvasback	6	1	--	1	--	2	16	8	1	3	4
Scaup	38	49	35	24	24	21	49	38	33	39	35
Goldeneye	2	2	2	3	--	1	--	4	7	2	2
Bufflehead	--	--	--	--	--	--	1	Tr.	Tr.	--	--
Subtotal	46	52	37	28	24	24	66	51	41	44	41
Miscellaneous:											
Scoter	68	74	52	32	20	17	43	39	47	39	43
Eider	--	--	--	--	--	--	--	--	--	--	--
Old Squaw	6	7	11	4	7	3	8	10	10	6	7
Subtotal	74	81	63	36	27	20	51	49	57	45	50
Total ducks	170	164	117	83	62	54	129	128	139	113	116

TABLE B-5.--Old Crow Flats, Yukon - comparative status of waterfowl breeding population indexes by species, 1968-1969

/index numbers in thousands/

Species	Stratum 05 Total		Average	Percent change from--	
	1968	1969	1960-69	1968	Average
Ducks:					
Dabblers:					
Mallard	2	1	2	-50	-50
American widgeon	13	14	9	+ 7	+56
Green-winged teal	1	Tr.	1	-60	-60
Shoveler	1	0	Tr.	-100	--
Pintail	24	9	12	-62	-25
Subtotal	41	24	24	-41	None
Divers:					
Canvasback	1	3	4	+200	-25
Scaup	33	39	35	+18	+11
Goldeneye	7	2	2	-71	None
Bufflehead	Tr.	0	--	--	--
Subtotal	41	44	41	+7	+7
Miscellaneous:					
Scoter	47	39	43	-17	-9
Eider	--	--	--	--	--
Old Squaw	10	6	7	-40	-14
Subtotal	57	45	50	-21	-10
Total ducks	139	113	115	-19	-3

TABLE B-6.--Alaska - comparative brood counts from two study areas.

	TETLIN										YUKON FLATS							
	No. of Broods									% Change from	No. of Broods							% Change from
Species	'61	'62	'63	'64	'65	'66	'67	'68	'69	1963	'63	'64	'65	'66	'67	'68	'69	1968
Mallard	34	14	23	2	3	9	13	13	10	-23	8	3	9	6	11	19	35	+84
Widgeon	74	18	23	6	7	36	28	39	47	+21	41	14	39	49	62	88	112	+27
G.W. Teal	42	30	27	19	16	66	101	103	85	-17	16	7	18	52	47	44	48	+9
Shoveler	2	1	--	--	--	--	1	7	4	-43	10	3	8	11	13	21	9	-57
Pintail	19	18	11	4	3	8	21	21	17	-19	30	9	16	19	44	39	26	-33
Canvasback	14	18	14	2	3	6	9	16	7	-66	8	1	13	15	16	18	18	same
L. Scaup*	14	2	11	2	-	10	14	11	44	+300	9	-	12	49	61	65	87	+34
Total	199	101	109	35	32	135	187	210	214	+2	122	37	115	201	254	294	335	+14

*Scaup hatch not normally completed at time of survey.

TABLE B-7 .--Northern Alberta, northeastern British Columbia, and Northwest Territories - 10-year trend in waterfowl breeding population indexes by species, 1960-1969

(Index numbers in thousands)

Species	1960	1961	1962	1963	1964	1965	1966	1967	1968	1969
Ducks:										
Dabblers:										
Mallard	321	795	446	430	477	239	329	297	343	246
Gadwall	1	2	4	1	3	10	2	3	Tr	Tr
American widgeon	297	277	142	132	203	154	174	90	81	121
Green-winged teal	128	137	52	110	149	88	129	87	83	36
Blue-winged teal	50	51	24	16	47	22	12	1	1	1
Shoveler	71	128	25	29	151	56	66	55	38	19
Pintail	253	473	171	154	182	159	110	61	83	35
Subtotal	1,121	1,863	864	872	1,212	728	822	594	629	458
Divers:										
Redhead	21	19	31	12	29	5	7	13	5	4
Canvasback	50	18	13	49	38	20	44	9	46	34
Scaup	1,326	1,495	1,279	1,383	1,348	1,306	1,603	1,712	1,256	1,473
Ring-neck	59	27	32	38	45	59	60	56	29	18
Goldeneye	40	99	66	13	48	37	15	18	13	15
Bufflehead	119	93	141	80	118	123	150	119	139	150
Ruddy	9	6	1	7	6	3	5	5	Tr	Tr
Subtotal	1,624	1,757	1,563	1,582	1,632	1,553	1,884	1,932	1,488	1,694

TABLE B-7.--Northern Alberta, northeastern British Columbia, and Northwest Territories - 10-year trend in waterfowl breeding population indexes by species, 1960-1969--continued

(Index numbers in thousands)

Species	1960	1961	1962	1963	1964	1965	1966	1967	1968	1969
Ducks:										
Miscellaneous:										
Scoter	1,223	968	548	544	858	638	524	599	515	756
Oldsquaw	188	212	145	81	282	158	293	221	159	291
Merganser	111	113	45	81	69	81	72	16	16	34
Subtotal	1,522	1,293	738	706	1,209	877	889	866	688	1,081
Total ducks	4,267	4,193	3,165	3,160	4,053	3,158	3,595	3,392	2,805	3,233
Geese:										
White-fronted goose	7	9	6	1	3	4	2	1	7	15
Canada goose	45	30	18	55	17	14	27	11	11	20
Swans	24	30	27	32	19	20	16	18	19	24
Coots	7	16	7	9	7	--	11	Tr	15	Tr

TABLE B- 8.--Northern Alberta, northeastern British Columbia, and Northwest Territories - waterfowl breeding population indexes by strata, 1968-1969

(Index numbers in thousands)

Species	Stratum and index									Total		10-year Average	Percent change from--	
	14	15	06	07	08	09	10	11	12	1969	1968		1968	Average
Ducks:														
Dabblers:														
Mallard	62.6	51.0	41.9	8.6	43.7	11.7	11.9	14.5	--	245.9	343.3	392.3	- 28	- 37
Gadwall	--	Tr	--	--	--	--	--	--	--	Tr	0.2	2.6	decrease	decrease
American widgeon	24.6	4.6	7.9	12.1	27.6	6.3	23.5	12.5	2.2	121.3	80.9	167.1	+ 50	- 27
Green-winged teal	9.8	1.0	5.5	1.4	10.1	1.5	6.1	1.0	--	36.4	82.9	99.9	- 56	- 64
Blue-winged teal	--	1.0	--	--	--	--	--	--	--	1.0	0.8	22.5	+ 25	- 96
Shoveler	3.6	2.4	--	--	11.4	--	--	1.9	--	19.3	38.1	63.8	- 49	- 70
Pintail	2.1	2.4	--	12.1	6.0	--	2.7	10.0	--	35.3	83.1	168.1	- 58	- 79
Subtotal	102.7	62.4	55.3	34.2	98.8	19.5	44.2	39.9	2.2	459.2	629.3	916.3	- 27	- 50
Divers:														
Redhead	--	4.0	--	--	--	--	--	--	--	4.0	4.8	14.6	- 17	- 73
Canvasback	--	2.9	21.4	--	--	0.9	1.1	8.1	--	34.4	45.9	32.1	- 25	+ 7
Scaup	176.5	19.9	291.9	172.1	39.7	97.2	577.5	76.3	24.7	1,473.1	1,256.2	1,418.1	+ 17	+ 4
Ring-neck	3.5	0.7	--	1.4	4.0	3.0	0.6	0.7	--	17.9	28.5	42.3	- 37	- 58
Goldeneye	3.5	10.7	--	--	--	--	--	0.7	--	14.9	13.0	36.4	+ 15	- 59
Bufflehead	47.8	4.6	34.0	10.7	45.0	5.4	1.7	0.7	--	149.9	138.8	123.2	+ 8	+ 22
Ruddy	--	0.5	--	--	--	--	--	--	--	0.5	0.2	4.2	+150	- 88
Subtotal	231.3	43.3	351.3	184.2	88.7	106.5	580.9	83.8	24.7	1,694.7	1,487.4	1,670.9	+ 14	+ 1

TABLE B-8 .--Northern Alberta, northeastern British Columbia, and Northwest Territories - waterfowl breeding population indexes by strata, 1968-1969--continued

(Index numbers in thousands)

Species	Stratum and index									Total		10-year Average	Percent change from--	
	14	15	06	07	08	09	10	11	12	1969	1968		1968	Average
Ducks:														
Miscellaneous:														
Scoter	29.5	5.7	148.7	67.9	--	12.6	453.6	27.0	11.2	756.2	515.1	884.3	+ 47	- 14
Oldsquaw	--	--	40.3	92.1	45.0	7.8	98.7	1.9	5.4	291.2	157.1	202.8	+ 85	+ 44
Merganser	--	2.2	18.2	3.6	2.0	--	6.6	1.6	--	34.2	16.4	63.8	+109	- 46
Subtotal	29.5	7.9	207.2	163.6	47.0	20.4	558.9	30.5	16.6	1,081.6	688.6	1,150.9	+ 57	- 6
Total ducks	363.5	113.6	613.8	382.0	234.5	146.4	1,184.0	154.2	43.5	3,235.5	2,805.3	3,738.1	+ 15	- 13
Geese:														
White-fronted goose	--	--	--	--	--	--	2.8	4.8	7.1	14.7	6.6	5.5	+123	+167
Canada goose	2.8	2.1	9.5	2.9	--	--	2.7	--	--	20.0	10.5	24.8	+ 90	- 19
Swans	--	--	--	4.3	--	--	12.1	1.9	5.8	24.1	18.5	22.9	+ 30	+ 5
Coots	--	0.5	--	--	--	--	--	--	--	0.5	14.6	7.2	- 96	- 93

TABLE B-9.--Northern Alberta, northeastern British Columbia and Northwest Territories - long-term trend in duck brood indexes, July 1961-69

(In thousands)

Stratum	9-Year Average	Year								
		1961	1962	1963	1964	1965	1966	1967	1968	1969
15	17	6	3	19	9	11	21	20	29	33
06	272	55	133	158	709	364	505	55	283	186
07	107	111	93	58	147	172	114	47	128	95
09	39	43	27	36	79	38	50	12	41	28
10	299	347	282	183	378	270	304	293	273	360
11	55	73	28	9	27	50	78	64	102	66
Total	789	635	566	463	1,349	905	1,072	491	856	768

TABLE B-10.--Northern Alberta, northeastern British Columbia, and Northwest Territories - duck brood indexes by stratum compared to previous year, and long-term average, 1969.

(In thousands)

	Stratum						Total			Percent change from--	
	15	06	07	09	10	11	1969	1968	Average	1968	Average
Broods Observed	118	5	27	20	159	122	451	484	349	- 7	+29
Brood Size[1]	5.5	6.7	4.9	4.7	5.4	5.9	5.3	5.3			
Index	33	186	95	28	360	66	768	856	788	-10	- 3
Average	17	272	107	39	299	55	789	806			

[1] Based on class II and III broods.

TABLE B-11.--Northern Saskatchewan, northern Manitoba, and northern Ontario - 10-year trend in waterfowl breeding population indexes by species, 1960-1969

/index numbers in thousands/

Species	1960	1961	1962	1963	1964	1965	1966	1967	1968	1969
Ducks:										
Dabblers:										
Mallard	252	220	267	178	192	183	173	417	404	473
Black duck	10	30	56	25	30	13	11	27	32	21
Gadwall	1	15	4	8	9	12	8	25	23	26
American widgeon	24	22	37	24	33	36	32	30	70	68
Green-winged teal	6	6	14	10	19	15	19	17	22	34
Blue-winged teal	8	4	27	30	37	14	11	21	69	48
Shoveler	6	6	11	12	26	17	16	11	13	17
Pintail	30	57	13	20	21	9	15	13	31	39
Subtotal	337	360	429	307	367	299	285	561	664	726
Divers:										
Redhead	34	22	11	10	17	18	13	30	38	16
Canvasback	103	50	11	32	37	24	17	26	36	11
Scaup	209	211	235	256	197	248	206	340	396	405
Ring-necked duck	11	15	92	121	42	78	151	94	123	108
Goldeneye	2	73	115	47	23	17	35	17	98	74
Bufflehead	31	22	40	27	9	16	27	33	100	69
Ruddy Duck	--	7	11	4	1	3	3	5	18	4
Subtotal	390	400	515	497	326	404	452	545	809	687

TABLE B-11-- Northern Saskatchewan, northern Manitoba, and northern Ontario - 10-year trend in waterfowl breeding population indexes by species, 1960-69--continued

Species	1960	1961	1962	1963	1964	1965	1966	1967	1968	1969
Miscellaneous:										
Scoter	15	34	23	22	8	7	30	28	97	87
Oldsquaw	--	--	--	--	--	--	--	1	2	--
Merganser	253	127	191	166	109	145	149	209	181	235
Subtotal	268	161	214	188	117	152	179	238	280	322
Total ducks	995	921	1,158	992	810	855	916	1,344	1,753	1,735
Geese:										
Canada goose	8	11	11	31	28	17	27	42	51	36
Coots	11	30	6	18	17	16	10	19	112	8
Grand total	1,014	962	1,175	1,041	855	888	953	1,405	1,916	1,779

TABLE B-12 .--Northern Saskatchewan, northern Manitoba and Ontario - comparative status of waterfowl breeding population indexes by species and stratum, 1969

/Index numbers in thousands/

	Stratum					Total		Average 1959 1969	Percent change from 1968 Average	
	36	18	17	16	48	Previous year	Current year			
Ducks:										
Dabblers:										
Mallard	79	39	136	139	80	402	473	276	+18	+ 71
Black duck	--	21	--	--	--	31	21	26	-32	- 19
Gadwall	11	--	5	6	4	23	26	13	+13	+100
American widgeon	10	1	28	20	9	69	68	38	- 1	+ 79
Green-winged teal	3	--	16	6	9	22	34	16	+55	+113
Blue-winged teal	12	--	14	11	11	69	48	25	-30	+ 92
Shoveler	6	--	4	5	2	13	17	14	+31	+ 21
Pintail	16	3	14	6	--	31	39	25	+26	+56
Wood duck	--	--	--	--	--	--	--	--	--	--
Subtotal	137	64	217	193	115	660	726	433	+10	+ 68
Divers:										
Redhead	10	1	3	2	--	38	16	21	-58	- 24
Canvasback	4	--	2	3	2	36	11	35	-69	- 69
Scaup	57	48	125	115	60	391	405	270	+ 4	+ 33
Ring-necked duck	11	6	47	25	19	123	108	84	-12	+ 29
Goldeneye	3	33	16	18	4	93	74	50	-20	+ 48
Bufflehead	4	18	16	20	11	98	69	37	-30	+ 87
Ruddy duck	4	--	--	--	--	18	4	6	-78	- 33
Subtotal	93	106	209	183	96	777	687	503	-14	+ 37

TABLE B-12.--Northern Saskatchewan, northern Manitoba and Ontario - comparative status of waterfowl breeding population indexes by species and stratum, 1969--continued

/index numbers in thousands/

Species	Stratum					Total		Average 1959 1969	Percent change from	
	36	18	17	16	48	Previous year	Current year		1968	Average
Miscellaneous:										
Merganser	11	106	33	19	66	176	235	177	+34	+ 33
Scoter	1	6	60	13	7	95	87	35	- 8	+149
Old Squaw	--	--	--	--	--	--	--	--	--	--
Subtotal	12	112	93	32	73	271	322	212	+19	+ 52
Total ducks	242	282	519	408	284	1,730	1,735	1,148	0	+ 51
Geese:										
Canada goose	3	6	19	5	3	51	36	26	-29	+ 38
Coots	4	--	1	3	--	112	8	25	-93	- 68
Grand total	249	288	539	416	287	1,893	1,779	1,199	- 6	+ 48

TABLE B-13.--Northern Saskatchewan, northern Manitoba and Ontario - long-term trend in waterfowl brood and late-nesting indexes by species, July 1963-1969

Species	1963	1964	1965	1966	1967	1968	1969
Broods:							
Duck brood index	75	152	59	100	228	201	143
Average brood size[1]	6.4	5.0	5.1	5.4	5.4	5.5	5.5
Coot brood index	2	9	6	10	10	17	5
Late-nesting index:[2]							
Dabblers:							
Mallard	83	73	42	35	71	43	40
Gadwall	4	9					
American widgeon	--	--	--	--	--	--	--
Green-winged teal	7	3	1	--	1	1	6
Blue-winged teal	4	5	4	1	2	3	5
Shoveler	1	1	2	3	3	1	7
Pintail	9	5	4	6	10	3	17
Black duck	--	--	--	--	3	--	4
Subtotal	108	96	56	46	96	55	97
Divers:							
Redhead	4	7	4	3	3	2	--
Canvasback	2	2	3	2	2	Tr.	1
Scaup	93	68	31	32	68	25	41
Ring-necked duck	26	24	37	37	28	10	22
Goldeneye	7	7	Tr.	1	2	Tr.	4
Bufflehead	9	7	6	5	9	5	11
Ruddy duck	2	2	3	2	--	--	--
Subtotal	143	117	84	82	112	42	79
Miscellaneous ducks	79	56	31	27	8	15	--
Grand total	330	269	171	155	216	112	176

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

TABLE B-14 -- Northern Saskatchewan, northern Manitoba and Ontario - waterfowl brood and late-nesting indexes by stratum compared to previous year and long-term average, 1969

Species	Stratum 16	48	36	17	Total Previous Year	Total Current Year	Average 1963 to 1969	Percent change from Previous year	Percent change from Average
Broods:									
Duck brood index [1]	56	27	15	45	201	143	130	-28.9	+10.0
Average brood size	5.5	5.8	5.5	5.2	5.5	5.5	5.6	00.0	-2.0
Coot brood index	1	--	3	1	17	5	8	-70.0	-37.5
Late-nesting index: [2]									
Dabblers:									
Mallard	12	7	11	10	43	40	58	-7.0	-31.0
Gadwall	2	2	2	--	2	6	4	+200.0	+50.0
American widgeon	5	1	4	2	2	12	2	+500.0	+500.0
Green-winged teal	1	1	2	2	1	6	3	+500.0	+ 50.0
Blue-winged teal	2	--	2	1	3	5	3	+ 66.7	+ 66.7
Shoveler	2	--	5	--	1	7	3	+600.0	+133.3
Pintail	3	2	7	5	3	17	7	+466.7	+142.9
Black duck	2	1	1	--	--	4	1	+400.0	+300.0
Subtotal	29	14	34	20	55	97	81	+ 76.4	+ 19.8
Divers:									
Redhead	--	--	Tr.	--	2	--	3	-100.0	-100.0
Canvasback	--	1	Tr.	--	Tr.	1	3	+100.0	- 66.7
Scaup	18	7	5	11	25	41	53	+ 66.7	- 22.6
Ring-necked duck	7	3	2	10	10	22	26	+120.0	- 15.4
Goldeneye	2	1	Tr.	1	Tr.	4	4	+100.0	00.0
Bufflehead	4	3	Tr.	4	5	11	7	+120.0	+ 57.1
Ruddy duck	--	--	--	--	--	--	--	--	--
Subtotal	31	15	7	26	42	79	97	+ 88.1	- 20.6

TABLE B-14.-- Northern Saskatchewan, northern Manitoba and Ontario - waterfowl brood and late-nesting indexes by stratum compared to previous year and long-term average, 1969--continued

Species	Stratum				Total		Average	Percent change from	
	16	48	36	17	Previous Year	Current Year	1963 to 1969	Previous year	Average
Miscellaneous ducks	--	--	--	--	--	--	--	--	--
Grand total	60	29	41	46	97	176	178	+81.4	+ 1.0

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

TABLE B-15.--Southern Alberta - long-term trend in pond indexes by strata with comparisons to average and previous year - May and July 1969

/index numbers in thousands/

Year	Stratum			Total
	26	27	28	
May:				
1960	287	549	159	995
1961	213	432	56	701
1962	132	345	49	526
1963	189	601	59	849
1964	153	366	113	632
1965	299	637	103	1,039
1966	282	490	72	844
1967	260	361	140	761
1968	103	307	92	502
1969	213	399	69	681
Average 1956-62	238	436	89	763
Percent change from 1968	+106.8	+ 3.0	- 25.0	+ 35.6
Percent change from average	- 10.5	- 8.5	- 22.5	- 10.7
July:				
1960	93	262	47	402
1961	56	153	30	239
1962	72	257	39	368
1963	162	471	60	693
1964	87	162	59	308
1965	260	485	111	856
1966	187	234	66	487
1967	182	280	92	554
1968	90	159	66	315
1969	122	228	41	391
Average 1956-62	117	258	44	419
Percent change from 1968	+ 35.6	+ 43.4	- 37.9	+ 24.1
Percent change from average	+ 4.3	- 11.6	- 6.8	- 6.7

TABLE B-16.--Southern Alberta - 10-year trend in waterfowl breeding population indexes by species, 1960-1969
/index numbers in thousands/

Species	1960	1961	1962	1963	1964	1965	1966	1967	1968	1969
Ducks:										
Dabblers:										
Mallard	1,005	860	729	745	836	339	567	628	444	518
Gadwall	142	110	89	86	101	60	110	152	184	152
American widgeon	227	189	127	134	213	56	128	171	103	104
Green-winged teal	56	65	14	15	24	14	32	43	50	43
Blue-winged teal	169	172	60	61	114	80	115	161	82	59
Shoveler	244	171	124	192	210	98	173	215	127	202
Pintail	632	290	233	353	274	343	429	607	144	572
Subtotal	2,475	1,857	1,376	1,586	1,772	990	1,554	1,977	1,134	1,650
Divers:										
Redhead	40	40	21	38	44	30	47	60	20	40
Canvasback	40	38	49	49	56	40	29	40	24	30
Scaup	252	248	214	263	259	134	180	188	155	221
Ring-necked duck	2	2	1	Tr	Tr	3	2	12	4	5
Goldeneye	3	3	2	1	1	Tr	1	0	1	2
Bufflehead	21	31	12	14	15	10	14	19	11	18
Ruddy duck	31	19	19	10	17	8	18	26	17	11
Subtotal	389	381	318	375	392	225	291	345	232	327

TABLE B-16.--Southern Alberta - 10-year trend in waterfowl breeding population indexes by species, 1960-1969--continued

Species	1960	1961	1962	1963	1964	1965	1966	1967	1968	1969
Ducks:										
Miscellaneous:										
Scoter	35	43	48	17	32	20	24	21	21	26
Mergansers	--	--	--	--	--	3	3	1	Tr	Tr
Subtotal	35	43	48	17	32	23	27	22	21	26
Total ducks	2,899	2,281	1,742	1,978	2,196	1,238	1,872	2,344	1,387	2,003
Geese:										
Canada goose	--	--	--	2	5	4	4	7	2	4
Coots:										
American coot	85	97	22	62	89	48	49	119	53	106
Grand total	2,984	2,378	1,764	2,042	2,290	1,290	1,925	2,470	1,442	2,113

Note: Canada geese not included before 1963 and mergansers not included before 1965.

TABLE B-17.--Southern Alberta - comparative status of waterfowl breeding population indexes by species and stratum, 1969

/index numbers in thousands/

Species	Stratum			Total		Average	Percent change from--	
	26	27	28	1968	1969	1959-68	1968	Average
Ducks:								
Dabblers:								
Mallard	166	268	84	444	518	746	+ 16.7	- 30.6
Gadwall	64	66	22	184	152	116	- 17.4	+ 31.0
American widgeon	53	38	13	103	104	160	+ 1.0	- 35.0
Green-winged teal	16	24	3	50	43	38	- 14.0	+ 13.2
Blue-winged teal	20	37	2	82	59	121	- 28.0	- 51.2
Shoveler	108	57	37	127	202	176	+ 59.0	+ 14.8
Pintail	282	153	137	144	572	387	+297.2	+ 47.8
Subtotal	709	643	298	1,134	1,650	1,744	+ 45.5	- 5.4
Divers:								
Redhead	8	29	3	20	40	41	+100.0	- 2.4
Canvasback	7	21	2	24	30	43	+ 25.0	- 30.2
Scaup	66	123	32	155	221	222	+ 42.6	----
Ring-necked duck	0	4	1	4	5	3	+ 25.0	+ 66.7
Goldeneye	0	2	Tr	1	2	2	+100.0	----
Bufflehead	1	16	1	11	18	17	+ 63.6	+ 5.9
Ruddy duck	2	8	1	17	11	20	- 35.3	- 45.0
Subtotal	84	203	40	232	327	348	+ 40.9	- 6.0
Miscellaneous:								
Scoter	1	24	1	21	26	32	+ 23.8	- 18.8
Mergansers	0	Tr	Tr	Tr	Tr	2	----	----
Total ducks	794	870	339	1,387	2,003	2,126	+ 44.4	- 5.8
Geese:								
Canada goose	2	0	2	2	4	4	+100.0	----
Coots:								
American coot	26	63	17	53	106	75	+100.0	+ 41.3
Grand total	822	933	358	1,442	2,113	2,205	+ 46.5	- 4.2

TABLE B-18.--Southern Alberta, stratum 13 - 10-year trend in waterfowl breeding population indexes by species, 1960-1969

/index numbers in thousands/

Species	1960	1961	1962	1963	1964	1965	1966	1967	1968	1969
Ducks:										
Dabblers:										
Mallard	97	295	122	193	151	123	131	92	102	112
Gadwall	1	3	2	4	7	27	3	5	14	6
American widgeon	32	69	40	24	44	24	29	19	32	17
Green-winged teal	16	15	8	7	24	7	22	13	18	8
Blue-winged teal	16	39	17	37	32	13	18	11	5	7
Shoveler	6	29	16	18	31	15	10	15	6	14
Pintail	30	49	12	2	31	37	21	24	18	25
Subtotal	198	499	217	285	320	246	234	179	195	189
Divers:										
Redhead	8	13	23	20	22	6	10	5	10	8
Canvasback	2	10	6	18	21	6	23	7	7	7
Scaup	122	187	112	156	239	143	144	107	168	120
Ring-necked duck	17	33	9	8	9	11	7	4	2	3
Goldeneye	10	59	20	Tr	21	28	3	2	2	2
Bufflehead	40	49	31	33	34	103	57	36	25	43
Ruddy duck	Tr	5	1	7	15	6	4	5	4	8
Subtotal	199	356	202	242	361	303	248	166	218	191

TABLE B-18.--Southern Alberta, stratum 13 - 10-year trend in waterfowl breeding population indexes by species, 1960-1969--continued

Species	1960	1961	1962	1963	1964	1965	1966	1967	1968	1969
Ducks:										
Miscellaneous:										
Scoter	44	98	29	58	40	31	24	16	16	2
Mergansers	19	29	17	4	16	11	60	6	7	1
Subtotal	63	127	46	62	56	42	84	22	23	3
Total ducks	460	982	465	589	737	591	566	367	436	383
Geese:										
Canada goose	0	10	8	5	4	3	0	4	Tr	0
Coots:										
American coot	17	9	9	16	16	35	9	3	29	7
Grand total	477	1,001	482	610	757	629	575	374	465	390

Note: Transect 03 data used to obtain the index for 53 percent of the stratum not censused in 1968.

TABLE B-19.--Southern Alberta, stratum 13 - comparative status of waterfowl breeding population indexes by species, 1969

/index numbers in thousands/

Species	Total 1968	Total 1969	Average 1959-68	percent change from-- 1968	percent change from-- Average
Ducks:					
Dabblers:					
Mallard	102	112	164	+ 9.8	- 31.7
Gadwall	14	6	7	- 57.1	- 14.3
American widgeon	32	17	41	- 46.9	- 58.5
Green-winged teal	18	8	17	- 55.6	- 52.9
Blue-winged teal	5	7	24	+ 40.0	- 70.8
Shoveler	6	14	16	+133.3	- 12.5
Pintail	18	25	30	+ 38.9	- 16.7
Subtotal	195	189	299	- 3.1	- 36.8
Divers:					
Redhead	10	8	16	- 20.0	- 50.0
Canvasback	7	7	21	----	- 66.7
Scaup	168	120	160	- 28.6	- 25.0
Ring-necked duck	2	3	14	+ 50.0	- 78.6
Goldeneye	2	2	22	----	- 90.9
Bufflehead	25	43	48	+ 72.0	- 10.4
Ruddy duck	4	8	6	+100.0	+ 33.3
Subtotal	218	191	287	- 12.4	- 33.4
Miscellaneous:					
Scoter	16	2	51	- 87.5	- 96.1
Mergansers	7	1	23	- 85.7	- 95.6
Total ducks	436	383	660	- 12.2	- 42.0
Geese:					
Canada goose	Tr	0	4	----	----
Coots:					
American coot	29	7	27	- 75.9	- 74.1
Grand total	465	390	691	- 16.1	- 43.6

Note: Transect 03 data used to obtain the index for 53 percent of the stratum not censused in 1968.

TABLE B-20.--Southern Alberta - lone drake index: long-term trend expressed as a percentage of total drakes, 1960-69

Year	Mallard	Pintail	Canvasback	Total
1960	84.92	82.02	72.04	84.00
1961	77.10	74.22	63.89	76.00
1962	82.39	83.98	54.32	82.00
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

TABLE B-21.--Southern Alberta - long-term trend in waterfowl brood and late-nesting indexes by species, July 1961-69

/index numbers in thousands/

Species	1961	1962	1963	1964	1965	1966	1967	1968	1969
Broods:									
Duck brood index	213.5	132.1	204.3	190.4	107.4	172.2	164.9	94.8	141.7
Average brood size[1]	5.7	5.6	6.0	6.0	6.1	6.6	5.9	5.2	5.9
Coot brood index	48.6	18.8	19.4	18.5	16.6	34.8	25.3	2.1	16.4
Late-nesting index[2]									
Dabblers:									
Mallard	0.8	1.4	1.6	3.2	12.2	15.3	14.4	14.7	7.7
Gadwall	0.9	0.2	1.1	1.2	7.9	7.0	6.5	8.6	2.6
American widgeon	0.2	0.2	0.1	1.1	5.2	2.4	2.4	4.3	3.2
Green-winged teal	0.1	---	---	---	0.4	2.4	5.4	2.0	5.7
Blue-winged teal	0.9	0.1	0.1	0.3	7.4	5.1	2.6	4.0	6.8
Shoveler	0.1	0.2	1.1	1.4	8.1	5.1	7.8	2.7	3.1
Pintail	0.8	---	0.1	0.2	7.7	11.7	8.4	5.2	11.9
Subtotal	3.8	2.1	4.1	7.4	48.9	49.0	47.5	41.5	41.0
Divers:									
Redhead	---	0.2	0.2	0.2	2.4	1.3	2.0	1.2	1.4
Canvasback	---	0.2	---	---	0.5	0.6	---	1.6	1.2
Scaup	2.5	1.0	1.3	3.2	14.2	9.9	7.8	8.2	13.3
Ring-necked duck	---	---	---	---	---	---	0.3	---	---
Goldeneye	---	---	---	---	0.1	0.1	---	0.7	0.4
Bufflehead	0.2	---	---	---	---	---	---	---	0.3
Ruddy duck	1.1	0.6	2.3	0.9	5.0	6.8	2.0	4.6	3.7
Subtotal	3.8	2.0	3.8	4.3	22.2	18.7	12.1	16.3	20.3
Grand total	7.6	4.1	7.9	11.7	71.1	67.7	59.6	57.8	61.3

1 Class II and III broods only.

2 As indicated by adult pairs and singles.

TABLE B-22.--Southern Alberta - waterfowl brood and late-nesting indexes by stratum compared to previous year and 1956-62 average, 1969

/index numbers in thousands/

Species	Strata			Total		Average	Percent change from	
	26	27	28	1968	1969	1956-62	1968	Average
Broods:								
Duck brood index	46.6	79.0	16.1	94.8	141.7	249.8	+ 49.5	- 43.3
Average brood size[1]	5.8	6.7	5.2	5.2	5.9	5.8	+ 13.5	+ 1.7
Coot brood index	2.6	13.5	0.3	2.1	16.4	55.6	+681.0	- 70.5
Late-nesting index:[2]								
Dabblers:								
Mallard	2.1	3.1	2.5	14.7	7.7	4.1		
Gadwall	---	0.7	1.9	8.6	2.6	1.8		
American widgeon	1.1	0.7	1.4	4.3	3.2	0.8		
Green-winged teal	2.5	2.7	0.5	2.0	5.7	0.1		
Blue-winged teal	3.0	0.7	3.1	4.0	6.8	1.5		
Shoveler	1.2	0.5	1.4	2.7	3.1	0.8		
Pintail	5.1	5.3	1.5	5.2	11.9	1.0		
Subtotal	15.0	13.7	12.3	41.5	41.0	10.1	- 1.2	+305.9
Divers:								
Redhead	---	1.2	0.2	1.2	1.4	0.5		
Canvasback	0.5	0.7	---	1.6	1.2	0.3		
Scaup	4.8	5.1	3.4	8.2	13.3	7.7		
Ring-necked duck	---	---	---	---	---	0.1		
Goldeneye	0.4	---	---	0.7	0.4	0.1		
Bufflehead	---	---	0.3	---	0.3	0.2		
Ruddy duck	1.1	1.4	1.2	4.6	3.7	2.9		
Subtotal	6.8	8.4	5.1	16.3	20.3	11.8	+ 24.5	+ 72.0
Grand total	21.8	22.1	17.4	57.8	61.3	21.9	+ 6.0	+179.9

1 Class II and III broods only.

2 As indicated by adult pairs and singles.

TABLE B-23.--Southern Saskatchewan - long-term pond indexes by strata and comparison to average and previous year, May 1952 to 1969

(index numbers in thousands)

Year	Stratum					Total
	A-West (19)	A-East (20)	B-West (21)	B-East (22)	C (23)	
May:						
1952	726.6	296.4	384.7	772.2	126.4	2,306.3
1953	974.6	508.1	678.7	1,362.3	203.3	3,727.0
1954	722.1	931.8	800.5	1,606.8	203.4	4,264.6
1955	886.6	1,295.0	549.7	1,103.3	198.4	4,033.0
1956	700.3	754.4	284.2	644.8	105.8	2,489.5
1957	357.9	292.3	148.5	576.2	72.2	1,447.1
1958	350.5	526.5	191.0	489.6	105.1	1,662.7
1959	160.2	157.7	57.4	334.5	73.6	783.4
1960	377.3	479.2	164.3	987.4	90.1	2,098.3
1961	171.1	48.7	92.0	221.4	55.7	588.9
1962	336.3	153.2	173.3	635.4	49.1	1,347.3
1963	256.0	239.4	131.6	293.9	39.5	960.4
1964	202.1	508.1	114.9	325.9	37.7	1,188.7
1965	453.0	393.6	224.4	484.9	81.4	1,637.3
1966	392.4	556.1	231.1	603.1	97.3	1,880.0
1967	523.3	449.1	216.8	746.2	142.1	2,077.5
1968	215.4	123.4	130.4	301.1	29.9	800.2
1969	608.9	304.5	302.2	546.5	100.6	1,862.7
Average 1952-1962	524.0	494.9	320.4	794.0	116.7	2,249.8
Percent change:						
1969 from 1968	+182.7	+146.8	+131.8	+ 81.5	+236.5	+132.8
1969 from average	+ 16.2	- 38.5	- 5.7	- 31.2	- 13.8	- 17.2

TABLE B-24.--Southern Saskatchewan - 10-year trend in waterfowl breeding population indexes by species, 1960-1969

(index numbers in thousands)

Species	1960	1961	1962	1963	1964	1965	1966	1967	1968	1969
Ducks										
Dabblers:										
Mallard	1,589.5	994.6	674.1	774.4	671.4	537.4	862.5	982.9	949.2	937.5
Black duck	--	--	--	--	--	--	--	--	--	--
Gadwall	67.4	35.6	64.8	103.0	161.6	131.3	121.2	190.9	177.4	214.7
American widgeon	137.3	82.2	49.9	73.0	88.8	80.2	110.7	210.4	124.1	225.6
Green-winged teal	28.9	13.9	5.3	9.1	7.8	13.0	14.9	35.8	23.9	39.1
Blue-winged teal	132.7	92.2	38.5	59.0	125.5	105.2	154.4	203.6	107.5	138.2
Shoveler	294.1	108.7	27.6	101.4	177.4	112.4	268.2	258.5	185.2	288.8
Pintail	575.1	220.6	215.8	257.7	254.5	297.1	539.4	575.3	290.6	653.5
Wood duck	--	--	--	--	--	--	--	--	--	--
Subtotal	2,825.0	1,547.8	1,076.0	1,377.6	1,487.0	1,276.6	2,071.3	2,457.4	1,857.9	2,497.4
Divers:										
Redhead	50.5	23.5	57.6	14.0	31.6	35.3	45.7	47.5	49.2	37.8
Canvasback	61.0	82.9	94.6	52.4	57.5	60.8	100.5	70.5	64.8	83.5
Scaup	149.7	130.8	157.0	58.3	64.8	97.2	129.0	106.5	93.2	133.8
Ring-necked duck	7.5	3.3	0.0	5.7	10.4	10.5	8.7	6.4	1.1	2.8
Goldeneye	7.9	4.7	2.4	1.6	1.2	3.0	6.3	4.8	7.5	2.8
Bufflehead	12.0	11.2	1.5	10.0	9.1	19.8	12.9	14.2	26.1	28.7
Ruddy duck	28.9	27.3	13.4	9.9	10.0	12.3	19.5	12.7	28.0	14.4
Subtotal	317.5	283.7	326.5	151.9	184.6	238.9	322.6	262.6	269.9	303.8

TABLE B-24.--Southern Saskatchewan - 10-year trend in waterfowl breeding population indexes by species, 1960-1969--continued

(index numbers in thousands)

Species	1960	1961	1962	1963	1964	1965	1966	1967	1968	1969
Miscellaneous:										
Scoter	8.1	5.7	--	4.3	8.2	9.5	3.8	2.0	8.2	4.2
Merganser	11.4	4.0	--	5.4	1.4	1.8	--	0.7	0.6	0.7
Subtotal	19.5	9.7	--	9.7	9.6	11.3	3.8	2.7	8.8	4.9
Total ducks	3,162.0	1,841.2	1,402.5	1,539.2	1,681.2	1,526.8	2,397.7	2,722.7	2,136.6	2,806.1
Geese										
Canada goose	2.6	2.5	2.5	3.6	3.2	3.0	3.9	2.1	1.6	6.9
Coots	109.3	73.4	56.4	26.2	43.2	52.0	61.9	92.5	106.3	141.3
Grand total	3,273.9	1,917.1	1,461.4	1,569.0	1,727.6	1,581.8	2,463.5	2,817.3	2,244.5	2,954.3

TABLE B-25.--Southern Saskatchewan - comparative status of waterfowl breeding population indexes by species and stratum, 1969

(index numbers in thousands)

Species	A-West	A-East	B-West	B-East	C	Total Previous year	Total Current year	Average 1955 to 1968	Percent change from previous year	Percent change from previous Average
	(19)	(20)	(21)	(22)	(23)					
Ducks										
Dabblers:										
Mallard	300.8	114.2	197.4	251.4	73.7	949.2	937.5	1,373.0	- 1.2	- 31.7
Black duck	--	--	--	--	--	--	--	--	--	--
Gadwall	109.8	8.9	40.1	30.4	25.5	177.4	214.7	107.6	+ 21.0	+ 99.5
American widgeon	94.9	19.8	46.4	41.0	23.5	124.1	225.6	152.1	+ 81.8	+ 48.3
Green-winged teal	14.0	8.7	7.0	7.2	2.2	23.9	39.1	24.2	+ 63.6	+ 61.6
Blue-winged teal	57.8	20.4	22.7	27.9	9.4	107.5	138.2	172.2	+ 28.6	- 19.7
Shoveler	136.6	25.1	43.8	55.8	27.5	185.2	288.8	207.4	+ 55.9	+ 39.3
Pintail	322.4	67.0	101.3	89.1	73.7	290.6	653.5	649.3	+124.9	+ 0.7
Wood duck	--	--	--	--	--	--	--	--	--	--
Subtotal	1,036.3	264.1	458.7	502.8	235.5	1,857.9	2,497.4	2,685.8	+ 34.4	- 7.0
Divers:										
Redhead	9.9	3.9	11.1	11.9	1.0	49.2	37.8	57.1	- 23.2	- 33.8
Canvasback	26.0	4.5	25.5	26.1	1.4	64.8	83.5	104.3	+ 28.9	- 19.9
Scaup	46.8	10.9	32.4	34.7	9.0	93.2	133.8	187.9	+ 43.6	- 28.8
Ring-necked duck	0.9	0.3	0.7	0.6	0.3	1.1	2.8	8.4	+154.6	- 66.6
Goldeneye	0.1	--	0.7	2.0	--	7.5	2.8	5.6	- 62.7	- 50.0
Bufflehead	0.2	2.1	9.6	16.8	--	26.1	28.7	12.3	+ 10.0	+133.3
Ruddy duck	3.9	0.2	3.4	6.2	0.7	28.0	14.4	30.3	- 48.6	- 52.5
Subtotal	87.8	21.9	83.4	98.3	12.4	269.9	303.8	405.9	+ 12.6	- 25.2

TABLE B-25.--Southern Saskatchewan - comparative status of waterfowl breeding population indexes by species and stratum, 1969--continued

(index numbers in thousands)

Species	A-West	A-East	B-West	B-East	C	Total Previous year	Total Current year	1955 to 1968	Percent change from previous year	Percent change Average
	(19)	(20)	(21)	(22)	(23)					
Miscellaneous:										
Scoters	--	--	3.2	1.0	--	8.2	4.2	2.4	- 48.8	+ 75.0
Merganser	0.1	--	--	0.6	--	0.6	0.7	5.7	+ 16.7	- 87.7
Subtotal	0.1	--	3.2	1.6	--	8.8	4.9	8.1	- 44.3	- 39.5
Total ducks	1,124.2	286.0	545.3	602.7	247.9	2,136.6	2,806.1	3,099.8	+ 31.3	- 9.5
Geese										
Canada goose:	0.1	--	0.4	4.1	2.3	1.6	6.9	1.9	+331.3	+263.2
Coots	47.2	10.3	31.5	39.8	12.5	106.3	141.3	152.8	+ 32.9	- 7.5
Grand total	1,171.5	296.3	577.2	646.6	262.7	2,244.5	2,954.3	3,254.5	+ 31.6	- 9.2

TABLE B-26.--Southern Saskatchewan - lone drake index: long-term trend expressed as percentage of total drakes, 1956-

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

TABLE B-27.--Southern Saskatchewan - long-term pond indexes by strata and comparison to average and previous year, July 1952 to 1969

(index numbers in thousands)

Year	Stratum					Total
	A-West (19)	A-East (20)	B-West (21)	B-East (22)	C (23)	
July:						
1952	338.7	131.4	99.1	198.9	86.9	855.0
1953	812.8	748.9	295.7	593.5	100.5	2,551.4
1954	362.8	1,326.9	421.7	846.6	79.1	3,037.1
1955	889.9	1,493.6	391.2	785.3	233.7	3,793.7
1956	416.2	601.7	184.8	495.7	55.1	1,753.5
1957	250.2	403.4	127.7	437.7	35.3	1,254.3
1958	141.8	212.8	107.1	267.4	33.8	762.9
1959	120.5	143.0	36.8	145.0	26.0	471.3
1960	265.2	212.4	88.0	318.1	32.7	916.4
1961	50.6	34.4	37.1	61.2	9.8	193.1
1962	61.8	75.7	26.3	68.6	13.3	245.7
1963	227.4	173.8	84.5	161.8	41.6	689.1
1964	97.3	177.8	30.5	121.6	12.3	439.5
1965	280.1	157.3	102.8	288.5	92.6	921.3
1966	239.6	172.5	144.5	502.8	63.8	1,123.2
1967	193.4	94.0	80.9	218.0	45.9	632.2
1968	89.5	38.0	65.4	161.5	17.6	372.0
1969	376.2	171.3	127.8	234.8	62.2	972.3
Average 1952-1962	337.3	489.5	165.1	383.5	64.2	1,439.5
Percent change:						
1969 from 1968	+320.3	+350.8	+ 95.4	+ 45.4	+253.4	+161.4
1969 from average	+ 11.5	- 65.0	- 22.6	- 38.8	- 3.1	- 32.5

TABLE B-28.--Southern Saskatchewan - 10-year trend in waterfowl brood and late-nesting indexes by species, July 1969

(index numbers in thousands)

Species	1960	1961	1962	1963	1964	1965	1966	1967	1968	1969
Broods:										
Duck brood index	125.8	68.7	32.8	45.8	66.9	49.8	96.3	98.6	81.5	195.0
Average brood size[1]	3.8	4.4	4.9	5.4	5.7	6.0	6.0	5.5	5.0	5.6
Coot brood index	14.8	6.0	0.1	5.2	9.2	8.3	7.6	11.8	14.0	23.4
Late-nesting index[2]										
Dabblers:										
Mallard	76.6	19.6	8.5	23.1	19.7	48.1	46.3	26.8	25.1	49.1
Gadwall	14.8	0.8	2.1	9.7	3.8	19.2	17.2	14.2	9.4	29.2
American widgeon	10.7	0.8	2.1	3.5	0.3	8.0	7.7	6.7	4.3	19.5
Green-winged teal	0.5	--	--	0.9	--	2.0	4.1	4.0	5.6	3.5
Blue-winged teal	20.6	1.4	1.3	8.1	5.3	16.2	26.5	22.9	8.6	20.7
Shoveler	7.5	1.2	0.4	3.1	1.5	8.1	5.2	5.9	2.8	8.0
Pintail	5.4	1.6	3.8	6.5	1.2	7.1	10.7	9.0	5.7	28.1
Subtotal	136.1	25.4	18.2	54.9	31.8	108.7	117.7	89.5	61.5	158.1
Divers:										
Redhead	2.7	--	0.2	1.6	1.3	3.1	3.6	4.3	3.0	3.2
Canvasback	0.5	1.0	--	0.6	0.8	1.0	0.4	2.4	2.4	0.6
Scaup	9.4	4.8	0.4	2.8	8.9	3.2	8.2	2.8	2.7	8.6
Ring-necked duck	--	1.6	0.2	2.3	0.1	0.4	0.2	0.8	--	0.2
Goldeneye	1.2	--	--	--	0.2	--	--	--	--	--
Bufflehead	--	1.2	--	--	0.8	1.0	2.8	2.0	0.8	2.9
Ruddy duck	9.6	0.5	0.8	4.0	4.2	4.0	12.5	13.0	8.0	4.5
Subtotal	23.4	9.1	1.6	11.3	16.3	12.7	27.7	25.3	16.9	20.0

TABLE B-28.--Southern Saskatchewan - 10-year trend in waterfowl brood and late-nesting indexes by species, July 1969--continued

(index numbers in thousands)

Species	1960	1961	1962	1963	1964	1965	1966	1967	1968	1969
Ducks:										
Miscellaneous	1.4	--	--	1.4	--	--	--	--	--	0.1
Total	160.9	34.5	19.8	67.6	48.1	121.4	145.4	114.8	78.4	178.2

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

TABLE B-29.--Southern Saskatchewan - waterfowl brood and late-nesting indexes by stratum compared to previous year and long-term average, 1969

(index numbers in thousands)

Species	Stratum					Total		1958 to 1968	Percent change from--	
	A-West (19)	A-East (20)	B-West (21)	B-East (22)	C (23)	Previous year	Current year		1968	Average
Broods:										
Duck brood index	66.9	9.0	61.8	48.8	8.5	81.5	195.0	248.6[3]	+139.3	- 21.6
Average brood size[1]	5.6	6.1	5.7	5.6	5.2	5.0	5.6	5.1[3]	+ 12.0	+ 9.8
Coot brood index	3.5	1.6	5.9	11.3	1.1	14.0	23.4	40.6[3]	+ 67.1	- 42.4
Late-nesting index[2]										
Dabblers:										
Mallard	16.1	8.1	6.5	12.5	5.9	25.1	49.1	38.8	+ 95.6	+ 26.6
Gadwall	14.0	2.2	4.1	6.6	2.3	9.4	29.2	9.3	+210.6	+214.0
American widgeon	7.9	2.0	1.8	6.6	1.2	4.3	19.5	5.8	+353.5	+236.2
Green-winged teal	1.7	1.6	0.2	--	--	5.6	3.5	1.8	- 37.5	+ 94.4
Blue-winged teal	8.6	4.1	3.1	3.1	1.8	8.6	20.7	14.2	+140.7	+ 45.8
Shoveler	4.6	1.5	1.2	--	0.7	2.8	8.0	3.9	+185.7	+105.1
Pintail	14.4	1.1	4.1	6.2	2.3	5.7	28.1	6.2	+393.0	+353.2
Subtotal	67.3	20.6	21.0	35.0	14.2	61.5	158.1	80.0	+157.1	+ 97.6
Divers:										
Redhead	1.2	0.2	1.0	0.8	--	3.0	3.2	2.2	+ 6.7	+ 45.5
Canvasback	--	--	0.6	--	--	2.4	0.6	1.3	- 75.0	- 53.9
Scaup	3.4	1.3	2.0	1.2	0.7	2.7	8.6	6.0	+218.5	+ 43.3
Ring-necked duck	--	0.2	--	--	--	--	0.2	0.7	--	- 71.4
Goldeneye	--	--	--	--	--	--	--	0.2	--	--
Bufflehead	0.1	--	2.0	0.8	--	0.8	2.9	0.8	+262.5	+262.5
Ruddy duck	0.4	0.5	2.9	--	0.7	8.0	4.5	7.0	- 43.8	- 35.7
Subtotal	5.1	2.2	8.5	2.8	1.4	16.9	20.0	18.2	+ 18.3	+ 9.9

TABLE B-29.--Southern Saskatchewan - waterfowl brood and late-nesting indexes by stratum compared to previous year and long-term average, 1969--continued

(index numbers in thousands)

Species	Stratum					Total		1958 to 1968	Percent change from--	
	A-West (19)	A-East (20)	B-West (21)	B-East (22)	C (23)	Previous year	Current year		1968	Average
Ducks:										
Miscellaneous	0.1	--	--	--	--	--	0.1	0.4	--	- 75.0
Total	72.5	22.8	29.5	37.8	15.6	78.4	178.2	98.6	+127.3	+ 80.7

[1]Class II and III broods only.
[2]As indicated by adult pairs and singles.
[3]Average based on years 1952-1962. Late nesting index figures not comparable previous to 1958.

TABLE B-30.--Southern Manitoba - long-term trend in pond indexes by strata with comparisons to average and previous year, May and July, 1969

/index numbers in thousands/

Year	Stratum A	Stratum B	Total A and B
May:			
1954	258	428	686
1955	315	428	743
1956	391	615	1,006
1957	262	404	666
1958	352	264	616
1959	160	482	642
1960	324	295	619
1961	158	263	421
1962	135	295	430
1963	298	331	629
1964	398	331	729
1965	327	478	805
1966	372	515	887
1967	315	547	862
1968	119	238	357
1969	208	246	454
Average 1954 through 1969	279	394	673
Percent change from 1969-1968	+ 75	+ 3	+ 27
1969 from 1954-1969 average	- 25	- 38	- 33
July:			
1954	473	384	857
1955	339	271	610
1956	425	411	836
1957	241	260	501
1958	163	341	504
1959	96	325	420
1960	164	212	376
1961	41	86	129
1962	97	135	232
1963	145	178	323
1964	201	182	383
1965	129	260	389
1966	167	240	407
1967	100	174	274
1968	48	116	164
1969	158	187	345
Average 1954 through 1969	189	238	427
Percent change from 1969-1968	+229	+ 61	+110
1969 from 1954-1969 average	- 16	- 21	- 19

TABLE B-31.--Southern Manitoba - 10-year trend in waterfowl breeding population indexes by species, 1960-1969

/index numbers in thousands/

Species	1960	1961	1962	1963	1964	1965	1966	1967	1968	1969
Ducks:										
Dabblers:										
Mallard	322.1	211.1	129.2	182.0	167.0	147.0	192.1	193.0	133.4	158.5
Black duck	--	--	--	1.4	.2	--	.1	--	.5	--
Gadwall	4.2	9.9	9.2	14.3	10.8	8.0	14.8	21.3	14.0	7.3
American widgeon	12.7	19.6	10.8	15.2	20.0	23.2	24.1	30.7	23.5	24.5
Green-winged teal	2.2	5.3	.4	4.7	.3	3.1	3.7	5.7	4.5	14.3
Blue-winged teal	94.9	84.1	43.9	47.0	38.2	32.5	26.1	60.2	33.6	46.8
Shoveler	53.6	38.6	17.4	33.3	38.0	32.2	28.9	42.5	22.9	41.1
Pintail	97.5	43.3	41.3	61.7	41.6	51.2	38.6	57.1	20.3	63.9
Subtotal	587.2	411.9	252.2	359.6	316.1	297.2	328.4	410.5	252.7	356.4
Divers:										
Redhead	25.8	9.9	13.5	33.8	31.9	45.4	43.3	29.4	16.0	22.1
Canvasback	37.4	31.3	23.0	30.5	38.0	40.7	37.3	33.8	18.1	28.0
Scaup	145.9	114.8	76.1	55.7	72.3	67.1	72.9	79.5	55.9	41.3
Ring-necked duck	4.6	5.5	2.4	6.8	1.8	2.9	.5	4.1	1.6	1.5
Goldeneye	4.6	3.9	2.9	1.1	1.8	3.7	.5	4.7	1.5	1.6
Bufflehead	4.1	3.3	1.5	5.4	3.9	7.8	6.2	12.3	4.5	10.0
Ruddy duck	15.8	18.3	8.2	14.6	11.6	13.6	19.8	14.2	16.2	8.4
Subtotal	238.2	187.0	127.6	147.9	161.3	181.2	180.5	178.0	113.8	112.9

TABLE B-31.--Southern Manitoba - 10-year trend in waterfowl breeding population indexes by species, 1960-1969--continued

/index numbers in thousands/

Species	1960	1961	1962	1963	1964	1965	1966	1967	1968	1969
Ducks:										
Miscellaneous:										
Scoter	--	1.5	--	.4	.6	1.0	1.8	1.6	.2	--
Merganser	--	.1	--	--	4.0	3.2	2.0	--	.2	.3
Subtotal	--	1.6	--	.4	4.6	4.2	3.8	1.6	.4	.3
Total ducks	825.4	600.5	379.8	507.9	482.0	482.6	512.7	590.1	366.9	469.6
Coot	96.0	80.4	34.0	54.4	56.2	36.3	26.5	35.2	44.3	55.3
Grand total	921.4	680.9	413.8	562.3	538.2	518.9	539.2	625.3	411.2	524.9

TABLE B-32.--Southern Manitoba - comparative status of waterfowl breeding population indexes by species and stratum, 1969

[Index numbers in thousands]

Species	1969 Stratum 24(A)	25(B)	Totals (Strata 24 & 25 combined) 1968	1969	Average 1953-68	Percent change 1968	Index from 15-year average
Ducks:							
Dabblers:							
Mallard	55.5	103.0	133.4	158.5	260.0	+ 19	- 39
Black duck	--	--	.5	--	.2	--	--
Gadwall	5.3	2.0	14.0	7.3	9.2	- 48	- 21
American widgeon	11.7	12.8	23.5	24.5	22.8	+ 4	+ 7
Green-winged teal	8.7	5.6	4.5	14.3	3.6	+218	+297
Blue-winged teal	26.8	20.0	33.6	46.8	63.1	+ 39	- 26
Shoveler	19.3	21.8	22.9	41.1	29.1	+ 42	+ 41
Pintail	31.9	32.0	20.3	63.9	63.6	+215	same
Wood duck	--	--	--	--	--	--	--
Subtotal	159.2	197.2	253.7	356.4	451.6	+ 41	- 21
Divers:							
Redhead	8.6	13.5	16.0	22.1	23.6	+ 38	- 6
Canvasback	9.8	18.2	18.1	28.0	30.6	+ 55	- 8
Scaup	18.9	22.4	55.9	41.3	71.7	- 26	- 42
Ring-necked duck	.6	.9	1.6	1.5	3.7	- 6	- 51
Goldeneye	.2	1.4	1.5	1.6	3.3	+ 7	- 52
Bufflehead	2.6	7.4	4.5	10.0	4.0	+122	+150
Ruddy duck	4.1	4.3	16.2	8.4	11.2	- 48	- 25
Subtotal	44.8	68.1	113.8	112.9	148.1	- 1	- 24
Miscellaneous:							
Scoter	--	--	.2	.3	.6	+ 50	- 50
Merganser	.3		.2		.6	--	--
Other	--	--	--	--	--	--	--
Subtotal	.3	--	.4	.3	1.2	- 25	- 75
Total ducks	204.3	265.3	366.9	469.6	600.9	+ 28	- 22

TABLE B-32.--Southern Manitoba - comparative status of waterfowl breeding population indexes by species and stratum, 1969--continued

[Index numbers in thousands]

Species	1969 Stratum 24(A)	1969 Stratum 25(B)	Totals (Strata 24 & 25 combined) 1968	Totals (Strata 24 & 25 combined) 1969	Average 1953-68	Percent change 1968	Index from 15-year average
Geese:							
Canada goose	--	--	Tr	--	--	--	--
Coots	38.6	16.7	44.3	55.3	51.7	+ 26	- 7
Grand total	242.9	282.0	411.2	524.9	652.6	+ 28	- 20

TABLE B-33.--Southern Manitoba - lone drake index: Long-term trend expressed as a percentage of total drakes, 1953-69

Year	Mallard	Pintail	Canvasback	Percent long drakes [1]
1953				70.1
1954				79.6
1955				87.5
1956				79.4
1957				88.9
1958				81.9
1959				70.0
1960				86.5
1961				67.5
1962				62.0
1963				83.7
1964				78.0
1965				73.8
1966				84.6
1967				83.4
1968	73.4	66.0	73.4	72.5
1969	89.6	84.6	93.4	91.3

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

TABLE B-34.--Southern Manitoba - long-term trend in waterfowl brood and late-nesting indexes by species, July, 1960-1969

/index numbers in thousands/

Species	1960	1961	1962	1963	1964	1965	1966	1967	1968	1969
Broods:										
Duck brood index	32.2	35.7	15.6	32.3	25.2	21.7	30.6	32.1	14.7	24.0
Average brood size[1]	6.2	5.5	5.3	5.4	5.0	5.6	5.3	5.1	4.7	6.1
Coot brood index	18.9	4.4	5.1	3.5	12.8	15.8	8.9	13.0	3.0	16.4
Late-nest index:[2]										
Dabblers:										
Mallard	18.1	7.7	6.2	13.3	9.0	12.2	6.8	6.2	4.2	13.2
Gadwall	1.0	.9	1.8	2.1	.7	1.1	.4	1.7	1.1	1.2
American widgeon	3.1	2.7	--	4.3	1.2	5.1	1.4	4.9	.6	1.1
Green-winged teal	1.1	.1	--	.2	.1	.9	.3	.1	--	1.5
Blue-winged teal	10.5	1.6	2.8	2.6	5.3	2.3	2.5	2.5	4.2	5.1
Shoveler	2.5	.3	--	.2	5.5	1.3	.7	.4	.3	2.1
Pintail	3.2	1.6	.2	2.2	.3	.7	2.4	.6	.1	1.4
Subtotal	39.5	14.9	11.0	24.9	22.1	23.6	14.5	16.4	10.5	25.6
Divers:										
Redhead	1.0	1.2	.1	.7	1.8	1.0	1.5	.8	.3	1.9
Canvasback	.4	.9	--	1.1	.3	.4	.3	.8	.3	.1
Scaup	2.4	3.4	.7	1.7	2.5	3.4	1.3	1.6	1.9	3.0
Ring-necked duck	.2	.6	.7	.2	--	.1	--	.1	--	.1
Goldeneye	--	.1	--	.2	.1	--	.7	--	--	--
Bufflehead	.9	.5	--	.2	.1	.1	--	--	--	--
Ruddy duck	3.5	1.0	2.4	8.0	6.3	5.0	8.3	3.8	.6	6.3
Subtotal	8.4	7.7	3.9	12.1	11.1	10.0	12.1	7.1	3.1	11.4

TABLE B-34.--Southern Manitoba - long-term trend in waterfowl brood and late-nesting indexes by species, July, 1960-1969--continued

/index numbers in thousands/

Species	1960	1961	1962	1963	1964	1965	1966	1967	1968	1969
Miscellaneous ducks	--	1.2	--	--	.1	.2	--	--	--	--
Totals	47.9	23.8	14.9	37.0	33.3	33.8	26.6	23.5	13.6	37.0

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

TABLE **B-35.**--Southern Manitoba - waterfowl brood and late-nesting indexes by stratum compared to previous year, and long-term average, 1969

[Index numbers in thousands]

Species	1969 Stratum		1968 Stratum		Totals Strata A and B combined		Average 1954 thru	Percent change from	14-year
	24(A)	25(B)	24(A)	25(B)	1969	1968	1968	1968	Average
Broods:									
Duck brood index	7.1	16.9	6.4	8.3	24.0	14.7	31.3	+ 63	- 23
Average brood size[1]	6.2	5.9	4.8	4.6	6.1	4.7	5.4	--	--
Coot brood index	5.6	10.8	1.2	1.8	16.4	3.0	8.3	+447	+ 98
Late nesting index:[2]									
Dabblers:									
Mallard	8.2	5.0	2.0	2.2	13.2	4.2	13.5	+214	- 2
Gadwall	1.2	--	.4	.7	1.2	1.1	1.2	+ 9	same
American widgeon	1.1	--	.6	--	1.1	.6	3.0	+ 83	- 63
Green-winged teal	.8	.7	--	--	1.5	--	.4	--	+275
Blue-winged teal	4.4	.7	1.3	2.9	5.1	4.2	6.3	+ 21	- 19
Shoveler	1.4	.7	.3	--	2.1	.3	1.1	+600	+ 91
Pintail	.7	.7	.1	--	1.4	.1	1.9	+1300	- 26
Subtotal	17.8	7.8	4.7	5.8	25.6	10.5	27.4	+144	- 7
Divers:									
Redhead	1.2	.7	.3	--	1.9	.3	1.4	+533	+ 36
Canvasback	.1	--	.3	--	.1	.3	.9	- 67	- 89
Scaup	1.9	1.1	1.9	--	3.0	1.9	3.0	+ 58	same
Ring-necked duck	.1	--	--	--	.1	--	.5	--	- 80
Goldeneye	--	--	--	--	--	--	.2	--	--
Bufflehead	--	--	--	--	--	--	.3	--	--
Ruddy duck	3.1	3.2	.6	--	6.3	.6	4.8	+950	+ 31
Subtotal	6.4	5.0	3.1	--	11.4	3.1	11.1	+268	+ 3
Miscellaneous ducks	--	--	--	--	--	--	.2	--	--
Total	24.2	12.8	7.8	5.8	37.0	13.6	38.7	+172	- 4

[1]Class II and III broods only

[2]As indicated by adult pairs and singles.

TABLE B-36.--Montana - long-term trend in pond indexes by strata with comparisons to average and previous year, May and July 1965-1969

/index numbers in thousands/

Year	Stratum 40			Stratum 41			Total
	Stock dam	Pothole	Stream	Stock dam	Pothole	Stream	
May:							
1965	46.9	16.8	47.4	23.1	54.3	36.1	224.6
1966	33.9	3.8	59.9	30.0	33.6	46.0	207.2
1967	25.3	5.2	45.0	19.0	41.7	31.6	167.8
1968	21.1	5.7	37.7	15.8	16.6	21.4	118.2
1969	48.2	9.2	54.5	36.3	51.7	55.2	255.1
Average 1965-68		179.5					
Percent change from 1968		116.0					
Percent change from average		42.0					
July:							
1966	19.9	1.4	41.7	14.8	10.3	37.6	125.7
1967	26.5	3.5	37.4	15.9	12.5	28.1	123.9
1968	23.5	3.0	31.0	16.3	6.2	20.0	100.3
1969	35.3	5.0	52.2	27.9	16.2	48.3	184.9
Average 1966-68		116.6					
Percent change from 1968		84.347					
Percent change from average		58.6					

TABLE B-37.--Montana - trend in waterfowl breeding population indexes by species, 1965-69

/Index numbers in thousands/

Species	1965	1966	1967	1968	1969
Ducks:					
Dabblers:					
Mallard	233.2	362.8	172.7	126.0	166.1
Gadwall	52.1	60.0	35.8	38.0	35.0
American widgeon	24.7	29.7	38.1	47.9	53.3
Green-winged teal	7.7	10.2	11.7	10.9	3.4
Blue-winged teal	29.4	33.2	17.6	13.8	33.0
Shoveler	29.7	24.6	33.6	28.6	36.3
Pintail	163.3	162.5	128.3	44.4	76.5
Subtotal	540.1	683.0	437.8	309.6	403.6
Divers:					
Redhead	2.0	4.5	9.4	1.6	2.8
Canvasback	2.0	.5	1.7	2.6	3.4
Scaup	10.6	17.1	21.6	13.1	31.2
Ring-necked duck	--	--	3.5	1.4	.3
Goldeneye	--	--	--	--	.9
Bufflehead	--	--	.1	1.0	1.5
Ruddy duck	--	--	.9	1.2	12.5
Subtotal	14.6	22.1	37.2	20.9	52.6
Miscellaneous:					
Scoter	--	--	--	--	--
Merganser	--	--	--	--	--
Other	2.4	3.5	3.2	.4	--
Total ducks	557.1	708.6	478.2	331.1	456.2
Geese:					
Canada goose	--	--	7.3	5.5	8.4
Coots:					
American coot	--	--	6.0	15.4	8.0
Grand total	557.1	708.6	491.7	351.9	472.6

TABLE B-38.--Montana - comparative status of waterfowl breeding population indexes by species and stratum

/Index numbers in thousands/

Species	Stratum			Total		Average	Percent change from	
	40	1969	41	1968	1969	1965-1968	1967	Average
Ducks:								
Dabblers:								
Mallard	66.5	99.6	126.0	166.1	223.6	↑32	-26	
Gadwall	5.5	29.5	38.0	35.0	46.4	-8	-25	
American widgeon	16.3	37.0	47.9	53.3	35.1	↑11	↑52	
Green-winged teal	1.2	2.2	10.9	3.4	10.1	-69	-66	
Blue-winged teal	10.7	22.3	13.8	33.0	23.5	↑139	↑40	
Shoveler	9.6	26.7	28.6	36.3	29.1	↑26.9	↑25	
Pintail	15.3	61.2	44.4	76.5	124.6	↑72	-39	
Subtotal	125.1	278.5	309.6	403.6	492.6	↑30	-18	
Divers:								
Redhead	.5	2.3	1.6	2.8	4.3	↑75	-35	
Canvasback	--	3.4	2.6	3.4	1.7	↑31	↑100	
Scaup	12.5	18.7	13.1	31.2	15.6	↑138	↑100	
Ring-necked duck	--	.3	1.4	.3	--	-80	--	
Goldeneye	--	.9	--	.9	--	--	--	
Bufflehead	.5	1.0	1.0	1.5	.5	↑50	↑200	
Ruddy duck	--	12.5	1.2	12.5	1.0	↑941	↑1150	
Subtotal	13.5	39.1	20.9	52.6	22.8	↑152	↑131	
Miscellaneous:								
Merganser	--	--	.4	--	1.8	--	--	
Total ducks	138.6	317.6	331.9	456.2	518.7	↑37	-12	
Geese:								
Canada goose	1.8	6.6	5.5	8.4	6.4	↑53	↑31	
Coots	1.3	6.7	15.4	8.0	10.7	↑48	-25	
Grand total	141.7	330.9	351.8	472.6	525.8	↑34	-10	

TABLE B-39.--Montana - lone drake index: long-term trend expressed as a percentage of total drakes, 1965-1969

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

TABLE B-40.--Montana - waterfowl brood and late nesting indexes by stratum compared to previous and long-term average, 1968-69

/index numbers in thousands/

Species	Stratum				Total				Average	Percent change from	
	40		41								
	1968	1969	1968	1969	1966	1967	1968	1969	1965-68	1968	Average
Broods:											
Duck brood index	15.87	24.87	26.55	42.63	66.0	45.0	42.42	67.50	51.14	60.0	32.0
Average brood size[1]	4.47	4.82	4.27	5.46	5.3	4.9	4.40	5.33	4.86	21.1	10.0
Coot brood index	.24	--	.89	.38	--	--	1.13	.38	.38	-67	NC
Late-nesting index[2]											
Dabblers:											
Mallard	.62	5.68	2.51	6.62	3.2	5.4	3.13	12.30	3.91		
Gadwall	.31	.24	1.00	1.02	2.0	2.1	1.31	1.26	1.80		
American widgeon	1.28	1.90	.93	1.91	2.4	2.1	2.21	3.81	2.24		
Green-winged teal	--	--	--	--	.2	.4	--	--	.30		
Blue-winged teal	1.58	.24	.86	2.93	.4	1.0	2.44	3.17	1.28		
Shoveler	--	--	.28	.76	.6	1.0	.28	.76	.63		
Pintail	.62	--	.28	1.53	.8	.3	.90	1.53	.67		
Subtotal	4.41	8.06	5.86	14.77	9.6	12.3	10.27	22.83	10.72	122.3	113.0

See footnotes p. 101

TABLE B-40.--Montana - waterfowl brood and late nesting indexes by stratum compared to previous and long-term average, 1968-69--continued

/index numbers in thousands/

Species	Stratum				Total				Average	Percent change from	
	40		41								
	1968	1969	1968	1969	1966	1967	1968	1969	1965-68	1968	Average
Divers:											
Redhead	--	--	.4	--	--	--	.14	--	.05		
Canvasback	--	--	--	--	--	--	--	--	--		
Scaup	--	.24	--	--	--	--	--	.24	--		
Ring-necked duck	--	--	.30	--	--	.3	.3	--	.20		
Goldeneye	--	--	--	--	--	--	--	--	--		
Bufflehead	--	--	.4	--	--	--	.4	--	.13		
Ruddy duck	--	--	.28	--	--	.6	.28	--	.29		
Subtotal	--	.24	.86	--	--	.9	.86	.24	.59	-72.0	-60.0
Total ducks	4.41	8.30	6.72	14.77	9.6	13.2	11.13	23.07	11.31	108.0	104.0
Coots	2.21	--	.86	--	--	1.0	3.08	--	1.36	--	--

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

TABLE B-41.--Montana - Canada goose population surveys, 1968-1969

Unit	1968				1969			
	P	S	G	T	P	S	G	T
Nesting Survey								
Hi-Line	876	127	147	2,022	858	149	26	1,891
South Valley Co.	20	9	3	52	30	8	--	68
South Central	196	122	64	578	222	137	100	681
East Slope	147	34	32	360	158	41	18	375
Helena	80	30	48	238	65	37	39	206
Upper Missouri	105	65	64	339	137	84	62	420
Production Survey								
Hi-Line	586	151	1,416	2,153	998	147	2,259	3,404
South Valley Co.	38	54	90	182	16	100	38	154
East Slope	212	220	484	916	858	160	416	1,434
Helena	13	86	220	319	57	134	353	544

P = pairs
S = subadults
G = goslings
T = total geese

TABLE B-42.--North and South Dakota - long-term trend in pond indexes by strata and comparisons to average and previous years, May and July 1969

/index numbers in thousands/

Year	Strata 30 and 33
May:	
1959	209
1960	397
1961	105
1962	348
1963	413
1964	207
1965	338
1966	475
1967	523
1968[1]	384
1969	699
Average 1959-1968	340
Percent change 1969 from average	+105.6
Percent change 1969 from 1968	+ 82.0
July:	
1959	110
1960	311
1961	108
1962	231
1963	275
1964	211
1965	245
1966	471
1967	328
1968[1]	314
1969	570
Average 1959-1968	260
Percent change 1969	+119.2
Percent change 1969 from 1968	+ 81.5

[1]Adjusted for stratum boundary changes.

TABLE B-43.--North and South Dakota - 10-year trend in waterfowl breeding population by species, strata 30 and 33,[1] 1960-69

/index numbers in thousands/

Species	1960	1961	1962	1963	1964	1965	1966	1967	1968	1969
Ducks:										
Dabblers:										
Mallard	123	108	174	247	163	171	160	206.1	130.4	198.2
Gadwall	30	20	62	113	38	89	119	153.4	124.4	137.5
American widgeon	7	7	3	2	2	--	4	3.4	1.2	7.7
Green-winged teal	--	2	3	1	--	--	9	2.3	4.0	13.0
Blue-winged teal	88	55	97	166	224	171	101	121.4	106.5	201.6
Shoveler	72	37	107	93	41	65	52	70.7	43.6	124.9
Pintail	171	83	182	115	60	35	82	122.2	57.7	174.7
Subtotal	491	312	628	737	528	531	527	679.5	467.8	857.6
Divers:										
Redhead	18	7	22	30	23	30	35	24.4	22.4	52.9
Canvasback	9	5	3	13	16	11	26	16.2	10.5	35.5
Scaup	22	8	22	19	2	20	17	13.0	14.0	20.4
Ring-necked duck	Tr	--	--	1	--	--	2	--	--	.3
Ruddy duck	13	3	6	7	2	3	7	8.2	5.1	11.3
Subtotal	62	23	53	70	43	64	87	61.8	52.0	120.4
Total ducks	553	335	681	807	571	595	614	741.3	519.8	978.0
Geese:										
Canada goose	--	--	--	--	--	--	--	.2	--	--
Coots:										
American coot	48	29	56	62	31	72	94	84.6	122.0	71.3
Grand total	601	364	737	869	602	667	708	826.1	641.8	1049.3

[1]North and South Dakota survey sampling increased in 1967 and stratum boundaries adjusted. Strata 30 and 33 (old North Dakota and South Dakota central) are compared directly to past years data.

TABLE B-44.--North Dakota - comparative status of waterfowl population indexes by species and stratum, 1969

/index numbers in thousands/

Species	Stratum			Total		Percent change from 1968
	29	30	31	1968	1969	
Ducks:						
Dabblers:						
Mallard	5.3	134.9	62.6	114.0	202.8	+ 77.9
Gadwall	.6	91.5	5.3	96.5	97.4	+ .9
American widgeon	.6	7.4	10.6	4.9	18.6	+279.6
Green-winged teal	--	10.9	.8	2.2	11.7	+431.8
Blue-winged teal	5.9	129.6	10.6	85.2	146.1	+ 71.5
Shoveler	1.4	83.4	18.5	37.3	103.3	+176.9
Pintail	3.3	124.2	22.5	48.0	150.0	+212.5
Subtotal	17.1	581.9	130.9	388.1	729.9	+ 80.1
Divers:						
Redhead	.3	38.9	--	17.4	39.2	+102.3
Canvasback	1.4	31.2	--	9.9	32.6	+229.3
Scaup	--	16.4	2.5	8.9	18.9	+112.3
Ruddy duck	.3	11.6	.3	5.7	12.2	+114.0
Ring-necked duck	--	.3	--	--	.3	--
Bufflehead	--	--	--	--	--	--
Subtotal	2.0	98.4	2.8	41.9	103.2	+146.3
Scoter	--	--	--	--	--	--
Merganser	--	--	1.5	--	1.5	--
Total ducks	19.1	680.3	135.2	430.0	834.6	+ 94.1
Coots	2.0	49.1	.5	92.1	51.6	- 43.9
Grand total	21.1	729.4	135.7	522.1	886.2	+ 69.7
Ponds	28.3	486.5	105.9	346.0	620.7	+449.5

TABLE B-45. --South Dakota - comparative status of waterfowl breeding population indexes by species and stratum, 1969

/index numbers in thousands/

Species	Stratum			Total		Percent change from 1968
	32	33	34	1968	1969	
Ducks:						
Dabblers:						
Mallard	24.0	76.2	108.5	158.1	208.7	+ 32.0
Gadwall	9.7	53.7	13.8	62.6	77.2	+ 23.3
American widgeon	--	.3	16.9	12.3	17.2	+ 39.8
Green-winged teal	1.1	3.6	1.8	6.7	6.5	- 3.0
Blue-winged teal	24.4	90.0	12.7	65.5	127.1	+ 94.2
Shoveler	9.2	50.3	10.6	38.6	70.1	+ 81.6
Pintail	12.3	66.5	13.1	42.9	91.9	+114.2
Subtotal	80.7	340.6	177.4	386.7	598.7	+ 54.8
Divers:						
Redhead	.9	16.2	.2	7.1	17.3	+142.3
Canvasback	--	10.4	--	1.8	10.4	+477.8
Scaup	1.1	4.1	2.0	11.7	7.2	- 38.5
Ring-necked duck	--	--	--	--	--	--
Bufflehead	--	--	--	--	--	--
Ruddy duck	.3	1.5	--	3.3	1.8	- 45.4
Subtotal	2.3	32.2	2.2	23.9	36.7	+ 53.5
Scoter	--	--	--	--	--	--
Merganser	--	--	--	--	--	--
Total ducks	83.0	372.8	179.6	410.6	635.4	+ 54.7
Coots	4.3	29.2	2.5	57.8	36.0	- 37.7
Grand total	87.3	402.0	182.1	468.4	671.4	+ 43.3
Ponds	151.5	275.2	151.2	305.7	577.9	+ 89.0

TABLE B-46.--North and South Dakota - lone drake index: expressed as percentage of total drakes, 1959-69

Year	Percent lone drakes[1]
1959	45.5
1960	73.3
1961	67.1
1962	73.9
1963	77.7
1964	67.6
1965	66.6
1966	69.6
1967	78.4
1968	70.3
1969	73.7

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

TABLE B-47.--North and South Dakota - waterfowl brood and late-nesting indexes by strata and compared to 1968 and the long-term average, 1969

/index numbers in thousands/

	Strata 30 and 33			Percent change from--	Percent change from--
	1969	1968	Long-term average[3]	1968	average
Broods:					
Duck brood index	48.1	26.4	36.9	+ 82.2	+ 30.3
Average brood size[1]	6.4	6.0	6.1	+ 6.7	+ 8.2
Coot brood index	16.0	6.5	6.5	+ 146.1	+146.1
Late-nesting index[2]					
Dabblers:					
Mallard	15.3	12.8	17.0	+ 19.5	- 10.0
Gadwall	22.2	7.0	11.7	+ 217.1	+ 89.7
American widgeon	.4	--	.3	--	+ 33.3
Green-winged teal	1.4	--	.3	--	+366.7
Blue-winged teal	20.7	1.4	11.2	+1378.6	+ 84.8
Shoveler	1.2	--	.8	--	+ 50.0
Pintail	4.8	--	.9	--	+433.3
Subtotal	66.0	21.2	42.2	+ 211.3	+ 56.4
Divers:					
Redhead	3.3	.3	1.2	+1000.0	+175.0
Canvasback	--	--	.1	--	--
Scaup	.7	--	.1	--	+600.0
Ruddy duck	8.3	5.1	6.6	+ 62.7	+ 25.7
Subtotal	12.3	5.4	8.0	+ 127.8	+ 53.7
Grand total	78.3	26.6	50.2	+ 194.4	+ 54.4
Water	570	384	373	+ 48.4	+ 52.8

[1]Class II and III broods only.

[2]As indicated by adult pairs and singles.

[3]Long-term averages for strata 30 and 33 only

TABLE B-48.--North and South Dakota - waterfowl brood and late-nesting by stratum compared to 1968 and the long-term averages, 1969

/index numbers in thousands/

	Strata			Total	Total	Percent change
	29 and 32	30 and 33	31 and 34	All strata 1969	all 1968	from-- 1968
Broods:						
Duck brood index	9.0	50.9	34.2	94.1	50.3	+ 87.1
Average brood size[1]	5.0	6.3	5.2	5.9	5.4	+ 9.2
Coot brood index	2.1	17.2	--	19.3	8.1	+138.3
Late-nesting index[2]						
Dabblers:						
Mallard	3.3	16.1	12.9	32.3	21.9	+ 47.5
Gadwall	1.8	23.5	1.0	26.3	10.7	+145.8
American widgeon	--	.4	2.8	3.2	3.7	- 13.5
Green-winged teal	--	1.3	1.8	3.1	--	--
Blue-winged teal	2.9	21.1	1.5	25.5	2.6	+880.8
Shoveler	--	1.5	1.0	2.5	.6	+316.7
Pintail	--	5.5	3.1	8.6	--	--
Subtotal	8.0	69.4	24.1	101.5	39.5	+157.0
Divers:						
Redhead	.3	3.2	--	3.5	.4	+775.0
Canvasback	--	--	--	--	--	--
Scaup	--	1.0	--	1.0	--	--
Ruddy duck	.6	8.3	--	8.9	5.8	+ 53.4
Subtotal	.9	12.5	--	13.4	6.2	+116.1
Grand total	8.9	81.9	24.1	114.9	45.7	+151.4
Ponds	121.1	626.4	174.4	921.9	501.4	+ 83.9

[1]Class II and III broods only.

[2]As indicated by adult pairs and singles.

TABLE B-49.--Minnesota - waterfowl breeding population indexes for selected areas, 1968-1969

Species	Stratum[1]				State total 1968	State total 1969
	1 and 2	3	4	5		
Ducks:						
Dabblers:						
Mallard	22,838	30,329	2,238	5,038	49,803	60,443
Gadwall	218	--	--	--	1,829	218
American widgeon	500	2,416	298	59	2,777	3,273
Green-winged teal	218	--	--	59	223	277
Blue-winged teal	20,487	24,693	746	908	63,349	46,834
Shoveler	1,559	3,355	--	351	4,498	5,265
Pintail	1,836	3,623	--	498	801	5,957
Wood duck	1,802	1,208	--	--	3,702	3,010
Subtotal	49,458	65,624	3,282	6,913	126,982	125,277
Divers:						
Redhead	3,009	2,818	--	--	6,374	5,827
Canvasback	465	--	--	--	3,329	465
Scaup[2]	6,498	3,221	149	1,757	23,098	11,625
Ring-necked duck	5,698	671	373	205	7,548	6,947
Ruddy duck	1,383	3,087	--	--	11,823	4,470
American Goldeneye[3]	739	--	597	1,669	--	3,005
Subtotal	17,792	9,797	1,119	3,631	52,172	32,339
Total ducks	67,250	75,421	4,401	10,544	179,454	157,616
Coots	7,458	12,615	--	--	74,676	20,073
Total	74,708	88,036	4,401	10,544	154,130	177,689

[1] The strata given here represent the following:
1 and 2 - High density of lake basins
3 - Moderate density of lake basins
4 - Infertile lake region of various lake densities
5 - Roseau and Red Lake bog region in northwestern Minnesota.

[2] Scaup are not considered resident breeding ducks.

[3] American goldeneyes tallied in strata 5 largely represent nonbreeders on large lakes.

TABLE B-50.--Minnesota - estimated number of breeding ducks adjusted for birds not seen by aerial crews in selected portions of Minnesota, 1969

Species	Unadjusted population index	Visibility rate	Adjusted population index	Calculated change from 1968
Mallard	60,443	0.60	101,000	none
Blue-winged teal	46,834	0.29	162,000	+5%
Ring-necked duck	6,947	0.72	9,700	-3%
All ducks	157,616	0.44	369,000	-4%

TABLE B-51.--Chippewa National Forest, Minnesota - trend in waterfowl breeding populations by area, 1963-1969

Area	1963	1964	1965	1966	1967	1968	1969
Bowstring	238	245	301	178	138	277	217
Burns	107	109	87	93	114	41	119
Kitchie	112	204	162	160	163	200	252
Lower Pigeon	117	90	54	33	6	25	16
Mud Lake	251	141	150	170	--	120	110
Raven Lake	17	11	8	--	8	15	--
Round Lake	327	729	445	283	511	262	235
Third River	141	178	365	201	142	72	177
Lake Winnibigoshish	568	309	300	210	220	247	73
Rabideau	247	247	178	211	181	150	103
Total	2,125	2,263	2,050	1,539	1,483	1,409	1,302

TABLE B-52.--Chippewa National Forest, Minnesota - adult:juvenile ratios by species for all ducks, 1968-1969

Species	1968			1969		
	Adults	Juveniles	Ratio	Adults	Juveniles	Ratio
Mallard	229	474	1:2.0	155	431	1:2.7
American widgeon	64	136	1:2.0	35	78	1:2.2
Goldeneye	53	121	1:2.3	88	191	1:2.1
Blue-winged teal	16	18	1:1.1	27	30	1:1.1
Ring-necked	22	40	1:1.8	37	52	1:1.6
Wood duck	76	104	1:1.4	72	69	1:0.9
Other	24	32	1:1.3	19	18	1:0.9

TABLE B-53.--Washington - duck and coot breeding population indexes by species and region, 1968 and 1969

Species	Region				Total		Percent change
	W. Washington	Potholes	Irrigation	Highlands & misc.	1968	1969	
Ducks:							
Dabblers:							
Mallard	10,500	11,150	14,860	7,760	38,870	44,270	+ 11
Gadwall	--	1,370	320	50	3,360	1,740	- 48
American widgeon	--	7,390	490	1,310	8,740	9,190	+ 5
Green-winged teal	110	3,340	640	520	3,350	4,610	+ 38
Blue-winged teal and cinnamon teal	830	11,540	8,110	8,930	25,360	29,410	+ 16
Shoveler	60	7,860	880	100	5,900	8,900	+ 51
Pintail	40	10,050	270	450	2,970	10,810	+ 264
Wood duck	3,800	140	410	110	5,760	4,460	- 23
Subtotal	15,340	52,840	25,980	19,230	94,310	113,390	+ 20
Divers:							
Redhead	--	8,430	2,220	890	7,780	11,540	+ 48
Canvasback	--	340	--	--	180	340	+ 89
Scaup	--	5,280	490	4,090	8,110	9,860	+ 22
Ring-necked duck	--	60	--	1,520	690	1,580	+ 129
Goldeneye	--	200	--	3,400	2,950	3,910	+ 22
Bufflehead	--	--	50	--	170	50	- 71
Ruddy duck	--	1,410	1,820	870	4,190	4,100	- 2
Subtotal	--	15,720	4,580	10,770	24,070	31,380	+ 30

TABLE B-53.--Washington - duck and coot breeding population indexes by species and region, 1968 and 1969--continued

Species	Region				Total		Percent change
	W. Washington	Potholes	Irrigation	Highlands & misc.	1968	1969	
Ducks:							
Mergansers:							
American merganser	40	--	--	350	210	390	+ 86
Hooded merganser	1,580	--	--	100	1,930	1,680	- 13
Subtotal	1,620	--	--	450	2,140	2,070	- 3
Total ducks	16,960	68,560	30,560	29,390	120,520	146,840	+ 22
Coots	1,230	15,150	3,840	1,020	15,920	21,240	+ 33
Grand total	18,190	83,710	34,400	30,410	136,440	168,080	+ 23

TABLE B-54.--Washington - waterfowl production index - 1968 and 1969

Species	1968	1969	Percent change
Ducks:			
Dabblers:			
Mallard	113,700	121,100	+ 6
Gadwall	7,900	5,400	- 32
American widgeon	19,900	28,700	+ 44
Green-winged teal	8,400	14,600	+ 74
Blue-winged teal and cinnamon teal	64,100	92,200	+ 44
Shoveler	13,600	27,400	+ 101
Pintail	6,700	33,100	+ 394
Wood duck	14,700	11,900	- 19
Subtotal	249,000	334,400	+ 34
Divers:			
Redhead	18,500	33,900	+ 83
Canvasback	400	1,000	+ 150
Scaup	15,900	21,100	+ 33
Ring-necked duck	2,000	5,600	+ 180
Goldeneye	7,600	13,600	+ 79
Bufflehead	200	100	- 50
Ruddy duck	10,200	17,400	+ 71
Subtotal	54,800	92,700	+ 69
Mergansers:			
American merganser	400	900	+ 125
Hooded merganser	3,100	2,500	- 19
Subtotal	3,500	3,400	- 3
Total ducks	307,300	430,500	+ 40
Geese:			
Canada geese	11,650	13,200	+ 13
Coots	31,600	47,300	+ 50

TABLE B-55.--Oregon - duck production index by species, 1968 and 1969

(14 Transects)

Species	Number young		Percent change
	1968	1969	
Dabblers:			
Mallard	1,605	1,687	+ 5.1
Gadwall	1,278	1,731	+ 35.4
Widgeon	122	174	+ 42.6
Blue-winged teal and Cinnamon teal	1,302	1,642	+ 26.1
Shoveler	95	84	- 11.6
Pintail	141	352	+149.6
Subtotal	4,543	5,670	+ 24.8
Divers:			
Redhead	1,727	1,550	- 10.2
Ruddy	547	300	- 45.2
Subtotal	2,274	1,850	- 18.6
Miscellaneous	979	681	- 30.4
Total	7,796	8,201	+ 5.2

TABLE B-56.--Oregon - goose production index, 1968 and 1969

Transect	Total broods		Total young	
	1968	1969	1968	1969
Klamath River	188	220	848	990
Sprague River	18	17	80	76
Nuss Lake	28	18	127	82
Agency Lake	85	11	384	48
Wocus Bay	49	35	222	159
Howard Bay	59	16	266	73
Summer Lake	36	45	165	193
N. Lake County	12	28	41	116
Columbia River	2	8	7	33
Wickiup Reservoir	1	3	5	12
G. I. Ranch	21	29	85	139
Jefferson County	4	2	13	9
S. Lake County	2	28	7	117
Ladd Marsh	5	11	27	76
Malheur Refuge	222	219	1,000	985
Hanks Marsh	22	18	100	80
Klamath Forest Refuge	64	68	290	308
Total	818	776	3,667	3,496

TABLE B-57.--Idaho - aerial counts of Canada geese on all major breeding areas, 1960-1969

Area	1960	1961	1962	1963	1964	1965	1966	1967	1968	1969	Average 1956-1968	Percent change from-- 1968	Percent change from-- Average
Snake River drainage:													
Farewell Bend to Walter's Ferry	1,322	1,223	1,420	1,351	1,748	1,331	1,270	1,771	1,599	1,132	1,418	-28	-20
Payette River (mouth to Emmett)	430	308	409	477	318	450	516	866	633	509	469	-20	+ 9
Strike Reservoir to American Falls	126	199	224	222	231	154	225	246	265	251	204	- 5	+23
Island Park	404	473	329	451	419	408	330	344	178	--	371	--	--
South Fork	204	222	143	239	158	225	251	217	208	220	204	+ 6	+ 8
Mud Lake - Camas NWR	257	313	297	210	186	216	171	180	NC	191	231	--	-17
Gray's Lake	561	596	516	814	872	799	538	696	620	337[1]	642	--	--
Blackfoot Reservoir	512	580	395	587	562	418	377	554	645	591[1]	507	--	--
Bear River drainage:													
Dingle Marsh	903	1,418	1,077	2,225	1,605	1,950	1,758	1,528	1,243	591[1]	1,486	--	--
Total	4,719	5,332	4,810	6,576	6,099	5,951	5,436	6,402	5,391	--	5,532	--	--

[1] Counts made in May, therefore, no comparison with past years attempted.

TABLE B-58.--Idaho - Canada goose production summary and comparison, 1969

	Southwest Units[1]					Southeast Units[2]					All Units combined				
			Long-[3] term	Percent change from--				Long-[3] term	Percent change from--				Long-[3] term	Percent change from--	
	1968	1969	average	1968	Average	1968	1969	average	1968	Average	1968	1969	average	1968	Average
Nests	302	277	353	- 8	-22	172	137	178	-20	-22	474	414	532	-13	-22
Nests hatched	237	201	265	-15	-24	131	109	135	-17	-19	368	310	400	-16	-22
Average hatch/successful nest	5.4	5.1	5.2	- 6	- 2	4.0	4.2	4.6	+ 5	- 9	4.9	4.8	5.0	- 2	- 4
Goslings produced	1,279	1,019	1,372	-20	-26	519	454	623	-13	-27	1,793	1,473	1,995	-18	-26

[1] Homedale and Payette.
[2] Blackfoot, Island Park Reservoir, North Fork and North Lake.
[3] Long-term average from 1959-1969, inclusive.

TABLE B-59.--California - waterfowl nesting pair index, 1968 and 1969

Species	Sacramento Valley		Suisun Marsh		North San Joaquin Valley		South San Joaquin Valley		Northeastern California		Klamath Basin		Total	
	1968	1969	1968	1969	1968	1969	1968	1969	1968	1969	1968	1969	1968	1969
Ducks:														
Dabblers:														
Mallard	21,840	25,480	760	1,360	1,380	2,580	1,150	2,080	4,870	4,900	570	640	30,570	37,040
Gadwall	360	240	230	160	740	800	130	170	1,150	1,290	720	520	3,330	3,180
Cinnamon teal	1,560	1,360	180	140	850	710	160	1,360	1,170	1,220	660	160	4,580	4,950
Shoveler	160	80	20	20	110	160	40	1,060	190	240	120	1,030	640	2,590
Pintail	400	520	30	60	170	120	100	2,440	2,070	2,930	1,820	460	4,590	6,530
Subtotal	24,320	27,680	1,220	1,740	3,250	4,370	1,580	7,110	9,450	10,580	3,890	2,810	43,710	54,290
Divers:														
Redhead	200	200	--	--	10	30	140	50	370	560	360	260	1,080	1,100
Scaup	--	--	--	--	--	--	--	--	70	100	200	300	270	400
Ruddy duck	--	360	--	30	20	30	--	300	140	130	650	420	810	1,270
Subtotal	200	560	--	30	30	60	140	350	580	790	1,210	980	2,160	2,770
Miscellaneous	80	--	--	--	--	10	--	150	140	250	240	430	460	840
Total ducks	24,600	28,240	1,220	1,770	3,280	4,440	1,720	7,610	10,170	11,620	5,340	4,220	46,330	57,900
Canada goose	--	--	--	--	--	--	--	--	540	830	900	640	1,440	1,470
Coot	14,920	9,920	390	110	1,840	1,020	770	4,640	2,070	1,760	2,020	2,060	22,010	19,510

TABLE B-60.--California - waterfowl fall population index, 1968 and 1969

Species	Sacramento Valley		Suison Marsh		North San Joaquin Valley		South San Joaquin Valley		North-eastern California		Klamath Basin		Total	
	1968	1969	1968	1969	1968	1969	1968	1969	1968	1969	1968	1969	1968	1969
Ducks:														
Dabblers:														
Mallard	91,210	106,420	3,160	4,680	4,460	7,500	3,170	5,920	31,600	31,810	3,500	4,900	137,100	161,230
Gadwall	1,800	1,200	1,140	800	2,300	2,490	360	520	9,000	10,170	5,260	3,750	19,860	18,930
Cinnamon teal	5,830	5,080	650	500	2,680	2,230	430	5,440	7,600	7,880	3,800	1,160	20,990	22,290
Shoveler	900	360	60	60	330	500	90	3,980	1,140	1,460	970	5,690	3,490	12,050
Pintail	1,540	2,000	110	210	510	350	270	8,050	11,860	16,800	11,830	3,140	26,120	30,550
Subtotal	101,280	115,060	5,120	6,250	10,280	13,070	4,320	23,910	61,200	68,120	25,360	18,640	207,560	245,050
Divers:														
Redhead	900	900	--	--	30	80	380	200	2,500	3,840	2,510	1,710	6,320	6,730
Scaup	--	--	--	--	--	--	--	--	440	620	1,450	1,810	1,890	2,430
Ruddy duck	--	1,610	--	120	40	70	--	1,430	810	720	4,720	3,300	5,570	7,250
Subtotal	900	2,510	--	120	70	150	380	1,630	3,750	5,180	8,680	6,820	13,780	16,410
Miscellaneous	360	--	--	--	--	20	--	580	690	1,260	1,560	2,750	2,610	4,610
Total ducks	102,540	117,570	5,120	6,370	10,350	13,240	4,700	26,120	65,640	74,560	35,600	28,210	223,950	266,070
Canada goose	--	--	--	--	--	--	--	--	12,370[1/]	15,820[2/]	5,780[3/]	4,460[4/]	18,150	20,280
Coot	68,740	45,750	1,780	500	10,020	5,540	4,190	25,270	12,390	10,510	14,130	11,520	111,260	99,090

1/ Includes 9,030 nonbreeders
2/ Includes 10,210 nonbreeders
3/ Includes 1,850 nonbreeders
4/ Includes 1,810 nonbreeders

TABLE B-61.--Utah - waterfowl trend figures obtained from aerial surveys, 1964-69

Route flows	Sq. miles sampled	Total ducks counted						Ducks per square mile					
		1964	1965	1966	1967	1968	1969	1964	1965	1966	1967	1968	1969
Box Elder County	48.0	2,595	2,468	2,797	2,843	2,943	3,509	54.1	51.4	58.3	59.2	61.3	73.1
Weber County	15.5	1,050	1,154	616	994	1,092	1,801	67.7	74.3	39.7	64.1	70.4	130.1
Davis County	14.2	1,056	986	774	1,004	1,007	1,410	74.4	69.4	54.5	70.7	70.9	100.7
Jordan River Clubs	6.2	564	650	173	643	560	714	91.0	10.5	27.9	103.7	90.3	119.0
Salt Lake County	6.7	33	27	24	104	163	676	4.9	4.1	3.6	15.5	24.3	112.7
Utah County	18.0	280	616	430	603	733	448	15.6	34.2	23.9	33.5	40.7	24.9
Total	108.6	5,578	5,901	4,814	6,191	6,498	8,558	51.4	54.3	23.9	57.0	59.8	79.2

TABLE B-62.--Utah - species composition of breeding populations of waterfowl as determined from ground survey data, 1968-69

/index numbers in thousands/

Species	Northern Utah		Southern Utah	
	1968	1969	1968	1969
Ducks:				
Dabblers:				
Mallard	11.3	10.4	13.3	14.7
Gadwall	12.4	17.4	15.2	13.6
American widgeon	Tr	0.1	1.3	0.8
Green-winged teal	0.7	0.5	3.0	6.6
Blue-winged teal	1.6	0.3	1.5	0.7
Cinnamon teal	15.5	10.0	15.7	17.3
Shoveler	7.1	6.0	7.1	7.5
Pintail	8.3	7.1	10.1	9.7
Divers:				
Redhead	30.7	34.6	20.7	17.5
Scaup	--	--	1.8	0.6
Bufflehead	--	--	--	0.5
Canvasback	--	--	Tr	--
Ruddy duck	13.1	14.6	10.3	10.5

TABLE - .--Utah - Canada geese production index, 1968-69

Area	Number of breeding pairs		Number of young	
	1968	1969	1968	1969
Cutler Reservoir	23	40	140	210
Public shooting grounds	13	8	65	33
Bear River Refuge and vicinity	315	277	1,486	1,092
Ogden Bay Wildlife Management Area	143	61	644	246
Farmington Bay Wildlife Management Area	75	62	359	277
Scipio Reservoir	5	3	26	15
Remond Lake	5	7	26	33
Gunnison Reservoir	5	6	29	14
Clear Lake Wildlife Management Area	8	6	38	29
Mona Reservoir	3	4	13	16
Wales Reservoir	3	2	21	12
Rich County (Bear River)	114	69	525	344
Brown's Park Wildlife Management Area	34	23	174	115
Total	746	568	3,546	2,436

TABLE B-63.--Utah - dike-line breeding pair counts of waterfowl on four State refuges, 1968-1969

Species	Ogden Bay		Farmington Bay		Public shooting grounds		Clear Lake	
	1968	1969	1968	1969	1968	1969	1968	1969
Ducks:								
Dabblers:								
Mallard	321	490	8	16	14	16	32	82
Gadwall	210	490	40	76	30	16	104	136
American widgeon	--	--	1	--	2	--	1	1
Green-winged teal	3	5	1	--	1	--	3	25
Blue-winged teal	22	18	2	--	--	11	7	7
Cinnamon teal	482	710	75	144	30	20	57	217
Shoveler	142	250	13	57	12	10	41	86
Pintail	159	290	52	44	13	11	57	54
Subtotal	1,339	2,253	192	337	102	84	302	608
Divers:								
Redhead	520	790	316	354	263	244	169	183
Scaup	--	--	--	--	--	--	3	1
Ruddy duck	31	260	218	197	30	11	53	57
Subtotal	551	1,050	534	551	293	255	225	241
Total ducks	1,890	3,303	726	888	395	339	527	849
Geese:								
Canada goose	75	61	75	62	9	8	8	14

TABLE B-64.--Wyoming - trend in waterfowl breeding populations, 1966-69

Species	1966	1967	1968	1969	Percent change from-- 1968	Percent change from-- Average
Ducks:						
Dabblers:						
Mallard	117,274	120,139	168,669	160,547	- 5	+ 41
Teal	23,928	41,968	34,812	31,812	- 7	+ 38
American widgeon	11,276	11,205	30,032	16,234	- 46	+ 43
Gadwall	12,184	33,510	39,806	9,518	- 76	- 40
Pintail	13,616	17,810	30,904	22,660	- 27	- 12
Shoveler	7,872	16,068	14,196	17,912	+ 26	+ 63
Subtotal	186,150	240,700	317,677	258,683		
Divers:						
Scaup	5,052	2,271	5,570	3,978	- 29	+118
Canvasback	1,272	531	1,530	586	- 62	- 30
Redhead	424	531	2,127	848	- 60	- 38
Ruddy duck	108	1,746	4,695	260	- 94	- 85
Bufflehead	320	--	218	--	--	--
Goldeneye	1,596	953	1,090	586	- 46	- 7
Subtotal	8,772	6,032	15,230	6,258		
Miscellaneous:						
Merganser	9,306	7,031	9,718	8,410	- 13	+ 58
Total ducks	204,228	253,763	342,625	273,351		
Coots	6,434	5,759	14,472	13,799	- 5	+158

TABLE B-65.--Wyoming - summary of Canada goose breeding pair surveys, 1962-69

Drainage	Average 1952-61	1962	1963	1964	1965	1966	1967	1968	1969	Percent change from-- 1968	Percent change from-- 1952-61 average
Snake River	361	270	441	379	493	553	503	554	463	-16	+ 22
Bear River	335	498	757	747	898	961	1,008	1,189	1,069	-10	+104
Green River	246	310	478	432	428	440	455	686	413	-40	+ 31
North Platte River	235	241	312	348	360	310	410	416	589	+42	+123
Wind River	113	173	182	199	228	266	446	408	505	+24	+201
Big Horn River	--	--	25	40	44	41	106	118	163	+38	+112
Total geese	1,254	1,492	2,195	2,145	2,451	2,571	2,993	3,371	3,202	- 5	+ 94

TABLE B-66.--Colorado - duck breeding population by species, and the 15-year average, 1969[1]

Species	Number of breeding pairs			Species composition, percent		
	1969	1968	1954-1968[2] Average	1969	1968	Average
Ducks:						
Dabblers:						
Mallard	28,744	36,644	28,669	41.6	50.4	60.9
Blue-winged and Cinnamon teal	9,302	6,463	4,237	13.5	8.9	9.0
Pintail	4,355	7,970	3,306	6.3	11.0	7.0
Gadwall	5,942	8,425	4,132	8.6	11.6	8.8
American widgeon	1,870	343	547	2.7	0.5	1.2
Shoveler	2,750	3,645	1,785	4.0	5.0	3.8
Green-winged teal	12,924	5,411	1,591	18.7	7.4	3.4
Divers:						
Redhead	2,071	2,063	1,676	3.0	2.8	3.6
Others	1,067	1,750	1,139	1.6	2.4	2.3
Totals	69,025	72,714	47,082	100.0	100.0	100.0

[1] Change in observers may have had an effect on species composition.

[2] San Luis Valley averages, included here, are for the years 1964-1968 only.

TABLE B-67.--Colorado - summary of duck breeding ground population estimates by area, and the 15-year average for comparison, 1969

Area	Total estimated breeding pairs 1969	1968	15-year average 1954-1968
San Luis Valley	27,425	27,611	27,549[1]
North Park[2]	22,111	19,777	7,093
Cache la Poudre Valley	9,057	7,403	2,525
South Platte Valley	6,769	14,000	5,721
Yampa Valley	2,146	2,985	2,920
Brown's Park	1,517	938	206
Total	69,025	72,714	46,014

[1] San Luis Valley averages are based on results of 1964-1968 only. The much less intensive coverage of previous years is not included in the calculations.

[2] Aerial counts corrected by species from visibility ratio obtained in the San Luis Valley.

TABLE B-68.--Nebraska - duck breeding population and species composition, 1968-1969

Species	1968 population	1969 population	Percent 1969 composition	Percent change from 1968
Ducks:				
Dabblers:				
Mallard	26,426	31,046	27.1	+17.5
Gadwall	10,733	17,810	15.5	+65.9
American widgeon	--	265	.2	--
Green-winged teal	174	112	.1	-35.6
Blue-winged teal	30,476	18,568	16.2	-39.0
Pintail	8,474	9,278	8.1	+ 9.5
Shoveler	18,952	16,275	14.2	-14.1
Divers:				
Redhead	5,255	2,940	2.6	-44.0
Canvasback	1,120	1,789	1.6	+59.7
Scaup	426	9,271	8.1	--
Ruddy duck	5,686	5,936	5.2	+ 4.4
Bufflehead	--	1,337	1.1	--
Total	107,722	114,627	100.0	+ 6.4

TABLE B-69.--Nebraska, sandhills - duck breeding population and species composition, 1968-1969

Species	1969	Percent	1968	Percent change from 1968
Ducks:				
Dabblers:				
Mallard	26,653	26.5	24,112	+10.5
Gadwall	17,403	17.3	10,733	+62.1
American widgeon	265	.3	--	--
Green-winged teal	--	--	174	--
Blue-winged teal	11,872	11.8	23,076	-48.5
Shoveler	15,293	15.2	17,657	-13.4
Pintail	7,833	7.8	8,243	- 0.5
Divers:				
Redhead	2,940	2.9	5,255	-44.0
Canvasback	1,789	1.8	1,120	-59.7
Scaup	9,271	9.2	426	--
Ruddy duck	5,936	5.9	5,686	+ 4.4
Bufflehead	1,337	1.3	--	--
Total	100,592	--	96,482	+ 4.3

TABLE B-70.--Nebraska, Rain Basin - duck breeding population and species composition, 1968-1969

Species	Ground determination population	Air determination			1968 population air
		Population	Percent	Percent change	
Ducks:					
Dabblers:					
Mallard	1,825	4,393	31.3	+ 89.8	2,314
Gadwall	562	407	2.9	--	--
American widgeon	159	--	--	--	--
Green-winged teal	299	112	.8	--	--
Blue-winged teal	8,157	6,696	47.7	- 10.5	7,400
Shoveler	1,948	982	7.0	- 24.1	1,295
Pintail	578	1,445	10.3	+525.0	231
Divers:					
Redhead	140	--	--	--	--
Canvasback	122	--	--	--	--
Scaup	70	--	--	--	--
Ruddy duck	175	--	--	--	--
Total	14,035	14,035	100.0	+ 24.8	11,240

TABLE B-71.--Nebraska, Sandhills - duck brood survey data, 1969

	Stratum A	Stratum B
Number of transects	48	16
Number of square miles	10,869	5,363
Number of square miles sampled	108	36
Number of broods sighted	29	4
Number of ducklings sighted	143	19

	Class I		Class II		Class III		Single adults	Pairs
	broods	ducklings	B	D	B	D		
All species	16	84	10	52	7	26	7	1

Total broods of which good counts were made = 33 with 162 ducklings
= 4.91 ducklings/brood

C. WATERFOWL HARVEST DATA TABLES

TABLE C-1--Total retrieved (by species) and unretrieved duck and coot kill in the United States during the 1967 and 1968 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 duck kill:							
Mallard	1967	19,900	1,337,500	802,000	1,718,300	237,300	4,114,900
	1968	15,900	1,003,200	542,000	853,300	267,800	2,682,100
	Percent change	- 20	- 25	- 32	- 50	+ 13	- 35
Domestic mallard	1967	0	0	300	4,500	2,400	7,200
	1968	0	400	100	3,200	5,700	9,400
	Percent change	0	++	- 67	- 29	+138	+ 31
Black duck	1967	0	0	2,800	120,000	266,200	388,900
	1968	0	0	1,000	71,000	303,300	375,300
	Percent change	0	0	- 64	- 41	+ 14	- 3
Black X Mallard	1967	0	0	0	5,000	6,000	10,900
	1968	0	0	200	2,300	9,000	11,500
	Percent change	0	0	++	- 54	+ 50	+ 6
Mottled duck	1967	0	0	40,300	37,300	13,600	91,300
	1968	0	0	35,600	30,200	20,300	86,100
	Percent change	0	0	- 12	- 19	+ 49	- 6
Gadwall	1967	300	170,500	207,100	246,600	24,000	648,600
	1968	600	96,100	105,300	90,600	18,700	311,300
	Percent change	+100	- 44	- 49	- 63	- 22	- 52
American widgeon	1967	9,000	542,300	131,000	273,100	61,800	1,017,200
	1968	9,700	426,500	79,900	125,100	41,600	682,700
	Percent change	+ 8	- 21	- 39	- 54	- 33	- 33

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

TABLE C-1--Total retrieved (by species) and unretrieved duck and coot kill in the United States during the 1967 and 1968 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 duck kill, continued:							
Green-winged teal	1967	12,700	562,800	279,500	446,700	94,900	1,395,600
	1968	11,300	488,800	156,200	281,200	127,700	1,065,100
	Percent change	- 11	- 13	- 44	- 37	+ 35	- 24
Blue-winged and cinnamon teal	1967	100	99,700	62,400	216,700	29,500	408,400
	1968	400	56,100	26,400	91,400	23,700	197,900
	Percent change	+300	- 44	- 58	- 58	- 20	- 52
Shoveler	1967	3,700	270,100	89,200	91,500	12,600	467,100
	1968	5,800	181,000	37,200	43,600	9,000	276,700
	Percent change	+ 57	- 33	- 58	- 52	- 29	- 41
Pintail	1967	13,400	1,052,400	170,300	230,800	29,600	1,496,600
	1968	18,900	567,500	91,500	97,000	24,600	799,400
	Percent change	+ 41	- 46	- 46	- 58	- 17	- 47
Wood duck	1967	0	45,400	26,000	328,100	167,900	567,500
	1968	0	30,700	26,800	323,800	221,800	603,100
	Percent change	0	- 32	+ 3	- 1	+ 32	+ 6
Redhead	1967	0	35,400	89,400	94,200	15,200	234,200
	1968	100	18,400	16,600	25,300	3,500	63,900
	Percent change	++	- 48	- 81	- 73	- 77	- 73
Canvasback	1967	100	31,300	23,600	44,100	21,100	120,200
	1968	100	18,200	7,400	23,500	14,700	63,900
	Percent change	0	- 42	- 69	- 47	- 30	- 47

TABLE C-1--Total retrieved (by species) and unretrieved duck and coot kill in the United States during the 1967 and 1968 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 duck kill, continued:							
Greater scaup	1967	1,700	37,900	1,700	30,900	47,200	119,500
	1968	1,200	16,400	500	26,800	35,800	80,800
	Percent change	- 29	- 57	- 71	- 13	- 24	- 32
Lesser scaup	1967	400	55,000	47,700	243,200	67,200	413,600
	1968	1,600	25,700	31,500	108,100	22,400	189,200
	Percent change	+300	- 53	- 34	- 56	- 67	- 54
Ring-necked duck	1967	100	25,700	36,200	256,300	113,100	431,400
	1968	0	22,200	21,700	156,400	69,200	269,400
	Percent change	--	- 14	- 40	- 39	- 39	- 38
Goldeneyes	1967	2,800	28,100	5,400	35,900	23,400	95,500
	1968	2,300	21,400	2,700	22,000	22,500	70,800
	Percent change	- 18	- 24	- 50	- 39	- 4	- 26
Bufflehead	1967	2,000	33,200	7,900	47,000	34,600	124,600
	1968	1,000	22,100	7,800	31,900	29,100	91,800
	Percent change	- 50	- 33	- 1	- 32	- 16	- 26
Ruddy duck	1967	0	27,200	5,000	12,100	8,900	53,300
	1968	0	14,700	1,600	5,900	4,700	26,800
	Percent change	0	- 46	- 68	- 51	- 47	- 50
Oldsquaw	1967	400	600	300	2,300	5,500	9,100
	1968	100	0	200	300	5,200	5,700
	Percent change	- 75	--	- 33	- 87	- 5	- 37

TABLE C-1--Total retrieved (by species) and unretrieved duck and coot kill in the United States during the 1967 and 1968 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 duck kill, continued:							
Eiders	1967	0	0	0	0	3,800	3,800
	1968	0	200	0	100	5,900	6,200
	Percent change	0	++	0	++	+ 55	+ 63
Scoters	1967	2,000	5,800	600	8,900	41,900	59,200
	1968	200	9,400	100	3,300	42,800	55,800
	Percent change	--	+ 62	- 83	- 63	+ 2	- 6
Hooded merganser	1967	100	1,500	1,700	23,300	16,400	42,900
	1968	0	3,300	1,600	15,900	24,200	45,000
	Percent change	--	+120	- 6	- 32	+ 48	+ 5
Other mergansers	1967	700	10,900	1,900	6,700	9,500	29,800
	1968	500	3,500	700	3,300	9,700	17,800
	Percent change	- 29	- 68	- 63	- 51	+ 2	- 40
Other ducks	1967	300	300	1,000	0	0	1,600
	1968	400	800	0	300	200	1,700
	Percent change	+ 33	+167	--	++	++	+ 6
Total	1967	69,800	4,373,800	2,033,100	4,522,500	1,353,700	12,352,900
	1968	70,100	3,026,600	1,194,400	2,435,500	1,362,900	8,089,500
	Percent change	0	- 31	- 41	- 46	+ 1	- 35

TABLE C-1--Total retrieved (by species) and unretrieved duck and coot kill in the United States during the 1967 and 1968 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
Unretrieved duck kill	1967	12,100	842,300	469,600	1,059,400	341,400	2,724,700
	1968	11,800	622,000	269,800	644,300	321,500	1,869,500
	Percent change	- 2	- 26	- 43	- 39	- 6	- 31
Total duck kill	1967	81,900	5,216,000	2,502,700	5,581,900	1,695,100	15,077,600
	1968	81,900	3,648,600	1,464,200	3,079,800	1,684,400	9,959,000
	Percent change	0	- 30	- 41	- 45	- 1	- 34
Retrieved coot kill	1967	500	151,800	64,300	437,100	101,600	755,300
	1968	400	87,100	31,100	246,400	60,600	425,500
	Percent change	- 20	- 43	- 52	- 44	- 40	- 44
Unretrieved coot kill	1967	100	80,600	42,200	131,800	31,800	286,600
	1968	300	52,000	15,700	81,900	19,300	169,200
	Percent change	+200	- 35	- 63	- 38	- 39	- 41
Total coot kill	1967	600	232,400	106,500	569,000	133,400	1,041,900
	1968	700	139,100	46,700	328,300	79,900	594,700
	Percent change	+ 17	- 40	- 56	- 42	- 40	- 43

TABLE C-2--Total retrieved (by species) and unretrieved goose kill in the United States during the 1967 and 1968 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]	1967	8,800	168,000	109,500	189,500	168,300	644,100
	1968	7,800	160,500	84,700	159,900	177,600	590,400
	Percent change	- 11	- 4	- 23	- 16	+ 6	- 8
Snow goose	1967	100	76,200	92,600	42,500	100	211,600
	1968	1,100	63,700	56,500	32,800	0	154,200
	Percent change	++	- 16	- 39	- 23	--	- 27
Blue goose	1967	0	0	50,700	81,100	trace	131,800
	1968	0	0	23,100	48,300	0	71,400
	Percent change	0	0	- 54	- 40	0	- 46
White-fronted goose	1967	700	67,500	24,400	21,800	0	114,400
	1968	900	51,700	19,900	7,100	0	79,600
	Percent change	+ 29	- 23	- 18	- 67	0	- 30
Brant	1967	100	6,800	0	0	24,200	31,100
	1968	0	8,800	0	0	28,800	37,500
	Percent change	--	+ 29	0	0	+ 19	+ 21
Others and unknown	1967	1,300[2]	400[3]	0	0	0	1,700
	1968	400[2]	0	0	0	0	400
	Percent change	- 69	--	0	0	0	- 76
Total	1967	11,000	318,900	277,100	334,900	192,700	1,134,700
	1968	10,300	284,800	184,200	248,000	206,300	933,500
	Percent change	- 6	- 11	- 34	- 26	+ 7	- 18

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

TABLE C-2--Total retrieved (by species) and unretrieved goose kill in the United States during the 1967 and 1968 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
Unretrieved kill	1967	1,300	52,500	46,900	54,800	25,400	180,700
	1968	1,900	52,300	30,300	42,700	24,000	151,200
	Percent change	+ 46	0	- 35	- 22	- 6	- 16
Total kill	1967	12,300	371,400	324,000	389,700	218,000	1,315,400
	1968	12,200	337,100	214,500	290,700	230,300	1,084,800
	Percent change	- 1	- 9	- 34	- 25	+ 6	- 18

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

TABLE C-3--Waterfowl hunting activity and bags of ducks and geese in Alaska and the Pacific Flyway during the 1967 and 1968 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:									
1967	6-12	105	10,130	4.77	52,500	8.31	88,400	1.22	12,900
1968	6-12	105	12,320	4.06	54,400	6.86	88,700	0.94	12,000
Percent change			+ 22	- 15	+ 4	- 17	0	- 23	- 7
Arizona:									
1967	5-10	90	10,250	5.35	59,600	7.49	80,600	0.24	2,500
1968	5-10	86	10,120	4.69	51,600	5.09	54,100	0.29	3,100
Percent change			- 1	- 12	- 13	- 32	- 33	+ 21	+ 24
California:									
1967	6-6	86	151,290	6.74	1,108,500	19.46	3,090,400	1.62	256,600
1968	6-6	86	159,960	6.04	1,050,100	10.10	1,696,200	1.29	215,800
Percent change			+ 6	- 10	- 5	- 48	- 45	- 20	- 16
Colorado:[1]									
1967	5-10	90	3,240	5.48	19,300	8.73	29,700	0.15	500
1968	5-10	86	3,500	5.03	19,200	7.20	26,500	0.09	300
Percent change			+ 8	- 8	- 1	- 18	- 11	- 40	- 40
Idaho:									
1967	6-6	90	28,540	7.41	229,800	14.28	427,800	0.61	18,000
1968	6-6	86	29,280	5.59	178,000	9.51	292,200	0.44	13,500
Percent change			+ 3	- 25	- 23	- 33	- 32	- 28	- 25

TABLE C-3--Waterfowl hunting activity and bags of ducks and geese in the Pacific Flyway during the 1967 and 1968 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:[1]									
1967	6-6	90	19,470	5.09	107,800	8.34	170,400	0.30	6,000
1968	5-10	86	19,710	4.94	105,900	6.09	126,000	0.26	5,400
Percent change			+ 1	- 3	- 2	- 27	- 26	- 13	- 10
Nevada:									
1967	6-12	75	12,700	5.57	76,900	11.09	147,800	0.79	10,500
1968	5-10	86	12,460	5.95	80,600	9.27	121,300	0.55	7,200
Percent change			- 2	+ 7	+ 5	- 16	- 18	- 30	- 31
New Mexico:[1]									
1967	5-10	90	1,050	8.21	9,400	6.45	7,100	0.27	300
1968	5-10	86	1,210	4.80	6,300	5.31	6,800	0	0
Percent change			+ 15	- 42	- 33	- 18	- 4	--	--
Oregon:									
1967	5-10	90	48,000	6.02	314,300	9.70	489,000	0.88	44,000
1968	5-10	86	48,160	6.46	338,000	8.66	437,800	0.75	37,800
Percent change			0	+ 7	+ 8	- 11	- 10	- 15	- 14
Utah:									
1967	5-10	90	32,080	6.02	210,000	12.12	408,000	0.20	6,700
1968	5-10	86	33,750	5.51	202,000	10.33	365,900	0.26	9,100
Percent change			+ 5	- 8	- 4	- 15	- 10	+ 30	+ 36

TABLE C-3--Waterfowl hunting activity and bags of ducks and geese in the Pacific Flyway during the 1967 and 1968 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:									
1967	5-10	86	70,430	6.16	471,800	9.16	676,900	0.38	28,000
1968	5-10	86	72,210	5.74	450,900	9.18	696,200	0.53	40,200
Percent change			+ 3	- 7	- 4	0	+ 3	+ 39	+ 44
Wyoming:[1]									
1967	5-10	90	1,460	4.33	6,900	7.83	12,000	0.85	1,300
1968	6-6	86	1,820	5.13	10,100	5.61	10,700	1.11	2,100
Percent change			+ 25	+ 18	+ 46	- 28	- 11	+ 31	+ 62
Flyway total:									
1967	--	--	378,510	6.35	2,614,200	13.94	5,539,800	0.95	374,500
1968	--	--	392,160	5.85	2,492,800	9.31	3,833,500	0.82	334,400
Percent change			+ 4	- 8	- 5	- 33	- 31	- 14	- 11

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

TABLE C-4--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 1967 and 1968 hunting seasons

State	1967--Final sales report				1968--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
Alaska	10,358	2.24	72	61	12,411	0.74	72	60
Arizona	10,281	0.30	76	59	10,196	0.76	78	59
California	153,053	1.15	87	79	162,622	1.64	88	73
Colorado[1]	3,265	0.64	86	78	3,526	0.75	83	69
Idaho	28,595	0.20	82	74	29,350	0.25	84	74
Montana[1]	19,715	1.23	79	70	19,745	0.20	80	65
Nevada	12,713	0.13	82	70	12,491	0.29	84	67
New Mexico[1]	1,060	0.62	90	72	1,215	0.16	82	71
Oregon	48,332	0.69	83	67	48,261	0.21	81	65
Utah	32,128	0.16	91	82	33,864	0.35	90	79
Washington	70,974	0.77	80	67	72,290	0.11	81	66
Wyoming[1]	1,467	0.76	78	68	1,827	0.52	81	68
Flyway total	381,583	0.81	84	73	395,387	0.82	85	70

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

TABLE C-5--Waterfowl hunting activity and bags of ducks and geese in the Central Flyway during the 1967 and 1968 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
Colorado:[1]									
1967	3-6	60	28,720	5.79	180,400	5.38	163,800	0.38	11,400
1968	3-6	33	28,340	4.24	130,500	3.02	90,600	0.25	7,300
Percent change			- 1	- 27	- 28	- 44	- 45	- 34	- 36
Kansas:									
1967	4-8	45[3]	47,500	6.16	317,600	7.27	366,400	0.35	17,400
1968	4-8	30	44,320	5.38	258,800	4.36	204,700	0.17	7,800
Percent change			- 7	- 13	- 19	- 40	- 44	- 51	- 55
Montana:[1]									
1967	3-6	60	6,370	5.59	38,600	5.15	34,800	0.56	3,700
1968	3-6	33	6,050	4.68	30,700	4.53	29,100	0.40	2,500
Percent change			- 5	- 16	- 20	- 12	- 16	- 29	- 32
Nebraska:									
1967	3-6	60	40,330	7.39	323,400	8.04	343,700	0.53	22,300
1968	3-6	36[3]	33,800	6.63	243,300	5.23	187,400	0.63	22,200
Percent change			- 16	- 10	- 25	- 35	- 45	+ 19	0
New Mexico:[1]									
1967	3-6	58	5,000	4.71	25,600	6.53	34,600	0.21	1,100
1968	3-6	40	5,180	3.82	21,500	4.68	25,700	0.36	2,000
Percent change			+ 4	- 19	- 16	- 28	- 26	+ 71	+ 82
North Dakota:									
1967	4-8	50	40,060	7.21	313,500	10.05	427,100	1.47	61,400
1968	4-8	30	39,730	5.91	254,900	5.93	249,700	0.70	29,100
Percent change			- 1	- 18	- 19	- 41	- 42	- 52	- 53

TABLE C-5--Waterfowl hunting activity and bags of ducks and geese in the Central Flyway during the 1967 and 1968 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
Oklahoma:									
1967	3-6	60	32,720	6.64	235,800	7.12	247,000	0.35	11,900
1968	3-6	36[3]	25,120	4.58	124,800	3.58	95,300	0.15	3,900
Percent change			- 23	- 31	- 47	- 50	- 61	- 57	- 67
South Dakota:									
1967	3-6	60	41,540	7.26	327,400	8.02	353,400	1.04	45,100
1968	3-6	36[3]	38,210	5.32	220,600	4.10	166,300	0.88	35,100
Percent change			- 8	- 27	- 33	- 49	- 53	- 15	- 22
Texas:									
1967	4-8	50	110,820	4.38	526,700	6.36	747,600	1.25	144,000
1968	4-8	30	94,770	4.22	434,000	5.28	530,700	1.02	100,200
Percent change			- 14	- 4	- 18	- 17	- 29	- 18	- 30
Wyoming:[1]									
1967	3-6	54[3]	4,840	5.16	27,100	6.35	32,600	0.17	900
1968	3-6	33	5,690	6.17	38,100	6.07	36,600	0.36	2,200
Percent change			+ 18	+ 20	+ 41	- 4	+ 12	+112	+144
Flyway total:									
1967	--	--	357,890	5.96	2,316,200	7.25	2,751,100	0.86	319,100
1968	--	--	321,200	5.04	1,757,000	4.74	1,616,200	0.63	212,100
Percent change			- 10	- 15	- 24	- 35	- 41	- 27	- 34

[1]Includes only that portion of the State lying within the Central Flyway.
[2]Includes days hunted and ducks bagged during the 23-day late mallard drake season as well as during the 33-day regular season. Colorado figures are underestimates due to the omission of late season data on some questionnaires.
[3]Split season.

TABLE C-6--Total numbers of duck stamps sold and their proportionate distribution among nonhunters, active hunters, and successful hunters in the Central Flyway during the 1967 and 1968 hunting seasons

State	1967--Final sales report				1968--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]	28,904	0.64	82	64	28,554	0.75	74	54
Kansas	47,935	0.91	84	69	44,601	0.64	78	57
Montana[1]	6,449	1.23	87	72	6,066	0.20	73	61
Nebraska	40,540	0.53	87	75	34,090	0.85	85	66
New Mexico[1]	5,034	0.62	87	69	5,184	0.16	83	68
North Dakota	40,114	0.14	90	83	39,993	0.67	84	68
Oklahoma	32,806	0.27	84	69	25,179	0.25	76	51
South Dakota	41,798	0.62	88	78	38,280	0.18	83	65
Texas	111,479	0.59	81	66	96,031	1.31	79	60
Wyoming[1]	4,879	0.76	80	71	5,715	0.52	77	66
Flyway total	359,938	0.57	84	71	323,693	0.77	80	61

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

TABLE C-7--Waterfowl hunting activity and bags of ducks and geese in the Mississippi Flyway during the 1967 and 1968 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
Alabama:									
1967	4-8	40	16,350	5.05	88,300	4.51	77,100	0.20	3,400
1968	3-6	30	13,940	5.39	80,400	3.31	48,300	0.20	2,900
Percent change			- 15	+ 7	- 9	- 27	- 37	0	- 15
Arkansas:									
1967	4-8	40	37,670	7.04	283,800	11.14	439,100	0.04	1,700
1968	3-6	20	29,340	5.83	182,900	6.57	201,800	0.03	800
Percent change			- 22	- 17	- 36	- 41	- 54	- 25	- 53
Illinois:									
1967	4-8	40	74,860	6.30	504,700	6.23	487,900	0.55	42,800
1968	3-6	30	58,350	5.83	363,800	3.27	199,900	0.44	26,500
Percent change			- 22	- 7	- 28	- 48	- 59	- 20	- 38
Indiana:									
1967	4-8	33[1]	22,380	4.35	104,300	2.59	60,600	0.17	3,900
1968	3-6	27[1]	21,690	4.40	102,100	2.35	53,400	0.22	4,800
Percent change			- 3	+ 1	- 2	- 9	- 12	+ 29	+ 23
Iowa:									
1967	4-8	40	52,030	7.01	390,000	6.13	333,800	0.83	44,800
1968	3-6	30	45,430	5.94	288,900	2.77	131,800	0.67	31,500
Percent change			- 13	- 15	- 26	- 55	- 61	- 19	- 30

TABLE C-7--Waterfowl hunting activity and bags of ducks and geese in the Mississippi Flyway during the 1967 and 1968 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
Kentucky:									
1967	4-8	40	9,150	5.86	57,400	4.63	44,300	0.87	8,300
1968	3-6	30	7,510	5.07	40,700	2.22	17,400	0.82	6,400
Percent change			- 18	- 13	- 29	- 52	- 61	- 6	- 23
Louisiana:									
1967	4-8	40	108,560	6.01	697,700	10.74	1,219,700	0.85	95,600
1968	3-6	30	89,870	5.29	508,900	7.03	661,600	0.65	60,600
Percent change			- 17	- 12	- 27	- 35	- 46	- 24	- 37
Michigan:									
1967	4-8	40	94,750	5.38	545,300	4.57	453,200	0.15	14,300
1968	3-6	30	88,010	5.01	471,500	2.74	252,500	0.26	23,200
Percent change			- 7	- 7	- 14	- 40	- 44	+ 73	+ 62
Minnesota:									
1967	4-8	40	156,820	5.91	991,000	7.86	1,289,500	0.29	46,700
1968	3-6	27[1]	140,000	5.05	757,200	5.20	761,600	0.15	21,400
Percent change			- 11	- 15	- 24	- 34	- 41	- 48	- 54
Mississippi:									
1967	4-8	40	19,970	5.13	109,600	7.15	149,500	0.21	4,400
1968	3-6	30	17,000	4.58	83,400	5.33	94,800	0.09	1,600
Percent change			- 15	- 11	- 24	- 25	- 37	- 57	- 64

TABLE C-7--Waterfowl hunting activity and bags of ducks and geese in the Mississippi Flyway during the 1967 and 1968 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
Missouri:									
1967	4-8	40	51,560	5.59	308,400	5.19	280,000	1.68	89,300
1968	3-6	30	41,860	5.77	258,300	3.14	137,600	1.52	65,900
Percent change			- 19	+ 3	- 16	- 40	- 51	- 10	- 26
Ohio:									
1967	4-8	40	29,580	6.14	194,400	5.52	171,000	0.26	8,000
1968	3-6	26[1]	28,260	5.71	172,500	3.74	110,700	0.28	8,200
Percent change			- 4	- 7	- 11	- 32	- 35	+ 8	+ 3
Tennessee:									
1967	4-8	40	24,810	6.15	163,300	6.36	165,000	0.23	5,800
1968	3-6	30	21,880	5.55	129,900	3.95	90,400	0.38	8,500
Percent change			- 12	- 10	- 20	- 38	- 45	+ 65	+ 47
Wisconsin:									
1967	4-8	40	109,270	6.18	722,300	5.71	653,100	0.23	26,100
1968	3-6	30	104,190	5.95	663,700	3.43	374,400	0.28	30,100
Percent change			- 5	- 4	- 8	- 40	- 43	+ 22	+ 15
Flyway total:									
1967	--	--	807,760	5.97	5,160,300	6.89	5,823,800	0.47	395,000
1968	--	--	707,330	5.42	4,104,100	4.24	3,136,300	0.40	292,500
Percent change			- 12	- 9	- 20	- 38	- 46	- 15	- 26

[1]Split season.

TABLE C-8--Total numbers of duck stamps sold and their proportionate distribution among nonhunters, active hunters, and successful hunters in the Mississippi Flyway during the 1967 and 1968 hunting seasons

State	1967--Final sales report				1968--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	16,370	0.15	88	61	13,937	0	81	58
Arkansas	38,517	2.21	89	79	29,512	0.57	87	71
Illinois	75,430	0.76	86	68	59,403	1.77	87	63
Indiana	22,579	0.87	81	53	22,048	1.62	82	52
Iowa	52,269	0.46	85	69	45,753	0.71	82	58
Kentucky	9,201	0.53	87	64	7,545	0.51	82	55
Louisiana	108,682	0.11	85	74	90,278	0.45	86	68
Michigan	95,187	0.46	83	62	88,742	0.82	85	58
Minnesota	157,937	0.71	93	78	140,934	0.66	92	70
Mississippi	20,065	0.45	84	66	17,053	0.32	85	64
Missouri	51,879	0.62	89	77	42,268	0.96	84	63
Ohio	30,175	1.96	89	67	28,911	2.27	88	66
Tennessee	25,027	0.86	88	64	21,880	0	89	59
Wisconsin	110,479	1.09	87	72	105,114	0.88	85	65
Flyway total	813,797	0.74	87	71	713,378	0.85	87	64

TABLE C-9--Waterfowl hunting activity and bags of ducks and geese in the Atlantic Flyway during the 1967 and 1968 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
Connecticut:									
1967	3-6	45[1]	9,250	4.60	44,800	3.33	31,800	0.19	1,800
1968	3-6	45[1]	11,510	4.61	55,700	3.97	47,200	0.28	3,300
Percent change			+ 24	0	+ 24	+ 19	+ 48	+ 47	+ 83
Delaware:									
1967	3-6	45[1]	9,640	6.47	65,600	4.18	41,700	2.75	27,100
1968	3-6	50	10,980	6.24	72,000	3.65	41,500	2.99	33,600
Percent change			+ 14	- 4	+ 10	- 13	0	+ 9	+ 24
Florida:									
1967	4-8	36[1]	30,060	4.90	154,800	7.71	240,200	0.03	800
1968	4-8	36[1]	26,880	5.42	153,300	7.10	197,800	0.01	400
Percent change			- 11	+ 11	- 1	- 8	- 18	- 67	- 50
Georgia:									
1967	4-8	40	10,690	4.20	47,200	4.27	47,300	0.05	500
1968	4-8	40	11,170	4.24	49,800	4.10	47,400	0.04	500
Percent change			+ 4	+ 1	+ 6	- 4	0	- 20	0
Maine:									
1967	3-6	45[1]	13,100	4.86	66,900	5.18	69,900	0.13	1,800
1968	3-6	45[1]	14,560	4.81	73,700	5.66	84,600	0.05	800
Percent change			+ 11	- 1	+ 10	+ 9	+ 21	- 62	- 56

TABLE C-9--Waterfowl hunting activity and bags of ducks and geese in the Atlantic Flyway during the 1967 and 1968 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
Maryland:[2]									
1967	3-6	50	29,840	6.47	198,700	3.18	99,500	3.02	89,400
1968	3-6	50	30,910	6.05	193,200	2.95	92,800	3.31	101,800
Percent change			+ 4	- 6	- 3	- 7	- 7	+ 10	+ 14
Massachusetts:									
1967	3-6	45[1]	20,810	5.06	110,800	3.75	80,100	0.18	3,900
1968	3-6	45[1]	23,310	4.80	117,700	3.56	85,700	0.25	6,000
Percent change			+ 12	- 5	+ 6	- 5	+ 7	+ 39	+ 54
New Hampshire:									
1967	3-6	45[1]	6,610	5.18	36,000	2.50	17,100	0.09	600
1968	3-6	50	7,590	4.99	39,900	2.71	21,300	0.10	800
Percent change			+ 15	- 4	+ 11	+ 8	+ 25	+ 11	+ 33
New Jersey:									
1967	3-6	50	28,300	5.22	155,300	4.46	130,500	1.11	32,300
1968	3-6	45[1]	29,560	4.88	151,700	4.15	127,100	1.13	34,200
Percent change			+ 4	- 7	- 2	- 7	- 3	+ 2	+ 6
New York:									
1967	3-6	45[1]	76,370	4.84	389,100	3.70	292,000	0.46	36,300
1968	3-6	50	84,490	4.46	396,600	3.36	293,900	0.42	36,700
Percent change			+ 11	- 8	+ 2	- 9	+ 1	- 9	+ 1

TABLE C-9--Waterfowl hunting activity and bags of ducks and geese in the Atlantic Flyway during the 1967 and 1968 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
North Carolina:[2]									
1967	3-6	50	22,440	5.47	129,000	5.12	118,800	0.55	12,800
1968	3-6	50	21,990	5.36	123,700	4.41	100,200	0.34	7,700
Percent change			- 2	- 2	- 4	- 14	- 16	- 38	- 40
Pennsylvania:									
1967	3-6	50	51,390	4.35	235,200	2.53	134,500	0.28	14,700
1968	3-6	50	56,990	4.31	258,300	2.05	121,200	0.28	16,400
Percent change			+ 11	- 1	+ 10	- 19	- 10	0	+ 12
Rhode Island:									
1967	3-6	50	2,480	6.65	17,300	4.80	12,300	0.15	400
1968	3-6	50	2,910	7.25	22,200	5.90	17,800	0.40	1,200
Percent change			+ 17	+ 9	+ 28	+ 23	+ 45	+167	+200
South Carolina:									
1967	3-6	50	18,090	6.20	118,000	5.90	110,600	0.08	1,600
1968	3-6	50	18,800	6.96	137,600	6.91	134,700	0.03	600
Percent change			+ 4	+ 12	+ 17	+ 17	+ 22	- 63	- 63
Vermont:									
1967	3-6	45[1]	5,640	4.82	28,600	4.39	25,700	0.24	1,400
1968	3-6	50	5,850	5.35	33,000	4.57	27,700	0.06	400
Percent change			+ 4	+ 11	+ 15	+ 4	+ 8	- 75	- 71

TABLE C-9--Waterfowl hunting activity and bags of ducks and geese in the Atlantic Flyway and the entire United States during the 1967 and 1968 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
Virginia:[2]									
1967	3-6	50	19,720	4.99	102,800	4.96	100,300	0.66	14,200
1968	3-6	50	18,580	5.23	101,200	6.47	120,800	0.59	11,900
Percent change			- 6	+ 5	- 2	+ 30	+ 20	- 11	- 16
West Virginia:									
1967	3-6	45[1]	1,850	3.32	6,500	2.52	4,800	0.08	100
1968	3-6	45[1]	1,760	4.83	8,900	3.51	6,400	0.12	200
Percent change			- 5	+ 45	+ 37	+ 39	+ 33	+ 50	+100
Flyway total:									
1967	--	--	356,270	5.09	1,906,600	4.22	1,557,300	0.66	239,600
1968	--	--	377,850	5.00	1,988,300	4.00	1,567,900	0.66	256,500
Percent change			+ 6	- 2	+ 4	- 5	+ 1	0	+ 7
United States total:									
1967	--	--	1,910,550	5.87	12,049,800	7.86	15,760,300	0.68	1,341,100
1968	--	--	1,810,850	5.35	10,396,600	5.40	10,242,700	0.59	1,107,500
Percent change			- 5	- 9	- 14	- 31	- 35	- 13	- 17

[1]Split season.
[2]Washington, D. C. hunters and kill allocated to Maryland, North Carolina, and Virginia.

TABLE C-10--Total numbers of duck stamps sold and their proportionate distribution among nonhunters, active hunters, and successful hunters in the Atlantic Flyway during the 1967 and 1968 hunting seasons

State	1967--Final sales report				1968--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
Connecticut	9,479	2.43	75	54	12,005	4.15	73	55
Delaware	9,695	0.58	86	66	11,055	0.66	85	68
District of Columbia	3,034	4.85	83	66	2,589	3.92	84	57
Florida	30,281	0.73	82	69	27,057	0.64	81	65
Georgia	10,719	0.24	84	63	11,228	0.51	81	56
Maine	13,223	0.95	82	68	14,696	0.94	85	70
Maryland	28,376	1.34	84	68	29,980	2.19	84	68
Massachusetts	21,119	1.48	76	53	23,758	1.87	78	53
New Hampshire	6,726	1.72	79	53	7,656	0.82	80	55
New Jersey	28,935	2.20	80	59	30,384	2.73	81	62
New York	77,586	1.57	76	57	86,492	2.31	75	53
North Carolina	22,483	0.75	84	61	22,090	0.95	83	61
Pennsylvania	52,084	1.33	84	58	58,055	1.84	83	55
Rhode Island	2,507	1.10	75	54	2,961	1.62	80	59
South Carolina	18,107	0.10	86	65	18,896	0.51	88	63
Vermont	5,725	1.45	79	62	5,884	0.55	80	63
Virginia	18,982	0.97	82	64	18,177	2.13	81	58
West Virginia	1,876	1.43	75	58	1,799	2.33	80	57
Flyway total	360,937	1.29	81	61	384,762	1.80	81	59
United States total[1]	1,926,613	0.83	85	69	1,829,631	1.03	84	64

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

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."

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and faithfully to defend from
waste the natural resources of
my country—its soil and
minerals, forests,
waters, and
wildlife.