

STATE DISTRIBUTION OF RETURNS FROM
BANDED DUCKS

*Fourth Paper: Montana, Nebraska, New Jersey, New York,
North Dakota, Ontario, and Oregon.*¹

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THE present paper is the fourth in a series intended to acquaint bird-students, sportsmen, conservation officials, and others with the information that is being obtained by the Biological Survey relative to the movements of migratory waterfowl through the banding of such birds at various points throughout the Continent. Technical reports that will discuss the distribution and migration of the different species are contemplated for future publication.

The accompanying maps show as a circumscribed area where the banding has been done in the different States and Provinces. In some cases the number of local recoveries is indicated within the circumscribed region. From that point lines lead to the various States and Provinces where the banded ducks have been retaken. The terminals of the lines do not show exact points of recovery, and the numbers are the totals for all return records regardless of the species, the status of each generally being noted in the accompanying statement. The data included in this study have been compiled to July 1, 1932.

While experience has shown that on the average about one half of the total returns from any lot of banded ducks will be received during the first shooting season succeeding banding,² the number of these first-season returns will be influenced by several factors. For example, the number of first-season returns will be greater for a lot of birds banded just before or during the early part of the shooting season than for a similar number banded in the same area immediately after its close. Moreover, the data obtained in these two cases have different applications to migration routes. To illustrate, it is evident that the southward flight of ducks banded in North Dakota before the opening of the shooting season is clearly defined by the return records received from all points during or immedi-

¹First paper: *Bird-Banding*, Vol. III, pp. 140-142, Oct., 1932.

Second paper: *Bird-Banding*, Vol. IV, pp. 19-32, Jan., 1933.

Third paper: *Bird-Banding*, Vol. IV, pp. 88-99, April, 1933.

²Lincoln, Frederick C. Calculating Waterfowl Abundance on the Basis of Banding Returns. Circ. 118, U. S. Dept. of Agriculture, May, 1930.

ately after the close of *that* season. But had these birds been banded during the northward flight in spring, those shot in the succeeding autumn and winter would in the mean time have gone north to some unknown breeding ground. It will be obvious, therefore, that when a round trip either north or south has been made during the time between banding and recovery, the actual course followed by the bird cannot be shown diagrammatically. This explanation is given here to correct any misunderstanding that may exist relative to the maps here included or which were presented in the three preceding papers.

Return data from the following States and Provinces have been already considered: Alberta (first paper); British Columbia, California, Connecticut, Georgia, Illinois, Iowa, and Kansas (second paper); and Louisiana, Maine, Massachusetts, Michigan, Minnesota, and Missouri (third paper). The present account discusses return records received from ducks banded in Montana, Nebraska, New Jersey, New York, North Dakota, Ontario, and Oregon.

MONTANA

Starting in the autumn of 1926 and continuing each season to 1930, former Reservation Protector Frank H. Rose banded a total of 14,009 ducks at the National Bison Range, near Moiese, Montana. Of these birds, 13,882 were Mallards, the remainder being Pintails, 101; Green-winged Teals, 9; and Shovellers, 4.

During the period from 1927 to 1930, United States Game Protector George E. Mushbach³ banded 172 ducks in Yellowstone, Cascade, and Lake Counties. The species represented were the Mallard, Gadwall, Baldpate, Green-winged Teal, Blue-winged Teal, Shoveller, and Pintail.

The grand total for the State is, therefore, 14,181, from which 2,781 return records have been obtained. Of these, 2,728 are for the Mallard, 35 are for the Pintail, and the others are scattered among four other species.

Reference to the map (Fig. 1) reveals an interesting situation. Since the banding area is not in an important wintering or breeding region, it must be considered as a resting and feeding point that is visited during migration. While some of the birds may have bred locally, it seems likely that the principal breeding grounds are located in Alberta and Saskatche-

³ Mr. Mushbach is now Superintendent of the Bear River Migratory Bird Refuge in Utah.

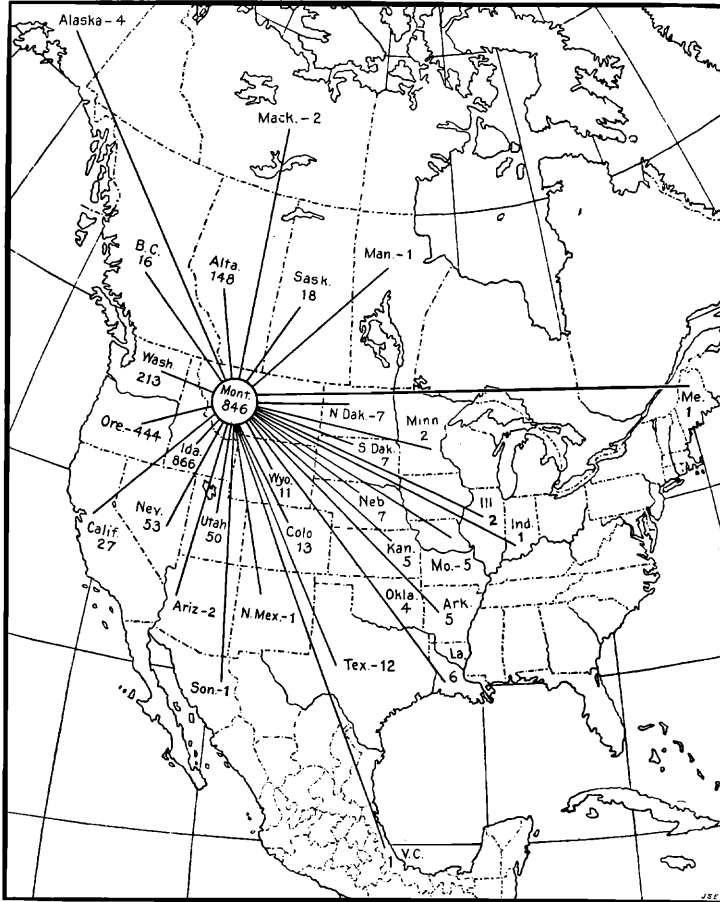


Figure 1. Distribution of Returns from Ducks Banded in Montana.

wan, to a lesser extent in British Columbia, and northward to Mackenzie and Alaska. From these regions many birds pass through western Montana to two distinct wintering areas, the more important being in the northwestern part of the United States, while the other is on the Gulf Coast of Texas and Louisiana.

As the banding was done almost entirely during the open shooting season the large number of local returns from Montana and the adjoining parts of northern Idaho cannot be considered unusual. The many records from Washington and Oregon do, however, show a heavy concentration in that region during the winter. (See also account under British Columbia, *Bird-Banding*, Vol. IV, pp. 19-21, January, 1933.) The principal flight from western Montana, accordingly, must be in a westerly direction with a fairly large percentage of the birds then making a left turn and continuing southward into Nevada and California.

Another contingent fly to the southeastward and upon reaching the Great Plains probably spread out and mingle with the flocks that are traveling southward over that flyway. It appears that most of these birds follow a route across Wyoming, Colorado, and Oklahoma, to Texas and Louisiana.

The two easternmost records are both for Mallards, as follows: No. 595,727, banded on November 13, 1927, was killed at La Fontaine, Wabash County, Indiana, on November 16, 1929; and No. 597,829, banded on September 20, 1928, was killed at South Portland, Maine, about December 26, 1928. This last case is a most unusual record. Both of the ducks recovered in Mexico were Pintails.

NEBRASKA

Two waterfowl-banding stations in Nebraska have operated persistently. At Antioch, F. J. Keller started banding in 1925. Practically all of the 264 Mallards he has banded have been hand-reared. A. R. Golay, at Kearney, began trapping and banding in August, 1927. He has reported 130 birds, as follows: Mallard, 7; Baldpate, 8; Green-winged Teal, 6; Blue-winged Teal, 61; Shoveller, 1; Pintail, 47.

From this total of 394 banded ducks, 53 return records have been obtained, of which 49 are for the Mallard, with two each for the Pintail and the Blue-winged Teal.

These data are scarcely sufficient for general conclusions, but as shown by the map (Fig. 2) some interesting information has resulted. In the case of the 19 records for Nebraska it

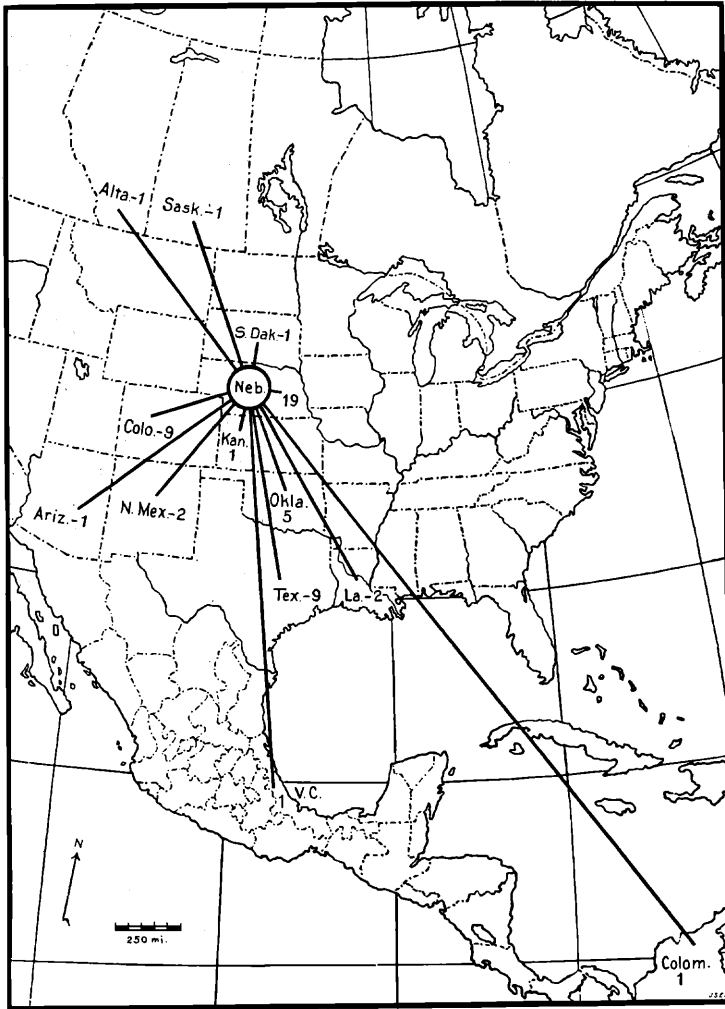


Figure 2. Distribution of Returns from Ducks Banded in Nebraska.

should be explained that many of these are "live retraps" by Mr. Keller. Several ducks banded by him have returned and have been recaptured at his station in succeeding seasons. One of these, female Mallard 555414, banded on November 29, 1927, has returned for six successive seasons and nested in a box on the roof of a shed at the station. Her offspring have been killed north to Canada, west to Arizona, and south to Louisiana and Texas, but each year she has escaped and returned to nest in her unusual site.

A Pintail banded at Kearney was recovered in Vera Cruz, Mexico, while a Blue-winged Teal, 363850, from this same station, was recaptured in Santa Marta, Colombia. It was banded on April 13, 1927, and killed on October 15, 1927. This record represents the only banded duck that has been recovered from South America.

NEW JERSEY

Banding work with waterfowl in New Jersey has been limited to one station operated by Ephraim C. Smith, on the Dupont Experimental Game Farm, at Carney's Point. During three seasons, starting in the autumn of 1929, 757 ducks were banded, all being Black Ducks, except for 36 Mallards, and 3 Pintails.

The 53 returns obtained, all for the Black Duck, add further to our knowledge of the movements along the Atlantic Coast of this important species (Fig. 3).

The Black Duck breeds throughout the coastal marshes from North Carolina northward, so it is not surprising to find that migratory flights from any particular area on the Atlantic coast are limited to a relatively small number of individuals. This is particularly true when the breeding region also is suitable for winter quarters. The New Jersey records do, however, indicate a certain amount of migration, and the hypothesis may be raised that the ducks banded at Carney's Point included local birds with a small number of individuals from more northern regions as Maine, Ontario, and Quebec, which, after banding, continued on down the coast to preferred winter quarters in Virginia and North Carolina. More extensive banding of Black Ducks at additional stations must be done before such theories may be definitely proved or disproved.

NEW YORK

Dr. Arthur A. Allen, Professor of Ornithology, Cornell University, started banding migratory waterfowl at Cayuga Lake during the period of activity of the old American Bird-Banding

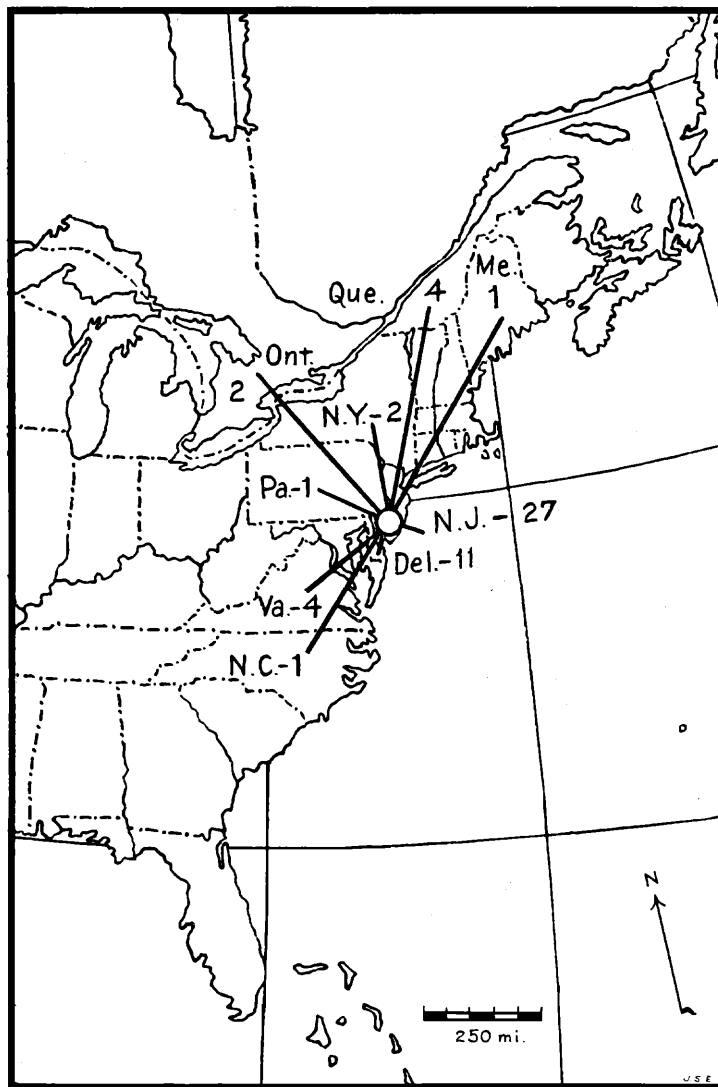


Figure 3. Distribution of Returns from Ducks Banded in New Jersey.

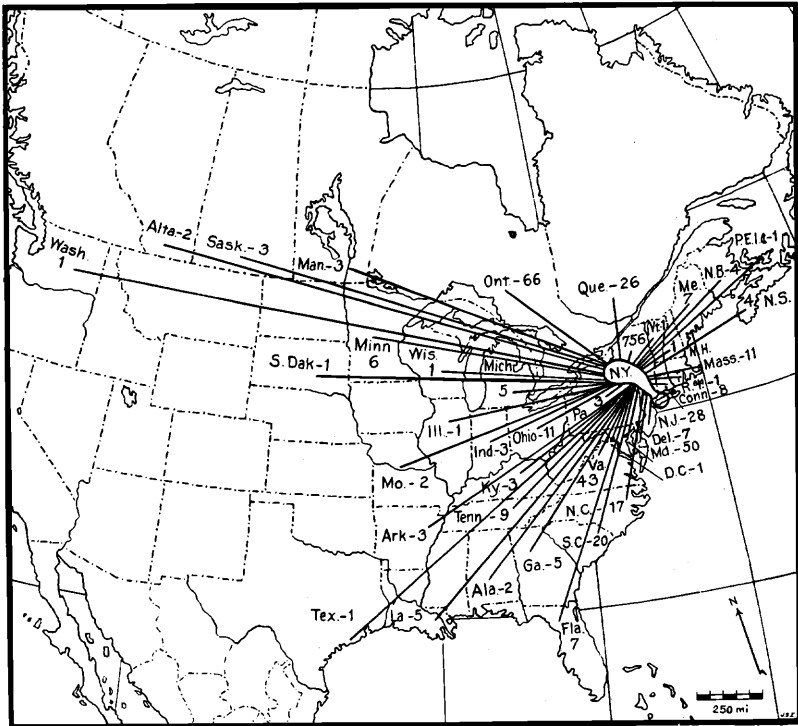


Figure 4. Distribution of Returns from Ducks Banded in New York.

Association. With the assistance of some of his students the work was continued under the Biological Survey. He is credited with 812 birds, chiefly Mallards, Black Ducks, Greater Scaups, and Redheads.

In the spring of 1924, Charles R. Weinberger started a station on the property of the Southside Sportsmen's Club, at Oakdale, Long Island. Since 1927 banding at this point has been continued by Alvah G. Allen. The number of ducks banded is 525, of which 418 were Black Ducks, the others being chiefly Mallards and Wood Ducks.

Starting operations at Southampton, Long Island, in the autumn of 1927, Charles J. Mercer banded 1,589 ducks up to the spring of 1931. These also were mostly Black Ducks, although 231 Mallards were included.

The latest waterfowl banding station to operate in New York is one at Rochester, N. Y., in charge of Dr. W. Bruce Large. Dr. Large started work in the autumn of 1927 and has continued during each successive season. His total as here considered is 3,087, divided by species as follows: 2,647 Black Ducks; 241 Mallards; 13 Gadwalls; 53 Baldpates (Widgeons); 31 Pintails; and 2 Wood Ducks.

The grand total of banded ducks for the State of New York is 6,013 from which 1,129 return records are available for the present study.

The map (Fig. 4) further illustrates the localization that affects the Black Duck, although in the present instance the large number of local recoveries is partly explained by banded birds retrapped at Rochester by Dr. Large. While undoubtedly some of the ducks banded in New York were local breeders, the evidence indicates that the major breeding area is located in Ontario and Quebec, and, to a smaller extent, in New England and the Maritime Provinces of Canada. Twenty-five of the records from Quebec are for the Black Duck, while 58 of those from Ontario are also for this species. There is, however, a well defined migratory flight along the south Atlantic Coastal region, which is clearly shown by the relatively large number of returns reported from all States south of, and including, New Jersey.

A smaller flight appears to move southwestward along the southern shore of Lake Erie, and thence across to the Mississippi Valley, which appears to be reached in the region of the mouth of the Ohio River.

The single return record for the State of Washington is of a Greater Scaup (204206) banded at Cayuga Lake, New York, on February 27, 1923, and killed at Big Lake, Washington, on December 7, 1927.

NORTH DAKOTA

During the autumn of 1929 the author started a waterfowl-banding station at the private shooting preserve of Colonel George T. Slade, near Dawson, North Dakota. Through Colonel Slade's interest this station has continued in operation under the personal direction of L. C. Pettibone. The total number of birds banded is 1,913, in which the Pintail and the Mallard represent more than half, the balance being Baldpates (32), Redheads (110), Lesser Scaups (7), Green-winged Teals (4), Blue-winged Teals (17), Gadwalls (5), Ruddy (1), Shovellers (2), and Black Ducks (2). A total of 479 return records have been obtained from the banding work at this station.

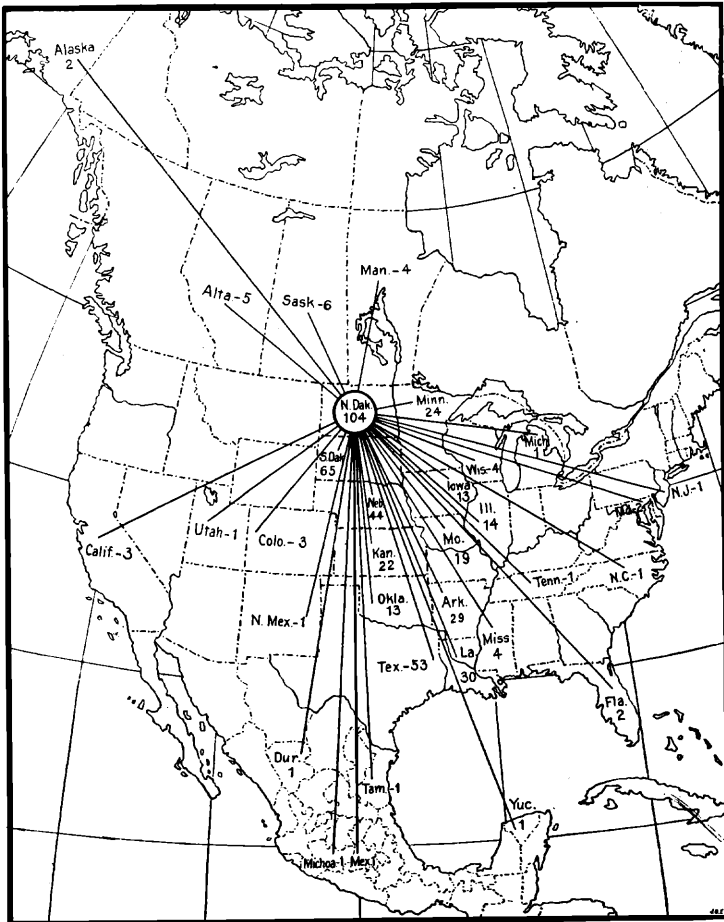


Figure 5. Distribution of Returns from Ducks Banded in North Dakota.

North Dakota (See Fig. 5) lies near the middle part of the broad arterial flyway that extends across the Great Plains from Canada to the Gulf Coast, and that is bounded on the west by the Rocky Mountains, while on the east it merges with the narrower boulevard traversing the Mississippi Valley. In

addition to the birds that nest locally, the great breeding grounds of Canada furnish many of the birds that pass through this region, the bulk of which continue their course almost directly south to Texas and Louisiana. Most of these birds are Mallards and Pintails, but included with them are many Shovellers, Widgeons, Teals, and Redheads. It seems probable that the Redheads using this route are the only ones of their species that make a direct southerly flight from breeding grounds to winter quarters, the other routes followed by this species being either to the southeast or the southwest. At least a few Redheads from this region join the southeastern flight, which is indicated by the record for A-647,771, banded on September 13, 1929, and killed on the Delaware River, New Jersey, on November 4, 1929. One of the returns from Maryland and the one from North Carolina, also are for Redheads.

Both of the Alaskan records, the three from California, the two from Florida, and all of those from Mexico, are for Pintails, further illustrating the extensive range of this species. One of the records from Alaska, also is indicative of the speed of the northward migration. This bird, A-649,671, was banded on April 19, 1931, and was recaptured at Selawik, Alaska, on May 30, 1931.

ONTARIO

When the Biological Survey took over the banding work in 1920 the largest waterfowl-banding station on the continent was the one operated at Lake Scugog, Ontario, by H. S. Osler, of Toronto. For several years Mr. Osler had been banding ducks with bands of the old American Bird-Banding Association. Work at this point was continued each season to the autumn of 1926. The total number of ducks banded was 5,047. Most of these were Black Ducks, but each season a few Mallards, Greater and Lesser Scaups, Ring-necks, Redheads, and Green-winged and Blue-winged Teals, were banded. From these operations, 1,228 return records have been obtained. The Black Duck is represented by 1,014 records, the Mallard by 76, the Lesser Scaup by 68, the Blue-winged Teal by 51, the Ring-neck by 14, the Green-winged Teal by 3, and the Redhead and the Greater Scaup by one each.

As is shown by the map (Fig. 6) the data here considered permit an excellent diagnosis of the southward migration. The lakes and marshes of lower Ontario constitute an important concentration area for ducks, most of which apparently breed in that Province and adjoining parts of Quebec and Manitoba.

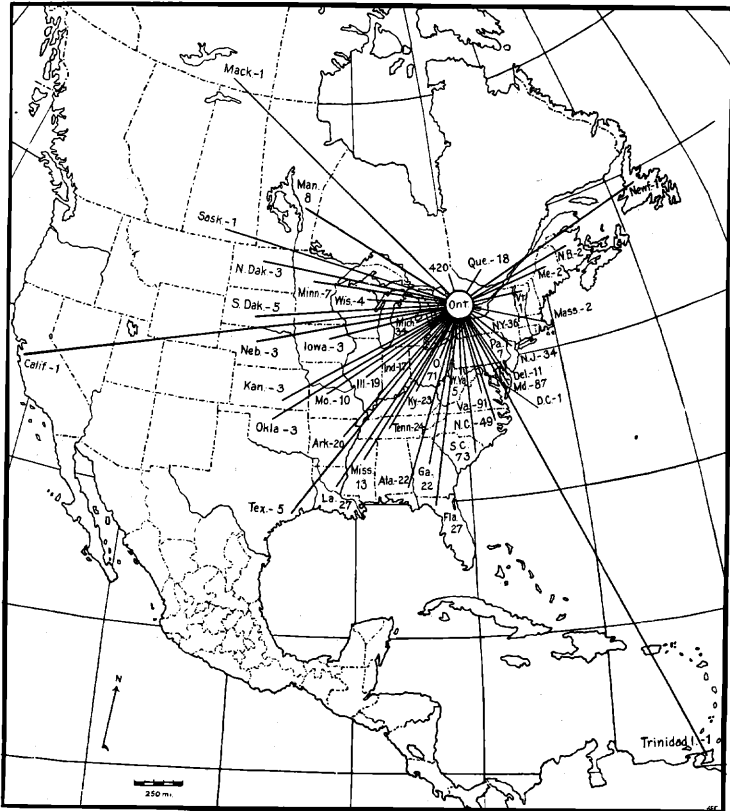


Figure 6. Distribution of Returns from Ducks Banded in Ontario.

The conformation of the land-mass is such that when the southward movement is started, the flocks travel south-westwardly to the St. Clair Flats, between Michigan and Ontario, thence across to the south shore of Lake Erie. Here the route divides, one contingent continuing the southwestern course across Indiana and Illinois to the Mississippi River and then south to the lower parts of the valley. The other flocks, which are much larger, work eastward along the marshes of the south shore of Lake Erie, and probably to some extent Lake Ontario, large numbers remaining in this region until forced by climatic conditions to move out. A cross-country flight is then made

to the Atlantic Coast which is reached in the general vicinity of Delaware and Chesapeake Bays. The birds then drift southward as far as Florida, many remaining to winter in Maryland, Virginia, and the Carolinas.

In succeeding seasons it appears that some birds follow other routes, which explains the return records in the Great Plains region and on the northeastern coast.

The record farthest north is that of a Mallard (323,904), banded on September 27, 1925, and recovered at a point fifty miles north of Fort McPherson, Mackenzie, during the spring of 1926. The record from Newfoundland is for a Black Duck (296,195) recovered four years after banding.

The records from California and the Island of Trinidad, British West Indies, are both for Blue-winged Teal. The California bird (323,756), was banded on September 24, 1925, and killed at Burlingame on December 12, 1926, while the one reported from Trinidad (4576) was banded on September 24, 1920, and killed near Port of Spain on December 9, 1920.

OREGON

Banding of waterfowl in Oregon was begun in the autumn of 1923, when S. M. Batterson started a station at Mohler. Operations at this point have been continuous each season, 1,690 birds having been marked. Most of these have been Scaups, with fair numbers of Pintails and Canvas-backs.

At the Lake Malheur Migratory Bird Refuge, near Voltage, Oregon, U. S. Reservation Protector George M. Benson, started banding operations in January, 1926. This work has been continued with each succeeding season to the extent that a total of 6,536 birds have been banded. Of these the Mallard leads with 2,372, followed by the Baldpate (Widgeon) with 1,851, the Pintail with 696, the Gadwall with 490, the Green-winged Teal with 649, the Canvas-back with 81, the Cinnamon Teal with 30, the Redhead with 24, the Lesser Scaup with 12, the Shoveller with 6, the Golden-eye with 2, and the Black Duck and Wood Duck with one each. Banding records from this station also include 60 Canada Geese, 45 Whistling Swans, and a few herons and ibises.

In the autumn of 1928, George J. Bills started a waterfowl-banding station at Sauvies Island, near Linnton, Oregon, and continued the work in the autumn of 1931. The birds banded number 266, and were mostly Mallards with a few Pintails and Baldpates.

Hugh M. Worcester, Deputy U. S. Reservation Protector,

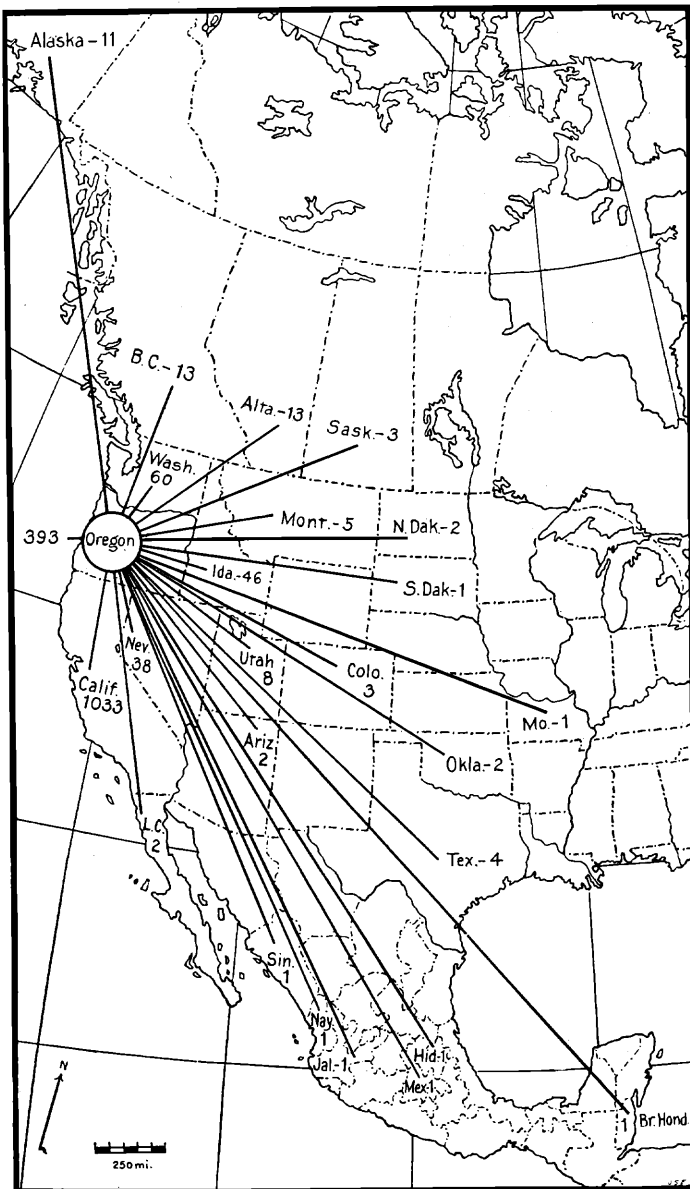


Figure 7. Distribution of Returns from Ducks Banded in Oregon.

started banding at Tule Lake Migratory Bird Refuge in 1931, banding 59 Mallards, Pintails, Gadwalls, and Baldpates. He also marked 33 Cackling Geese, 6 Snow Geese, and 3 Whistling Swans.

In the autumn of 1927, Charles C. Sperry of the Biological Survey banded a few Pintails and other ducks during the course of other investigational work at Klamath Lake.

The total number of ducks banded in Oregon and here considered is 8,446, from which 1,646 return records have been obtained. These are distributed among the different species as follows: Mallard, 614; Gadwall, 80; Baldpate, 448; Pintail, 219; Green-winged Teal, 146; Cinnamon Teal, 2; Shoveller, 5; Red-head, 4; Lesser Scaup, 101; and Canvas-back, 27.

The large number of local recoveries indicated on the map (Fig. 7) suggests much localization, although this is partly due to the banding's having been done during the shooting season. Nevertheless, there is an important southward movement through this State, a large number of the birds coming from the interior, as was shown in the discussion under Montana. The valleys of California are the winter quarters selected, and it is in this region that the majority of the Mallards (342), Gadwalls (41), Baldpates (375), Pintails (126), and Green-winged Teals (122), were recovered. In addition to local breeding grounds, including those in States adjoining that of banding, important breeding areas are indicated in Alberta, British Columbia, and Alaska. No Mallards banded in Oregon have been recovered in Alaska, the records from that Territory being for Baldpates (1), Pintails (3), and Lesser Scaup (7).

It will be noted that several records have been received from points south of the United States, chiefly from western Mexico. These all are for Pintails except for one Cinnamon Teal recovered in Nayarit. The southernmost return also is for a Pintail, 227,609, banded on September 5, 1927, and killed at Belize, British Honduras, on December 23, 1927.

Biological Survey, Washington, D. C.