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NEST STRUCTURE COHABITATION BY RAPTORS IN SOUTHEASTERN IDAHO

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Competition for nest space may limit raptor populations in some areas (Newton 1976). Much of this competition may be lessened by raptors nesting in different habitats or at different times of the year or by differences in temporal activity patterns that may allow raptors to nest closer together than might be expected. For example, great horned owls (*Bubo virginianus*) have been reported to nest near red-tailed hawks (*Buteo jamaicensis*) (Hagar 1957, Shupe 1986). We observed two situations where different raptor species nested simultaneously in the same nest structure on the Idaho National Engineering Laboratory (INEL).

The 230 000-ha INEL is located on the upper Snake River Plain of eastern Idaho. The climate is typical of a cool desert with temperatures ranging between −42°C and 39°C ($\bar{x}$ = 6°C) and precipitation averaging 22.1 cm (Clawson et al. 1989). Sagebrush (*Artemisia* spp.) communities cover the majority of the INEL (McBride et al. 1978). Utah junipers (*Juniperus osteosperma*) are widely scattered on most of the study area and narrowleaf cottonwoods (*Populus angustifolia*) occuring only in a narrow band along the Big Lost River, provide the majority of available raptor nesting sites on the INEL (Hansen 1994). Tree-nesting raptors which build their own nests on the INEL include red-tailed, Swainson's, and ferruginous hawks. Even though Swainson's hawks usually build their own nests, they will use nests built by other raptors (Schmutz et al. 1980). Swainson's hawks readily use nests built by red-tailed and ferruginous hawks on the INEL (Hansen 1994). American kestrels (*Falco sparverius*), long-eared owls (*Asio otus*), and great horned owls which do not build nests also nest on the INEL. Both American kestrels and long-eared owls nest primarily in abandoned black-billed magpie (*Pica pica*) nests (Craig and Trost 1979).

The first case of nest cohabitation we observed involved American kestrels and long-eared owls (Fig. 1). In this instance, both pairs of raptors nested among the sticks in the understructure of an abandoned ferruginous hawk nest in a Utah juniper. The understructure of this nest was slowly collapsing and several cavities had formed among the sticks and debris. The long-eared owls nested in a cavity on one side of the structure while the American kestrels occupied another cavity on the opposite side of the old nest. The cavities had less than 10 cm of sticks between them. The only instance of interspecific aggression we observed at this nest site was when the female American kestrel stooped on an adult long-eared owl that flushed during a nest inspection. The attack was short, less than one minute, and ended when the owl perched in a nearby tree (30 m away). Both pairs of raptors fledged two young.

The second occurrence of nest cohabitation involved Swainson's hawks and American kestrels (Fig. 2). This incident also occurred in an abandoned ferruginous hawk nest which was built on an old black-billed magpie nest in a Utah juniper. In this case the Swainson's hawks nested in the nest bowl of the old ferruginous hawk nest while the American kestrels nested in the cavity of the old black-billed magpie nest. The nests were separated by about 15 cm of sticks and a total distance <30 cm. We did not observe any interaction between these species. The Swainson's hawks fledged one nestling and the American kestrels fledged four nestlings.

Close nesting by raptors of different species has been reported in several raptor communities, but such nests have usually been less successful than solitary nests (Hagar 1957, Smith 1970, Houston 1975). In addition, territorial interactions between raptors nesting close together are usually intense, often resulting in the desertion of one or both nests (Freemyer and Freemyer 1970, Houston 1975). The success of both raptor species inhabitating the same nest on the INEL seems unusual when compared to the other studies (Hagar 1957, Smith 1970, Houston 1975).

The lack of observed interspecific territorial defense during our 10 nest inspections appears unusual, especially for a species as territorial as the American kestrel. Swainson's hawks and American kestrels displayed intense nest defense during our nest inspections on other parts of the INEL. Interspecific aggression between Swainson's hawks and other buteos, as well as between American kestrels and buteos and great horned owls was commonly observed during our 3-yr nesting study. Daily activity patterns, nesting chronology, or nest placement may have lessened

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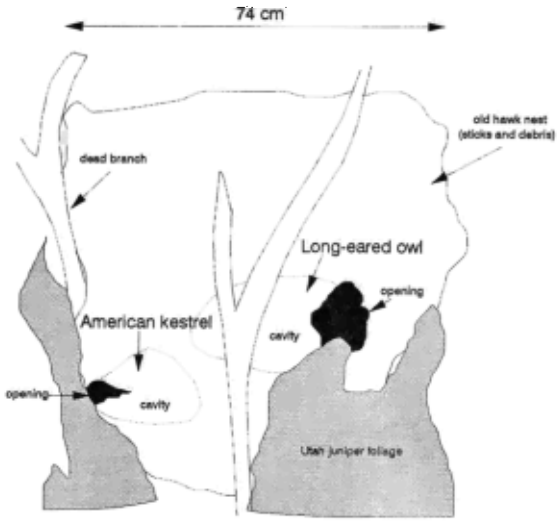

Figure 1. Relative positions of American kestrel and long-eared owl nesting cavities in the understucture of a deteriorating ferruginous hawk nest on the Idaho National Engineering Laboratory.

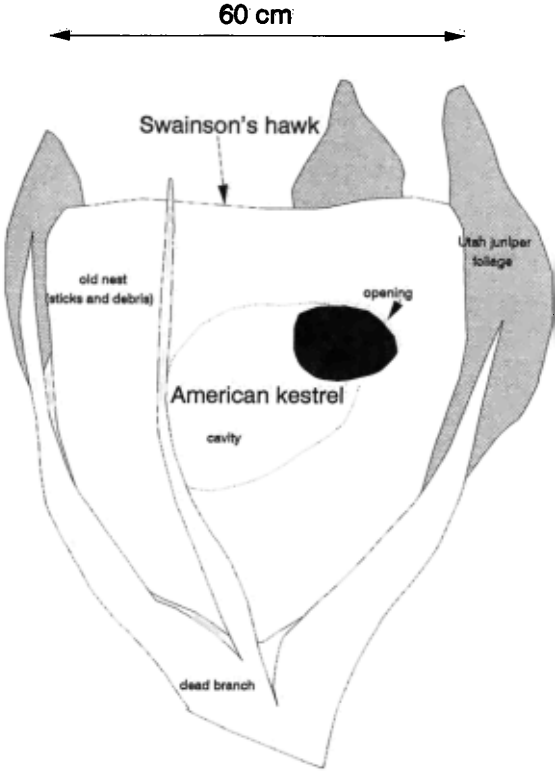

Figure 2. Relative positions of American kestrel and Swainson's hawk nests in an old ferruginous hawk nest combined with an old black-billed magpie nest on the Idaho National Engineering Laboratory.

interspecific contact. Craig et al. (1988) found that long-eared owls on the INEL are highly nocturnal. This would minimize their contact and potential conflict with the diurnal American kestrel. The Swainson's hawks were incubating the majority of the time they shared a nest with American kestrels, which reduced their activity around the nest while the kestrels were feeding their young. In addition, the low position of the entrance to the kestrels' nest reduced their visibility to Swainson's hawks sitting on top of the structure.

Limited nesting structures may have been responsible for a lack of interspecific territorial behavior in these examples of cohabitation. Lack of water in the Big Lost River due to drought and diversion has resulted in severe degradation of cottonwoods along that river. Craig and Trost (1979) counted 30 potential American kestrel nesting cavities in narrowleaf cottonwoods along 25 km of the Big Lost River on the INEL. They noted close nesting among American kestrels, as well as between kestrels and long-eared owls and red-tailed hawks. Junipers large enough to support black-billed magpie or ferruginous hawk nests are also very scarce over most of the INEL. We counted 32 junipers (≥2 m tall) along 185 km of fire trails on the study area. Cavity-nesting birds such as American kestrels, and to a lesser extent long-eared owls, must cope with a scarcity of nest sites on the INEL. As a result of nest site scarcity, these cavity-nesting raptors may have been forced to nest closer together than they normally would. Interspecific contact may have been reduced through daily activity patterns, nesting chronology, and, to some extent, nest placement.

RESUMEN.—Observamos dos casos de diferentes especies rapaces nidificando simultáneamente en la misma estructura en el sureste de Idaho, en los E.E.U.U. El primer caso de cohabitación de una estructura nido involucró a *Falco sparverius* y a *Asio otus;* el segundo ejemplo involucró a *F. sparverius* y a *Buteo swainsoni.* Ambos episodios de cohabitación ocurrieron en viejos nidos de *B. regalis* y todos fueron exitosos, con uno a cuatro pollos volantones. Competencia por las limitadas estructuras de nidificación puede haber sido responsable de la conducta que observamos.

[Traducción de Ivan Lazo]

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