



## Woodpecker Condos Bring Endangered Birds Back from the Brink

*The Francis Marion red-cockaded woodpecker population nears its former healthy numbers.*



RCW male outside a cavity. Photo courtesy of Martjan Lammertink 2009.

It's said that necessity is the mother of invention, and so it is that a disaster hatched a concept that may save a vanishing species -- the red-cockaded woodpecker.

So many of the stories that emerge from the Francis Marion National Forest share a common genesis in Hurricane Hugo, the massive storm that is estimated to have knocked down nearly a billion board feet of timber on the forest.

The red-cockaded woodpecker is the only woodpecker in the United States that builds its nest cavity in living pine trees. It is totally dependent on living pines, specifically old-growth trees at least 10" in diameter, which are few in number in the Southeast due to early logging practices, bug kill and sprawling human development.

Before the storm, the Francis Marion had the second largest population of red-cockaded woodpeckers in the entire country, about 475 breeding pairs. Hugo wiped out more than half the population in a single, stormy night.

"Not only did the hurricane kill an estimated 63% of the population, it destroyed almost 90% of the cavity trees on the forest," said Mark Danaher, biologist for the Francis Marion National



Female flushing from a cavity. Photo courtesy of Martjan Lammertink 2009.

Forest. "These birds depend on living trees not just for nesting, but also for foraging. It was a double hit--nowhere to live and little to eat."

Fortunately, even before the storm, pioneering researchers such as Carole Copeyon (North Carolina State University), Bob Hooper and David Allen (both of the Southeastern Forest Experiment Station) were already experimenting with artificial cavities to sustain the population of endangered birds. Hugo most certainly heightened the

urgency of that important work.

"Nobody had ever installed artificial cavities on a large scale before," said Danaher. "But the need was obvious. It can take several years for the birds to create their own cavities, which is why the artificial cavity program is so beneficial. We were able to go in and instantly install them so that the surviving birds had adequate structures to go to." As of January 1, 2008, more than 2,500 drilled cavities, drilled starts and inserts had been installed on the Francis Marion National Forest.

The U.S. Fish and Wildlife Service (USFWS) developed a recovery plan for the red-cockaded woodpecker and set a goal of 350 potential breeding groups for the Francis Marion National Forest. A typical cluster averages three or four birds--the breeding pair and "helper" birds, usually male offspring, who remain to help raise the young. Female offspring typically disperse to look for new territory in which to nest. The term "cluster" is used to refer to the aggregation of cavity trees that is used and defended by a group of woodpeckers. A "potential breeding group" is used to refer to an adult male and adult female that occupy the same cluster, even if they are not accompanied by a helper, may not have attempted to nest, or have not successfully fledged young.

"Today," said Danaher, "twenty years later, we're up to about 400 potential breeding groups. So we've exceeded the USFWS goal for recovery, but the Forest Service goal is actually 450 groups, so we've still got a little ways to go."

Nevertheless, the successful recovery of the woodpecker population on the Francis Marion has enabled the forest to donate birds to help boost their dwindling populations elsewhere. Historically, the birds were found as far north as the New Jersey pine barrens and as far west as Tennessee, Kentucky and Texas.

According to Danaher, Larry Wood, a biologist funded by various agencies and the University of Georgia, started the translocation program on the Francis Marion last year. The forest donated three pairs of sub-adults to Military Ocean Terminal at Sunny Point in Brunswick County, NC, four pairs to Fort Jackson in South Carolina, and three pairs to the Okefenokee Wildlife Refuge in Georgia.

Each year on the forest, crews install about 100 to 125 artificial cavity structures. Additionally, the forest establishes "recruitment clusters" in areas where the habitat looks good, where there are enough adequate-sized trees and particularly, where the habitat is sustainable by prescribed fire. Fire, Danaher explained, is essential to the success of the program.

Prescribed burning, like the regular thinning of pine stands, remains one of several critical solutions to the overwhelming regrowth of understory that resulted from Hugo's devastation. The red-cockaded woodpecker builds its cavities from 12 to 40 feet up in the tree. An abundance of shrubby undergrowth allows predators easy access to the nest. After Hugo, that problem was magnified by the high volume of downed woody debris.

Fire plays a role, too, in another critical way.

"The birds feed on arthropods," explained Danaher. "Prescribed fire increases the availability of arthropod prey by opening up the understory and ultimately increases both insect abundance and diversity. We've found that the increase in arthropods resulting from regular prescribed burns, coupled with the artificial nesting cavity program, is compensating for the effects of the hurricane. The birds are even finding those relic large pine trees that Hugo missed and building their own cavities. It's really amazing to see."

But, Danaher emphasized, "We're not out of the woods yet. When Hugo hit, many of the pine stands were about the same age, 60+ years old. All those trees had about the same susceptibility to the storm, and they all snapped like toothpicks. With the post-Hugo pine regeneration all sprouting up at once—without that age class diversity—another storm could put us right back to square one. It's a juggling act to manage a population like this one, and we'll have a lot of work to do over time to re-establish age-class diversity on the forest."

Meanwhile, Danaher and his crews will continue to install one to five recruitment clusters per year, creating starter cavities for the birds to find and occupy. Unbelievably, he said, they manage to locate the new cavities in a matter of weeks, if not days.

Danaher is hopeful for the future. "With a population this size," he said, "if each one of those 400 groups produces its average of 2.4 successful nestlings, that's close to 1000 nestlings the population is producing in a year. That's pretty impressive"

And the best part, he said, is that what we do to benefit the red-cockaded woodpecker also benefits all the other flora and fauna found in the longleaf pine ecosystem.

"In that respect they're kind of the flagship species of the longleaf pine ecosystem. What's good for them is good for everything else, so it's really a win/win situation no matter how you look at it."

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