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## Swallow-tailed Kites Carry Passerine Nests Containing Nestlings to Their Own Nests

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**ABSTRACT.**—During 1995–2001, I documented 20 instances of Swallow-tailed Kites (*Elanoides forficatus*) carrying nests containing nestlings of six passerine species to their nests or roosts adjacent to kite nests in the Pearl River Basin (Mississippi and Louisiana) and Atchafalaya River Basin (Louisiana). This parental behavior is adaptive because it reduces time away from the nest, which reduces the amount of time that nestlings are left unguarded against avian predators. Nest carrying also reduces the amount of energy expended to transport prey to offspring, and may diminish loss of prey to kleptoparasitism. *Received 20 Nov. 2000, accepted 18 Oct. 2001.*

The Swallow-tailed Kite (*Elanoides forficatus*) commonly feeds nestling and fledgling birds to its young. Birds accounted for up to 16% of the identified prey delivered to 13 nests in Florida and 18% to 9 nests in Guatemala (Sutton 1955, Snyder 1974, Meyer and Collopy 1990, Gerhardt et al. 1991, Meyer 1995). Only two species of raptors, the Swallow-tailed Kite and the Indian Black Eagle (*Ictinaetus malayensis*), have been reported to carry nests containing nestling prey (Brown and Amadon 1968, Skutch 1965). In Costa Rica, Skutch (1965) observed the southern subspecies of Swallow-tailed Kite (*E. f. yetapa*) carrying bird nests with nestlings and eating the nestlings while in flight after dropping the nest. Robertson (1988) reported nest carrying by kites in Guatemala. Herein is the first report of the northern subspecies of Swallow-

tailed Kite (*E. f. forficatus*) carrying bird nests containing nestlings, and the first report anywhere of carrying passerine nests with young to feed their nestlings.

I monitored Swallow-tailed Kite nesting activity in the Pearl River Basin Mississippi and Louisiana, during 1995–2001, and in the Atchafalaya River Basin, Louisiana, during 1999–2001. I collected prey remains from nests, from directly under nests, and beneath roosts at active nests. I found 20 nests of five passerine species; none of the species previously had been reported as prey (Table 1). Eighteen nests were in or under 13 kite nests and one at a roost beside an additional nest. Thus, at least 14 different kites exhibited this behavior at eight nesting colonies of two populations. I verified that kites ate the nestling passerines as evident from partially eaten remains or remains in pellets in or under the nest or roost.

Blue-gray Gnatcatcher (*Poliophtila caerulea*) nests were most common, accounting for 65% of the total. Because kites forage mostly from above the canopy, and because Northern Parulas (*Parula americana*) and Blue-gray Gnatcatchers build their nests higher than other species considered here, 1.8–30.5 m and 1.2–21.3 m, respectively (Harrison 1975), it is not surprising that nests of these two species were encountered most frequently. Hooded Warblers (*Wilsonia citrina*) build the lowest nests, ranging in height from 0.3–1.8 m, and sometimes nest in thickets (Harrison 1975). Skutch (1965) watched a kite (*E. f. yetapa*) make a low swoop to collect a Golden-hooded

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TABLE 1. Passerine nests carried by Swallow-tailed Kites to their nests or roosts, Pearl and Atchafalaya River basins, 1995–2001.

Species	Nest (n)	Study area	Year	Where found
Red-eyed Vireo	1	Atchafalaya	2000	under nest
Blue-gray Gnatcatcher	11	Pearl	1995–2001	10 under nest, 1 in nest
Blue-gray Gnatcatcher	2	Atchafalaya	2000	under nest
Wood Thrush	1	Pearl	1999	under nest
Northern Parula	3	Pearl	1999–2001	2 under nest, 1 in nest
Hooded Warbler	1	Atchafalaya	1999	under roost

Tanager (*Tangara larvata*) nest that was about 1.8 m above the ground. I also found an Acadian Flycatcher (*Empidonax vireescens*) nest below a kite roost tree, 40 m from an active kite nest, but did not find corresponding prey remains. Acadian Flycatcher nests typically are located in the forest interior, which would suggest that Swallow-tailed Kites rarely encounter them. However, the forest in the Atchafalaya Basin has been selectively logged, creating large gaps in the canopy, and perhaps some Acadian Flycatchers in this area may nest closer to edges. Wood Thrushes (*Hylocichla mustelina*) sometimes nest in gardens, parks, and near edges (Harrison 1975), making detection far easier.

Passerine nests usually are concealed and camouflaged making them difficult to find. The Swallow-tailed Kite's wing loading, coupled with trailing vortices created by its deeply forked tail, allow it to fly slowly and to hover, as it scans forest canopies and shrubs for prey. Its relatively short, thick tarsi and strong feet make it adept at breaking off twigs for nest building and twigs that support wasp nests (kites feed on the larvae). One Northern Parula nest and the Red-eyed Vireo (*Vireo olivaceus*) and Acadian Flycatcher nests all had support twigs still attached, suggesting that the adult kite, in one swoop, snapped the support twig or twigs and carried the nest away. Skutch (1965) witnessed several instances of nest collecting and speculated that kites would collect only those nests that they could grasp while remaining in flight.

Kites dropped most of the passerine nests after eating the nestlings. However, a Blue-gray Gnatcatcher and a Northern Parula nest were flattened onto the surface of Swallow-tailed Kite nests after the contents were consumed. Kites continue to add nesting materials

throughout the nesting period, regularly bringing in twigs, Spanish moss (*Tillandsia usneoides*), and lichens. In addition, they sometimes add wasp nests to their nests after consuming the larvae (Snyder 1974, Meyer and Collopy 1990, Meyer 1995).

Nest carrying is adaptive in several ways. It reduces the amount of energy required to transport prey if the nest contains more than one nestling. It also eliminates the risk of relocating the nest on a return trip to carry off additional nestlings. Because a bird nest in a kite's talons more closely resembles nest material than prey, nest carrying may reduce the loss of prey to kleptoparasitism. Nest carrying also reduces the parent's time away from the nest, which should reduce predation of offspring.

Nestling Swallow-tailed Kites are at risk of attack from monkeys in Guatemala, unknown avian predators in Guatemala and Florida (Gerhardt et al. 1991, Meyer and Collopy 1990), and Great Horned Owls (*Bubo virginianus*) in Louisiana (pers. obs.). During the first two weeks of the nestling period one parent generally is present at the nest to brood and guard chicks (Snyder 1974). By the third week, one parent usually stays within sight of the nest or is away for only short periods on brief hunting forays. After this time the amount of nest vigilance varies considerably (pers. obs.). The more efficient the parent is at locating and transporting food, as in nest carrying, the more time and energy it can allocate to nest guarding.

Nest carrying may not be adaptive under certain circumstances. Indeed, most nestlings are carried rather than transported inside the nest. Perhaps kites take individual nestlings when the nest is bulky (Skutch 1965), the nest does not dislodge easily from its supporting

substrate, the support twigs are too strong to break, or the nest contains only one nestling.

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