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NESTING ASSOCIATIONS BETWEEN PASSERINES AND BIRDS OF PREY IN CENTRAL NORTH DAKOTA

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During a study of Ferruginous Hawks (*Buteo regalis*) and Swainson's Hawks (*B. swainsoni*) in central North Dakota from 1977 to 1979, we noted an association between certain nesting passerines and active nests of these hawks. We found 61 passerine nests near (<10 m) 42 Ferruginous Hawk nests ($n = 363$) and 14 Swainson's Hawk nests ($n = 270$). Our observations were based on a single visit to each raptor nest. We did not conduct a detailed search around the nests to avoid unnecessary disturbance to the raptors. Therefore, we feel that these associations are probably more common than our data indicate. Passerine species involved were Western Kingbird (*Tyrannus verticalis*), Eastern Kingbird (*T. tyrannus*), House Sparrow (*Passer domesticus*), and Northern Oriole (*Icterus galbula*).

We found 25 Western Kingbird nests near Ferruginous Hawk nests and 5 near Swainson's Hawk nests. Although most nests were built adjacent to the hawk nest, one Western Kingbird nest was built into the bottom of a Ferruginous Hawk nest. Eastern Kingbirds nested near eight Ferruginous Hawk nests.

House Sparrows built their nests in the sides of 12 Ferruginous Hawk nests and 9 Swainson's Hawk nests; one Swainson's Hawk nest contained two active House Sparrow nests. McGillivray (1978) described three instances of House Sparrows nesting in Swainson's Hawk nests. Similarly, Robson (1955) reported that European Tree Sparrows (*Passer montanus*) built their nests in the nest of a Common Buzzard (*Buteo buteo*) in England.

In four instances, two passerine species nested simultaneously near Ferruginous Hawk nests: Western and Eastern kingbird in two instances; Western Kingbird and House Sparrow; and Western Kingbird and Northern Oriole.

The Ferruginous Hawk has previously been reported in a nesting association only with the Black-billed Magpie (*Pica pica*; Bowles and Decker 1931). Numerous nesting associations have been noted between the Swainson's Hawk and other birds (e.g., Sharp 1902, Cameron 1913, Bowles and Decker 1934, Bent 1937, Brown and Amadon 1968, Eyre and Paul 1973, Griffing 1974, McGillivray 1978). Other nesting associations have been reported for the Red-tailed Hawk (*Buteo jamaicensis*; Taylor 1946); Common Buzzard (Robson 1955); Mississippi Kite (*Ictinia mississippiensis*; Parker 1981); and large birds of prey in Africa (Brown and Amadon 1968).

The potential relationships between passerines and hawks may be quite diverse (see Durango 1949). Kingbirds probably obtain additional food from insects attracted to the area of the hawk nest site by the presence of prey remains, dead nestlings, or excrement. The hawk nests provide House Sparrows with suitable structures for nest building. The presence of the hawks may afford the nesting passerines some degree of protection from other predators. A potentially mutualistic association (Smith 1969:398) may result because some passerines may feed on insects that are pests to the nesting raptors and also warn adult raptors of nest predators.

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