The Status and Breeding Habits of the Worm-eating Warbler in South Carolina

Where are These Secretive Birds, And What are They Doing?

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The Worm-eating Warbler (*Helmitheros vermivora*) is an unobtrusive, ground-dwelling bird that is a fairly common breeder in suitable habitats of the South Carolina mountains. Its status and distribution in other regions of the state is poorly known. Volunteers participating with the South Carolina Breeding Bird Atlas (coordinated by South Carolina Department of Natural Resources) have recently shed new light on several aspects of the Worm-eating Warbler's distribution. They have found that the bird is not as rare in the coastal plain as formerly believed, and several breeding records have been reported. It is at best quite rare in the piedmont, and few Atlas records have come from that region during the breeding season (J. Cely, pers. comm.). This species' migratory status is regarded as uncommon throughout South Carolina in the spring and fall (Potter *et al.* 1980). I have found it to be a fairly early transient in the fall, with many birds passing through from late August through early September.

I was able to study Worm-eating Warblers in the late 1980s in the Mountain Bridge Wilderness and Recreation Area of northern Greenville County, South Carolina. I found this wood warbler to be a fairly common resident there above altitudes of about 420 m. Boulder-strewn slopes, brushy hillsides, and wooded ravines are its preferred mountain haunts. Typical breeding habitats are covered with a fairly dense understory of rhododendron (*Rhododendron* sp.), Mountain Laurel (*Kalmia latifolia*), and sometimes Wild Hydrangea (*Hydrangea arborescens*). A variety of hardwoods ordinarily constitutes the overstory, but in several instances I found birds near small rivulets in the Jones Gap and Oil Camp Creek areas among the substantial numbers of Eastern Hemlock (*Tsuga canadensis*). As a whole, I find Harrison's

(1984) summary of this bird's mountain habitat as "wooded, leaf-covered slopes," quite descriptive.

Resident male Worm-eating Warblers arrive on their breeding grounds in these mountains in mid-April, probably before the main migration passage. My earliest recorded arrival date for the Caesars Head area is 19 April 1986. Breeding occurs shortly thereafter, and nest building starts by late April.

Bent (1953) stated that the nest of this species was quite characteristic, and Harrison (1984) noted that in many respects its location is similar to that chosen by the Black-and-white Warbler. These observations coincide with mine. I observed remarkably little variation in the biological timing, site selection, or nesting habits of this species.

I found 6 Worm-eating Warbler nests in the Caesars Head area, all of which were quite similar in location and description. Nests were placed on the ground, usually at the base of a small sapling, fallen branch, or exposed root. Most nests were concealed in a drift of leaves that had gathered in a small hollow or depression, thus rendering it nearly invisible. The selected site is almost always a wooded hillside or sometimes a bank cut along an old road bed. All 6 nests I found were adjacent to, or near, an old road bed or trail. The typical nest is rather bulky. Its outer layer is comprised of a thick, matted layer of dead leaves that blend perfectly with the surrounding ground debris. One nest I examined was built almost entirely of Cherry Birch (*Betula lenta*) leaves. Other plant materials woven into the outer layer include grasses, weed stems, and sometimes moss.

The inner cup of each of the 6 nests I found was lined with spore stems from an unidentified ground moss, some entirely so. Bent (1953) commented on the frequent use of this plant material, noting that several observers commonly found stalks or flower stems of the "hair moss (*Polytrichium*)" lining the nest. On close examination, I found other plant materials used in some of the nest interiors, including fine bark strips, grasses, flower pedicels, and pieces of moss.

Harrison (1975) stated that clutch size ranges from 3 to 6 eggs, with 4 to 5 being typical. Each nest I found held 5 eggs. My observations suggest that at least during some seasons the breeding activities of birds within particular populations are closely synchronized. In 2 of the 3 nests I found in 1988, the first egg was laid on the same day (4 May), and the first egg was laid in the third nest only 2 days later (6 May). I found other nests containing full egg clutches on 9 May 1987 and 11 May 1988. During incubation, the female Worm-eating Warbler is a close-sitter and flushes from the nest only reluctantly when disturbed. A female I flushed from a full-egg clutch on 9 May 1987 walked away silently with fanned tail feathers and fluttering wings.

Another flushed bird flew directly to the ground in front of me. With a lowered head and body, she walked away in a curious, creeping fashion while flicking the feathers of her raised tail and calling an excited "chit" note.

Harrison (1975) stated that incubation lasts 13 days. I found newly-hatched young in nests on 20 May 1988 (Jones Gap) and on 23 May 1987 (Raven Cliff Falls Trail). One nest under observation was found empty on 3 June (1988). Bent (1953) cited F.L. Burns to the effect that young leave the nest in about 10 days and may depart much sooner if disturbed. I saw fledged young out of the nest on 5 June 1988 (Caesars Head), 13 June 1988 (Jones Gap), and 17 June 1988 (Caesars Head). Both adults feed and tend to the young. I found that caterpillars are an important mainstay of the young bird's diet. The birds reportedly rear only a single brood (Harrison, 1975).

But the birds don't breed solely in the mountains.

Sprunt and Chamberlain (1949) alluded to the possibility of Worm-eating Warblers breeding in the South Carolina coastal plain, citing references by J. J. Audubon and A. T. Wayne to possible breeding near Charleston in 1884 and 1903. It was not until much later, however, that the first occurrence of this bird in the lower coastal plain during June was documented. Hamel and Lennartz (1976) found a singing male on 8 June 1976, and 22 June 1976, in the Francis Marion National Forest in Berkeley County. They described the site as "a relatively dry forest intersected by a small drain," and as having a "mature overstory of scattered Loblolly Pine (*Pinus taeda*); a maturing midstory of Sweetgum (*Liquidambar styraciflua*), Black Gum (*Nyssa sylvatica,*) and Water Oak (*Quercus nigra*)". The understory was described as being "moderately dense" with Red Maple (*Acer rubrum*), Sweet Gum, Pepperbush (*Clethra alnifolia*), Switch Cane (*Arundinaria gigantea*), Wax Myrtle (*Myrica cerifera*), *Lyonia lucida*, and grape vine(*Vitis* sp.).

Since 1976 Worm-eating Warblers have been found in the coastal plain with increasing regularity. Have we been overlooking this species? Or has its range expanded? Gauthreaux (in Hamel and Lennartz, 1976) noted that a number of southern coastal plain records have been obtained from "atypical habitats." Mark Wilson found this species during the breeding season in what he considered to be typical Carolina bay habitats in Horry County, South Carolina (pers. comm.). He found territorial males in late May and early June at Cartwheel Bay Heritage Preserve and Brown Bay in 1996. He also observed an adult bird carrying food at Lewis Ocean Bay Heritage Preserve on 25 May 1990. Wilson described these sites as "dense shrub thickets with pond pines." He also noted an adjacent sand rim with "longleaf pine and turkey oak." Others have reported this species from similar habitats. Glover (1994) found this warbler during the breeding season in the upper coastal plain at the Congaree

National Monument near Kingsville. Birds were banded there in June 1994 and 1996 (J. Cely pers. comm). The 1994 bird was a female with a well-developed brood patch.

We have much to learn of the Worm-eating Warbler's distribution, habitat selection, and breeding habits in the South Carolina coastal plain. These recent observations in the lower coastal plain suggest that in appropriate habitats this species is not nearly as rare as previously supposed. But known records are still absent or extremely scarce from the coastal plain south of Charleston. Its occurrence in the outer coastal plain and piedmont appears to be sporadic, and few records exist. Additional surveys of Carolina bays and similar habitats may provide a clearer picture of this bird's status and nesting requirements outside of the mountains.

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Editor's Note: *Few people can say they've found 6 Worm-eating Warbler nests, as Mr. Pitts can. But many of us can say we've heard the birds' distinctively dry trill. If you hear a male singing on territory over a 2-week period or so anywhere in South Carolina outside the mountains in June, let Dennis Forsythe, our South Carolina General Field Notes Editor, know.* BW