
Carpodacus Finches in South Carolina's Piedmont: Migration, Sex Ratios, Site Fidelity, and Longevity

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ABSTRACT

House Finches (*Carpodacus mexicanus*) were introduced to New York City from western U.S.A. in 1940-1941. They now breed commonly in many eastern states and occur in winter at bird feeders with Purple Finches (*C. purpureus*). In South Carolina, Purple Finches are winter visitors, but House Finches are both resident and migrant.

Of 1,843 House Finches banded from 1967-1987 in South Carolina, 88% (n = 1,622) were captured at Hilton Pond near York, SC. These birds, plus an additional 406 House Finches banded at York from 1988 through June 1990, showed an approximate 1:1 sex ratio of males to females. The 976 House Finches banded at Hilton Pond in the winter of 1983-1984 is the largest reported southern concentration of the species up to that time. Migrant House Finches begin arriving at York in late October and depart in late March. An influx of local resident (breeding) House Finches since 1988 now clouds studies of winter migration patterns. Recoveries and recaptures of House Finches from York indicate some birds banded there in winter may follow a narrow migrational flyway along the Piedmont physiographic province and breed in mid-Atlantic and New England states or eastern Canada.

Most migrant Purple Finches arrive at Hilton Pond one to two months after the first House Finches, and a few stay as late as the end of April. They, like House Finches, may follow a Piedmont flyway. About one-fourth (n = 749) of 2,702 Purple Finches banded from January 1983 through April 1990 at

York were red males in their second year or older; the remainder (n = 1,953) were brown birds that could have been young males, or females of any age.

Twenty-six Purple Finches originally banded at York returned in the winter of 1989-1990, including 16 birds at least five years old and three that visited Hilton Pond in at least four winters.

INTRODUCTION

In 1982, I began banding birds at my residence at Hilton Pond near York in central York County, South Carolina (34°58'N, 81°13'W). The study site is in the Piedmont physiographic province, about half-way between the mountains and the coast. Through June 1990, I banded 14,637 birds representing 108 species of which 32.3% (n = 4,730) were *Carpodacus* finches (Table 1). These included 2,028 House Finches (*C. mexicanus*) and 2,702 Purple Finches (*C. purpureus*).

Because relatively few *Carpodacus* finches have been banded and/or subsequently encountered (i.e., found dead or recaptured and released) in the southern U.S., on-going banding efforts at Hilton Pond have produced significant information about migration, site fidelity, longevity, and sex ratios in southeastern populations of House Finches and Purple Finches. This paper deals briefly with each of these topics.

Table 1. Yearly totals of *Carpodacus* finches banded at Hilton Pond, York, SC—1982–June 1990.

HOUSE FINCHES

"Winter" Season	Males	Females	Unknown	Total
1982-83	192 (72.5%)	70 (26.4%)	3 (1.1%)	265
1983-84	418 (42.8%)	513 (52.6%)	45 (4.6%)	976
1984-85	24 (41.4%)	34 (58.6%)	0	58
1985-86	73 (45.6%)	87 (54.4%)	0	160
1986-87	44 (38.6%)	70 (61.4%)	0	114
1987-88	56 (52.8%)	50 (47.2%)	0	106*
1988-89	—	—	1 (100.0%)	1**
1989-90	152 (43.7%)	185 (53.2%)	11 (3.1%)	348***
TOTAL	959 (47.3%)	1,009 (49.8%)	60 (2.9%)	2,028

*Includes two local fledglings banded in Jun-Jul 1988 and sexed at subsequent recaptures

**One brown Hatch-Year bird (probably local) banded on 7/13/88.

***Includes 21 local fledglings or breeding adults banded before influx of apparent migrants on 10/19/89, plus 8 apparent resident adults (3 males, 5 females) and 2 fledglings banded in May and Jun 1990.

NOTE 1: "Winter" season at Hilton Pond is 10/21 through 3/31 for House Finches; the season for Purple Finches begins 11/21 and extends to 4/30. These differ from Stewart's (1989) suggested North Carolina winter period for House Finches of Dec through Apr.

PURPLE FINCHES

Winter Season	AHY/ASY Males	Females/ Unknowns	Total
1982-83	41 (25.9%)	117 (74.1%)	158
1983-84	79 (27.9%)	204 (72.1%)	283
1984-85	36 (23.4%)	118 (76.6%)	154
1985-86	179 (32.1%)	379 (67.9%)	558
1986-87	158 (23.1%)	527 (76.9%)	685
1987-88	175 (28.6%)	436 (71.4%)	611
1988-89	—	—	—
1989-90	81 (32.0%)	172 (67.4%)	253
TOTAL	749 (27.7%)	1,953 (72.3%)	2,702

NOTE 2: Hilton Pond banding station was not in operation from 8/11/88 to 7/1/89.

NOTE 3: Winter-banded finches were aged as HY (Hatch-Year), AHY (After-Hatch-Year), SY (Second-Year), ASY (After-Second-Year) or U (Unknown), and sexed as (M) Male, F (Female), or U (Unknown). House Finches can be sexed reliably in the fall of their hatching year when nearly all young males already have red plumage; birds with pinkish wash may be old females or young males and were sexed U. Brown Purple Finches may be females of any age, or young males (HY or SY) that typically do not acquire red plumage until their second summer.

HISTORY

Although Purple Finches historically have bred, migrated, and/or overwintered throughout the eastern U.S., House Finches are newcomers to the region. There is strong evidence (Aldrich and Weske 1978) that virtually all eastern House Finches are descendants of perhaps a few dozen birds illegally imported from the West Coast and released in 1940-1941 on Long Island, New York, by bird dealers (Elliot and Arbib 1953). These introduced birds were the nucleus for a viable, expanding population that soon appeared together with Purple Finches at winter feeders in the Northeast.

In their winter range, House Finches are relatively sedentary (Bergtold 1913); but after their New York release, some eastern birds or their progeny apparently began extended migratory flights similar to those of Purple Finches.

The earliest Carolinas sightings of House Finches were probably of migrants, but these birds may have been pioneers that attempted to breed well south of their northern counterparts. A House Finch came as far south as Zebulon in Wake County, North Carolina, in 1963; and the species was first reported from South Carolina at Greenville in December 1966 (Grimm and Shuler 1967). The first House Finch banding in South Carolina was at Hartsville in March 1967 (Morrison 1967). While subsequent banding records show that many House Finches still migrate to the Carolinas in autumn and back north in spring (Stewart 1989; Belthoff et al. 1990), others apparently dispersed southward from the Northeast and established permanent residence in other eastern states.

Westward movement of House Finches from eastern populations has been as gradual as the southerly advance. The first House Finch nest in Wisconsin was found in 1987 at LaCrosse (Howitz and Bartsch 1988), while Minnesota's first report came two years later at Winona (Janssen 1989). From New York, it took House Finches almost 50 years to extend their breeding range 1,600 km to these cities on the Wisconsin-Minnesota border, while it took them about 35 years to extend the breeding range 860 km to Charlotte on the North Carolina-

South Carolina line. (Although it may be coincidental, these rates—about 25 km southward per year versus 29 km westward—are remarkably close.) The species now breeds in eastern regions of the Dakotas (Blankespoor 1989; Peterson and Peterson 1989) and Nebraska (Howitz 1989), and it probably will not be long until it is the norm for "exotic" eastern House Finches to encounter endemic western House Finches that have bred for many years in extreme western Nebraska (Johnsgard 1979).

The first report of House Finch breeding in South Carolina was from Greenville in 1979 (Grimm 1979), and nests were found in 1983 at Clemson University (Hamel and Wagner 1984). The first published nesting records for York County were from Rock Hill in June 1988 (Hilton 1988a, 1988b), although nesting had been suspected there as early as 1976 (Boatwright 1977). It is likely that York County breeding pre-dated 1988 reports by several years because the first House Finch nests in North Carolina were found in 1975 at Charlotte in Mecklenburg County, which adjoins York County (Teulings 1975).

METHODS

The rolling 4.5-ha tract at Hilton Pond banding station includes: a circa-1918 farmhouse and 0.2-ha lawn; banding shack; small old fields (0.3-1.2-ha) seven to 12 years into succession after decades of intensive farming and grazing; mixed hardwood stands and scattered pines; privet and honeysuckle thickets; brush piles; trumpet creeper vines; and 0.8-ha Hilton Pond with its small outlet stream flowing west through moist wooded bottomland into a second larger pond partly on the property. Adjoining to the north is a pine plantation; south and east are cattle pastures and hardwood stands.

Hilton Pond itself, a farm impoundment built in 1955, is rimmed by alders and new tree growth west and south, and by old field to the north. Groomed trails meander about the property, which—except for a 1.5-ha controlled burn area—is left to natural vegetational succession.

About 25 net lanes sample all habitat types on the property. Unless weather is mild, nets are not deployed December through February when traps are

the main capture method. On most netting days, 10-12 nets (30-mm or 36-mm mesh) are deployed dawn to dusk and are checked hourly.

Seed feeders at the house are stocked all year with black sunflower, whole or cracked corn, thistle, and/or white millet; platform feeders also serve as winter trap stands. Traps include one-cell McCamey, three- and four-cell Potter, dove (ground), Wharton multi-catch, thistle-funnel, and "government" sparrow traps (see U.S. Fish and Wildlife Service 1977 or McClure 1984 for descriptions of most traps). At Hilton Pond, *Carpodacus* finches enter all these, but 90% are captured in any of several kinds of pull-string, drop-door box traps that allow selective captures of from one to twenty birds at a time.

Trapping and netting regimens varied greatly over the period of the study. From October through April each year, traps were in continuous operation from dawn to dusk on most Saturdays and Sundays, while trapping was more intensive during holidays. The minimum trap-set included two four-cell Pot-

ter traps on trap stands and two on the ground, plus one or more passive traps baited on the ground or hanging from trap stands. Pull-string traps were baited and set throughout the day and were used at varying intervals. Because of heavy bird traffic, nets were not normally used near the feeders and trapping areas during winter, but nets occasionally captured *Carpodacus* finches during early spring and late fall.

RESULTS

House Finch Banding

From 1967 through 1987, banders in South Carolina handled 1,843 House Finches, of which I captured 88% (n = 1,622) at the Hilton Pond banding station (Belthoff et al. 1990). Virtually all York birds were winter visitors that began arriving in late October and departed about the fourth week in March (Table 2), defining their "winter season" as 21 October through 30 March. This period differs from that of Stewart (1989), whose House Finch winter season in North Carolina extended from December through April.

Table 2. First and last banding dates for apparent winter visitor *Carpodacus* finches at Hilton Pond, York SC—1982–June 1990.

Winter Season	HOUSE FINCH		PURPLE FINCH	
	First Banding	Last Banding	First Banding	Last Banding
1982-83	11/21/82	03/20/83	01/09/83	04/24/83
1983-84	10/30/83	03/25/84	12/21/83	04/23/84
1984-85	11/17/84	03/02/85	01/20/85	04/10/85
1985-86	11/24/85	03/24/86	11/24/85	04/05/86*
1986-87	11/02/86	03/21/87	01/22/87**	04/19/87
1987-88	11/05/87	03/27/88	12/13/87	04/11/88***
1988-89	_____	_____	_____	_____
1989-90	****	****	11/29/89	03/06/90

* One bird banded 12/24/85 was retrapped 04/13/86
 ** One bird banded 12/28/85 was retrapped 11/28/86
 *** One bird banded 04/16/88 was retrapped 04/23/88
 **** First summer bandings of House Finches at Hilton Pond occurred in 1988; since then, it is difficult to determine precise early arrival and late departure dates.

NOTE: Hilton Pond banding station was not in operation from 8/10/88 through 7/1/89.

An irruption of House Finches in the winter of 1983-1984 yielded 976 banded birds at Hilton Pond. Christmas Bird Counts published in *American Birds* (e.g., vols. 30-38) and printouts of Bird Banding Laboratory records (BBL, pers. comm.) for South Carolina and adjoining states suggest that House Finches at York during that winter may have comprised the southernmost large concentration for the species up to that time. The number of birds ($n = 58$) dropped considerably in the following winter of 1984-1985, and no other season from 1982-1990 produced a similarly large influx of House Finches at York (Table 1).

After 1987, other South Carolina banders began capturing larger numbers of House Finches (Belthoff et al. 1990; *vide* John Cely, South Carolina Nongame Program, pers. comm.), including breeding birds and fledglings trapped or netted outside the winter season. The first summer records of House Finches at Hilton Pond came in June 1988 when two free-flying but apparently local fledglings with partially grown rectrices and brown plumage were banded. One of these (#2051-14537) was banded on 23 June 1988 and was recaptured in red plumage in York on 1 November 1989. On a second recapture on 29 April 1990, this adult male had a cloacal protuberance, suggesting that some House Finches in South Carolina may remain to breed near localities where they are hatched. The presence of breeding birds in and around York now makes it difficult to determine precise early arrival and late departure dates for migrant House Finches.

Purple Finch Banding

Unlike House Finches, Purple Finches have not expanded their traditional breeding range (Canada and the northern U.S.) into South Carolina (Post and Gauthreaux 1989). They have been captured at York as early as the end of November and leave by late April (Table 2). Although individual Purple Finches may arrive at Hilton Pond in November during any given year, the majority show an alternating fall migration pattern with first birds arriving in late November or early to mid-December one year and in January the next. Purple Finches fell outside this pattern only in the winter of 1986-1987, when five birds banded at York in previous winters

showed up early on 28 November (AHY-F), 14 December (ASY-M), 31 December (one ASY-M, one AHY-F), and 18 January (ASY-F).

After small numbers of birds were captured during the first three winters of banding at Hilton Pond (beginning 1982-1983), seasonal banding totals for Purple Finches for the next three years climbed to 558 (in 1985-1986), 685, and 611 (Table 1). The total dropped again in 1989-1990 to 224, possibly because of an exceptionally mild winter and early spring or because feeders at Hilton Pond were not stocked during the preceding winter of 1988-1989. Of the 8,516 Purple Finches banded during the winters of 1955-1987 in South Carolina, 21.7% ($n = 1,850$) were captured at Hilton Pond, where banding did not begin until 1982 (Belthoff et al. 1990).

Sex Ratios

Analysis of all *Carpodacus* finches banded at York from 1982 through June 1990 indicates that sex ratios fluctuate somewhat from year to year (Table 1). House Finches can be sexed reliably by October of their hatching year when nearly all young males have red plumage (Yunick 1987; Pyle et al. 1987). A small number of birds with pinkish wash are likely to be old females but may be young males and are best sexed as Unknown (U). Through the nine-year study, 959 (47.3%) of 2,028 banded House Finches were obvious males, 1,009 (49.8%) were obvious females, and 60 (2.9%) were of undetermined sex. The sex ratio of House Finches of known sex was close to an "expected" 1:1 ratio of males to females ($X^2 = 1.27$, $p > 0.25$, n.s.). If at least 16 of the 60 birds of undetermined sex were males, the sex ratio would not differ significantly; thus, it is likely that the ratio is very close to 1:1.

Purple Finches present a more difficult sexing problem because males do not acquire red plumage until their second summer (Pyle et al. 1987); therefore, brown Purple Finches may be females of any age or young males that may be Hatching-Year (HY) or Second-Year (SY). According to Bird Banding Laboratory protocol, red males in autumn are aged as After-Hatching-Year (AHY), but on 1 January, these birds become After-Second-Year (ASY). Of the 2,702 Purple Finches banded from Janu-

ary 1983 through April 1990 at Hilton Pond, 72.3% (n = 1,953) were brown birds sexed as Unknown (U); the remaining 27.7% (n = 749) were red males (Table 1).

If, by rough estimate, a third of brown Purple Finches in winter are adult females, a third are young females, and the remainder are young males, the percentages at Hilton Pond are close to a 1:1 ratio of males (51.8%) to females (48.2%). However, for this ratio to apply to the whole population, it must be assumed that male and female Purple Finches over winter at the same locations and that survival rates of all age classes and sexes are equal. It is difficult—perhaps impossible—to derive such information from available, limited banding data.

Recoveries and Recaptures

Only 19 (0.13%) of 14,637 birds of all species banded at Hilton Pond through June 1990 have been recovered or recaptured outside York County. This is well below the national average of about 2% annual recoveries—excluding waterfowl—reported by the Bird Banding Laboratory, and may be due to low human population densities and the scarcity of banders in southeastern states.

Of the 19 foreign encounter reports on York birds (i.e., birds recaptured or found away from the original banding site), 11 were for *Carpodacus* finches (Table 3); all these were banded during winter months but were recovered or recaptured at various times of the year. Purple Finches and House Finches recovered or recaptured elsewhere from May through mid-October were probably on or near their breeding grounds.

An interesting recovery of a York bird came when a November-banded, After-Fifth-Year (A5Y) female House Finch (#0980-32484) was killed in midsummer by a cat in North Carolina less than 160 km northeast of York, SC, and probably while on its breeding ground (Table 3). This report suggests that some House Finches may make relatively short migrational flights.

A female House Finch (#0980-32732) that was banded at Hilton Pond in December 1983 was found dead the following December in New Jer-

sey, and another (#2000-76064) banded in January 1984 was recaptured 12 months later in Maryland (Table 3). These two records suggest that long distance migration in eastern House Finches is not obligatory but may depend on severity of weather, availability of food, or other factors—a suggestion supported further by the fact that both those birds were banded at York during the big House Finch irruption in the winter of 1983-1984. These records also allow for comparison with the sedentary behavior of many House Finches in the West, where migratory behavior may have been suppressed by moderate weather and became operative when House Finches were introduced into more rigorous climates that occur in parts of the eastern U.S. It is worth noting, however, that some House Finches in western mountain habitats (e.g., Colorado) appear not to migrate despite winter weather that is sometimes severe (Bergtold 1913).

Straight lines drawn between Hilton Pond and each bird's recovery or recapture site (Figures 1 and 2) indicate that migrant *Carpodacus* finches banded at York may follow a rather narrow migrational corridor from South Carolina's central Piedmont to the mid-Atlantic and New England states and neighboring Canada. The one exception was a Purple Finch (#2051-13286) recovered in Wisconsin.

Figure 1. House Finches banded at York, SC and recovered (dotted line) or recaptured/released (solid line) outside York County.

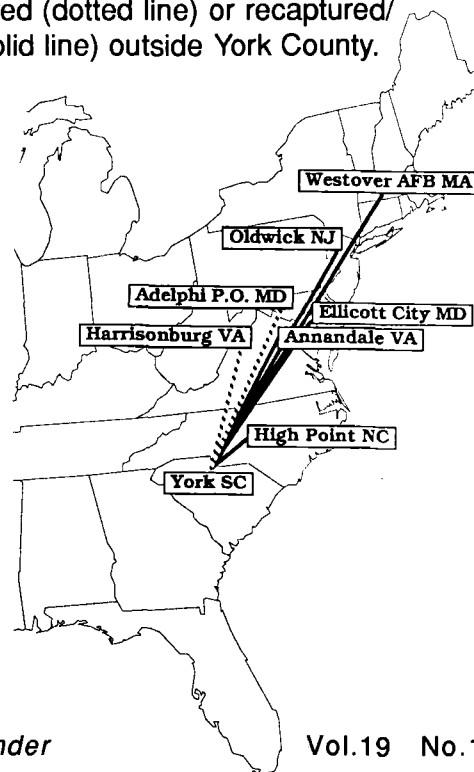


Table 3. Recoveries and recaptures of *Carpodacus* finches banded at Hilton Pond, York, SC.

Species	Band No.	Band Date/ (Age-Sex)	Recovery Method	Recovery Date (Age)	Recovery Location	Km*
House Finch	0980-32484	11/12/83 (U-F)	caught by cat	07/06/88 (A5Y)	High Point NC	160
House Finch	0980-32732	12/19/83 (U-F)	found dead	12/11/84 (AHY)	Oldwick NJ	860
House Finch	0980-32880	01/07/84 (AHY-F)	recaptured, released	03/25/84 (AHY)	Harrisonburg VA	440
House Finch	2000-76064	01/22/84 (AHY-F)	recaptured, released	01/03/85 (ASY)	Adelphi Post Office MD	600
House Finch	2000-76128	01/28/84 (AHY-F)	found dead	04/19/85 (ASY)	Westover AFB MA	1110
House Finch	2010-74222	12/23/85 (U-M)	found dead	06/06/87 (ASY)	Annandale VA	560
Purple Finch	2051-13443	02/21/87 (AHY-U)	found dead	06/00/88 (ASY)	Chertsey QUE	1400
Purple Finch	2051-13616	03/14/87 (ASY-M)	found dead	10/01/87 (ASY)	Corinth VT	1280
Purple Finch	2051-13286	02/14/88 (AHY-U)	found dead	04/26/88 (AHY)	Laona WI	1350
Purple Finch	2051-14295	03/05/88 (AHY-U)	found dead	06/15/90 (A3Y)	Lewisporte NFLD	2660
House Finch	2051-14889	04/08/89 (U-M)	found dead	04/05/90 (ASY)	Ellicott City MD	630

*Kilometers shown are approximate straight line air distances from York to recovery/retrap locations.

Table 4. *Carpodacus* finches banded elsewhere and retrapped and released at Hilton Pond, York, SC—1982–June 1990.

Species	Band No.	Band Date/ (Age-Sex)	Banding Location	Recovery Method/ Date (Age-Sex)	Km**
House Finch	0930-54542	08/15/81 (HY-U)	near Binghamton NY	retrapped 01/22/84 (4Y-F)	920
House Finch*	0970-02572	07/17/82 (U-U)	near Conshohocken PA	retrapped 01/07/84 (ASY-M)	780
House Finch*	0970-03942	07/15/83 (HY-U)	near Conshohocken PA	retrapped 01/12/86 (4Y-F)	780
Purple Finch	0990-20534	03/01/83 (AHY-U)	near St. Thomas PA	retrapped 01/22/87 (A5Y-F)	650
Purple Finch	0930-67044	04/01/83 (U-U)	near Laurel MD	retrapped 02/28/85 (ASY-F)	610

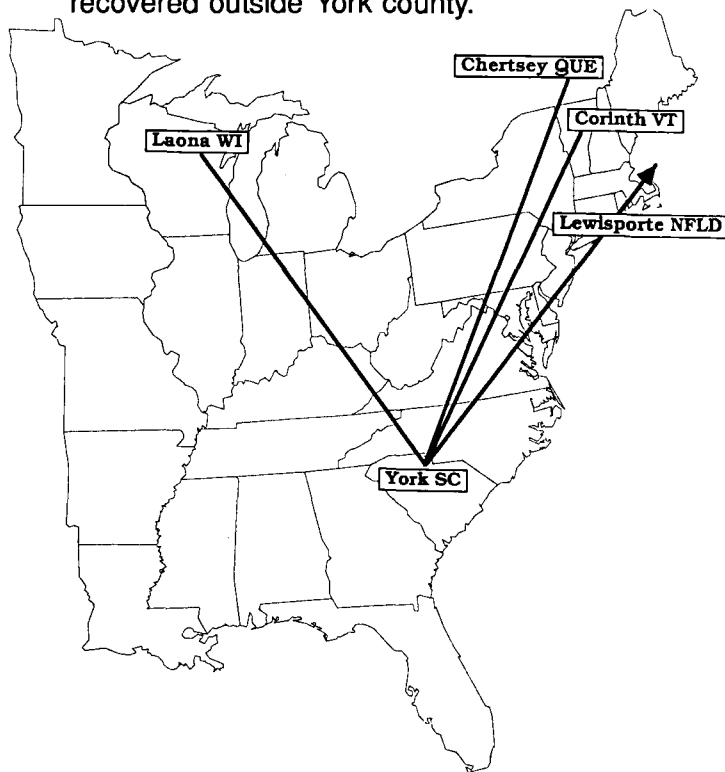
* Both birds banded by W. Pepper.

** Kilometers shown are approximate straight line air distances from banding locations to York.

The longest known movement from York was by a Purple Finch (#2051-14295) banded at Hilton Pond and found dead about 2,660 straight-line kilometers away at Lewisporte, Newfoundland—near the northern limit of the species' breeding range.

Five *Carpodacus* finches were banded elsewhere and recaptured and released during winter at Hilton Pond (Table 4). Maps of theoretical straight-line migrational paths for these birds provide further evidence that *Carpodacus* finches may migrate along a narrow pathway (Figures 3 and 4).

Figure 2. Purple Finches banded at York SC and recovered outside York county.



Site Fidelity and Longevity

During the last winter of the study (1989-1990), 26 Purple Finches banded in previous years at Hilton Pond returned to York and were recaptured locally and released (Table 5). These returns provide data on longevity and winter site fidelity at a location in the southeastern U.S.—an area from which such records are scarce.

Of the 26 Purple Finches, 18 returned to York in 1989-1990 for their second winter, including two that had not been seen since 1985 when they were

banded. Eight Purple Finches, however, showed strong evidence of winter site fidelity, including three that returned for their fourth winter at Hilton Pond; five others returned for a third winter.

Figure 3. House Finches banded elsewhere and captured/released at York, SC.

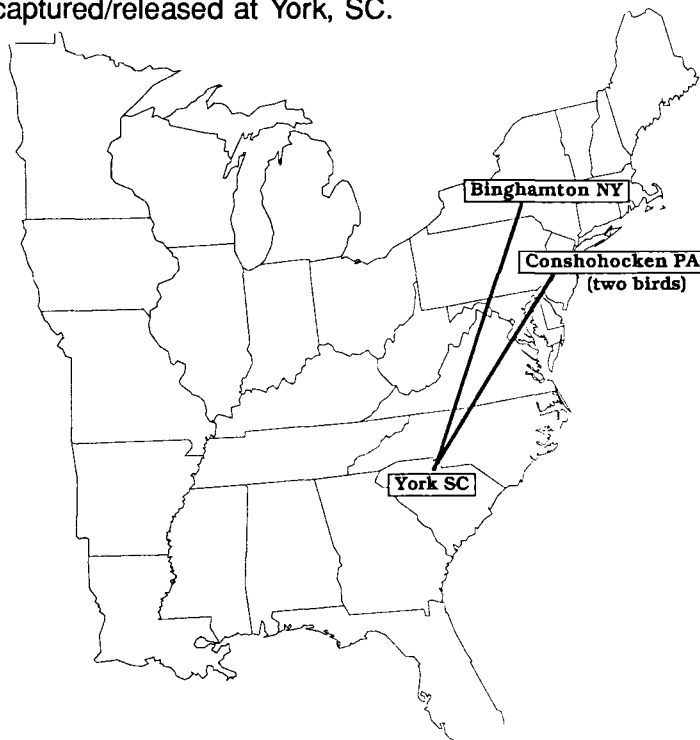


Figure 4. Purple Finches banded elsewhere and captured/released at York, SC.

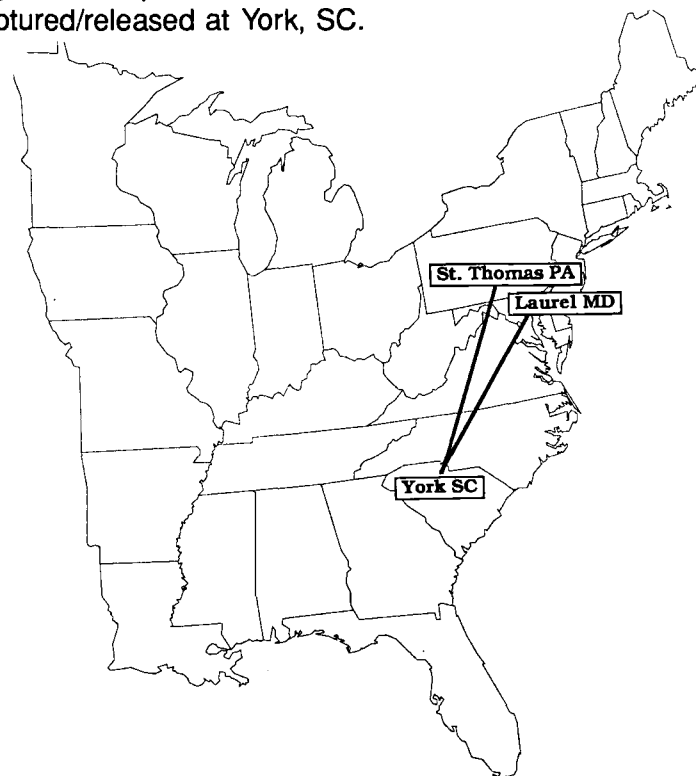


Table 5. Purple Finches returning in Winter of 1989-90—Hilton Pond, York, SC.

Band No.	Banding Date	Banding Age/Sex	1st Return	Sex on Return	2nd Return	3rd Return	No. of Winters	Age in 89-'90
980 - 32286	02/25/83	AHY/U	01/30/84	F	03/01/90	—	3	A8Y
980 - 32865	01/07/84	AHY/U	01/31/86	F	01/15/88	12/23/89	4	A6Y
2000 - 76315	02/09/84	ASY/M	01/12/86	M	02/07/90	—	3	A8Y
2010 - 74140	12/08/85	U/U	01/22/90	M	—	—	2	6Y
2010 - 74158	12/15/85	U/U	01/23/88	F	01/26/90	—	3	6Y
2010 - 74417	01/18/86	AHY/U	02/26/90	F	—	—	2	A5Y
2010 - 74455	01/18/86	AHY/U	02/05/90	M	—	—	2	6Y
2010 - 74557	01/25/86	ASY/M	02/18/87	M	01/15/88	02/05/90	4	A6Y
2051 - 13207	02/14/87	AHY/U	01/24/88	M	12/25/90	—	3	5Y
2051 - 13241	02/14/87	AHY/U	12/26/87	M	12/08/89	12/29/90	4	5Y
2051 - 13517	02/28/87	ASY/M	01/17/88	M	12/23/89	—	3	A4Y
2051 - 13738	04/05/87	AHY/U	01/23/90	F	—	—	2	A4Y
2051 - 13947	01/23/88	AHY/U	01/01/90	M	—	—	2	4Y
2051 - 13995	01/30/88	ASY/M	02/11/90	M	—	—	2	A4Y
2051 - 14027	01/31/88	AHY/U	12/27/89	F	—	—	2	ASY
2051 - 14043	01/31/88	AHY/U	02/07/90	M	—	—	2	4Y
2051 - 14070	02/07/88	AHY/U	12/27/89	M	—	—	2	3Y
2051 - 14085	02/07/88	ASY/M	02/26/90	M	—	—	2	A4Y
2051 - 14153	02/14/88	ASY/M	12/04/89	M	—	—	2	A3Y
2051 - 14210	02/21/88	AHY/U	03/01/90	F	—	—	2	A3Y
2051 - 14257	02/28/88	AHY/U	12/04/89	M	—	—	2	3Y
2051 - 14272	02/28/88	AHY/U	01/26/90	F	—	—	2	A3Y
2051 - 14316	03/05/88	ASY/M	02/05/90	M	—	—	2	A4Y
2051 - 14330	03/05/88	AHY/U	12/28/89	M	—	—	2	3Y
2051 - 14358	03/05/88	AHY/U	03/01/90	M	—	—	2	4Y
2051 - 14360	03/05/88	ASY/M	01/22/90	M	—	—	2	A4Y

Purple Finch returns at Hilton Pond in 1989-1990 included the following 18 males: one A8Y (#2000-76315), one A6Y, two 6Y, two 5Y, five A4Y, three 4Y, one A3Y, and three 3Y; and these eight Purple Finch females: one A8Y (#0980-32286), one A6Y, one 6Y, one A5Y, one A4Y, two A3Y, and one ASY. Two male House Finches, one an A6Y and another a A5Y, were also noteworthy.

Kennard (1975) reports the oldest known wild Purple Finch was banded in Hillsborough, NC, and retrapped in the same area when 12 years 8 months old. A western female House Finch at Sacramento, CA, was 10 years 10 months old when retrapped and released (Kennard 1975). Klimkiewicz and Futcher (1987) report an eastern female House Finch from Maryland that was estimated at age 11 years 7 months; Yunick (1989) reports another female House Finch banded at Schenectady, NY, in December 1973 and retrapped in January 1985, also at an estimated age of 11 years 7 months.

DISCUSSION

Banding recoveries and recaptures provide evidence that some House Finches over winter in South Carolina but breed elsewhere. There is also an apparently resident population that breeds and over winters in the state, but very little banding information has verified the size of this group. For example, only three of 162 House Finches color-marked during 1988 and 1989 nesting seasons at Clemson, SC, were seen at nearby winter feeding stations (Belthoff et al. 1990), although Belthoff believes (pers. comm.) that systematic feeder observations might have shown that many more are winter residents.

I speculate that there actually may be several overlapping eastern House Finch populations with different breeding and wintering strategies, including the following groups:

- House Finches that breed in New England and mid-Atlantic states, some of which migrate to and

from southeastern states where some are banded in winter.

- House Finches that dispersed from New York and gradually extended their breeding range down the eastern edge of the Appalachian Mountain range into the Greenville and Clemson areas of South Carolina and then further eastward.

- House Finches that dispersed short distances from New York and gradually extended their breeding range down a Piedmont flyway through Virginia and North Carolina into South Carolina.

- House Finches that dispersed long distances (one-way "migration") down a Piedmont flyway into central South Carolina and are now permanent residents.

With so few *Carpodacus* finches banded, recovered, and retrapped through the years in South Carolina, these groupings are indeed speculative; however, the gradual westward and southward advances of nesting House Finches from eastern populations may indicate that breeding range extensions for the species occur more slowly than extensions in migratory ranges. An increase in the number of qualified licensed banders in the southeast would undoubtedly improve the *Carpodacus* data base and allow for better evaluation of the ecology of South Carolina populations of House Finches and Purple Finches. Likewise, on-going projects at permanent banding stations could provide much better information about bird longevity and site fidelity in the southeast. Finally, ornithology and the birds themselves would also be well served if the general public were more familiar with the federal bird banding program and knew the importance of reporting recoveries of banded birds.

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