

PIRACY, INSECTIVORY AND CANNIBALISM OF PRAIRIE FALCONS
(*Falco mexicanus*) NESTING IN SOUTHWESTERN IDAHO

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During a project to evaluate the effects of human activities on nesting Prairie Falcons (*Falco mexicanus*), we observed 24 pairs during the 1984 and 1985 nesting seasons over approximately 4400 hr (Holthuijzen 1984, 1985). Observations started at egg-laying or incubation and continued through brood-rearing until nestlings were 35 d old. We noted several falcon feeding behaviors which have not been previously reported or have received little attention in the literature. All observations were made within the Snake River Birds of Prey Area (BOPA) in southwestern Idaho. A more detailed description of the BOPA sagebrush steppe habitat can be found in U. S. Department of the Interior (1979) and West (1983).

Kleptoparasitism was recorded on 22 May 1985, when an adult male Northern Harrier (*Circus cyaneus*) with an unidentified prey item flew past a falcon eyrie and was attacked by the resident male, upon which the harrier dropped the prey item. The prey was recovered by the male falcon and fed to four 25-d-old nestlings. Skinner (1938) recorded acts of piracy by Prairie Falcons on Northern Harriers and suggested that this occurred on a regular basis. Other large falcons, such as the Peregrine Falcon (*F. peregrinus*), have also been reported to kleptoparasitize other birds (Brockmann and Barnard 1979).

We saw a female Prairie Falcon catch unidentified insects between 1707 and 1716 H (MST) on 22 May 1985. The insects were fed to four 10-d-old nestlings. Another female caught 16 insects between 1250 and 1352 H (MST) on 24 May 1985, and these were fed to two 22-d-old nestlings. The falcon immediately flew to the eyrie after each capture, fed the nestlings, and continued hunting. While circling in the air, the falcons turned their bodies and used their feet to capture insects, as described by Sherrod (1983) for recently fledged Peregrine Falcons hawking dragonflies (Order Odonata). The 10-d-old young Prairie Falcons had not been fed for 3.5 hr, and the two 22-d-old falcons not for eight hr prior to receiving insect prey. Young at both eyries received mammalian prey within 45 min after they were fed insects. Insects may have been used as an emergency food supply. Alternatively, a sudden abundance of insect prey may have induced opportunistic hunting behavior. Insect remains have occasionally been found in pellets of Prairie Falcons (Bond 1942; Ogden and Hornocker 1977; U.S. Department of the Interior 1979). Bond (1936) also observed Prairie Falcons catching insects.

Colonies of nesting Cliff Swallows (*Hirundo pyrrhonta*) occur in the BOPA. Cliff swallows and swifts (Family Apodidae) have been recorded as prey of Prairie Falcons

(Webster 1944; U.S. Department of the Interior 1979). We saw Cliff Swallows captured in the air by male Prairie Falcons diving repeatedly through flocks circling in front of cliffs; one male falcon caught two swallows during a day. We observed three captures on two separate days by two individual male falcons. On 14 June 1985 a male falcon flew to a swallow nest, clung to it upside down, and flew off 30 sec later clutching a Cliff Swallow that it had removed from the nest. The swallow was immediately delivered to an eyrie which contained 34-d-old nestlings. Nest robbing has not been previously recorded for Prairie Falcons, although such behavior has been noted for Peregrines (Cramp and Simmons 1980).

We observed cannibalism at one eyrie where a dead 26-d-old nestling partially blocked the eyrie entrance. The female pulled the nestling inside the eyrie, plucked it, and fed herself and the two surviving young. After several minutes, the female departed with the remains, landed on the ground near the base of the cliff, and continued plucking and feeding for another 14 min at three more locations before she disappeared with the remains. Cannibalism has not been previously recorded for Prairie Falcons. However, such behavior may not be unusual. We inspected two other eyries where nestlings were known to have died one and five days earlier, respectively, and found no signs of their remains. Scavengers may have removed dead young, but we consider this unlikely since adult birds remained in the vicinity and vigorously defended the eyries for at least seven days after the nestlings died.

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ATYPICAL INCUBATION RATES AT A NEW MEXICO PEREGRINE FALCON EYRIE

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Ratcliffe (1981) reported that in the Peregrine Falcon (*Falco peregrinus*) incubation during the daytime is mainly by females. Cramp and Simmons (1980) reported incubation is primarily by the female during the day and probably entirely at night. Of seven literature sources on Peregrine Falcon incubation (Dunaeva et al. 1948, cited in Cade 1960; Nelson 1970; Enderson et al. 1972; Harris and Clement 1975; Eberhardt and Skaggs 1977; Hunt 1979; Ratcliffe 1981), four indicate that males may incubate as much as one-half of the daytime period. This paper describes the atypical behavior of a pair in northern New Mexico in which the male's role greatly exceeded 50% of daytime incubation.

Nelson (1970) estimated males on Langara Island, British Columbia, at mid-incubation spent 30-50% of the daytime on eggs, but this decreased towards the end of the incubation period. Eberhardt and Skaggs (1977) discovered a male incubating 63% of the time in southern New Mexico. At another eyrie, on a day after a snowstorm, they observed a male incubate only 19% of the time in 11 hr. Hunt (1979) found a male's participation in northern California peaked at 60% about 5-10 d prior to hatching. Overall, the male incubated about 44% of the observed time. Ratcliffe (1981:219) reported that T. Cade found

that captive male Peregrines incubate, but their share varies greatly between individuals, reaching up to one-half of the daytime incubation. Time-lapse photography was used to accurately quantify incubation-sharing at five nests in late incubation on the Yukon River (Enderson et al. 1972). No male incubated 50% of daylight hours. At three nests 11-15 d before hatching, males averaged 39% (range 32-45%) of daylight incubation; at four nests, 6-10 d before hatching, males averaged 34% (range 31-37%); and at five nests, 0-5 d before hatching, males averaged 29% (range 15-41%), or an average of 34% incubation by males 15 d before hatching.

During the spring of 1982, I studied a pair of nesting Peregrines in northern New Mexico from late courtship until fledging of young. The eyrie was on a protected ledge of southeast aspect. Incubation began 6 April and lasted until 9 May when the first food deliveries suggested hatching. During this period, I watched 202 hr in 18 d. Observations were made continuously throughout the daylight period. On seven d (39%) observations were made from dawn to dusk. The mean times were between 0556 H and 1829 H (MST). The pair was observed with binoculars and spotting scope about 300 m from the eyrie. My presence did not appear to disturb them.



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