

did have relatively high reproductive success: only eight of the 28 other males on the site had equal or greater fledgling production.

The primary female, X1, did not noticeably suffer as a result of the secondary mating: only eight of the 29 other females produced more fledglings than she. X2's one fledgling exceeded only four others. Observers at X2's nest noted that Y fed those young very infrequently. This may have contributed to X2's poor success and may indicate one reason Wood Thrush females do not mate polygynously more often.

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Double-toothed Kites following tamarins.—There are several reports of birds using ants, other birds, and mammals as “beaters” that move through the vegetation flushing prey (Curio 1976). In the Neotropics, birds are frequently observed following groups of primates, mainly of squirrel monkeys (*Saimiri* sp.) and capuchins (*Cebus* sp.) (Moynihan 1970, Klein and Klein 1973, Fontaine 1980, Terborgh 1983, Boinski and Scott 1988).

Here I report on Double-toothed Kites (*Harpagus bidentatus*) following a group of pied bare-face tamarins (*Saguinus bicolor bicolor*, Callitrichidae) observed during an 11-month field study on the ecology of this primate (Egler 1986) in a disturbed forest near Manaus, Amazonas State, Brazil.

The Double-toothed Kite occurs from southern Mexico to eastern Bolivia and southeastern Brazil (Brown and Amadon 1968, Sick 1985). It preys mainly upon large arthropods, frogs, lizards, and bats (Schubart et al. 1965, Brown and Amadon 1968, Ridgely 1976, Fontaine 1980, Wetmore 1981, Boinski and Timm 1985, Boinski and Scott 1988).

Observations were made from May 1983 to April 1984, except for October 1983, in a 20-ha study area on the left bank of the Rio Negro near the mouth of Tarumã-açu stream (3°8'S; 60°2'W, elev. 40 m). A trail system divided the area into 50 × 50-m quadrats (Egler 1986). Tamarins were studied during 46 observation days (06:00–17:00 h) with a mean of four days per month. Instantaneous scan sampling (Altmann 1974, Clutton-Brock 1974) was used with five-minute intervals to quantify tamarin behavior. I divided tamarin behavior into four categories: (1) resting, (2) traveling, (3) feeding on plant material, and (4) foraging for animal prey. The presence of Double-toothed Kites was recorded only when observed simultaneously with tamarins. Durations of following periods were calculated by summing the five-minute intervals during which kites were observed following tamarins. When subsequent observations were within 25 min of each other, intervals between observations were also included in the calculations below. On these occasions (e.g., when tamarins were resting), it was difficult to observe the kites within the foliage, but with further movements by the tamarins, they became visible again. Distances travelled by kites were calculated by running a curvimeter on tamarin routes drawn on a map of the study area (scale 1:2500). Eleven observations of only one five-min. interval were excluded because I could not determine a distance during these observations.

I obtained a total of 4607 samplings (ca 120 samplings/day) of tamarins among which in 721 (15.6%) I observed Double-toothed Kites following them. Two individual kites were observed simultaneously in 55 samplings. Among the 721 samplings with kites observed, 56.2% were when tamarins were traveling, 22.3% when resting, 14.3% when foraging for animal prey, and 7.2% when feeding on plant material. These frequencies were not significantly different from the frequencies of tamarin activity ($\chi^2 = 1.26$, $df = 3$, $P > 0.5$).

During periods when tamarins were traveling, kites were observed flying at heights similar to, or below, those occupied by tamarins. When tamarins rested within tangles of lianas or on branches, kites perched near them until the group moved again. On three of these occasions, the kites flew very close to the resting tamarins; on two occasions, the kites touched a resting tamarin with their claws while hovering. This behavior elicited reaction only by the touched tamarin who was trying to shake off the kite's claws without moving away from its resting place. I never observed tamarins mobbing Double-toothed Kites, although they mobbed a perching White Hawk (*Leucopternis albigollis*) and an opossum (*Didelphis* sp.) that was moving within the canopy.

On only three occasions, I observed kites capturing prey, all of them large cicads in flight, probably flushed by the tamarins. Kites flew toward the cicads, catching them on the wing with their claws and then perching to eat the prey.

Kites were observed following tamarins throughout the day with no marked difference between morning and afternoon hours. Periods during which kites followed tamarins varied from two to 57 five-min intervals. During nearly two-thirds of the observations, kites followed tamarins for short periods, ca 1–10% of complete observation days, moving small distances of less than 400 m. In only six occasions kites followed tamarins for long periods (25.0–47.5% of complete observation days) and moved long distances of 825–1512 m.

The frequencies of Double-toothed Kites following pied bare-face tamarins observed in this study are similar to those observed by Boinski and Scott (1988) and Fontaine (1980) in capuchin and squirrel monkey studies, although methods for calculating these frequencies were different.

The relationship between Double-toothed Kites and primates may be regarded as commensalistic (Boinski and Scott 1988). By following primate groups kites have access to prey otherwise inaccessible or barely accessible (Boinski and Timm 1985, Boinski and Scott 1988), thus enhancing their feeding efficiency. Supporting the latter suggestion, Boinski and Scott (1988) observed that birds followed monkeys more frequently during periods of arthropod scarcity. Among primates, Double-toothed Kites tend to follow more frequently those species that have higher activity levels and include arthropods in their diet (see Fontaine 1980). Tamarins are highly active and insectivorous (e.g., Terborgh 1983, Egler 1986) which would contribute to their effectiveness as beaters for these kites.

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Unprecedented stopover site fidelity in a Tennessee Warbler.—The postbreeding movements of long-distance migrant passerines are not well understood. Here we report the recurrence of an adult male Tennessee Warbler (*Vermivora peregrina*) during three successive autumns at a stopover site in the St. Croix River valley in east-central Minnesota (Washington Co., approximately 44°55'N, 92°48'W). This site is at least 240 km south of the nearest recorded or suspected breeding grounds (Janssen 1987; D. F. Parmelee, pers. comm.).

Migrant passerines showing stopover site fidelity are rare in the literature. Nisbet (1969) published a call to banders for records of transient migrants that returned to the site of banding in subsequent years. He arbitrarily designated "good" transients as those individuals occurring more than 100 mi. (161 km) from the species' regular breeding or wintering ranges. He received eight convincing records from his request. Since Nisbet's review, the number of "good" transients appearing in the literature has not increased dramatically; we counted records of approximately 21 individuals of 10 species (Nisbet 1969, Ryan 1970, Woodward 1972, Johnson and Ellis 1974, Leberman and Clench 1975, Foy 1975, Ely and Weber 1977, Goodpasture 1979).

During the spring (May) and autumn (mid-August through late-September) migration periods of 1984-1986, we captured migrants in five wooded habitat types using standard 30 mm and 36 mm mesh nylon mist nets (12 × 2.5 m). We accumulated over 70,000 net-h in three spring seasons, and over 65,000 net-h in the corresponding autumns. Nets were oriented E-W and spaced 30 m apart; net locations remained the same throughout the study (see Winker et al., in press for more detail).