

NOTES

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**Use of Power Poles for Nesting by Red-tailed Hawks
in South-Central Florida**

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Most raptors that use power poles or transmission towers for nesting are species that inhabit open plains, prairies, or savannahs where the absence of large trees or cliffs renders otherwise suitable habitat unsuitable for breeding (Olendorff et al. 1981). The one notable exception is the Osprey (*Pandion haliaetus*), which uses man-made structures as nest substrates more than any other raptor (Olendorff et al. 1980). Use of power line structures by other raptors is often a local phenomenon (Stocek 1972, Gilmer and Wiehe 1977, Fitzner 1980, Olendorff et al. 1981). This phenomenon frequently has been documented for the Ferruginous Hawk (*Buteo regalis*) in the western United States (e.g., Olendorff and Stodard 1974, Gilmer and Wiehe 1977, Olendorff et al. 1980). Several other raptor species have been reported to nest on power line structures in western states, including Golden Eagle (*Aquila chrysaetos*), Red-tailed Hawk (*Buteo jamaicensis*), Swainson's Hawk (*B. swainsoni*), Harris' Hawk (*Parabuteo unicinctus*), and Great Horned Owl (*Bubo virginianus*) (Baldrige 1977, Nelson and Nelson 1976, Ellis et al. 1978, Fitzner 1980, Meentz and Delesantro 1979, Lee 1980).

In the eastern United States, however, power pole nesting by raptors other than American Kestrels (*Falco sparverius*) and Ospreys apparently is rare. Red-tailed Hawks in this region almost exclusively use live, deciduous trees for nesting (e.g., Hagar 1957; Titus and Mosher 1981; Speiser and Bosakowski 1988; Toland, in review). I could find no reports of nesting on power poles or transmission towers by Eastern Red-tailed Hawks (*B. j. borealis*) or Florida Red-tailed Hawks (*B. j. umbrinus*). Here, I report on two successful Red-tailed Hawk nests on power poles in Polk County, Florida.

On 25 May 1989, I discovered two Red-tailed Hawk nests built on temporary 230 kV powerline poles traversing I.M.C. Fertilizer Inc.'s 930 ha Noralyn/Phosphoria phosphate mineland, 3.0 km southwest of Bartow, Florida. This area is an active phosphate strip mine interspersed with mined lands reclaimed to cattail (*Typhus sp.*) dominated marshes, disturbed ruderal shrubland characterized by willow (*Salix sp.*), dog fennel (*Eupatorium capillifolium*), wax myrtle (*Myrica cerifera*), salt bush (*Baccharis halimifolia*), and broom-sedge (*Andropogon virginiana*), and xeric scrub represented by scrub live oak (*Quercus geminata*) and prickly-pear cactus (*Opuntia humifusa*). A rapidly disappearing remnant of unmined xeric oak scrub and longleaf pine/turkey oak sandhill native plant communities are patchily distributed in the area. With the exception of a ca. 8.0 ha tract of slash pine (*Pinus elliottii*), only three or four trees over 6.0 m in height persist on site.

The two nests were located about 4.0 km apart, and both were built on cross-arm structures ca. 12.2 m high (Fig. 1). Each nest contained a single 5-week old nestling. Both nestlings fledged successfully on 5 and 8 June, respectively. The mean productivity of 1.0 young fledged per power pole nest was substantially lower than the 1.5 young fledged per natural nest (N = 12) in south Florida (Toland, unpubl. data).

Nesting on transmission line substrates is advantageous in that it facilitates more uniform habitat utilization by attracting raptors into areas where nest site availability is a

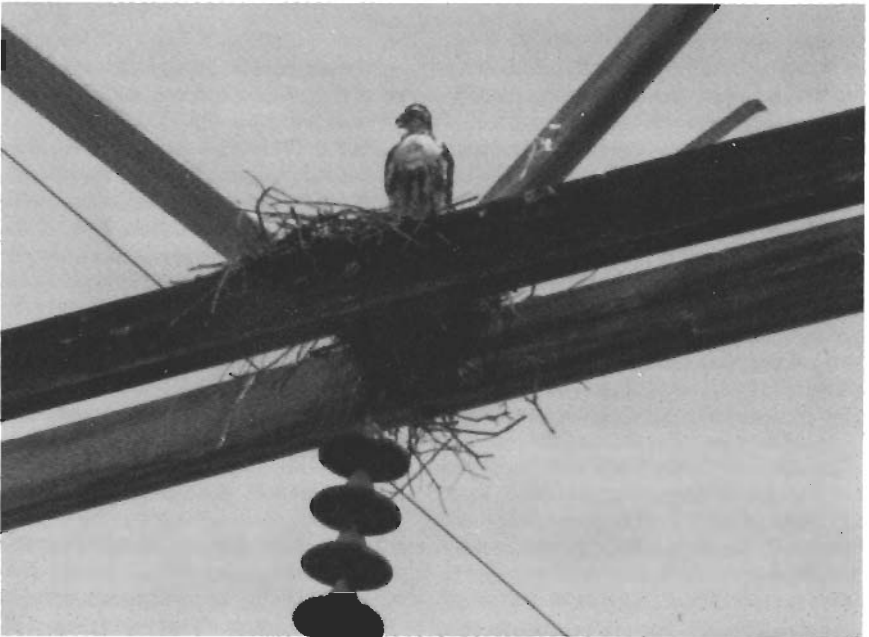
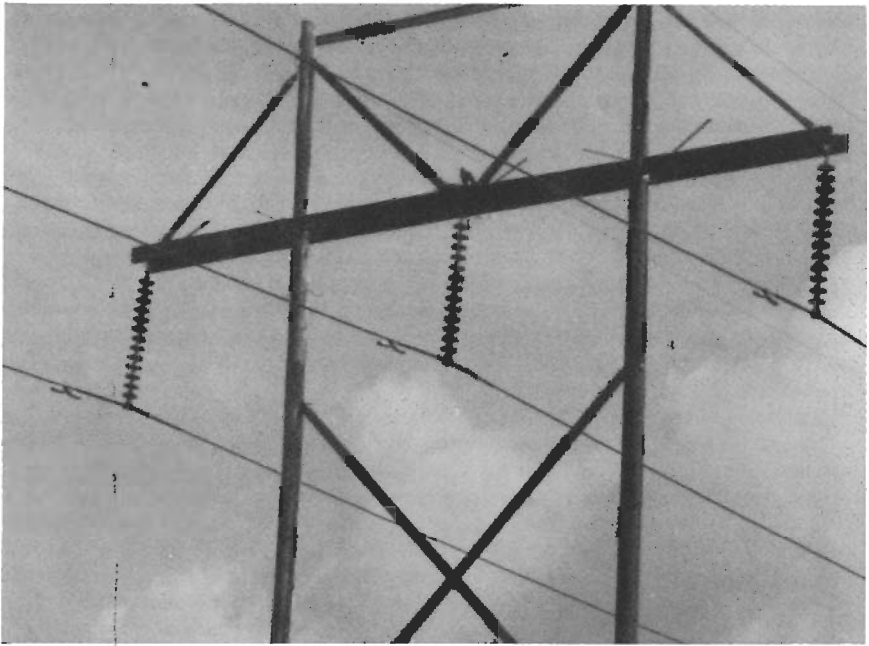


Figure 1. Red-tailed hawk nest built on 230 kV transmission line structure (top) and a single 5-week old nestling (bottom). (Photographs by Brian Toland)

limiting factor (Olendorff et al. 1981). By exploiting power poles for nest sites, some raptors may actually extend their breeding range (Nelson and Nelson 1976). It may be more likely, however, that by affording a species additional nest site choices, power line structures lead to locally higher raptor densities (Meentz and Delesantro 1979, Olendorff et al. 1981). These artificial nest sites also may be an asset to raptor nesting success, by making access to the nest by mammalian predators more difficult than to nests in live trees.

There are, however, some distinct disadvantages to nesting on power poles. These nests appear more vulnerable to damaging windstorms that can blow nests or young off of the narrow platforms (Gilmer and Wiehe 1977). Nestlings can become heat stressed due to limited availability of shade provided by tower beams and cross braces (Olendorff et al. 1981). The relatively narrow platform provided by the cross arm structure effectively limits the space available for the nest, causing crowding of nestling raptors as they grow older and increase in size and mobility (Gilmer and Wiehe 1977). Both power pole nests in south-central Florida were substantially smaller than the stick structures Red-tailed Hawks build in live trees (Toland, pers. observ.).

Still undocumented are the effects of electric field strength on nesting raptors as well as the significance of electrocution of raptors exploiting power line structures for hunting and nesting in Florida. Whether or not a new power line enhances or detracts from raptor habitat probably depends on physiographic characteristics that influence habitat diversity (Pearson 1979). Whereas power lines in topographically diverse habitats may be relatively deleterious to raptors, they may provide the diversity necessary for nesting and more effective foraging by predatory birds inhabiting large expanses of homogeneous habitat such as that occurring at south-central Florida's Noralyn/Phosphoria mineland.

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Courtship Feeding Behavior in the Mangrove Cuckoo (*Coccyzus minor*)

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Near 11:00 of 4 May 1989 on the West Lake Mangrove Trail in Everglades National Park, Dade County, Florida, I observed courtship feeding behavior between two Mangrove Cuckoos (*Coccyzus minor*). The birds were in red mangroves (*Rhizophora mangle*) about 6 m away. On my left I heard and saw a male Mangrove Cuckoo emit a single, guttural note four or five times, and on my right the female answered six or seven times with a low guttural different note that verbalized as "squirt". Then the male, with a spider in his bill, flew to the perched female. He landed on her back and fed her. While the male offered the spider from above, the female twisted her neck and tilted her head so that her bill pointed skyward and accepted the spider with neither begging involved nor copulation occurring.

In describing the courtship feeding behavior of the Yellow-billed Cuckoo (*C. americanus*), J. H. Bowles (*in Bent* 1940) wrote, ". . . I saw the male suddenly fly past with a large green worm in his bill. He flew directly to the female, who was perched in a tree a few yards distant, and for a moment or two they sat motionless a few inches apart looking at each other. The male then hovered lightly over his mate and, settling gently upon her shoulders, gracefully bent over and placed the worm in her bill." Potter (1980) also describes feeding during copulation by Yellow-billed Cuckoos.

Spencer (1941) reported that although the male Black-billed Cuckoo (*C. enthroptalmus*) had food in his bill during several attempts to copulate, no courtship feeding was observed despite 94 hours of observation. Potter (1980) wrote that ". . . a search of the literature has revealed no other description of insect passing . . ." for both Yellow-billed and Black-billed cuckoos. However, Ehrlich (1988) mentioned courtship feeding for the Black-billed Cuckoo, but provided no details. Since then, Nero (1988) watched an exchange of food during copulation of Black-billed Cuckoos.

To my knowledge, courtship feeding has not previously been described for the Mangrove Cuckoo, for which details of courtship behavior are known (Ehrlich 1988). The behavior appears, however, to be quite similar to that of Yellow-billed and Black-billed cuckoos.