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Return and Recovery Rates for Purple Finches Banded in Williamson County, Tennessee

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During five winters between 19 December 1982 and 9 April 1987, I banded 1470 Purple Finches (*Carpodacus purpureus*) in Williamson County, Tennessee, for the purpose of determining the return and recovery rates for this population. This project is similar to one I conducted in Knox County, Tennessee, between 12 December 1978 and 3 April 1981 (Stedman 1984) with three notable exceptions: (1) the Knox County project lasted three winters while the Williamson County project extended to five winters; (2) the Knox County project was located in the ridge and valley region of eastern Tennessee while the Williamson County project was located in the highland rim and basin region of middle Tennessee; and (3) the Knox County project was conducted about 5 km from a major metropolitan area (Knoxville) while the Williamson County project was conducted in a rural area about 40 km from the nearest major metropolitan area (Nashville). The last of these differences may have affected the recovery rate resulting from the Williamson County project.

The return rate (i.e., ratio of birds retrapped at a station in a winter following banding to total birds banded) for the Williamson County project (19:1166 or 1.63%; Table 1) was somewhat higher than the return rate recorded for the Knox County project (5:471 or 1.06%). It was also higher than the rate resulting from Purple Finch banding work by Laskey (1974), who reported a return rate of 1.01% (50:4954) for a long-term banding operation conducted in Davidson County, Tennessee, from 1939 to 1973.

The recovery rate (i.e., ratio of birds recovered at a different site than where banded to total birds banded) for the Williamson County project (3:1470 or 0.20%) was lower than that resulting from the Knox County project (4:1150 or 0.35%) or from Laskey's work (15:4954 or 0.30%). A possible reason for this difference is explored below. The data for each of these recoveries are provided here: 960-44388 was banded 25 March 1983 and recovered in Paducah, Kentucky, in April 1984; 960-44444 was banded 26 March 1983 and recovered in Williamsport, Tennessee (about 40 km southwest of the banding site), on 25 January 1984; and 960-74395 was banded 1 April 1985 and recovered on 17 May 1985 in Afton, Michigan. The sites for the first and third of these recoveries are both north and west of the banding site. Recoveries resulting from the Knox County project in-

involved birds reported from Maine, New York, Vermont, and West Virginia, all locations north and east of the banding site. Laskey reported ten recoveries from northeast of Davidson County and three from northwest of that locale.

One hypothesis which may explain why the recovery rate for the Williamson County project was somewhat lower than the rate for the Knox County project or the rate reported by Laskey in Davidson County involves the environment of the three sites. The Knox County project was conducted in a wooded subdivision about 5 km from metropolitan Knoxville. Laskey's project was conducted in suburban Nashville. However, the Williamson County project was undertaken in a heavily wooded rural area about 40 km from metropolitan Nashville and over 12 km from communities of any size. The Purple Finches banded in or near the urban sites of Knox and Davidson Counties may have been more likely to frequent urban habitat in their migration to the northwest and northeast than were the birds banded in the rural Williamson County project. Since banders and human population in general are more dense in this habitat than in rural ones, birds frequenting urban habitats might be more likely to be recovered than the birds banded in rural Williamson County. Other factors may, of course, have influenced the difference in recovery rates noted above.

One unexpected result of the Williamson County project was to suggest the most productive time during winter to band Purple Finches in terms of return rate. December-banded finches were most likely to return, followed in descending order by those banded in January, February, and March (Table 2). Purple Finches banded in April and May did not return to the banding site during this project. March-banded birds were probably not a good investment in terms of effort versus reward as only two of 492 returned.

I acknowledge with thanks the help of Barbara H. Stedman, who spent many hours helping me band Purple Finches from 1982-1987.



Literature Cited:

Laskey, A. R. 1974. Longevity and movements of banded Purple Finches. *The Migrant* 45:73-74.

Stedman, S. J. 1984. Return and recovery rates for banded Purple Finches. *The Migrant* 55:65.

Table 1. Return rate data for banded Purple Finches in Williamson County, Tennessee.

<u>Winter</u>	<u>Days Banding</u>	<u>PUFI Banded</u>	<u>Returns After 1 Year</u>	<u>Returns After 2 Years</u>	<u>Returns After 3 Years</u>	<u>Total</u>
1982-1983	19	321	9	1	4	14
1983-1984	25	335	0	1	0	1
1984-1985	13	237	3	1	NA	4
1985-1986	14	273	0	NA	NA	0
1986-1987	14	(304)*	NA	NA	NA	NA
Totals		1166	12	3	4	(1.63%)

*Not counted in total since they had no opportunity to return: these birds were counted in recovery data since they had the opportunity to be recovered.

Table 2. Return rate percentages calculated by month of banding.

<u>Month</u>	<u>PUFI Banded</u>	<u>PUFI Returns</u>	<u>%</u>
December	102	6	5.88
January	483	7	1.45
February	308	4	1.29
March	492	2	0.41
April	84	0	0
May	1	0	0