

## NESTING OF THE SWAINSON'S WARBLER IN ALABAMA

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In spite of a growing number of bird students in the field, easier accessibility to more areas, and availability of numerous publications, field guides and other bird literature, the Swainson's Warbler, Limothlypis swainsonii, remains today one of the least known of American songbirds. This is due mainly to the impenetrable nature of its haunts, and for this reason most observers know the species only as a "voice in the swamp," a clear, sweet, piercing song emitted from the deep shade of some swampy tangle. Anyone wishing to pursue the matter further had best prepare himself for dense tangles, quagmires, hordes of persistent mosquitoes, encounters with unfriendly cottonmouths and an occasional ill-tempered rattlesnake.

Arthur H. Howell (1928), an early field ornithologist and author of the first book on the birds of Alabama, noted that the Swainson's Warbler was "confined to deep swamps and river bottom woods where canebrakes are found . . . and its secretive habits conceal it from all but the most persistent observer." Sprunt and Chamberlain (1949) also concurred that the Swainson's Warbler remains . . . one of the few land birds really difficult to find and study."

It is not surprising then, considering the difficulty in working with the birds, that breeding data are difficult to obtain. In Alabama only three positive nesting accounts have been described, two by Howell (1928) of nests he discovered on an island in the Tennessee River in May, 1912, near Florence, and the recent nesting record presented in this paper by the author, found near Jacksonville, in northeast Alabama, on May 11, 1977.

Another nest, possibly that of a Swainson's Warbler, was found May 14, 1978, by Mark Brown, a student at Auburn University, and Milton Harris, a professor in the Chemistry Department of UAH, and has been cited by Imhof (1978) in American Birds. In listing spring arrival dates for the Southern Region, Imhof states that late arriving Swainson's Warblers were reported from nine places in Mississippi, Arkansas, and Alabama, the earliest April 15 near Vicksburg and "three with a nest in the Sipsey Forest, Lawrence Co., Ala. May 14."

Personnal communication with Brown revealed that a nest had been found in the vicinity where three Swainson's Warblers were observed, two of which were seen near a nest thought to be that of a Swainson's Warbler. No bird was actually seen on the nest, nor were detail observations made on the construction of the nest. Brown felt, but did not look, into the nest and found it empty, so no egg descriptions were available to confirm the identity of the nest. The lining he said, felt coarse "something like rootlets." The nest, as described by Brown, was "about five feet high over dry ground in a 'scupernong vine' and composed of twigs and leaves." Harris recalled that the nest was in sparse cane, but Brown, who examined the nest more closely, said no cane was in the area.

Regarding the early account of Howell, he states that "both nests were in rather open canebrakes in heavy timber, on dry ground but close to the border of a small slough. They were loosely fastened in the upper branches of cane stems, about four feet above the ground. One nest, found May 5, contained 2 eggs; May 8, it held 3 eggs and the female parent was incubating . . . the other nest was found the same day and was empty, though apparently just completed." For 65 years this

rather brief description was the only information available on the breeding habits of the Swainson's Warbler in Alabama.

On May 7, 1977, while exploring a beaver swamp six miles west of Jacksonville, I observed a female Swainson's Warbler carrying nesting material, but a thorough search of the area failed to locate the nest. On a return trip four days later, on May 11, I was successful in finding the partially completed nest about 25 yards (23 meters) from the spot where I had observed the female gathering nesting material.

The nest was about chest high in thick, vine entangled hardwood undergrowth near the edge of a beaver pond. Only the outer cup had taken shape at the time and was composed of mud-soaked leaves, some of which had been placed apart from the main body of the nest, giving the whole the appearance of a loose, ragged mass of leaves lodged in the vegetation. The inner cup had just been started and consisted of only a few grass stems. Judging from the degree of completion, nest construction must have begun on or near May 7, when I first observed the female carrying nesting material.

On May 15 the nest appeared completed but held no eggs. Considering nest construction to have begun on or near May 7, time required for construction was about six to nine days.

On May 19 when I returned to check the nest, the female was incubating and allowed me to approach within three feet before slipping from the nest and disappearing into the swamp, revealing four clear, pinkish-white eggs.

Since the nest was empty at noon on the 15th and the female was incubating four eggs on the morning of the 19th, the laying interval was apparently one egg per day. This agrees with finding by Meanley (1971) and would also be consistent with the laying interval of other warblers.

As incubation advanced, the female became an extremely close sitter and would allow me to approach within 18 inches (46 cm) while I snapped pictures of her on the nest. On May 26, one week into the incubation period, I had to touch her with my finger so that she would move for me to check the contents of the nest. Even then, she only hopped up on the rim of the nest long enough for me to see the contents, now only three eggs.

There is no satisfactory explanation for the missing egg. A snake would have in all probability taken all of the eggs, not just one, and a mammal predator would have damaged the nest while pilfering the contents. I had noticed on the first day of incubation, when the nest held four eggs, that the female appeared to sit abnormally high in the nest, then several days later she seemed to be nestled much lower into the cup. It is conceivable that she removed one egg intentionally in order to fit more comfortably into the nest and better accommodate a smaller clutch of three eggs.

At noon on June 1, the nest was checked by Don Salls, a student at Jacksonville State University, and the female was still incubating three eggs. Around noon the following day, June 2, Salls again checked the nest and found that all three eggs had hatched.

Since incubation began on or near the morning of May 19, and the eggs hatched between noon of June 1 and noon June 2, the incubation period was determined to be 13½ to 14½ days. This agrees with two incubation periods cited by Meanley (1971) of 13 days and 14 or 15 days.

The nest was empty when I checked it five days later, on June 7, presumably the work of a snake since the nest was completely in tact and in no way damaged, as one would expect from a mammalian predator. Several snakes were seen on different occasions in the immediate vicinity of the nest. These included two watersnakes, Natrix sipedon, a black racer, Coluber constrictor, and a cottonmouth, Agkistrodon piscivorus, the latter uncommon in northeast Alabama.

Since the nest was no longer in use, measurements were taken at the nesting site and the nest collected for more detailed study. The nest measured exactly 4.5 feet (1.37 meters) above dry ground and was supported by honeysuckle, Lonicera japonica, and round-leaf smilax, Smilax rotundifolia, that entwined about a small hophornbeam, Ostrya virginiana, and formed an umbrella-like canopy over the nest.

The outer cup measured 4.5 and 7.5 inches (11.43 by 19.05 cm) and was constructed of mud-soaked leaves of oak, maple and yellow poplar (Table 1) many of which were placed with their petioles pointed outward. The leaves had been placed in position while wet, and in spite of their loose, ragged appearance, were molded together securely. All total the outer cup was constructed of 46 separate pieces of plant materials.

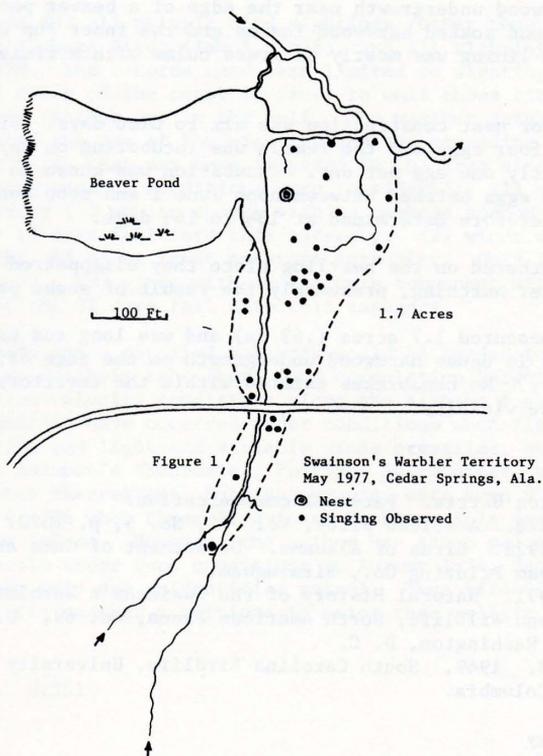
TABLE 1: Composition of Swainson's Warbler nest found near Cedar Springs, Alabama, May 11, 1977.

Outer cup	No. of plant parts
Sugar maple, <u>Acer saccharum</u> . . . . .	10
Water oak, <u>Quercus niger</u> . . . . .	6
Red maple, <u>Acer rubrum</u> . . . . .	4
Yellow poplar, <u>Liriodendron tulipifera</u> . . . . .	4
Willow oak, <u>Quercus phellos</u> . . . . .	2
Northern red oak, <u>Quercus rubra</u> . . . . .	1
Unknown . . . . .	19
	<u>46</u>
Inner cup (skeletonized)	
Hornbeam or hophornbeam, <u>Ostrya virginiana</u> or <u>Carpinus caroliniana</u> .	12
Blackcherry, <u>Prunus serotina</u> . . . . .	11
Hackberry, <u>Celtis</u> sp. . . . .	12
Dogwood, <u>Cornus</u> sp. . . . .	7
Greenbriar, <u>Smilax</u> sp. . . . .	1
Unknown . . . . .	83
	<u>126</u>
Lining	
Grasses . . . . .	172
Red maple, <u>Acer rubrum</u> , pedicels . . . . .	83
	<u>255</u>
Miscellaneous	
Red maple, <u>Acer rubrum</u> , seed . . . . .	1
 Total plant parts in nest . . . . .	 <u>428</u>

The inner cup measured 2.00 x 2.37 inches (5.08 x 6.01 cm) and was composed of highly skeletonized leaves of blackcherry, Prunus serotina, hackberry, Celtis sp., dogwood, Cornus sp., and hophornbeam, Ostrya virginiana, which were molded together to form a neat, round, thick rimmed cup. The lining of the inner cup was composed mostly of grass culms with a sparse final lining of red maple pedicels covering the lower half and bottom of the cup. Grass culms comprised the bulk of the inner lining, totaling 172 pieces, and maple pedicels 83 pieces. The latter are apparently a preferred item since Meanley (1971) also noted that all of eleven nests studied from the Dismal Swamp in Virginia were lined with red maple pedicels.

All total, the entire nest was made of 428 pieces of plant material which is consistent with 418 in a Pendleton Ferry, Arkansas, nest and 323 from a Dismal Swamp nest reported by Meanley (1971).

The territory, based on observation of the singing male over a four week period (May 5 - June 7), measured 1.7 acres (.69 ha) and was long and narrow in shape (Figure 1). By comparison, the size of nine territories cited by Meanley (1971) ranged from 0.3 acres (.12 hectares) to 4.8 acres (1.94 hectares). Another territory mapped by the author in Calhoun County measured 3.9 acres (1.58 hectares).



The nest was in thick hardwood undergrowth composed chiefly of hophornbeam Ostrya virginiana swamp dogwood, Cornus sp., supar maple, Acer saccharum, and spicebush, Lindera bensoin.

The overstory was composed of widely spaced ash, Fraxinus sp., winged elm, Ulmus alata, yellow poplar, Liriodendron tulipifera, blackgum, Nyssa sylvatica, sycamore, Platynus occidentalis, and mulberry, Morus rubra, averaging 50-60 feet (15-18 meters) high. The dense understory consisted mostly of spicebush, Lindera bensoin, of rather uniform size, hophornbeam, Ostrya virginiana, and swamp dogwood, Cornus sp. that was interlaced with open "sponges" of water overgrown in aquatic vegetation, chiefly lizard's tail, Sarurus, and drained by sluggish meandering streams. The drier sites tended to have spots of relatively open second growth.

#### Summary

Due mainly to the inhospitable nature of its haunts, the Swainson's Warbler remains today one of the least known of American Songbirds. A new nesting record for the species in Alabama was found by the author on May 11, 1977, six miles west of Jacksonville, near Cedar Springs, in northeast Alabama.

The well concealed nest was four and a half feet (1.37 meters) above dry ground in dense hardwood undergrowth near the edge of a beaver pond. The outer cup was composed of mud soaked hardwood leaves and the inner cup of highly skeletonized leaves. The lining was mostly of grass culms with a finished lining of red maple pedicels.

Time required for nest construction was six to nine days. Since the nest was empty on May 15 and four eggs and the female was incubating on May 19, the laying interval was apparently one egg per day. Incubation was known to have begun on or near May 19, and the eggs hatched between noon June 1 and noon June 2. The incubation period was therefore determined at 13½ to 14½ days.

No data were gathered on the nestling since they disappeared from the nest within five days after hatching, presumably the result of snake predation.

The territory measured 1.7 acres (.69 ha) and was long and narrow in shape. The nest was located in dense hardwood undergrowth on the edge of, and near one end of, the territory. No canebrakes existed within the territory nor were any known to occur in the vicinity.

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