SHORT COMMUNICATIONS

J Raptor Res. 36(3):200–202

SCHIZOCHROMISM IN A PEREGRINE FALCON FROM ARIZONA

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KEY WORDS: *Peregrine Falcon*; Falco peregrinus; *albinism*; *leucism*; *schizochromism*; *cannibalism.*

Herein, we report the first record of schizochromism in the Peregrine Falcon (*Falco peregrinus*). Our example is a nestling from southern Arizona. The lack of dark brown pigment in this bird made it closely resemble the blue-gray plumage of an adult. Near fledging time, the bird was eaten by its nestmates, so this article also documents cannibalism.

Abnormal pigmentation in wild birds is unusual (but see Fitzpatrick [1980] for a species in which white patches are common), but aberrant, pale individuals have been reported for many species (Sage 1962, Ross 1973). A BIOSIS search of the literature for only a 6-yr period located over 100 titles dealing with abnormal plumage in wild birds.

Incomplete pigmentation can take many forms. True or complete albinos lack all pigment, not only in plumage but also in talons and iris. Incomplete albinos usually have patches of white feathers in otherwise normal plumage Schizochromism is the condition in which one or more pigments are lacking, while others are expressed. Sage (1962) mentions a Green Woodpecker (*Picus viridis*) which was pure white except for its red crown. Some forms of polymorphism are probably derived from some form of albinism. A notable example is the pallid morph of the austral Peregrine Falcon (*F. p. cassini*) of southern South America (Ellis and Peres Garat 1983). In this morph, juvenile and adult birds weakly express the normal color pattern (bars, streaks, etc.), but have much less pigmentation everywhere (a condition termed leucism), especially in the areas that are lightest in normal peregrines. In pallid falcons, even the talons and bill, black and deep blue in a normal peregrine, are blond.

There are a few published accounts of albinism in the Peregrine Falcon. McGregor (1900) noted a juvenile peregrine with two white secondaries (an example of incomplete albinism) in California. A nearly pure white adult from Devonshire, England is housed at the American Museum of Natural History (specimen no. 453937). Sage (1962) included the Peregrine Falcon on the list of species for which albinism is known for the British Isles.

On 17 July 1978, we entered an eyrie in southern Arizona (32–33°N, 110–111°W) where at least three normally pigmented young had fledged about 6 wk earlier. Conspicuously scattered along the eyrie shelf and conspicuous below the eyrie were hundreds of feathers, all still in the blood (i.e., all partially grown), of a pale nestling that died at about 5 wk of age. Feathers matching this bird (and at least one peregrine talon) were also found in castings on the eyrie shelf. We retrieved as many feathers as practical (at least 374 feathers, excluding down). When these were assembled, we determined that they represented a single bird (i.e., we found 14 primaries, 9 secondaries, and 5 rectrices, none of which were duplicates). On the cover of this issue, an array of these are displayed around an illustration of this young falcon, as it would have appeared in life.

Many feathers of this bird show pale brown (buff) spots where such would occur on a normal juvenile. Other feathers have reddish tips just as for normal peregrine juveniles. These same feathers, however, are pale bluish gray, where in a normal juvenile, they would be deep chocolate brown. The extensively gray contours result in this bird more closely resembling an adult than a juvenile. Because of this resemblance we suspect that this nestling, when it reached this level of development, displayed enough of the adult sign stimuli that one of its parents responded as if it was an intruding adult and killed it. We cannot be certain that the pale bird was killed by its own family, but the presence of feathers and

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Figure 1. A comparison of feathers representing various body areas for the nestling displaying schizochromism (right feather in each pair) and two normally-pigmented nestlings (left feathers) from Arizona that died in approximately the same stage of development. Illustrated topographic regions include (left to right, top to bottom): primary flight feather, secondary flight feather, central rectrix, flank, alula, lateral rectrix. Feathers for the pale bird were normal in shape, so the shape differences between the pale and normal feathers in each pair are due to peculiarities associated with exact locus. For example, the pale secondary has a more symmetrical vane tip showing that it is from a more distal follicle than the normally-pigmented secondary. Also, the lateral rectrices are from opposite sides of the tail.

a talon in castings on the eyrie ledge demonstrate that it was eaten by the family. Also, the excellent condition of its feathers (i.e., few fault bars and none of great extent) suggest that it was healthy until the time of death.

While this individual can be called partially albino (i.e., some dark pigment is lacking) or leucistic (i.e., showing color dilution), a better term for its condition is schizochromism (literally: split coloration). Traditionally, this term has been spelled schizochroism (see Van Tyne and Berger 1976:160, Hailman and Emlen 1985), but a second "m" is obviously needed (chroma: Greek, color; chromatic: English, relating to color). Such birds have some pigments, but not others. Our specimen was normal for buff and reddish brown (Fig. 1) but lacked deep chocolate brown, the most expansive color in the plumage of normal juveniles.

Four clues lead us to conclude that the bird was eaten by falcons on the ledge. First, and most convincing, a talon and many small feathers were found in castings. Second, most of the remains were found on the eyrie ledge (a mammalian predator would likely have removed the carcass to consume it elsewhere). Third, the feathers were plucked and scattered (as is characteristic of raptorial bird kill sites), rather than chewed off and matted with blood and saliva (as is typical of mammalian kills). Finally, at least three young fledged from the eyrie: it is unlikely that the pale bird was taken and eaten by a predator of another species on the eyrie shelf without the predator killing additional nestlings. All of these facts provide evidence that the pale nestling was consumed by its own family. Cannibalism has previously been documented for five species of falcons including the peregrine (Ellis et al. 1999).

Feathers from this specimen, representing a wide range of topographic regions, were deposited in the University of Arizona ornithological collection (UA no. 17828).

RESUMEN.—Un pichón muy pálido de Halcón peregrino (*Falco peregrinus*) fue recuperado muerto en un nido al sur de Arizona. De las plumas y una garra encontrados en una egagrópila ubicada al borde de un nido al sur de Arizona, al borde del nido, concluimos que hubo canibalismo por parte de su propia familia. El plumaje de esta ave mostraba una ausencia del marrón oscuro, presentando un manto de color gris pálido sin diferencia al del adulto. Este es un ejemplo de esquizocromismo. Todo parece indicar que este fenómeno no había sido reportado en la bibliografía de la especie.

[Traducción de César Márquez]

ACKNOWLEDGMENTS

Our 1978 research efforts in Arizona were funded primarily by the U.S. Forest Service through the Rocky Mountain Forest and Range Experiment Station. We express our appreciation to John Schmitt for the cover painting. This manuscript benefitted from reviews by T.J. Cade, R.W. Nelson, and R. Ritchie. Our thanks to each We express appreciation to William Campbell and Patrick Coronado, both of NASA-Goddard Space Flight Center, for arranging funding for publication of the color figures.

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Received 30 July 2001; accepted 14 April 2002