

TWENTY-TWO YEARS OF BANDING MIGRATORY WILD FOWL AT AVERY ISLAND, LOUISIANA.

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I BEGAN trapping and banding migratory wild fowl in January, 1912, using at first strip bands made of pure tin with a lead seal. These were private bands, and although a large number of them were placed on Ducks of various kinds not very many returns were received, probably due to the fact that the bands were private.

On February 14, 1916, I began using bands of the American Bird Banding Association, whose headquarters were at the American Museum of Natural History, New York.

In 1921 the work of the American Bird Banding Association was taken over by the United States Bureau of Biological Survey, and from then until now I have coöperated with the latter. My records go back more than twenty years, and in that time much valuable data on the life-history of our wild fowl has accumulated.

Of migratory wild fowl I have banded twenty-one thousand, nine hundred and ninety-six individuals between January 1912 and December 31, 1933, covering nineteen species as follows:

Greater Scaup	Mottled Duck	Red-head
Lesser Scaup	Dusky Duck	Canvasback
Ring-neck	Pintail	Wood Duck
Widgeon	Blue-winged Teal	Blue Goose
Gadwall	Green-winged Teal	Lesser Snow Goose
Mallard	Spoonbill	Florida Gallinule
		Coot

From these banded fowl there have been returned from birds killed or otherwise captured, up to December 31, 1933, two thousand, one hundred and sixteen bands. These returns cover pretty well all parts of North America.

Bands were returned from thirty-three states as follows:

Alabama	Colorado	Florida	Indiana
Arkansas	California	Georgia	Idaho
N. Carolina	N. Dakota	Illinois	Kansas
S. Carolina	S. Dakota	Iowa	Kentucky

Louisiana	Maryland	Ohio	Tennessee
Missouri	Michigan	Oregon	Virginia
Minnesota	Nevada	Oklahoma	W. Virginia
Mississippi	Nebraska	Texas	Wisconsin
			Wyoming

Various parts of Alaska.

Ten provinces of Canada, including:

Alberta	Quebec
Manitoba	Yukon Territory
Northwest Territory	Chipinyan
Ontario	British Columbia
Saskatchewan	Newfoundland

Four Mexican States or localities:

Matamorus	Campeche
Coahuila	Laguna Palos Prietos

Guatemala.

The usual conception of bird migration is a north and south movement. If this was strictly true it would be expected that the bulk of the wild fowl banded at Avery Island, Louisiana, would, on their journey to the northern nesting grounds, follow a rather narrow territory, and would cover about this same territory on their return from the North to their wintering grounds South. A study of the accompanying chart will show that bands taken from wild fowl banded at Avery Island, Louisiana have been returned from a territory covering the breadth of the land from the Atlantic to the Pacific Ocean, and from the Arctic to the Tropics; showing conclusively that Louisiana is the focal point to which a large part of the wild fowl of North America come in winter.

The greatest number of wild fowl banded in any one year was 6,126 in 1933, while 1932 was a close second with 6,091.

The greatest number banded in any one day was 1,514 on December 12, 1933, but I have banded in excess of five hundred on many days.

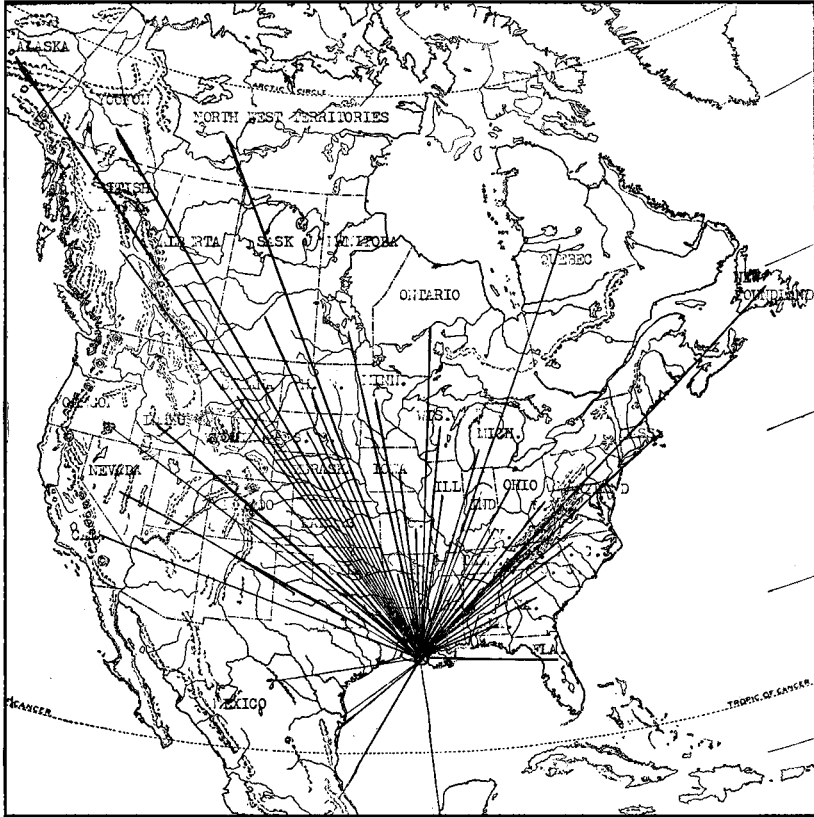
The value of wild fowl banding is:

First, to determine the length of life of the bird.

Second, to determine the territory covered by the different species in relation of the locality where banded.

Third, to determine the sex ratio.

The oldest return band was taken from a female Lesser Scaup (*Nyroca affinis*), banded December 29, 1922, and killed during the Fall of 1932, at Clearwater, Manitoba.



Other long lived birds were:

Louisiana Heron (*Hydranassa tricolor ruficollis*) No. 36191, banded May 2, 1921, was caught in trap February 11, 1931, at Point Aux Feu, Louisiana.

Ring-neck (*Nyroca collaris*) drake, banded February 15, 1922, was killed October 25, 1931, at Firma, Missouri.

Green-winged Teal (*Nettion carolinense*) drake, banded March 4, 1922, was killed February 2, 1930, at Coahuila, Mexico.

As migratory wild fowl banded in Louisiana must go north to nest, and then come south for the winter, it follows that for every year a Duck that I have banded lives, it has twice run the gauntlet of the gunners of the country from Canada to the Gulf—once up and once down. The Lesser Scaup that lived for ten years after being banded went through the barrage twenty times and I wonder how many times it had been shot at.

One of the most interesting things brought out by my banding operations, has been to learn how true migratory wild fowl are to their original migration routes. Since 1917, I have from time to time shipped Ducks taken and banded at Avery Island, Louisiana, by express to the Pacific Coast and to the Atlantic Coast, where they were liberated by operators of the United States Biological Survey, to determine whether or not these birds had the homing instinct such as is shown by the Carrier Pigeon. There are three great flyways which are used by wild fowl in their journeys to and from the breeding grounds of the North, and to and from the wintering grounds of the South. The greatest is through the central part of the country between the Allegheny Mountains and the Rocky Mountains and is known as the Mississippi Valley Migration Route. The next largest is along the Atlantic Coast from the breeding grounds of the North, east of the Allegheny Mountains, known as the Atlantic Coast Migration Route. The third is west of the Rocky Mountains along the Pacific Coast following the Pacific Ocean, and known as the Western or Pacific Coast Migration Route. Of the two hundred and seventy-six banded Ducks sent by express from Avery Island to Pacific Coast points and there liberated, forty-nine have been retaken. Forty of these returned to the Mississippi Valley Route, and nine were taken along the Pacific Coast. From the one hundred and sixty-four banded Ducks liberated on the Atlantic Coast, forty-one bands have been returned. Thirty-nine of these returns have been from the Mississippi Valley, and two from the Eastern Route; showing definitely that the great majority of the birds sent out of their home range return to the migration route from which they were taken.

One of the most unusual returns was, Pintail (*Dafila acuta tzitzihoa*) No. A658600, banded at Avery Island, February 14, 1930, and sent for liberation to the Biological Survey at Washington, D. C. This bird with many others was liberated on the Potomac River near Washington, and killed at Gustine, California, November 2, 1932, at a point on the Pacific Coast almost opposite the point on the Atlantic Coast where it was liberated.

In their natural state almost all birds are monogamous. It is, therefore, logical to assume that nature will produce an exact numerical quantity of the sexes in birds as it does in mammals. This supposition has been borne out by the careful investigation by competent observers of the sex ratio in Domestic Fowl, the results showing less than 2% difference in the sex ratio. An amazing fact brought out by my banding records is the great predominance of males over females in many species of wild fowl. This statement would have but little weight if it were based on the records of only a few trappings covering one or two years, but with a record of more than twenty years, covering hundreds of trappings, made from early fall to late spring each year, a record is built up that is indisputable.

During the past twenty years I have recorded the sex of each Duck banded, and a study of these records shows that the males are greatly in excess of the females in all species of Ducks that I have handled in sufficient numbers to build up a real record.

Of Lesser Scaups I have banded 6,159, and the males exceed the females $2\frac{1}{2}$ to one. Of Pintails I have banded 7,067, and the males exceed the females $1\frac{2}{3}$ to one. Of Ring-necks I have banded 913, and the males exceed the females $4\frac{1}{2}$ to one. Of Blue-winged Teal I have banded 992, and the males exceed the females $4\frac{1}{5}$ to one. Of Canvasbacks I have handled 461, and the males exceed the females $4\frac{1}{2}$ to one.

This excess of males over females is a real factor in the decline of our Duck population, in some species at least. First, because the unmated males will, undoubtedly, greatly harass the nesting females, often causing a breaking up of the nest. Second, because of the considerable excess of males, the breeding stock of our Ducks is much smaller than an observer would suppose, when seeing large flocks of these birds.

In order to give the reader an idea of the great distances covered by Ducks on their northern journey from Louisiana, the following records are given:

Lesser Scaup (*Nyroca affinis*) No. 35832, banded February 14, 1916, was killed at Ft. Smith, Northwest Territory, Canada, May 26, 1919. 2,875 miles from the place banded.

Mallard (*Anas platyrhynchos*) No. 36164, banded April 8, 1918, was killed at Johnston, Saskatchewan, Canada, October 13, 1918. 1,667 miles from the place banded.

Ring-neck (*Nyroca collaris*) No. 101407, banded February 17, 1922, was killed at Cross Lake, Saskatchewan, Canada, May 12, 1923. 2,242 miles from the place banded.

Blue-winged Teal (*Querquedula discors*) No. 504165, banded November 23, 1922, was killed at the east side of Lake Manitoba, Manitoba, Canada, September 16, 1923. 1,610 miles from the place banded.

Pintail (*Dafila a. tzitzihoo*) No. A666191, banded January 3, 1931, was caught in trap at Quithlook, Alaska, May 18, 1932. 3,565 miles from the place banded.

Coot (*Fulica americana*) No. A666392, banded January 26, 1931, was killed at Bay DeVerde District, Newfoundland, September 29, 1931. 2,357 miles from the place banded.

Pintail No. A666445, banded January 31, 1931, was caught at Dillingham, Alaska, in the Spring of 1931. 3,622 miles from the place banded.

Pintail No. A658851, banded February 18, 1931, was killed on Selawik River, Alaska, April 12, 1931. 3,507 miles from the place banded.

Lesser Scaup No. B632931, banded February 3, 1932, was killed in Northwest Territory, Canada, during the Fall of 1932. 2,817 miles from the place banded.

Green-winged Teal (*Nettion carolinense*) No. 504440, banded December 26, 1922, was killed in Alberta, Canada, September 1, 1923. 2,127 miles from the place banded.

Pintail No. A658863, banded February 18, 1931, was killed thirty miles North of Old Crow Village, Youkon Territory, Canada, September 3, 1932. 3,162 miles from the place banded.

It is an interesting fact that banded birds have no fear of the traps in which they were caught, and this is true of both the wild fowl and the smaller migratory birds; they return to the traps and are taken over and over again often during the same day, and return to the place where they were banded year after year. For instance:

Coot (*Fulica americana*) No. A658025, banded December 29, 1929, was retrapped in the same trap December 16, 1931, also January 19, 1934.

Coot No. A665698, banded November 15, 1930, was retrapped in the same trap December 20, 1932, January 25, 1933 and January 19, 1934.

Coot No. A629279, banded February 16, 1929, was retrapped in the same trap February 16, 1932 also January 31, 1934.

Pintail No. A666746, banded January 6, 1931, was retrapped in the same trap December 7, 1931, December 20, 1932, December 22, 1933 and January 31, 1934.

Coot No. A658126, banded December 20, 1929, was retrapped in the same trap November 5, 1930, February 16, 1932, December 20, 1932 and January 31, 1934.

Coot No. A666140, banded December 29, 1930, was retrapped in the same trap January 28, 1932, February 16, 1933 and January 31, 1934.

I operate for my banding of the migratory wild fowl two large permanent, wire-covered traps, measuring 50 x 50 feet, with a receiving cage 10 x 10 feet on each side, and connected with the main trap by a wire V. These traps are baited with three hundred pounds of rice each morning, from the time the Ducks arrive in the Fall until they leave in the Spring. The traps are set usually one day a week. After the first four or five bandings, banded Ducks taken in the traps greatly outnumber the unbanded ones. I frequently get Ducks that were banded in the morning back in the trap the same day, and by the first of February, the banded birds so greatly outnumber the unbanded, at each setting of the traps, that it is no longer of any use trying to band; for sometimes I will have to handle more than two thousand banded Ducks to get one hundred unbanded ones, and the banded birds knowing that the grain is spread at a certain time, go into the trap as soon as the man who spreads the grain leaves, and eat it all up before the other birds get a chance to feed.

For small birds I have a series of small traps set at widely scattered points, often two miles or more from the station where the actual banding is done. These small traps, when set, are tended by men who make the round of them all, several times a day, bringing the birds taken in the traps in transfer cages to the station where the actual banding and recording is done. It is not unusual for small birds such as Sparrows, Cowbirds, Red-winged Blackbirds and Grackles to be retaken from the same trap in which they were caught in the morning, several times during the same day, although the trap may be as much as two miles from the point to

which the bird was brought for the putting on of the band. This proves that birds have a keen and immediate sense of location, and return at will, when liberated, to the spot from which they may have been forcibly taken.

I have found trapping Ducks and other migratory game birds and the smaller non-game birds, for banding purposes, comparatively easy, but when I was requested by the Biological Survey to band Blue Geese (*Chen caerulescens*), I found I was up against a hard task. The Biological Survey had previously sent two expeditions to Louisiana for the purpose of banding Blue Geese, but not a single Goose was captured. First, I tried baiting with grain, areas where the Blue Geese came regularly, but without success, as they would not eat the grain, preferring the natural food of which there is an unlimited supply in the marshes along the coast of Iberia and Vermilion Parishes. Then, I tried using live Blue Goose decoys to see if the Geese would come to them, and found the wild birds came to them readily. I then built in the centre of one of their principal feeding grounds on my land at Cheniere au Tigre, on the coast of Vermilion Parish, a pear-shaped poultry wire fence three hundred feet across, tapering at the smaller end to a wire-covered pen fifty feet square, the front of which faced and connected with the small end of the large inclosure. Into the large inclosure I put about sixty wing-tipped Blue Geese, and had them trained to drive easily into the covered pen. My expectation was, that from the hundreds of thousands of Blue Geese that would feed near and fly over this inclosure, a good many would alight with the decoy Geese and follow them into the covered pen, where they could be caught and banded.

I built a small camp near the pen and stationed there two men who had been trained for years in assisting me in my work of banding wild fowl. These men faithfully tended this pen for sixty days, but only captured one hundred and seven Blue Geese and seven Lesser Snow Geese (*Chen h. hyperboreus*). Many of Geese entered the pen with the decoys and followed them as they were slowly driven towards the covered pen, but only an occasional wing-free Goose would go inside. They almost always stopped as soon as they saw the wire over head, and flew away. So this attempt was without much success.

During the late summer of 1933, I covered the bottom of a small shallow pond in the center of the Blue Goose feeding territory with fine gravel, knowing that once Geese found a spot where gravel could be gotten they would go to it regularly. After the Geese began coming regularly to the graveled pond, having procured a lot of very small steel traps to which light weights were attached, I had my chief warden, Lionel LeBlanc, build a blind of the native grass on the edge of the pond, and after setting a number of the traps, he would get into the blind to await results. In this way he caught in a few days one hundred and fifty-two Blue Geese and nine Lesser Snow Geese; all of which were banded and liberated at once. From this entire lot only one was injured, as the traps were so small that the Geese were caught by the toes only, and as they were only in the traps a few minutes, the toes were not even bruised severely. This is by far the easiest way to capture Blue Geese for banding purpose.

A few Blue Geese come in with my decoys at Avery Island each year, and these become so tame that the man in charge often catches them with his hands, while feeding the other Geese. For, after they learn to eat grain, they will come to his feet if he spreads grain around him, and he only has to make a quick grab to catch them.

The 1933 crop of Blue and Lesser Snow Geese was exceptionally heavy, and there were more young birds showing in the flocks, than I have seen for many years.

When the Geese first arrived in early November 1933, not much of the three-cornered grass—on the roots of which they feed—had been burned, and as the grass was unusually high and thick, the birds often mashed down small areas and would then tunnel in under the standing grass to feed on the roots. Two of my men, Aras Guidry and Lionel LeBlanc, found that by walking as closely as possible to these feeding Geese and then running at them, they could catch some of them with their hands before they could take wing, and in this manner they caught quite a number, but as it seemed to frighten the Geese, I had this method stopped.

The percentage of bands returned by sportsmen in relation to the number of Ducks banded is an indication of the percentage of the wild fowl population actually killed by the hunters of the

country. I think, fully 50% of the banded birds shot are reported to the Biological Survey. If this be true, from my banding of 21,996 wild fowl, there have been returns of 2,116 or 10%. This indicates that not more than 20% of the wild fowl supply is killed by hunters. If there is a larger reduction annually of the wild fowl supply, it must be from other causes than shooting.

The great concentration of wild fowl in the lowlands of Louisiana in winter makes it imperative that the Federal Government establish additional feeding and resting grounds in this state, where the birds will not be disturbed.

Avery Island, Louisiana.