

Two Winter Breeding Records for the Harris' Hawk

DAVID H. ELLIS¹ AND WAYNE H. WHALEY²

*Institute for Raptor Studies, Box 96E Sasabe Star Rt., Tucson, Arizona 85736 USA and
Arizona Cooperative Wildlife Research Unit, 214 Biological Sciences East,
University of Arizona, Tucson, Arizona 85721 USA*

At north temperate latitudes the Harris' Hawk (*Parabuteo unicinctus*) has an extended breeding season (Bent 1937, U.S. Natl. Mus. Bull. 167: 142–147). Previously published extreme laying dates are from February (Mader 1975, Living Bird 14: 59–85) to September (Radke & Klimosewski 1977, Wilson Bull. 89: 469–470). Herein we provide evidence for mid-January and late November laying dates and a late December hatching date.

On 22 March 1976 Whaley located a nest in a saguaro cactus (*Carnegiea gigantea*) near Florence Junction, Pinal County, Arizona (33°N). The nest contained two large nestlings approximately 29–33 days old (aged by comparison with photographs of known-aged birds).

On 1 January 1978 we located a Harris' Hawk nest with two small chicks and one addled egg near Navajoa, Sonora, Mexico (27°N). Three birds in adult plumage were present near the nest. The largest bird (probably the female) was observed brooding and feeding the young. Two of the adults circled and called when the nest (situated on the upper horizontal member of a high-voltage power tower) was approached and climbed. Based on size and down coloration, the chicks were approximately 1–5 days of age.

Based on a 35-day incubation period (Mader op. cit.), the Arizona eggs were set about 16 January and the Sonoran eggs about 25 November. Using a 40–45 day nestling period (Mader op. cit. and Whaley unpublished) the Sonoran young should have fledged about 12 February. These records, extending the known laying dates for this species by 3 months, complement those from other studies in documenting that the Harris' Hawk nests year round at north temperate latitudes.

We appreciate the editorial assistance of Walter R. Spofford and Lyle K. Sowls. The Arizona observation was made while Whaley was a graduate student of the Arizona Cooperative Wildlife Research Unit at the University of Arizona.—Received 14 August 1978, accepted 16 October 1978.

Osprey-Bald Eagle Interactions at a Common Foraging Site

YVES PRÉVOST¹

*Macdonald Raptor Research Centre, Macdonald College of McGill University,
Montréal, H0A 1C0, Canada*

I observed interactions between Ospreys (*Pandion haliaetus*) and Bald Eagles (*Haliaeetus leucocephalus*) during the course of a study of Osprey feeding ecology in 1975 and 1976 on the upper portion of the Antigonish Harbour estuary, in northeastern Nova Scotia. Interactions between the two species have been reported elsewhere (Bent 1937, Blume 1947, Brown and Amadon 1968, Peterson 1969, Garber 1972, Levenson 1976), and Ogden (1975) discussed situations where conflict between the two species seemed to influence nest locations and nesting success. Gerrard et al. (1976) have discussed the relationship between the two species in more general terms.

The study was conducted on a 450-ha portion of the Antigonish Harbour Wildlife Management area, which consists of a *Spartina alterniflora* marsh surrounded by mud flats and shallows where the dominant vegetation was *Zostera marina*. More than 500 h of observation (15 h every 4 days) were made during each year (26 April–12 September 1975 and 16 April–14 September 1976). The observations were made from the shore in 1975 and from an elevated platform in the marsh in 1976. Binoculars and a 20–45× spotting telescope were used to observe the birds.

Ospreys from more than 10 nests distributed 3–14 km from the estuary came to forage and feed there, the main prey species being winter flounders (*Pseudopleuronectes americanus*). At least four Bald Eagle territories were occupied in Antigonish County within a 15-km radius of the estuary, but the two nearest nests, both 3 km away, were unsuccessful. Mature and immature eagles were regular visitors to the estuary where they usually fed on eels (*Anguilla rostrata*), a fish that Ospreys were never seen to catch.

¹ Present address: Zoology Department, Edinburgh University, Edinburgh, Scotland EH9 3JT.

In general, Ospreys and Bald Eagles were tolerant of each other. Ospreys were often observed hunting or feeding only a few hundred meters from perched Bald Eagles, and the interactions that took place were a small proportion of all possible encounters. In fact, such interactions occupied only 1.5% of the 260 h of Osprey foraging observed during the course of the study. Mature eagles were involved in 42 of the 50 interactions where eagle age was noted. Three types of interactions were observed: (1) eagles attacking Ospreys with a fish, (2) eagles approaching Ospreys with no fish, and (3) Ospreys attacking Bald Eagles. During most of the encounters the Osprey emitted a high-pitched scream and on occasion the eagle did so too, especially when attacked.

Bald Eagles were observed trying to steal fish from Ospreys on 15 occasions. Mature eagles were involved in 7 of the 9 interactions where age was noted. The chases were short and intense (average 60 s), the eagle approaching to within a few meters of the Osprey while the Osprey tried to escape with violent swerves, all the time hurrying toward the shore. Bald Eagles stopped the pursuit if the Osprey succeeded in getting out of the estuary where it could dip into the trees. On two occasions the Osprey dropped the fish; the eagle recovered the fish before it hit the water on one occasion and lost it on the other. On another occasion an eagle tried unsuccessfully to grab the fish from under the Osprey. On five occasions, the eagle was perched and rushed the Osprey after the Osprey had caught a fish. The consequences of food-robbing were minimal to the Ospreys; only 2 of the 1,793 captures observed were lost because of Bald Eagle attacks, which was less than the number of fish dropped accidentally (4). As observations were conducted for the equivalent of 1 in every 4 days, 8 fish would have been lost over 2 yr, a negligible fraction of the total Osprey food. The low rate of success of eagles observed by me contrasts with the observations of Levenson (1976), where the Ospreys lost their fish on all of the 3 occasions observed.

Bald Eagles also deliberately approached Ospreys that had not captured a fish. There was usually no intense pursuit, but Ospreys stopped hunting when the eagle approached and started soaring while the eagle soared below, forcing the Osprey up. Of 43 such interactions, 22 resulted in the Osprey leaving Antigonish Harbour. On average each Osprey lost 400 s if the hunting time prior to the interaction is included. Possibly Ospreys soared when a Bald Eagle approached in order to avoid hunting with an eagle flying above them, which would facilitate food-robbing by the eagle (although food-robbing cannot be the reason the eagles approached Ospreys since the Ospreys had no fish). There was no direct reason for defending food resources as Ospreys and Bald Eagles did not feed on the same species in the estuary, even though they did elsewhere. However, hunts by one species may reduce the success of the other by making the fish take cover.

Four of the 19 Osprey attacks on Bald Eagles involved reversal of roles, the eagle having first been the aggressor. On 11 occasions, the Osprey only swooped at a perched eagle, causing no more than an opening of the wings by the eagle, but on one occasion the eagle jumped up, rolled over and presented its claws. This was also observed in five aerial encounters. One interaction was noteworthy: on 1 August 1975, an Osprey attacked an eagle for over 5 min, swooping 17 times at the eagle, forcing it off two perches and finally into a tree where the Osprey could not reach it.

Financial support for this study was provided by the Canadian Wildlife Service, the Macdonald Raptor Research Centre, and the Québec DGES. I thank N. Seymour and R. D. Titman for their advice, D. Bouchard for her assistance in the field, and I. Newton for comments on the manuscript.

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Received 23 May 1978, accepted 28 September 1978.