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BANDING 4,469 PURPLE FINCHES AT ARDMORE, PA.

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My banding station is located at Ardmore, Montgomery County, Pennsylvania, a suburb of Philadelphia. The Eastern Purple Finch, *Erythrina purpurea purpurea*, (Gmelin) does not breed in our locality, but many are trapped and banded each year during the months between December and May. Seventeen banding traps are in operation throughout the entire year and all of them are placed within 15 feet of our residence. During the winter months, all but a few of the traps are moved from the ground to the top of a stone wall that borders our terrace and they are placed within a few feet of each other. Some of the traps have but a single cell, while others have two to four cells and four of them are large traps which, at the height of the season, capture 10 to 25 birds at one time. Six gathering cages are used to take the birds out of the traps. Four of these gathering cages are of mesh wire construction and the other two are made of plate glass. These glass cages are very satisfactory, since they prevent the birds from injuring the base of the bill.

The bait used for capturing Purple Finches is sunflower seeds. Sunflower seeds are not only placed in the traps, but they are also put into many feeding devices which are located close to the traps, where the birds may feed without being trapped. This procedure increases the volume of birds coming to the station, so that on some occasions I have banded as many as 75 to 90 Purple Finches in a single day.

During a ten-year period, 1938 to 1947 inclusive, 4,469 Purple Finches were banded at Ardmore; 23 percent, or 1,028 Purple Finches of the total number banded, were rosy adult males, while 76.9 percent, or 3,441 Purple Finches, were olivaceous adult and young females and young males.

By reference to Table 1, it will be noted that in the year 1939, 1,405 Purple Finches were banded at Ardmore during an invasion of this species which extended from my station at Ardmore northward to the New England states. (Groskin, *Bird-Banding*, 12, (1), 1941). By referring again to Table 1, it will be noted that there were five additional invasions of Purple Finches at my station at Ardmore during the years of 1940, 1941, 1944, 1946 and 1947. A total of 2,624 was banded during these invasions. By referring to Table 2, it will be noted that during the entire ten-year period, 1938 to 1947 inclusive, when the total of 4,469 Purple Finches was banded, the largest number of birds banded each year was captured in the two spring months of March and April, while they were in their northward migration. Of the 4,469 Purple Finches banded, 62.4 percent, or 2,789, were banded in March and April, about 34 percent, or 1,517, were banded

during the four winter and autumn months of January, February, October and November, and 163 birds, or 3.6 percent, were banded in the month of May. Not a single Purple Finch was captured in the month of September and only three were banded in the month of October in the ten-year period. It is evident that these birds travel an entirely different route in their southward migration from the route they follow in the northward migration when they pass through the Ardmore station.

TABLE 1
TOTAL NUMBER OF PURPLE FINCHES Banded EACH MONTH AND YEAR

Banding Year	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.	Oct.	Nov.	Dec.	Total for Each Year
1938	11	11	15	37							1	1	76
1939	8	35	543	543	25					2	93	156	1405
1940	123	123	34	92	42								414
1941	2	49	129	65									245
1942	2	26	33	107									168
1943				48	2							71	121
1944	110	60	46	144	17								377
1945										1		74	75
1946	171	89	127	204	34							55	680
1947	108	135	368	254	43								908
Totals	535	528	1295	1494	163					3	94	357	4469

My experience in banding Eastern Goldfinches, *Spinus tristis tristis* (Linnaeus), at Ardmore, during approximately the same ten-year period, 1940 to 1949 inclusive, is very similar to that of the Purple Finch as to the time they pass through the Ardmore station in the northward migration and fail to come through Ardmore in the southward migration. 1,547 Goldfinches were banded at Ardmore during the ten-year period of which 92 percent, or 1,423, were banded during the two spring months each year of March and April, while only eight percent, or 124, were banded during the autumn and winter months in the southward migration. Not a single Goldfinch was banded in the month of September throughout the ten-year period and only one was

TABLE 2
PURPLE FINCH RETURNS, RECOVERIES AND FOREIGN RETRAPS

Year Banded	Number Banded	Returns Each Year	H. G. Birds Retrapped By Other Banders or Found Dead	Other Banders' Finches Captured At Ardmore
1938	76			
1939	1405	5	26	11
1940	414	19	9	4
1941	245	12	1	2
1942	168	11	2	1
1943	121	5		
1944	377	10		2
1945	75	2	1	
1946	680	12	4	
1947	908	19	2	
	4469	95	45	20

banded in the month of October and another one in the month of November. Possibly these two species, the Purple Finch and the Goldfinch, are closely associated and travel together along the same routes both in the northward and southward migrations.

SEX RATIO

During the year 1939, when there was an invasion of Purple Finches at Ardmore as referred to above, I measured the wings of 1,146 living birds with dividers in millimeters, and also measured the wings of 76 specimens in the Academy of Natural Sciences of Philadelphia, and consulted the literature for measurements of this species as given by Robert Ridgway (1901, *Birds of North and Middle America*, Bulletin 50), and by Mrs. Kenneth B. Weatherby (1934, *Bird-Banding*, 5, (2), 1934). The purpose of securing these wing measurements was to discover whether or not the wing measurement would disclose the sex of the olivaceous Purple Finch. This investigation indicated that olivaceous birds measuring less than 79 millimeters were usually females, and wings of olivaceous birds measuring more than 85 millimeters were usually males, and birds with wings between 79 and 84 millimeters may be males or females.

Another method of determining sex ratio of living Purple Finches is to band the birds and determine the sex from the return records. This method could be effective only if a fairly large number of returns were secured.

Sex ratio of living Purple Finches is difficult to determine for the reason that the adult female and the young female and also the young male are all in the same olivaceous plumage. The young male does not assume the adult rosy plumage until he is about 18 months old. The station return records of rosy birds that were olivaceous when banded in the previous years, and return records of birds that were olivaceous when banded and returned in olivaceous plumage in the following years, and also rosy male returns that were rosy when banded provide a fairly accurate basis for the determination of sex ratio.

At Ardmore, during the ten-year period, 95 station returns of Purple Finches were secured, representing 2.1 percent of the 4,469 birds banded. Fourteen of the 95 station returns, or 14.7 percent, were rosy adult males when banded and 81 of the 95 returns, or 85.2 percent, were olivaceous adult and young females and young males when banded. 40 of the 81 olivaceous birds, or about 50 percent, returned to Ardmore in the following years in rosy adult male plumage, while 41 of the olivaceous birds returned in olivaceous adult female plumage. The sex ratio of the 95 station returns is: males, 56.7 percent; females, 43.2 percent.

STATION RETURNS AND LONGEVITY

The records of the station returns of the 95 Purple Finches recaptured at Ardmore during the ten-year period, 1938 to 1947 inclusive, are as follows: 50 returned to Ardmore once only, about one year after being banded; 21 birds did not return until two years after banding;

8 birds did not return until three years later; 3 birds were not recaptured until four years after being banded; 1 bird returned after a lapse of five years after date of banding; 1 bird returned six years after date of banding and another came back seven years after it had been banded. Some Purple Finches returned to Ardmore several times in the years after banding. Three birds returned one and two years after banding; another bird returned two and three years after banding; two birds came back to Ardmore one and three years after being banded; one bird returned one, two and four years after date of banding; another came back one, three and five years after being banded; a female banded December 6, 1939, returned four years later, December 13, 1943, in olivaceous plumage. Of the three birds that did not return until four years after banding, one rosy adult male banded April 14, 1938, when at least two years old, returned four years later, March 27, 1942, when it was at least six years old. Another Purple Finch in rosy plumage when banded April 19, 1942, and at least two years old, was retrapped at Ardmore nearly four years later, January 27, 1946, when it was six years old. Still another that was an adult rosy male when banded December 16, 1945, at least two years old, returned three years and three months later and was then about six years old. Another immature male Purple Finch in olivaceous plumage banded March 3, 1941, when about 10 months old, returned to Ardmore six years later, March 22, 1947, in adult male rosy plumage when it was seven years old. Another immature male in olivaceous plumage, banded April 7, 1939, when about 11 months old, returned to Ardmore seven years later, on February 9, 1946, in rosy adult male plumage when it was eight years old. This bird had also returned to Ardmore on December 29, 1939, and December 15, 1943.

ARDMORE PURPLE FINCHES RETRAPPED BY OTHER BANDERS, OR RECOVERED

During the ten-year period, 1938 to 1947 inclusive, 45 Purple Finches banded at Ardmore were retrapped by other banders or found dead. Thirty-four were retrapped and 11 birds were found dead. Twenty-eight of the retrapped birds by other banders and five dead birds recovered, were at distances of 10 to 15 miles of the Ardmore station. Six additional Purple Finches were retrapped by other banders and six found dead were recovered at considerable distances from the Ardmore station where they were banded. These 12 Purple Finches were recovered or retrapped in six states and two Canadian provinces as follows: one bird recovered in New York, two in New Jersey, two in Michigan, two in Massachusetts, one in New Hampshire, one in Vermont, one in Ontario and two in Nova Scotia. These retraps and recoveries were at distances of 90 to 850 miles from Ardmore, Pa. The detailed record of these recoveries is as follows:

Purple Finch banded at Ardmore on March 16, 1941, was retrapped and released on April 9, 1942 at Boonton, New Jersey, a distance of 90 miles north of Ardmore, reported by Irene D. Swart.

Purple Finch banded at Ardmore, Pennsylvania, on March 26, 1942, was retrapped and released on April 10, 1942, at Boonton, New Jersey, by Irene D. Swart.

Purple Finch banded at Ardmore on March 20, 1947, was killed striking a window on July 28, 1947, at Brandreth Station, New York, a distance of 100 miles from Ardmore, reported by C. Brandreth.

Purple Finch banded at Ardmore on March 18, 1939, was retrapped and released on April 26, 1939, at Athol, Massachusetts, by Robert Allison, a distance of 240 miles northeast of Ardmore, Pennsylvania.

Purple Finch banded at Ardmore on April 11, 1941, was retrapped and released in March, 1943, at Concord, Massachusetts, by Mary A. Bowers, about 265 miles northeast of Ardmore.

Purple Finch banded at Ardmore on April 11, 1939, was retrapped and released on January 19, 1941, at Barre, Vermont, by Elaine M. Drew, 325 miles north-northeast of Ardmore.

Purple Finch banded at Ardmore on March 25, 1939, caught by a cat two months later on May 22, 1939, at Clarksville, New Hampshire, about 405 miles north-northeast of Ardmore, was reported by R. H. Stobie, Director of State of New Hampshire Fish and Game Department, Concord, New Hampshire.

Purple Finch banded at Ardmore on March 29, 1939, was retrapped and released 33 days later on May 1, 1939, by M. J. Magee, at Sault Ste. Marie, northern Michigan, a distance of 670 miles northwest of Ardmore.

Purple Finch banded at Ardmore on February 3, 1940, was found dead three months later, May 7, 1940, by E. C. Voght, at Escanaba, Michigan, 850 miles northwest of Ardmore.

Purple Finch banded at Ardmore on March 29, 1939, was found dead three months later, June 15, 1939, by Mrs. H. King, at Tomiko, Ontario, Canada, 750 miles northwest of Ardmore.

Purple Finch banded at Ardmore on April 7, 1947, was found dead two months later, June 14, 1947, at New Ross, Nova Scotia, by Francis Theriault, 670 miles northeast of Ardmore.

Purple Finch banded at Ardmore on April 4, 1947, was killed by a cat two years later, May 7, 1949, at Truro, Nova Scotia, reported by E. A. Fraser, a distance of 725 miles northeast of Ardmore.

PURPLE FINCHES BANDED AT OTHER STATIONS RETRAPPED AT ARDMORE

Twenty Purple Finches were captured at Ardmore that were banded by other banders; 12 of these birds were banded 10 to 15 miles from the Ardmore station and eight of them were banded at stations from 90 to 750 miles from Ardmore. These eight birds came to Ardmore from four states: three from New Jersey, two from Massachusetts, two from Maine and one from Michigan. The detailed record of each of these eight birds retrapped at Ardmore is as follows:

Purple Finch banded by Irene D. Swart at Boonton, New Jersey, March 22, 1939, was retrapped four days later, March 26, 1939, at the Ardmore station, 90 miles south of the place of banding. This bird, after being banded, migrated southward instead of northward during the spring migration.

Another Purple Finch banded by Irene D. Swart at Boonton, New Jersey, March 15, 1940, was retrapped nearly a year later, February 9, 1941, at Ardmore, 90 miles south of the place of banding.

Purple Finch banded by B. S. Bowdish at Demarest, New Jersey, April 6, 1939, was retrapped three years later, April 7, 1942, at Ardmore, about 90 miles south of the place of banding.

Purple Finch banded by S. D. Robbins at Belmont, Massachusetts, March 13, 1939, was retrapped three weeks later, April 3, 1939, at Ardmore, about 270 miles southwest of the place of banding. This is another bird that migrated southward instead of northward during the spring migration.

Purple Finch banded by Robert Allison at Athol, Massachusetts, March 6, 1939, was retrapped 30 days later, April 5, 1939, at Ardmore, about 240 miles southwest of the place of banding. This is still another instance of an individual that migrated southward instead of northward in the spring migration.

Purple Finch banded by Henry P. Baily at Northeast Harbor, Maine, August 9, 1937, was retrapped 20 months later, April 15, 1939, at the Ardmore station, about 465 miles southwest of the place of banding.

Another Purple Finch banded by Henry P. Baily at Northeast Harbor, Maine, on August 11, 1935, was retrapped about three and one-half years later, on March 23, 1939, at the Ardmore station, about 465 miles southwest of the place of banding.

Purple Finch banded by M. J. Magee at Sault Ste. Marie, Michigan, on May 22, 1938, was retrapped 10 months later, March 10, 1939, at the Ardmore station, about 670 miles southwest of the place of banding.

EXCHANGE OF PURPLE FINCHES BETWEEN BANDING STATIONS

Banders retrapping each other's birds between their two banding stations, especially of the same species, or even other species, is not a common experience so far as I am aware, unless the banding stations are located at very short distances from each other.

At Ardmore there was an exchange of Purple Finches with other banders at distances of from 10 to 750 miles. Fourteen Purple Finches were retrapped at Ardmore that were banded by other banders and these same banders captured 26 that were banded at Ardmore. The detailed records are as follows:

(1)—Three Purple Finches banded by H. Groskin in December, 1939, and in January and February, 1940, at Ardmore, were retrapped in March and April, 1940, at Berwyn, Pennsylvania, by George W. Pile; three others banded by George W. Pile in March, 1940, at Berwyn, Pennsylvania, were retrapped in April, 1940, at Ardmore, Pennsylvania, by H. Groskin. The distance between the two banding stations is 10 miles.

(2)—Fifteen Purple Finches banded by H. Groskin in March and April 1939, at Ardmore, Pennsylvania, were retrapped in March and April, 1939, at Chestnut Hill, Philadelphia, Pennsylvania, by John Dornan; five banded by John Dornan in March and April, 1939, at Chestnut Hill, Philadelphia, Pennsylvania, were retrapped in April, 1939, at Ardmore, by H. Groskin. The distance between the two stations is 15 miles.

(3)—Two Purple Finches banded by H. Groskin, one on February 14, 1942, and another banded on January 30, 1946, in Ardmore, Pennsylvania, were retrapped on January 21, 1946, and March 10, 1949, at Bells Mills Road, Philadelphia, Pennsylvania, by William Pepper, Jr.; one banded by William Pepper, Jr., December 25, 1945, at Bells Mills Road, Philadelphia, Pennsylvania, was retrapped on March 12, 1949, at Ardmore, Pennsylvania, by H. Groskin. The distance between the two banding stations is 15 miles.

(4)—Two Purple Finches banded, one on December 23, 1945, and another on January 5, 1946, by H. Groskin, in Ardmore, Pennsylvania, were found dead February 5, 1946, and March 5, 1946, at Chestnut Hill, Philadelphia, Pennsylvania, by Joseph M. Cadbury; One banded by Joseph M. Cadbury on April 12, 1940, at Chestnut Hill, Philadelphia, Pennsylvania, was retrapped on April 17, 1940, by H. Groskin at Ardmore, Pennsylvania. The distance between the two banding stations is 15 miles.

(5)—Two Purple Finches banded on March 16, 1941, and March 26, 1942, by H. Groskin in Ardmore, Pennsylvania, were retrapped April 9, 1942, and April 10, 1942, at Boonton, New Jersey, by Irene D. Swart; two banded by Irene D. Swart, March 22, 1939, and March 15, 1940, at Boonton, New Jersey, were retrapped March 26, 1939, and February 9, 1941, at Ardmore, Pennsylvania, by H. Groskin. The distance between the two banding stations is 90 miles.

(6)—Purple Finch banded March 18, 1939, by H. Groskin in Ardmore, Pennsylvania, was retrapped April 26, 1939, at Athol, Massachusetts, by Robert Allison; Purple Finch banded by Robert Allison March 6, 1939, at Athol, Massachusetts,

was retrapped April 5, 1939, at Ardmore, Pennsylvania, by H. Groskin. The distance between the two banding stations is 240 miles.

(7)—Purple Finch banded by H. Groskin March 29, 1939, in Ardmore, Pennsylvania, was retrapped May 1, 1939, at Sault Ste. Marie, northern Michigan, by M. J. Magee. Purple Finch banded by M. J. Magee May 22, 1938, at Sault Ste. Marie, northern Michigan, was retrapped March 10, 1939, at Ardmore, Pennsylvania, by H. Groskin. The distance between the two banding stations is 670 miles. *Glenn Road, Ardmore, Pennsylvania.*

SIX-YEAR DIARY OF TWO CHIMNEY SWIFTS

BY RALPH W. DEXTER

On June 15, 1944, I banded my first Chimney Swift.¹ Since then over 400 others have been captured and banded from the air shafts of three of our university buildings at Kent, Ohio. Seventy-eight of these have been recaptured, identified by the serial numbers on the aluminum bracelet which each one wears on its leg, and observed from year to year over varying lengths of time. Their return to Kent each spring from the wintering grounds in South America, their pairing-off for mating, selection of nesting site, nesting procedure, autumn flocking and departure have been carefully recorded each year up to the present time. In thus tracing life histories none has been more interesting over the

¹For banding procedure see Audubon Magazine, 52(3): 158. May-June, 1950.

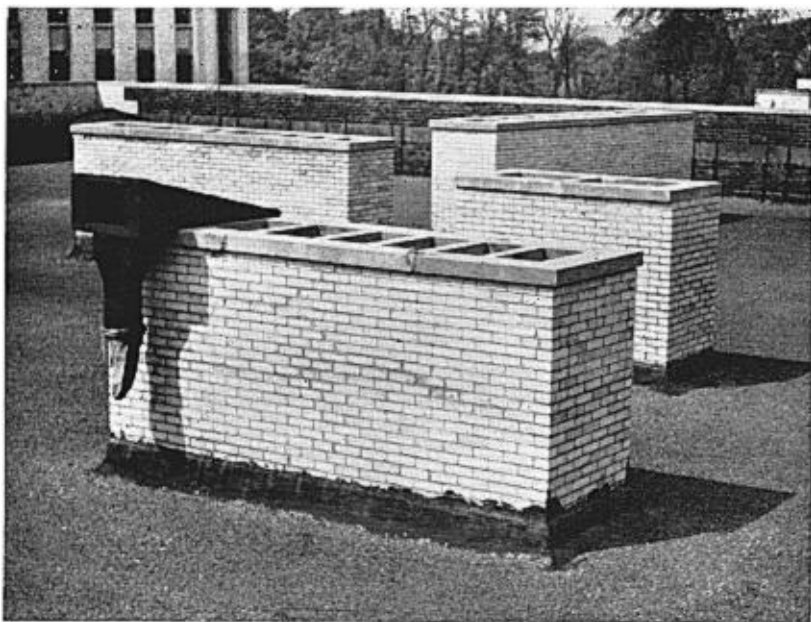


Figure 1—Chimney Swift trap set on shaft K 7. Window faces east for early morning light. Photo by Evan Gauger.