

young were fledging and immediately replaced the top. Suddenly the sky was filled with Tree Swallows. The young left the box so rapidly I couldn't count them, but the last one departed at 1040 EDT. The parents and the five young Tree Swallows soon left the nest site and, as is their habit, did not return.

Again I removed the top. There was one young swallow in the nest, but it was dead. Judging from the size of it, I figured that it was the last one to hatch. Apparently it was suffocated by its larger nestmates shortly before they fledged.

The only previously reported nesting of the Tree Swallow in North Carolina occurred in Ashe County in 1979 (Chat 44:9). That nest was in an old woodpecker cavity in a tree stub beside the New River at an elevation below 3000 feet. The Buncombe County site is nearly 100 miles SW of the Ashe County site, and it lies at or near the southern limit of breeding in the East.

Rough-winged Swallow Nesting in Coastal North Carolina

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During early May 1981 we found two nesting sites for the Rough-winged Swallow (*Stelgidopteryx ruficollis*) on the Outer Banks of North Carolina. These represent the first nesting records for this species from this region and one of the few confirmed ones for the coastal portion of the state (see Fig. 1).

Behind the Marine Resources Center on Roanoke Island, Dare County, we observed Bank Swallows (*Riparia riparia*) feeding over Croatan Sound and flying about an eroded bank. One bird was seen leaving a hole, which contained an unfinished

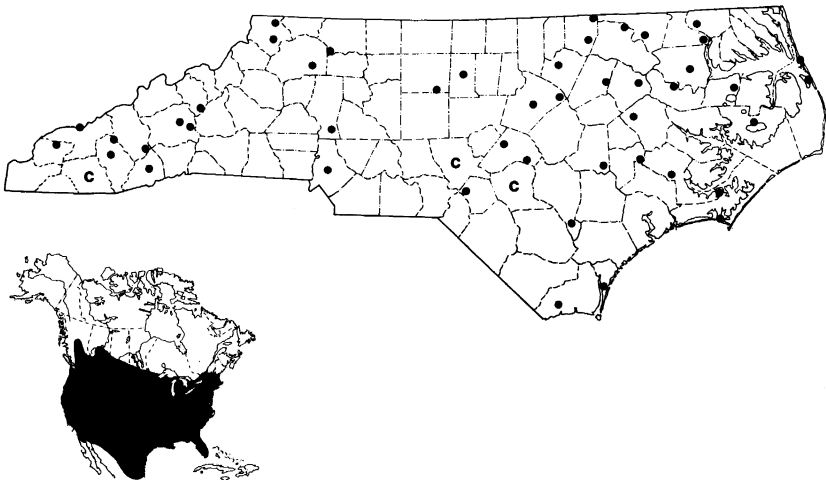


Fig. 1. Known nesting localities of the Rough-winged Swallow in North Carolina (dots). Counties from which nesting is reported but for which specific sites are unknown are marked with a C. Sources of records are on file at the North Carolina State Museum.



Fig. 2. Rough-winged Swallows nest in an eroded embankment on Roanoke Island, Dare County, N.C. Buildings in the background are part of the Marine Resources Center near Manteo.

nest. Several birds perched nearby and were well studied. There were 10 to 15 vocalizing individuals in the area, all of which appeared to be Bank Swallows. This was on 6 May 1981. Later that day a second nest site containing a single pair of swallows was found in Nags Head Woods in the side of a sand pit currently used as a local dump. These birds were Rough-winged Swallows.

On 13 May 1981 we revisited both sites hoping to confirm the breeding of the two species. At this time only Rough-winged Swallows were found at both sites, and at least two nests contained eggs (others were too deep to be reached). The Bank Swallows seen earlier apparently were migrants, although it is interesting that they were investigating potential nest sites during migration.

The swallow burrows did not seem to be new, so we assume that they were also here during the 1980 nesting season and perhaps in prior years as well. Eloise Potter observed large numbers of Rough-winged Swallows in and near Nags Head woods 9 to 11 May 1978 while conducting a breeding bird survey of the area, but she was unable to locate any nests. At the Nags Head site the banks used by the swallows were unvegetated, but the sand pit, while close to water and other open areas that would be suitable for feeding, was completely enclosed in a mature pine-hardwood forest. At the Roanoke Island site (Fig. 2) the bank was vegetated (Loblolly Pine, *Pinus taeda*; American Holly, *Ilex opaca*; greenbriers, *Smilax* sp.; Muscadine Grape, *Vitis rotundifolia*; Coral Honeysuckle, *Lonicera sempervirens*; and Pokeweed, *Phytolacca americana*), and several of the nest openings close to the top of the bank were concealed by overhanging vines.

All of the coastal county nesting records (see Fig. 1) appear to represent a recent invasion. Quay (1959, Birds, Mammals, Reptiles, and Amphibians of Cape Hatteras

National Seashore Recreational Area, U.S. Dept. of Interior 1-88) did not record the species nesting in the Outer Banks area. Rough-winged Swallows first appeared in the Beaufort area about 20 years ago (J.O. Fussell III, pers. comm.), and they were absent in the southeastern portion of the state prior to the 1960s (Funderburg and Quay 1959, J. Elisha Mitchell Sci. Soc. 75:13-18).

Bird students should be aware that Bank Swallows and Tree Swallows (*Iridoprocne bicolor*), while rare mountain nesting species in North Carolina, are regular nesting birds in the tidewater region of the Chesapeake Bay. An extension of their breeding range into coastal North Carolina would not be unexpected. The rapid expansion of nesting Barn Swallows (*Hirundo rustica*) during the 1950s and 1960s, unlike that of the Cliff Swallow (*Petrochelidon pyrrhonota*) (Grant and Quay 1977, Wilson Bull. 89:286-290), went relatively undocumented. This is publication 1981-8 of the North Carolina Biological Survey.

[NOTE: The North Carolina Biological Survey is maintaining nesting records for all the breeding birds of the state. Eloise Potter has been primarily responsible for assembling these records. Persons with definite nesting records for any species are urged to send information to her. Work maps such as the one for the Rough-winged Swallow will appear in *Chat* when they will enhance articles and notes discussing distributional patterns. It is hoped that the occasional appearance of these maps will encourage contributors of breeding records. As can be seen here, nesting information even for the common species is relatively fragmentary.—DSL]

Cliff Swallows Nesting on Fontana Dam, N.C.

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Birds of the Carolinas (1980) summarizes the recent expansion of the Cliff Swallow (*Petrochelidon pyrrhonota*) as a breeding species in the Carolina piedmont and coastal plain since it was first reported nesting at Hartwell Dam on the upper Savannah River in the spring of 1965. Its preference for dam sites, the dams serving as sheltered locations for the attachment of the swallows' characteristic mud nests, was also noted. No nesting activity has been reported for any of the larger dams or other suitable areas in the mountain region of either North Carolina or South Carolina. The discovery of a nesting pair of Cliff Swallows on 15 June 1981 on the Graham County side of the Fontana Dam by Owen McConnell and me represents the first evidence of the logical extension of breeding into the mountain region where suitable habitat exists. Accordingly, Stupka, in his *Notes on the Birds of Great Smoky Mountains National Park* (a park adjacent to Graham County and including the Swain County portion of Fontana Dam) recognized the Cliff Swallow only as a "very common fall migrant in the vicinity of the park." His studies were concluded in 1963, before the advent of the species as a breeder in the Carolinas.

The Cliff Swallows were carefully observed while they were flying with Barn and Rough-winged Swallows in the vicinity of the dam. The pair had placed their jug-like mud nest under a concrete overhang at the top of the dam about 35 m from the shore and a few meters from the first flood gate. This nest was entirely separate from a colony of Barn Swallows occupying the flood gate openings on the opposite side of the dam. We watched the nest between 1400 and 1500 EDT, during which time both adults made frequent visits. An adult bird would arrive, on the average, once every 5 to 10 minutes. There seemed to be no synchronization between the two adults' visits to the nest. Sometimes they would arrive simultaneously, but at other times at well-spaced intervals. They stayed in the nest from 1 to 3 minutes, apparently feeding young. No evidence of additional pairs was found around the dam, and only time will tell whether the species will establish a colony here.