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SWALLOW-TAILED RITE NESTING IN TEXAS: PAST AND PRESENT

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The historical breeding range of the swallow-tailed kite (*Elanoides forficatus*) in the United States extended from the Carolinas and Tennessee south through Florida, and Wisconsin and Minnesota south through kouisiana, and Nebraska to central and southeastern Texas (Cely, 1979; Johnsgard,. 1990). By 1900, the range of the swallow-tailed kite was reduced to the far southeastern states from South Carolina to central Texas, and by 1940 the species was reduced to a few isolated breeding populations extending from southeastern South Carolina and Georgia, through Florida and the extreme southern portions of Alabama and Mississippi to south-central Louisiana.

The swallow-tailed kite was formerly considered to be a very common to uncommon breeding species in the eastern half of Texas, having the highest densities on the coastal prairie and along the timbered watersheds of eastern Texas, west to the Balcones Escarpment and north to the Red River (Oberholser and Kincaid, 1974). The species' decline in Texas apparently was well under way by 1900 and resulted in almost complete extirpation by 1910. The last published report of breeding in Texas was from Harris County near Houston during 1911-1914 (Oberholser and Kincaid, 1974).

Unlike many of the other species of imperiled raptors, the precipitous decline in swallow-tailed kite populations occurred prior to the widespread use of ecologically damaging pesticides and herbicides. Other human related factors are thought to be the cause of the species' demise, especially cultivation of natural prairie that destroyed feeding grounds, logging of bottomland hardwood forests that destroyed nesting sites, and indiscriminate shooting by farmers and settlers (Cely, 1979). Historically, approximately 5.7 to 7.3 million ha of eastern Texas were covered by virgin forest, but by the end of the 1920s, only an estimated 0.4 million ha remained (Maxwell and Baker, 1983).

Only about 13% of the cutover stands in eastern Texas regenerated into second-growth forests by 1917 (McWilliams and Lord, 1988), but a majority of the forests began to recover after the end of the 1880-1930 Bonanza Era of lumbering (Maxwell and Baker, 1983). The forest survey conducted by the U.S. Forest Service in eastern Texas in 1935 reported that of the land area still classified as timberland, i.e., not converted to agriculture or other uses, 84% was cut and was in various stages of regeneration (McWilliams and Lord, 1988). However, suitable nest trees for swallow-tailed kites are typically at least 18 m tall (Palmer, 1988; Johnsgard 1990). Consequently, areas that were clearcut were likely unsuitable for nesting swallow-tailed kites for at least 4 or 5 decades.

By 1940, the decline of swallow-tailed kites in the southeastern United States ceased and populations stabilized (Cely, 1979). Recent swallow-tailed kite sightings suggest a partial reoccupation of some parts of the historical range. The frequency of sightings in Texas has increased since the 1940s. Most notable among these sightings are regular observations from the Houston area since 1949, and a spring 1974 record of an immature bird in the Austin area (Cely, 1979).

To determine the status of the swallow-tailed kite in Texas, Boone (in litt.) conducted a 3-year survey for the Texas Parks and Wildlife Department that resulted in 212 observations ($n \geq 437$ individuals) of kites occurring singly or in groups of up to 15 individuals: 58 observations ($n \geq 187$ individuals) in 1990, 63 observations ($n \geq 115$ individuals) in 1991, and

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91 observations ($n \geq$ 135 individuals) in 1992. These totals probably represent multiple counts of some of the same individuals, since repeated observations occurred in the same locations on different days. Yet, despite hundreds of recent swallow-tailed kite sightings, no nests were found in Texas until 1994.

On 31 March 1994, an active swallow-tailed kite nest was located by the first two authors in an extensive bottomland and hardwood forest approximately 1 km from the Neches River in Tyler County, Texas. The nest was located after a swallow-tailed kite, carrying a stick covered with Spanish moss (*Tillandsia usneoides),* was observed circling over a small clearing next to a logging road. The bird then flew to a shallow nest upon which another kite, presumably the female because of its slightly larger size, was sitting. The nest was relatively small and disheveled and appeared to be in the construction stage. Over the next several days, the kites were observed flying in the vicinity of the nest and carrying nesting material, behaviors that continued until the young fledged. The first confirmed date of incubation behavior was 18 April. However, incubation probably started at least four days earlier, based on the estimated hatching date of 12 May and the 28 day incubation period reported for other nests (Snyder, 1975).

Several nest exchanges and deliveries of nesting material were observed over the next few weeks until 12 May when the first detected prey items, tree frogs (*Hyla* spp.), were delivered to the nest and the adults began feeding young (J. Hamrick, pers. comm.). The depth of the nest and the angle from which observations had to be made prevented observations of the young until they were old enough to stand up in the nest. Two nestlings were seen in the nest on 21 May; one was a buffy color, and the other one was a paler whitish color. The buffy nestling was highly mobile and appeared stronger than the paler nestling which was only seen briefly as it stumbled around in the nest; the pale nestling apparently died soon after this observation as it was not seen during subsequent nest observations. Observations of the nest were made about 3 times a week until the young bird fledged, and plumage development, prey deliveries, and adult behavior were recorded. The young bird took its first brief flight on 17 June (R. Woods, pers. comm.). The estimated nestling period was 36-37 days for this individual. This is at the low end of the range reported by Johnsgard (1990), and may have been accelerated by the early loss of its sibling.

The nest was constructed of small hardwood sticks and twigs, most of which had some Spanish moss attached. New nest material was added continually throughout the nesting cycle, as the exposed moss on the rim of the nest always appeared fresh. The nest tree was a 33 m tall, 69 cm dbh water oak (Quercus *nigra*) that was one of the tallest and straightest trees in the area. The nest height was 31 m, higher than the average canopy height of 30 m in the vicinity of the nest tree. Placement of the nest higher than the tops of the surrounding trees probably allowed the adults an unobstructed landing at the nest, which has been reported as an important factor in nest tree selection (Palmer, 1988). The nest tree was on the edge of an 80 X 35 m opening that consisted of a 35 m wide logging road corridor and a 45 X 35 m clearing that were created in the fall of 1992. The forest surrounding the nest site was selectively harvested in late 1992, which caused a reduction in basal area to approximately 10 m^2 per ha. Water oak, hickory (*Carya* spp.), and white ash (*Fraxinus americana*) were dominant canopy species, and sweetgum (*Liquidambar styraciflua*) was a common subcanopy species.

Prey items observed delivered to the nest consisted of tree frogs (4), unidentified frogs (2), nestling birds that appeared to be summer tanagers (*Piranga rubra*) (2), and unidentified prey (2). On several occasions, one or both of the adult kites harassed turkey vultures (*Cathartes aura)* that flew within approximately 75 m of the nest, driving them away from the nest site. However, Mississippi kites *(Zctiniu mississippiensis)* and red-shouldered hawks (*Buteo lineatus)* that were seen flying over or near the nest site on several occasions were not harassed; indeed, a pair of red-shouldered hawks successfully fledged at least one young from a nest that was only approximately 80 m from the kite nest, apparently without any interspecific antagonism.

Besides the two adults and one fledgling directly associated with this nest, at least five other swallow-tailed kites were observed in the general vicinity during the summer. While both nestlings were still alive, three swallow-

tailed kites, at least one of which was a yearling as identified by its shorter tail (Meyer, 1995), were observed soaring together over the nest site. Also during the nestling period, four adult swallow-tailed kites, two of which may have been the pair from this nest, were seen hawking dragonflies over a relatively large clearcut approximately 4 km from the nest site with 8–10 Mississippi kites (M. Ealy, pers. comm.); soon after the young fledged from the nest, six adult swallow-tailed kites were seen flying together near the nest site (J. Hamrick, pers. comm.)

The closest known residual population of breeding swallow-tailed kites is in the Atchafalaya River basin in south-central Louisiana approximately 240 km east of oui nest site, and birds from that population may have made a recent westward expansion of their breeding range. Swallow-tailed kites have been observed exhibiting breeding behaviors during the breeding season since 1990 in the Texas counties of Chambers, Jasper, Jefferson, Newton, Orange, and Tyler (Boone, in litt.). Observed breeding behaviors have included carrying nesting material, agonistic stooping at humans, and pairs soaring for extensive periods over specific sites. These sightings may represent nesting attempts, some or all of which may have been successful. Juveniles, identified by their shorter outer retrices, have been sighted with adults late in the breeding season at various locations since 1990, but breeding by swallow-tailed kites had not been positively confirmed in Texas during the past 80 years until our nest discovery in 1994. Because swallow-tailed kite nests are extremely difficult to find due to their relatively small size and inconspicuous placement, kite nest locations may continue to be rare in Texas until kite populations increase.

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Literature Cited

CELY, J. E. 1979. Status of the swallow-tailed kite and factors affecting its distribution. Pp. 144–150, in Proceedings of the first South Carolina endangered species symposium (D. M. Forysythe and W. B. Ezell, Jr., eds.). South Carolina Wildlife and Marine Resources Department, Columbia, South Carolina.

JOHNSGARD, P. A. 1990. Hawks, eagles, and falcons of North America: biology and natural history. Smithsonian Institution Press, Washington, DC.

MAXWELL, R. S., AND R. D. BAKER. 1983. Sawdust empire: the Texas lumber industry, 1830-1940. Texas A&M University Press, College Station.

MCWILLIAMS, W. H., AND R. G. LORD. 1988. Forest resources of East Texas. Resource Bull. SO-136. New Orleans, Louisiana: U.S. Department of Agriculture, Forest Service, Southern Forest Experiment Station.

MEYER, K. D. 1995. Swallow-tailed kite (*Elanoides forficatus*). *In* The birds of North America, No. 138 (A. Poole and F. Gill, eds.) The Academy of Natural Sciences, Philadelphia, and the American Ornithologists' Union, Washington, D.C.

OBERHOLSER, H. C., AND E. B. KINCAID, JK. 1974. The bird life of Texas, Vol. I. University of Texas Press, Austin.

PALMER, R. S. 1988. Handbook of North American birds, Vol. IV. Yale Univ. Press, New Haven, Connecticut.

SNYDER, N. F. R. 1975. Breeding biology of swallow-tailed kites in Florida. Living Bird 13:73–97.