

attacking a Bald Eagle near a large stick nest only 10 m from the ground. However, the nest contained a large, young eagle and was the only such nest on the island. Soon the adult male peregrine joined its mate and became especially agitated and noisy near an old spruce tree which had a large natural crack high up its trunk. A few pale feathers surrounded the hole entrance, and several carcasses of recently eaten Rhinoceros Auklets were found in the vicinity, indicating probable use by peregrines.

Clearly, a small, tree-nesting population of Peregrine Falcons exists on islands off the northern coast of British Columbia, but we do not know whether this is a recent phenomenon. Campbell visited this area briefly in the early summer of 1970, and although adult peregrines were seen, no evidence of nesting was found. He may have overlooked tree nests, however, because adult peregrines call only when intruders are near their nest site. In order to adequately check for tree-nesting peregrines, coastal census work should be conducted on foot, rather than from a boat, because most nest trees and aeries were not visible from the water.

Only two isolated occurrences of Peregrine Falcons using the tree nests of other large raptors have been recorded in North America. Peck (1924) claimed to have collected a peregrine egg from a Bald Eagle nest "many years ago." Jones (1946) reported finding nestling falcons in nests constructed by "other birds" in eastern Virginia while Spofford (1969) later determined these were Osprey (*Pandion haliaetus*) nests. We do not know whether such nests are actually usurped from eagles and Ospreys by peregrines or are merely abandoned sites.

The scarcity and near absence of cliffs, freedom from direct harassment, and abundance of food probably explain the existence of a tree-nesting population of Peregrine Falcons in British Columbia. All aeries except one were on large islands where prey species—nesting seabirds—are abundant. The fact that all nest sites were found within a linear distance of about 25 km may indicate that the population is genetically related. It will be interesting to see if this population spreads with time.

Beebe (1960, 1974) considered the Ancient Murrelet (*Synthliboramphus antiquus*), Cassin's Auklet, Leach's Petrel (*Oceanodroma leucorhoa*), and the Fork-tailed Petrel to be the principal food of peregrines on the Queen Charlotte Islands. Certainly, Rhinoceros Auklets appear to be the most available food for the population of Peregrine Falcons on the northern coast of British Columbia.

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GREAT BLUE HERONS INTERRUPT NEST-GUARDING TO DRINK

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Great Blue Heron (*Ardea herodias*) parents alternate in performing incubation and brooding duties and ordinarily, if undisturbed, attend their nests continuously from the onset of incubation until the chicks are 21 to 28 days old (Pratt 1970). In the spring of 1976, however, my co-workers and I found that during

unusually hot weather, some herons left eggs and chicks less than three weeks old unattended for short periods in order to drink.

The Audubon Canyon Ranch heronry, located about 5.8 km N of Stinson Beach, Marin Co., California, has been described previously (Pratt 1970). The nests are in the tops of Coast Redwoods (*Sequoia sempervirens*) and can be seen easily from a hillside above nest level. Each nest was plotted and numbered on a panorama of the heronry and written records were kept of nest progress. Bolinas Lagoon, a shallow estuary at the mouth of the canyon where the colony is located, is the herons' major feeding ground.

At the time of our discovery, we were tracking

herons as they left the nests, in order to record directions on departure and, when possible, to determine destinations. Observers on the hillside overlooking the colony recorded the nest identification number of departing herons and, using portable CB radio transceivers, alerted two observers on a grassy knoll overlooking the lagoon. The latter determined the herons' flight direction after they emerged from the canyon and mapped the destinations of those that landed in the lagoon. Observations were made once a week from 14 April through 2 June between approximately 1530 and 1800 h.

On 12 May, an unusually hot day, the temperature reached a maximum of 35.6°C at the heronry about 1550. The herons appeared to be undergoing heat stress. Most were standing on their nests in the "sunbathing" posture (Meyerriecks 1960) and were fluttering their gular pouches. The mechanics and function of gular flutter have been discussed by Lasiewski and Bartholomew (1966), and Lasiewski and Snyder (1969). The behavior is an evaporative cooling mechanism characteristic of several species of birds including the Great Blue Heron (Bartholomew and Dawson 1954). In hot weather, flutter becomes continuous, and the normally moist lining of the gular pouch becomes dry (Bartholomew et al. 1968).

The heron sunbathing posture, also called "delta-wing" by Kahl (1971), is one of the spread-wing postures in which the forewings open and droop away from the body with the tips of the primaries crossed and touching at the tail. Several authors have reported on this and other spread-wing postures and have discussed their possible functions (Clark 1969, Curry-Lindahl 1970, Kahl 1971, Kushlan 1973). Included in Kahl's (1971) list of functions are cooling and shading of nest contents. My observations at Audubon Canyon Ranch support the hypothesis that cooling is one function of the sunbathing posture because I have seen both adults and young assume it, but only on warm days. It provides shade for the chicks as well.

Between 1550 and 1800 we tracked 12 departing herons. Of these, eight landed on Pine Gulch Creek Delta and immediately drank several times at the place where fresh water from the creek flows into Bolinas Lagoon. One of the eight had left eggs and three had left chicks from 4 to 17 days old. Within 2 to 6 min after leaving their nests, the incubating heron and two of those with young chicks left the drinking spot and returned. A heron with 17-day old chicks lingered for 40 min before returning. None of the herons that we tracked on other days when maximum temperatures were no more than 23.9°C went to the delta to drink.

As heron nest relief usually occurs only twice a day (Pratt 1970), individual attentive spans last several hours. Apparently, when temperatures are high, some herons may need to replace water lost in evaporative cooling before the next nest relief and may temporarily leave nests with eggs or young chicks unguarded.

Although none of the observed nests suffered ill effects, several hazards threaten nests that are not defended by adults or large young. Sticks are stolen

from nests at Audubon Canyon Ranch, often within 5 min of nest desertion. Common Crows (*Corvus brachyrhynchos*) are opportunists that sometimes prey on unattended eggs (pers. observ.). Though no Black-crowned Night Herons (*Nycticorax nycticorax*) nest at the ranch, they prey on young birds (Collins 1970, Wolford and Boag 1971, Hunter and Morris 1976) and where present in mixed colonies might raid unprotected nests with small chicks. Hence, prolonged high temperature may be a significant factor in heron nesting failures should adults be forced to leave nests with eggs or young chicks in order to drink.

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