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# Some population trends among Cassin's Finches in northern Utah

Martha Hatch Balph

Samson (1974a, 1976a, 1976b, 1977) conducted studies on the biology of Cassin's Finches (*Carpodacus cassinii*) in Cache County, Utah, from 1971-74. One of the localities in which he banded and observed Cassin's Finches was Logan, situated in Cache Valley at an elevation of about 1,400 m. From 1975-77, I made follow-up observations of this species in and near Logan. This paper presents some recent findings on population trends, banding returns, and longevity.

## Methods

Cassin's Finches were studied from the spring of 1975 through the summer of 1977. Data were primarily collected in Logan along a semi-urban wooded stretch bordering the Logan River (Samson's, 1977, "banding station 1"). A feeding station in this area was baited with sunflower seeds at all times of the year. Supplementary observations were made during the winter of 1976-77 at sites located up to 7 km from station 1.

Four hundred ninety-one finches were banded at Logan between March 1976 and June 1977 (four in March 1976, 40 from May to July 1976, 336 from December 1976 to March 1977, and 111 from late April to June 1977). The birds were captured using mist nets, Potter traps, and a repeating shelf trap designed after Hill (1976). Each finch was marked with a unique combination of three colored plastic bands and a USFWS aluminum band (two bands per leg) to permit recognition of individuals without recapture. When possible, age and sex were determined using Samson's (1974b) key.

## Summer populations

Cassin's Finches breed from southern British Columbia and Alberta to northern Baja California, Arizona, and New Mexico (American Ornithologists' Union 1957:560). Breeding typically occurs in montane forests, generally above 1,500 m, with specific locations varying from one year to another depending upon the availability of food (reviewed by Samson 1976a). The species is a fair-

ly common summer resident of the Bear River Mountains in Cache County. Recently, Cassin's Finches have begun to appear at lower elevations in Cache County during the May-July breeding season. I observed small numbers of finches at station 1 in Logan during the spring of 1975. In contrast to previous years, the birds remained in the area into the summer of 1975. In 1976, what seemed to be larger numbers of finches visited station 1 until late August. Substantial numbers visited the station during the spring and summer of 1977 (probably more than 200, based upon ratios of banded to unbanded finches seen at station 1 in June).

The adult (after second year) and subadult (second year prior to first postnuptial molt) finches that I examined at Logan in the late spring and summer of 1976 and 1977 exhibited brood patches or cloacal protuberances. On a few occasions I noted apparent courtship behavior, and in July 1976 I discovered a Cassin's Finch egg on a food tray at station 1. Young of the year began to visit station 1 in July of 1976 and 1977. Although I did not observe a definite instance of nesting, it seems highly likely that Cassin's Finches now breed in the vicinity of Logan.

Breeding by Cassin's Finches in urban areas and at relatively low elevations, although unusual, has been noted previously in both Idaho and Montana (with confirmed records of nesting at Pocatello and Moscow, Idaho) (Jones and Baylor 1969 and references cited therein). A possible explanation for this phenomenon is provided by Salt's (1958) conclusion that the Cassin's Finch is particularly responsive to local food abundance. At Logan, Cassin's Finches may indeed have responded opportunistically to a plentiful seed supply at station 1 and thus nested in an area that otherwise (e.g. in terms of climate, availability of nesting trees, etc.) only meets minimal requirements. Exceptionally cold weather in April and May 1975 might have been partly responsible for initiating the habit.



Several finches that I encountered at station 1 in the spring and summer of 1977 were returns from the previous breeding season. From May to July 1977, I saw or captured 15 (38%) of the 40 finches I banded in the late spring and summer of 1976. At least five of these birds also spent the winter of 1976-77 in Logan. Three additional finches from the summer of 1976 returned in April 1977 but were not seen thereafter. Although Cassin's Finches are reported to be nomadic, Samson's (1976a) data indicate that return rates as high as 43% may sometimes occur. It is my impression, from examining my own and Samson's (1976a) results, that rates of return to a previous breeding area are greater in summers when population levels are relatively high than in summers when they are low.

Samson (1976a) suggested that breeding site fidelity is stronger in adult males than in other age-sex classes. Eighteen of 231 adult males that he banded in the Bear River Mountains in 1971 or 1972 returned in a subsequent summer, whereas none of 104 females and only one of 186 subadult males returned. This trend was not evident in my study. Six of 12 adult males, three of 11 subadult males, four of eight adult females, two of four subadult females, and none of five immature finches banded at Logan in the summer of 1976 returned for the 1977 breeding season.

Most of the banded finches present in Logan during the winter of 1976-77 were not seen after the first part of April, but some individuals apparently remained in the area to breed. During the 1977 breeding season, I identified 39 finches at station 1 that I had encountered between December and March 1976-77, including eight banded in the summer of 1976 and 31 banded in the winter of 1976-77. Although a few of these birds could have been early spring arrivals, I observed 30 of the 39 in midwinter. In addition, two finches banded in earlier winters by Samson returned to Logan during the 1976 or 1977 breeding seasons.

## Winter populations

Cassin's Finches are reported to lack strong annual fidelity to wintering areas, and numbers at a given location may fluctuate markedly from one year to another (Samson 1977 and references cited therein). The species is known as an irregular winter resident of Cache Valley. There were no Cassin's Finches in this area in the winter of 1971-72, large numbers in 1972-73, smaller numbers in 1973-74, and none in 1974-75 (Samson 1977 and pers. obs.). I observed few finches in the winter of 1975-76 (none until mid-February), followed by large numbers (many more than the 336 I banded) in 1976-77.

The age structure of winter populations of Cassin's Finches at Logan may have varied according to the size of particular invasions. For instance, 22% of the 336 finches that I banded during the major invasion of 1976-77 were adult males, which agrees closely with what Samson (1977) found during the major invasion of 1972-73 (22% of 288 birds banded). In contrast, adult males comprised 54% of 59 finches banded during the minor invasion of 1973-74 (Samson 1977). Meaningful comparisons of results for other age-sex classes are not possible, because Samson did not separate adult and subadult females in his analysis and because I was unable to determine accurately the age and sex of some of my brown-colored finches (Balph 1977). Nevertheless, Samson's (1977) data do suggest that the age (but not sex) structure of winter populations at Logan changed substantially from 1972-73 to 1973-74. Males comprised 70% and 73%, respectively, of all finches banded at Logan in 1972-73 and 1973-74. Adult males comprised 31% of 203 males banded in 1972-73, as opposed to 74% of 43 males banded in 1973-74. If Samson's and my results are representative, the proportion (although not the absolute number) of adult birds in winter populations of Cassin's Finches may be smaller during major than during minor invasions.

Some of the finches that I observed in the winter of 1976-77 were returning birds. Between December and early February 1976-77, I encountered at station 1 eight (18%) of 44 finches that I banded between March and July 1976, as well as four individuals banded at Logan during Samson's study (three from the winter of 1972-73 and one from the winter of 1973-74). Five additional finches returned in late February or March, including four banded the previous summer and one banded in the winter of 1972-73. In contrast to these results, Samson (1977) noted almost no returns of finches banded in 1972-73 during the winter of 1973-74. Possibly the relatively high incidence of returns that I observed was related to the large size of the 1976-77 winter invasion.

## Longevity

Because Cassin's Finches often fail to return to previous breeding or wintering areas, data on longevity are relatively difficult to obtain. Samson (1974c) summarized recovery data for the years 1954-71 supplied by the Bird Banding Laboratory. During this period, 52 recoveries of Cassin's Finches were reported, of which all but 13 occurred less than 6 months after banding. The longest interval between dates of banding and recovery was just under 5 years, and the greatest age at recovery was at least 5.5 years (a record shared by two females).

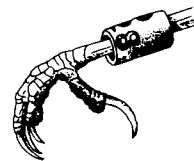
Of the returning Cassin's Finches I observed at Logan, two males banded by Samson were at least 6 and 5.5 years old. I recaptured one of these birds 4 years 4 months after Samson banded it. Four finches banded by Samson were 4.5 years of age or older at the time of return, and one was at least 3 years old. Ten of the birds I banded in 1976 were at least 3 years old when I again observed them during the 1977 breeding season. Banding studies have shown that the closely related Purple Finch (*Carpodacus purpureus*) quite often attains the age of 3-4 years and occasionally lives as long as 8 or even 10 years in the wild (Bent 1968). Further study might be expected to yield similar results for the Cassin's Finch.

## Summary

Cassin's Finches were observed at Logan, Utah from 1975-77 as a follow-up to F. Samson's studies from 1971-74. A total of 491 finches were color-banded in 1976 and 1977. A breeding population apparently became established in the vicinity of Logan in 1975 and reappeared in 1976 and 1977. A relatively high proportion (at least 38%) of finches banded in the late spring and summer of 1976 returned for the 1977 breeding season. A major invasion occurred during the winter of 1976-77, in which at least 18% of finches banded the previous spring and summer, as well as several finches banded in earlier winters, returned to Logan. Two returning finches were at least 6 and 5.5 years of age.

## Acknowledgments

I thank Fred B. Samson for providing data on several finches banded during his study. I am also grateful to the many people who cooperated in reporting sightings of my marked birds during the winter of 1976-77. 🐦



## The bander's dictionary

Our typesetter may have done the world of bird banding a great service. A recent NABB article came back for proofing with the phrase

"a bird which was 'banded'"

instead of 'handled'

By the time we've banded, weighed, measured, aged, sexed, fat classed, etc., etc., etc., the bird indeed has been **banded**.

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## Out of print

A Bird Bander's Guide to Determination of Age and Sex of Selected Species is now out of print and will not be reprinted inasmuch as the Bird Banding Laboratory is gradually printing a similar publication.

In eight years, 2000 copies of this guide were distributed.

Merrill Wood