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Orange Variant Northern Cardinal Recaptured

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ABSTRACT

This paper reports the recapture of an orange variant Northern Cardinal (*Cardinalis cardinalis*) banded and released twenty-six months earlier. Additional physical measurements are included for the orange variant.

INTRODUCTION

On 8 Nov 1998, an unusually colored Northern Cardinal was netted, banded, sexed, and aged. The initial capture of this orange cardinal was reported in *North American Bird Bander* by Hansrote and Hansrote (2000).

A field guide for birds (Scott 1987:382) describes a Northern Cardinal as "a conspicuous crest; a cone-shaped reddish bill. Male is red overall with black face. Female is buffy-brown or buffy olive, tinged with red on wings, crest and tail. Average length 22 cm (8 3/4 in)." A photograph taken at the time of the original capture in 1998 revealed a typically red colored male Northern Cardinal and the orange variant Northern Cardinal held side by side. The 1998 banded orange variant Northern Cardinal's feather color was unique in that all the feathers were orange except the black face-patch. The photograph of the orange variant cardinal side by side with a red male Northern Cardinal was compared by ten individuals using a standard color chart, and the variant was judged by them to be orange.

After examination of the general appearance of the bird, employing the Bird Banding Laboratory's guidelines, the 'orange variant' had been judged as a male. However, because the bird's orange feather color is intermediate between a red male and a brownish-olive female, the assignment of the

sex as a male is considered our best judgement. The absolute determination of the sex of the bird would require a laparotomy or recapturing the bird in breeding condition.

For slightly over two years, occasional sightings of a banded orange cardinal were noted as it flew sporadically into the banding area to feed or get water from the baths. Numerous attempts were made to recapture the banded bird; it avoided all open nets. On one or two occasions, home video film footage was taken of the bird. Unfortunately, until the bird was recaptured, the band number could not be verified.

METHODS

One 2.13 x 12.19 m (7 x 40 ft) mist net with 50 denier/2-ply, 4 shelves with 3.2 cm (1.25 in) mesh was placed approximately 9.14 to 12.19 m (30 to 40 ft) beyond the usual net location. The net was stretched across an open space next to a brushy hillside near the back of the banding area. Many birds winter and nest here. The placement of the net was done because, typically after several continuous days of banding, the local bird population becomes conditioned to the location and placement of the station net(s) and frequently avoids them in flight to and from the feeders. A Model 8011 OHAUS spring balance with a capability of weighing between 0 and 250 grams was used for determining body weight. The captured bird was placed in a small mesh bag and weighed, then the empty mesh bag was weighed and the difference, i.e. the body mass, was obtained. A metal ruler equipped with an end stop was used to measure the wing chord. A plastic ruler was used to measure the beak and tarsus.

RESULTS

On 13 Feb 2001, the banded male orange Northern Cardinal flew into the net. The band number was in agreement with the original band placed on the orange cardinal in 1998. The bird had the same orange colored feathers that had been observed initially. The feathers had remained orange after annual molts that had occurred during the 26 months since the original banding. Surprisingly, around the right eye, a 0.32 to 0.64 cm (1/8 to 1/4 in) ring of skin was observed where feathers were missing. It has been suggested that the missing feathers, on only one side of the bird, were not due to molting but were possibly due to an irritation. The orangish-yellow colored bill showed signs of wear.

Physical measurements were taken immediately on the orange variant cardinal (Table I). In addition, two male red cardinals and one female cardinal, netted on the 13 Feb 2001, were measured in the same manner. Weights and wing chords were measured on both males and the female. Beak and tarsus measurements were taken on the female and only one of the males.

Table 1. Capture and Physical Measurement Data

Date of Banding	Wing Chord (mm)	Body Mass (g) ²	Beak Length (mm) ³	Tarsus Length (mm) ³
Banded Orange Variant Cardinal				
8 Nov 1998	92	DNM ¹	DNM	DNM
13 Feb 2001 (renetted)	92	48.5	14	25
Unbanded Red Northern Cardinal - Male				
13 Feb 2001	91	52	17	25
Unbanded Red Northern Cardinal - Male				
13 Feb 2001	91	45	DNM	DNM
Unbanded Northern Cardinal - Female				
13 Feb 2001	91	46	11	28
¹ DNM = Did not measure. ² An OHAUS gram spring balance was used to measure the body mass. ³ A plastic ruler was used to measure the beak and tarsus.				

DISCUSSION

The physical measurements listed in Table I serve for the purpose of comparison. Sibley (2000:464) reported Northern Cardinals weigh 45 g (+/- 30% or more). The limited data suggest that the orange cardinal's measurements fit within the range of values reported for Northern Cardinals. During the past 26-month period, when the orange variant cardinal was observed feeding, it appeared as healthy and active as the other local red Northern Cardinals. At no time was a red and an orange cardinal seen together exhibiting courtship behavior similar to other pairs of the local Northern Cardinals.

Plumage abnormalities in birds' feathers may be due to changes in the amount and distribution of the pigments normally present, chemical changes in the pigments producing abnormal colors, changes in feather patterning, or changes in the structure of feathers. Campbell and Lack (1985:99) noted that birds, like most animals, are unable to synthesize carotenoid (pigments). Carotenoid are what give some bird feathers color and are obtained directly or indirectly from plants.

The original suggestion offered for the orange color in the orange variant's feathers was based upon the idea that the plumage abnormality could be caused by the birds' diet. Pettingill (1970) reported that the red chemical, a member of a class of organic compounds called carotenoids, at the tips of the body feathers are obtained through what the bird eats and is not manufactured by the bird.

At the time of the initial banding in 1998, it was suggested that the orange feather color might be lost when the variant underwent a molt. The orange feather color did not change over 26 months. This lack of feather color change prompted the question, "Is this plumage abnormality due to the bird's diet?" To answer this question, the number of unbanded Northern Cardinals captured at the station from 1998 to 2000 were tallied. Table 2 shows over 100 cardinals were banded while nearly 60 banded Northern Cardinals were recaptured at this station from 1998 to the recapture of the orange variant cardinal in 2001.

Table 2. Local Northern Cardinal Population

Year	Net Days	Captured Cardinals	Local Recaptures
1998	73	59	32
1999	28	35	14
2000	31	15	10
2001	5	12	6*

* = up to capture of 'orange variant' cardinal.

These data suggest a viable Northern Cardinal population was present in the area surrounding the station. No other unbanded orange colored cardinal was observed within the vicinity of the banding station during the 26 months that the banded orange variant cardinal was seen. During this same time period, the other Northern Cardinals that lived and ate within the immediate area did not become orange colored. Therefore, we suggest that local Northern Cardinal diet was not the major cause of the orange feather coloration.

Campbell and Lack (1985:472) suggested that aberrant colored species do not live as long in the wild because of complications from the abnormal plumage, e.g., they are not recognized by their own species and are more susceptible to predators and disease. Hence, it will be instructive to keep the orange cardinal under observation as long as it remains in the immediate area. Additional research, such as feather analysis, would be required to pinpoint the reason for the variant cardinal's orange colored feathers.

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