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Disappearance of a Northern Cardinal's Eggs From an American Robin's Nest: Interpretation of an old photo in North American Bird Bander

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distance recapture of any hummingbird species recorded; a straight line distance of 5,632 km (Bassett and Dietrich, 2014).

Since that record recapture, I report here three other recapture records of banded Rufous Hummingbirds associated with the Chenega Bay banding station. Banded as a hatching-year female by Kelly Bryant in the Fort Davis Mountains, TX (30° 37' 31"N 104° 07' 51"W) on 27 Aug 2012. This individual was subsequently recaptured at the Chenega Bay banding station on 7 Jul 2013 (estimated distance of 4,669 km). This same individual was recaptured again in Chenega on 24 Jun 2014.

There have been two hummingbirds banded in Chenega Bay recovered outside of AK. The first was an after-hatching-year female banded in Chenega Bay on 7 Jul 2014 and was found dead in Steamboat Springs, CO (40° 28' 45"N, 106° 49' 56"W) on 18 Aug 2014 (estimated distance of 3,542 km). The second was banded on 30 Jun 2009 as an after-hatching-year female and was found in distress and subsequently died on 15 Apr 2015 in Mill Valley, CA (37° 54' 11"N 122° 32' 42"W), an estimated distance of 3,059 km. This bird is also of note for her age, as one of the oldest birds on record for the Chenega Bay banding station. (The Chenega Bay banding station operated from 2006-2015). Since her original banding, she had been recaptured at the Chenega Bay banding station on 2 Jul 2013 and 26 Jun 2014. These recoveries point to strong site fidelity of Rufous Hummingbirds to their breeding grounds.

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LITERATURE CITED

Bassett F. and F. Dietrich. 2014. Three long distance recaptures of Rufous Hummingbirds that overwintered in the southeastern United States. *North American Bird Bander* 39:119-120.

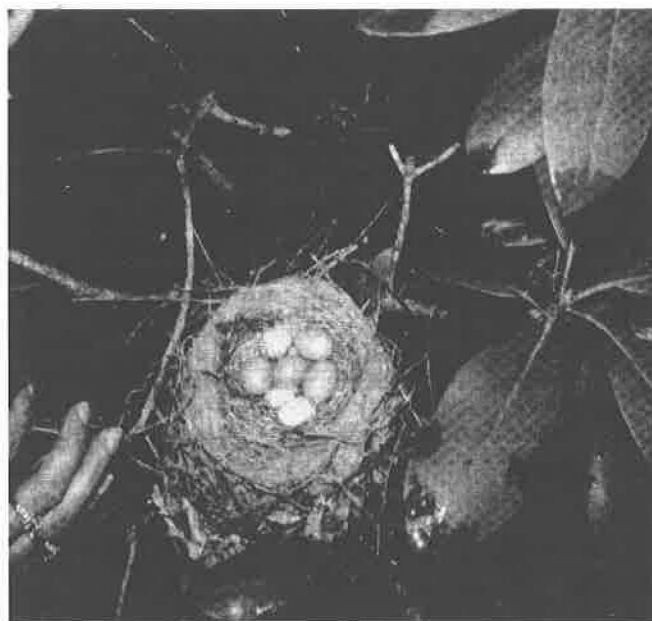
Healy S. and W.A. Calder. 2006. Rufous Hummingbird (*Selasphorus rufus*), The Birds of North America Online (A. Poole, Ed.). Ithaca: Cornell Lab of Ornithology: Retrieved from the Birds of North America Online: <http://bna.birds.cornell.edu/bna/species/053>

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Disappearance of a Northern Cardinal's eggs from an American Robin's Nest: Interpretation of an old photo in *North American Bird Bander*

While perusing back issues of *North American Bird Bander*, SGS read with interest Holmes Smith's (1994:117) description, accompanied by a photograph (see below), of an American Robin (*Turdus migratorius*) nest that contained, in addition to four robin's eggs, three eggs of a Northern Cardinal (*Cardinalis cardinalis*). This is interesting in itself, but even more intriguing was that by the time the nest was inspected again, "a few days later," the cardinal's eggs had disappeared and only the robin's eggs were in the nest.



American Robin's nest containing four robin's eggs and three Northern Cardinal's eggs.

Photo by Holmes Smith

Two robin's eggs eventually hatched and fledged, whereas the other robin's eggs were gone. We believe further interpretation of this photograph and its few original descriptive details is warranted. The female robin likely ejected the cardinal's eggs, but left her own eggs in the nest, possibly before initiating incubation. Abundant experimental evidence has shown that the American Robin is among about 10% of all potential host species of the Brown-headed Cowbird (*Molothrus ater*) that have been identified to eject cowbird eggs from their nests (e.g., Rothstein 1982, Briskie et al. 1992). In the robin's case, this is done by grasping the cowbird egg in its bill and removing (ejecting) it from the nest (Rasmussen et al. 2009). Nevertheless, that the cardinal managed to lay at least three eggs in the nest before they were removed by the robin begs an explanation.

Examination of the nest in the photograph reveals it was originally constructed by the robin. Therefore, the cardinal's eggs were laid in the robin's nest, not the other way around. We do not know for certain, however, whether the cardinal's eggs were laid before any or all of the robin's eggs, but this was likely the case because of the mechanism that robins use to identify foreign eggs. We suggest that the cardinal laid its eggs in the completed but still empty robin's nest, possibly because its own nest had been destroyed before laying. (American Robins' nests usually remain empty for up to eight days before receiving the first egg [Kendeigh 1952].) What apparently followed was the robin laid its clutch of four eggs, which provided a template (e.g., Moskát et al. 2010) against which it compared its own eggs and the cardinal's eggs. Recognizing the presence of the foreign (cardinal's) eggs, the robin ejected each, one by one, leaving its own eggs in the nest.

In the simplest terms, American Robins, and apparently most other species that eject cowbird eggs, learn the appearance of their own eggs as they are laid and identify foreign eggs by comparing them with their own eggs (see Sealy and Underwood 2012). In the case of the American Robin, discrimination requires differences between the robin's and the foreign egg in at least two parameters (Rothstein 1982), both of which are met in this case: size (cardinals' eggs are slightly smaller than robins' eggs) and different background color and pattern (cardinals' eggs are white with brown spots, similar to cowbirds' eggs, whereas robins' eggs are blue).

Why did the robin not eject the cardinal's eggs before it initiated or completed its own clutch, as sometimes occurs with other hosts species (Lombardo et al. 1989, Sealy 1992)? Robins infrequently visit and rarely roost overnight in their nests before clutch initiation (Neudorf and Sealy 1994), which may have provided a window for the cardinal to lay its eggs in a weakly guarded nest. Nevertheless, the robin apparently completed its clutch then ejected the cardinal's eggs, possibly now with an appropriate template for comparison. If the robin was a first-time breeder, it may have learned incorrectly the cardinal's eggs as its own and ejected its own eggs instead of the cardinal's (e.g., Strausberger and Rothstein 2009), but this is not what happened. The robin likely learned the appearance of its own eggs from previously laid clutches and correctly targeted and ejected the cardinal's eggs. Quite impressive that a single photograph has captured such a complex interaction between two species.

This is not the first time a mixed clutch of Northern Cardinal and American Robin eggs has been recorded, but the outcome of each case was different. A nest was recorded in Iowa that was used by robins and cardinals at the same time, with both females laying and incubating eggs, sometimes side by side (Govoni et al. 2009). The nest contained three robin's eggs and two cardinal's eggs when discovered; hence, the sequence of laying by each species was not known, or whether any of the cardinal's eggs were ejected. After the robins hatched, the cardinals abandoned the nest; their eggs remained but were not ejected. These authors ruled out brood parasitism by the cardinal because both females initially incubated the eggs, whereas the cardinal was not observed incubating in the nest described by Smith (1982).

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LITERATURE CITED

Briskie, J.V., S.G. Sealy, and K.A. Hobson. 1992. Behavioral defenses against avian brood parasitism in sympatric and allopatric host populations. *Evolution* 46:334-340.

Govoni, P.W., K.S. Summerville, and M.D. Eaton. 2009. Nest sharing between an American Robin and a Northern Cardinal. *Wilson Journal of Ornithology* 121:424-426.

Kendeigh, S.C. 1952. Parental care and its evolution in birds. *Illinois Biological Monograph* 22:1-356.

Lombardo, M.P., H.W. Power, P.C. Stouffer, L.C. Romagnano, and A.S. Hoffenberg. 1989. Egg removal and intraspecific brood parasitism in the European Starling (*Sturnus vulgaris*). *Behavioral Ecology and Sociobiology* 24:217-223.

Moskát, C., M. Bán, T. Székely, J. Komdeur, R.W.G. Lucassen, L.A. van Boheemen, and M.A. Hauber. 2010. Discordancy or template-based recognition? Dissecting the cognitive basis of the rejection of foreign eggs in hosts of avian brood parasites. *Journal of Experimental Biology* 213:1976-1983.

Neudorf, D.L. and S.G. Sealy. 1994. Sunrise nest attentiveness in cowbird hosts. *Condor* 96:162-169.

Rasmussen, J.L., S.G. Sealy, and T.J. Underwood. 2009. Method of ejection of Brown-headed Cowbird eggs and associated costs for American Robins and Gray Catbirds. *Condor* 111:570-574.

Rothstein, S.I. 1982. Mechanisms of avian egg recognition: which egg parameters elicit responses by rejecter species? *Behavioral Ecology and Sociobiology* 11:229-239.

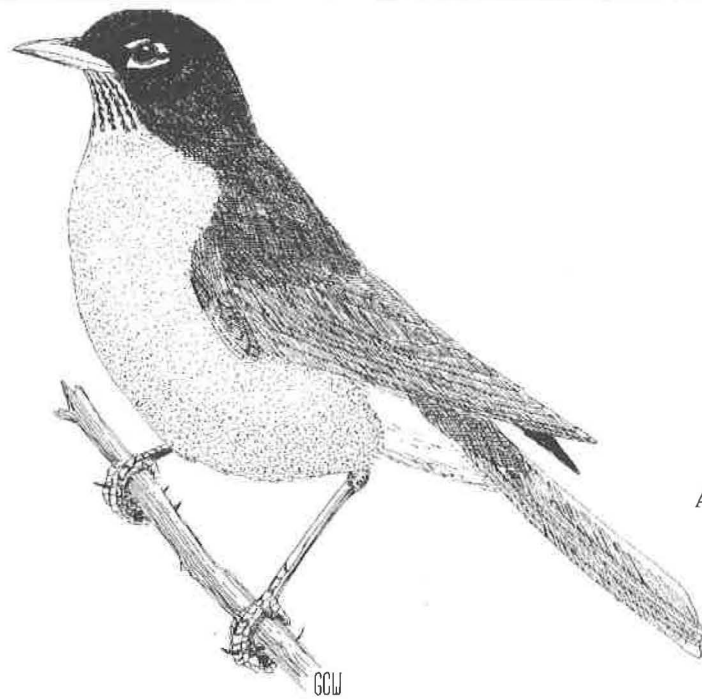
Sealy, S.G. 1992. Removal of Yellow Warbler eggs in association with cowbird parasitism. *Condor* 94:40-54.

Sealy, S.G. and R.C. Bazin. 1995. Low frequency of observed cowbird parasitism on Eastern Kingbirds: host rejection, effective nest defense, or parasite avoidance? *Behavioral Ecology* 6:140-145.

Sealy, S.G. and T.J. Underwood. 2012. Egg discrimination by hosts and obligate brood parasites; a historical perspective and new syntheses. *Chinese Birds* 3:274-294.

Smith, H. 1982. Interesting note on robin's nest. *North American Bird Bander* 19:117.

Strausberger, B.M. and S.I. Rothstein. 2009. Parasitic cowbirds may defeat host defense by causing rejecters to misimprint on cowbird eggs. *Behavioral Ecology* 20:691-699.



American Robin
by George West