

Down But Not Out

Steadily declining in numbers, the Cerulean Warbler embodies the plight of migrant species that depend on large forest tracts for survival

BY RICHIE SWANSON



Arthur Morris / Birds as Art

The song came from the top of a cottonwood tree towering through a small gap in the dim, green light of the dense forest canopy. It was barely a faint buzz, a "twee-twee-twee-twee-twee" ringing so softly that I began to wonder if its source really was a bird and not some tiny insect instead. After all, I had been listening for more than twenty minutes, staring at the crown of the eighty-foot cottonwood, and I certainly had not seen any bird.

The buzz repeated itself at a fast pace as a breeze blew, and a clatter of leaves drowned out the "twee-twee-

tweez" completely. Then the breeze stopped, and a small, blue warbler darted from a thick mass of foliage and lit on a sunny bare branch.

The bird's throat and belly were snow-white. A dark band ringed its breast, two white bars marked each of its grayish blue wings, and black streaks ran down its flanks. While the bird preened, it bowed its head, and for several seconds its crown showed off the bright, unblemished cerulean blue that gives the warbler its name.

This sighting and others offered a special hope. They occurred deep in a bottomlands forest on the Upper Missis-

The Cerulean Warbler (male, above) has experienced a steady and worrisome decline in population over the last thirty plus years. Theories for the downward slide are numerous, but much research will be needed to understand the problem.

sippi River National Fish and Wildlife Refuge in Minnesota where I planned to return and document breeding birds. If the Cerulean Warblers stayed in the forest and attempted to nest, it would be the most important species to count in the woods all summer.

The Cerulean Warbler appears to be disappearing faster than any other

warbler in North America. Breeding Bird Survey routes indicate the species declined at a rate of 4.2 percent per year from 1966 to 1996. That rate suggests that there were roughly twice as many Cerulean Warblers fourteen years ago as there are today. If the same decline were to continue for another fourteen years, the population would be cut in half again. Of the 650 species that breed in North America, only five have shown greater decline than the Cerulean Warbler. Specific causes of the Cerulean Warbler's decline have not been determined since little is known about the species.

The bird breeds in mature, deciduous forests in floodplains and other moist areas, such as ravines, coves, and upland slopes from north-central Texas and Louisiana, Mississippi and Alabama northward to Minnesota, Wisconsin, Michigan, New York, and Vermont. According to Paul Hamel of the Southern Hardwoods Laboratory in Stoneville, Mississippi, the Cerulean Warbler is found most frequently in mature forests where there are exceptionally tall trees and slight openings in the forest canopy, about the size of a gap created by a tree fall. The species is virtually absent from forests where only small trees exist. According to Chandler Robbins of Patuxent Wildlife Research Center in Maryland, the species is rarely found in tracts of forest smaller than 600 acres.

Hamel, Robbins, and other researchers agree that the Cerulean Warbler has suffered considerable habitat loss due to deforestation since the 1800s, as well as current forest fragmentation. Cerulean Warblers nest high in forest canopies where nests are difficult to see, so nesting data for specific habitats are scarce. Consequently, evaluating Cerulean Warbler habitat loss is very difficult.

Other factors may limit the population of Cerulean Warblers but are not yet quantified. These include cowbird parasitism, loss of winter habitat, logging practices in the U.S. that prevent forests from achieving old-growth status, polluted waterways, and dis-



Visuals Unlimited / Steve Maslowski



David Dvorak

eased trees where nests have been historically located, such as elm, American chestnut, oak, and sycamore.

While searching for Cerulean Warblers in a bottomlands forest one recent summer, I was surprised to see a woman standing below a giant cottonwood. She lowered her binoculars and flashed a big smile, brimming with the joy of seeing and hearing something very special. Dawn Hinebaugh, a wildlife ecologist monitoring Cerulean Warblers on the Upper

The female Cerulean Warbler (top) bears the distinctive wing bars but lacks the sky blue color of the male. The pale eyebrow is also a helpful field mark. In the field, Ceruleans are usually seen high in the forest canopy (above), often searching for insects and nectar in the flowers of trees.

Mississippi River for the Wisconsin Department of Natural Resources, was also searching for Ceruleans.

"A male Cerulean Warbler is singing his partial song," she said.

"He's leaving the emphasis off the end, and that's what he does when his female is on a nest somewhere."

Male Cerulean Warblers arrive on their nesting grounds during early or mid-April in the southern region of their breeding range, and during the last days of April and the first week of

needles. The cup was about one and a half inches deep, and had a diameter of nearly two inches.

The female Cerulean gathers materials and builds the nest herself. She arranges the nest material on a branch high in the forest canopy, usually about thirty feet above the ground.



L. Waikshaw / VIREO

Cerulean Warblers generally nest high in the forest canopy (male at nest, above). The female builds the nest and incubates the eggs, but both parents share the feeding duties.

May in the northern part of their range. They engage in constant sing-offs until females arrive on the nesting grounds about two weeks later.

Males are aggressive with one another early in the breeding season. During mid-May in the Minnesota bottomlands woods, a male sang loudly from a tall, black willow tree while a female fed quietly from a lower tree. A second male appeared beside the female, and the first male instantly swooped down at the intruder. Both males shot away in a chase that was fast and intense. Males also fiercely grapple with each other when they are near a single female during early breeding season.

Dawn showed me the nearly completed nest of a Cerulean Warbler. The nest consisted primarily of shreds of grapevines that were as thin as pine

Then she uses her body to form the cup. Nests are lined with dry grasses, shreds of vines, moss, and occasionally hair. Spider silk is used to bind shreds of grapevine, bark strips, and other plant fibers to form the outside of the nest. The outsides of the nests appear white and brown from the ground, and are frequently decorated with cocoons.

Nests are nearly always placed on a limb above an open space, perhaps to facilitate the female's exit from her quarters. In leaving the nest, the female hops out and drops straight down below the limb before veering up in a sudden fish hook, a maneuver Paul Hamel called the "bungee drop." As we watched from the ground, the female gave the illusion that she was simply falling off the nest.

The female lays three to five eggs and incubates them for nine to twelve days. In the meantime, the male perches high in a tree

next to the nest tree, singing and watching the female. When another small bird—a redstart, Blue-gray Gnatcatcher, or Brown-headed Cowbird—flies into the nest tree, the male Cerulean Warbler is likely to dive-bomb the intruder and chase it away.

Both male and female Cerulean Warblers feed the nestlings. Dawn has witnessed adults carrying caterpillars as prey, but the diet of the Cerulean is poorly known. They are believed to be largely insectivorous like most other warblers, gleaning tiny bugs from the underside of leaves and even perching on bare branches, darting after insects like flycatchers.

Cerulean Warblers leave their nests nine to ten days after hatching. About two weeks later, each fledgling is nearly the size of an adult and has a tail about two-thirds grown. It has faint yellow eyebrow stripes, two white wingbars on each grayish blue wing, and a downy breast and belly the color of smudgy gray ash.

In mid-June, a fledgling Cerulean perched on a branch in an ash tree near the eighty-foot cottonwood where I had first heard an adult male singing. Several yards away a "twee-twee-tweez" buzzed from deep within a mass of grapevine leaves that surrounded a dead tree trunk. The song quieted, then an adult male Cerulean Warbler flew out of the grapevine and lit in the ash tree beside the fledgling. The fledgling arched its head and began to chip. Its wings fluttered rapidly, look-

"In all of the Neotropics, only the coastal forests of Brazil have lost a higher percentage of their original acreage than the wintering sites of the Cerulean Warbler."

ing awkward and stiff, and the gray down on its belly fluffed up as the little bird shook its head up and down. The

adult male fed the fledgling once, then hopped a few branches higher and disappeared in the foliage. A few minutes later, the "twee-twee-tweez" rang softly from the top of the ash tree, perhaps indicating a contact song to the fledgling or the male's mate.

Generally, each Cerulean Warbler parent feeds different fledglings. Dawn has frequently seen a male feed two fledglings in one tree, while a female fed another pair in a nearby second tree.

"Once," Dawn remembered, "a male fed a fledgling in one tree while a female fed a Brown-headed Cowbird fledgling in a nearby tree." Like most other warblers, Ceruleans show no evidence of possessing defenses against the Brown-headed Cowbird.

Paul Hamel says it's disheartening to watch Cerulean Warblers fail at their first nesting attempt, and, during a second try, see two little heads pop over the rim of a nest, then notice that only one head remains, and, finally, to watch as that nestling grows into a begging cowbird chick.

Fall migration routes of the Cerulean Warbler are also unknown, but the species may be among the earliest Neotropical migrants to fly south. The species appears on the coast of Mississippi in early August, earlier than any other Neotropical migrant except the Louisiana Waterthrush.

The precise habitat requirements for Cerulean Warblers in South America are, as you might guess, poorly defined. The generalities that are known paint an unsettling picture for the species. During winter, Cerulean Warblers are found mostly on the eastern side of the Andes Mountains in Venezuela, Ecuador, Bolivia, and Peru. They are found in virgin forests and some second-growth habitat between 1,600 and 4,800 feet. According to John Fitzpatrick of the Cornell Lab of Ornithology, this zone of the Andean foothills is a principal region for cof-

fee, cacao, tea, rice, and vegetable plantations. In all of the Neotropics, only the coastal forests of Brazil have lost a higher percentage of their original acreage than the wintering sites of the Cerulean Warbler.

The 1,600-4,800-foot zone of elevation is the narrowest used by any resident or migrant bird found in the Andes. Inside that range, Cerulean

and other years. Territories were marked and remained nearly consistent from year to year, but no bird was banded, so it is unknown if the Cerulean Warblers were individuals practicing site fidelity.

A decade ago, details of the breeding-habitat requirements of the species were fundamentally unknown. Now that the basics are recognized, the U.S.



Rob Simpson

A male Cerulean Warbler (above) makes itself noticeable during the breeding season by fanning its tail. Fragmentation of the warbler's breeding habitat may be contributing to the species' decline.

Warblers are usually found as one or two individuals among flocks of mixed species feeding on insects. For reasons unknown, whenever a flock contains a Blackburnian Warbler, Cerulean Warblers are absent.

Dawn suggested an excellent place for me to begin looking for a Cerulean Warbler this May. In Tennessee in 1993 she and other workers tagged trees where male Cerulean Warblers were first heard to sing in the spring. Almost inevitably these trees would have old tags indicating they were also the trees where Cerulean Warblers buzzed their first spring songs in 1992

Fish and Wildlife Service has listed the Cerulean as a species of management concern and wildlife agencies are beginning to manage habitat for Ceruleans.

Paul Hamel suggests the management of a network of forest tracts at least 9,000 acres throughout the Cerulean Warbler's range in the United States. In the Neotropics, he suggests a similar chain of mature forest tracts that will extend across the breadth of the species' winter range.

Nonetheless, the cottonwood that rises above the dim, green canopy of the bottomlands woods will loom foremost in my mind when I listen for the first "twee-twee-twee-twee-twee-tweez" of the year. If the song does buzz softly down from that tree, it can provide another glimmer of hope for the Cerulean Warbler. 