

LETTER

PEREGRINE FALCONS INCUBATE CLUTCH OF EGGS FOR MINIMUM OF 73 DAYS

The normal length of the incubation period for viable Peregrine Falcon (*Falco peregrinus*) eggs is 33–34 d in both captive (W.A. Burnham 1983, *J. Wildl. Manage.* 47:158–168) and wild (J.A. Hagar in A.C. Bent 1938, *U.S. Natl. Mus. Bull.* 170; R.A. Herbert and K.G.S. Herbert 1965, *Auk* 82:62–94) breeding situations. Duration of incubation behavior in instances where eggs fail to hatch after the normal interval is not well-addressed in the literature. Here we report our observations of extreme incubation fidelity in a pair of wild Peregrine Falcons.

Our observations occurred between 27 February and 30 June 1992 at Frankenstein Cliff, a 60-m rock face located at an elevation of 450 m in Crawford Notch State Park in Harts Location, New Hampshire. We watched an average of three times per week from a distance of 0.3 km from the cliff using 15–60× spotting scopes and an 80–130× telescope. Even when an adult falcon was lying in a horizontal incubating posture, we could routinely see when it was present on the nest ledge from our location 130 m below the cliff.

We first observed an unambiguous incubation exchange between adults on 15 April and that date was designated as onset of incubation. On 18 d over the following 38-d period (15 April–22 May), DJN conducted >37 hr of observation and confirmed the presence of an incubating adult on each visit. The longest unmonitored period after incubation began was 141 hr (<6 d). Since renesting Peregrine Falcons commonly select a new ledge and take about 3 wk to complete a replacement clutch (D.A. Ratcliffe 1980, *The Peregrine Falcon*, Buteo Books, Vermillion, SD U.S.A.), we are confident that this pair remained on their first clutch. Hatching failed to occur by the expected date, but we continued monitoring and documented regular incubation exchanges through 25 June and incubation by the adult female through 26 June. The pair finally abandoned the scrape before our 29 June visit yielding a ≥ 73 -d incubation period (118% longer than normal). Climbers recovered two intact eggs from the abandoned scrape on 30 June; neither egg contained evidence of a developing embryo.

Breeding adults of many avian species are known to continue incubation of unhatchable eggs for intervals of 50%, occasionally 100%, longer than their normal incubation periods (A.F. Skutch 1976, *Parent birds and their young*, Univ. Texas Press, Austin, TX U.S.A.). Such persistence apparently is an appropriate response in view of the variability in incubation period observed (R.H. Drent in D.S. Farner and J.R. King 1975, *Avian biology*, Vol. 5, Academic Press, New York, NY U.S.A.) as extended incubation provides a “margin of safety” (A.F. Skutch 1962, *Wilson Bull.* 74: 115–152) against abandonment of potentially hatchable eggs. In species capable of clutch replacement, selective pressure against prolonging incubation beyond reasonable limits must be strong (L.C. Holcomb 1970, *Behaviour* 36:74–83). Peregrine Falcons are known to extend incubation beyond the normal length when eggs fail to hatch, but precise determinations of prolonged incubation attempts are rarely reported (T. Cade pers. comm.). An unsuccessful ≥ 46 -d incubation attempt (37% longer than normal) documented by the Audubon Society of New Hampshire at another cliff in the state in 1990 is perhaps more typical.

The Audubon Society of New Hampshire coordinates Peregrine Falcon population monitoring in cooperation with the New Hampshire Fish and Game Department and several other state and federal agencies. We thank Paul Cormier, Ross Heald, Barbara Hoyt, Harrison Hoyt and Michael Pelchat for their field assistance and Michael Amaral and Carol Foss for suggesting improvements to the manuscript.—**Christian J. Martin and David J. North. Audubon Society of New Hampshire, 3 Silk Farm Road, Concord, NH 03301 U.S.A.**