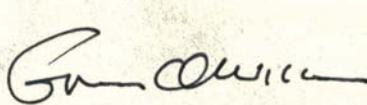


The Quarterly Journal of the Florida Native Plant Society

# Palmetto



# Ants, *Anthill*, and Biodiversity with E.O. Wilson



An interview with E.O. Wilson

by Marjorie Shropshire

E.O. Wilson enters the quiet wood paneled room and greets each of us individually, and when I introduce myself as a representative of the Florida Native Plant Society, he smiles warmly and comments “you all have your work cut out for you.”

Wilson is no stranger to Florida. As a youngster, he lived in Central Florida and the Panhandle – and he describes the state as a “wonderland for a child.” He has returned repeatedly over the years as a visitor, lecturer, scientist, and lately, as a preacher for his most heartfelt interest – the preservation of biodiversity.

When asked about the condition of Florida’s environment, Wilson replies, “Magnificent, still, with open spaces – especially in my favorite place, the Panhandle – but under siege and in peril by a mostly uncaring population.”

In the 1960’s, his experimental focus was on biogeography, the geographic distribution of plants and animals. Wilson and his associate Dr. Robert MacArthur sought to understand how speciation occurs. Islands presented unique laboratories that could be used to study population biology. In his book *Naturalist* Wilson writes “islands are the key to rapid progress in biogeography.” He began by looking at historical records of how species had reestablished themselves on Krakatau, an Indonesian island decimated by a volcanic explosion in 1883. Further investigation examined the balance of species in other isolated habitats, and the research became the basis for the groundbreaking book, *The Theory of Island Biogeography*.

Although first published in 1967, the book’s concepts still are relevant today. One may consider Florida’s natural preserves – scattered widely around the state, separated by development, and isolated from one another – as islands. The number, population, and distribution of

species within them is affected by their physical size and fragmentation.

Wilson scoured the state, searching for sites that could be used to collect data for further experiments. He realized that the tiny mangrove islands of the Florida Keys could serve as miniature Krakataus – on them, he could study insect and arthropod re population. He admits that his choice of location was partly aesthetic. “Sometimes I found myself beneath the massed nests of clamoring herons, egrets, and white-crowned pigeons. I drifted along from landfall to landfall, collecting specimens, studying charts, filling my notebook with impressions. Mine was anything but a world-class voyage, but I was as content as Darwin on the voyage of H.M.S. Beagle.”

Wilson explored the Keys, Ten Thousand Islands, Everglades National Park, and the Dry Tortugas, ultimately securing permission from the National Park Service to use a number of small mangrove islands in Florida Bay as sites for his “defaunation” experiments.

The experimental methodology was unique and difficult. Islands were first monitored to survey what species were found there, no easy task due to the variety and number of small creatures hiding among the mangroves. Larger creatures, including snails, were captured and moved to adjacent islands. Next, tent fumigation was used to “defaunate” the islands, exterminating any insect or arthropod life that was present. The process had to be carefully monitored to prevent damage to plants.

Wilson and his associates Daniel Simberloff and Robert Silberglied closely documented the progress of re population. The first arrivals were flying insects, followed by ants and spiders, who ballooned in from nearby islands.

Continued on next page

*“The loss of biodiversity is the folly our descendants are least likely to forgive.”*

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It didn't take long for the islands to be completely recolonized by their original inhabitants, and the data collected helped solidify Wilson and MacArthur's theory.

In 1967, Simberloff and Silberglied visited Lignumvitae Key. They were astounded to discover an old growth West Indian forest little changed from the time when the Arawak inhabited Florida. The Key was rich with giant gumbo limbo, mahogany and lignumvitae trees, but its resident caretakers told the visiting biologists that the island was to be sold for development, and that its owners were simply interested in making a “financial killing.”

Concerned with what would be lost if the island was developed, the pair contacted Wilson. A visit left Wilson “enchanted” and he invited Cornell chemical ecologist Thomas Eisner to take a look. Together, they wrote an article for *Natural History* about the island's uniqueness – and its potential destruction.

Wilson continued to advocate for preservation, thus beginning the process that would ultimately lead to Lignumvitae Key's becoming a state park – speaking to the Florida Audubon Society and seeking the help of Thomas Richards, president of The Nature Conservancy. Richards willingly committed his organization to the cause. With the help of donors, Florida Audubon, The Nature Conservancy, park administrator Nathaniel Reed, and the State of Florida, funds to save the island were secured, and Lignumvitae Key was protected from becoming the site of vacation homes for the wealthy.

Wilson recently visited the island for the first time in forty years and said it was “wonderful to return.” He notes, “There has been a lot of progress since I did field work in the Florida Keys in the 1960s. Florida has come a long way in awareness, but it has a much longer way to go.”

He points out that his actions defending Lignumvitae Key were the only time in the past he was politically active and recalls the existence of “primitive struggles between developers and environmentalists over preservation lands,” preferring instead the study of biodiversity. However, it is this campaign to preserve biodiversity that has again led him to activism and a place in the public eye.

One of the challenges of preserving biodiversity is global warming. When asked about his thoughts on the topic, Wilson says, “Within the scientific community there is virtually no disagreement as to the existence of climate change. Big changes in precipitation are already taking place in Australia, sub-Saharan Africa, and the American Southwest. Some Arctic species will be doomed. Boreal and cold adapted species will not survive.” His disgust at those who deny climate change is palpable.

Many of Florida's fragile ecosystems will be adversely affected by rising sea levels that result from a warming earth, and discussions have already begun about what action to take. I asked Dr. Wilson about approaches to dealing with possible extinctions due to the inability of plants and animals to adapt quickly enough to a changing environment; “Should we move species to preserve them?” He answered, “Yes, but, we can't move ecosystems. One square mile of natural Florida forest has tens of thousands of species. There is no way to move an ecosystem. The best way to preserve species is to save them on site, and connect the preserves with corridors to allow for natural migration.” He goes on to say, “Major projects are being formulated to meet the impact of climate change on biodiversity. New concepts are being created, like the Spine of the Continent Project, a corridor of natural reserves reaching from Alaska to the Mexican Cordillera – a north-south corridor for migration northward of warm adapted species.” Plans also exist for an eastern wildway linking the Everglades with the Arctic via the Appalachian Mountains.

Today's economic climate creates many hardships for conservationists – although land values have declined markedly, making them more affordable, budgetary cutbacks have limited funds allocated to purchase conservation lands. When asked to define his level of optimism about the success of environmental causes today, Wilson replied, “There is a period of drought in terms of new money coming in, but that is mixed with a rising green tide that has Americans more open to thinking about their natural heritage.” He describes himself as a “cautious optimist,” and when asked “How do you remain productive – what's the secret?” he replies without hesitation “Love of natural history, love of being out in it.”

Wilson's education in natural history began early in his childhood, and he credits his first training to his membership in the Boy Scouts, where he achieved the rank of Eagle Scout. He writes in *Naturalist* that “the Boy Scouts of America seemed invented just for me” and chronicles his delight at the portion of the 1940 *Handbook for Boys* and its entry under the heading “Insect Life” – “To obtain this Merit Badge, a Scout must: 1. Go into the country with the Examiner and show to him the natural surroundings in which certain specified insects live, and find and demonstrate living specimens of the insects, telling of their habits or of the nature of their fitness for life in their particular surroundings.”

The Boy Scouts gave Wilson the foundation and work ethic that would serve him well throughout his career, and he says that by the time he enrolled at the University of Alabama to study biology, he had learned so much in the field from direct

observation that he “knew a lot already.” He smiles and says “I had a lopsided education.”

Wilson’s childhood experiences in the Boy Scouts resonated so strongly that he used them as a basis for developing his protagonist’s character in his first novel, provisionally named *Anthill*, whose early sections are semi-autobiographical. At the time of this interview, the book was yet unpublished, but Wilson could not resist talking about it – and rhapsodizing about the longleaf upland savanna. Both longleaf pine and ant societies play important roles in *Anthill* – in fact, they are as much characters as the humans who ramble through its pages.

In a recent radio discussion about his foray into fiction, Wilson describes *Anthill* as a novel about the current crisis that faces the American south – vanishing wildlands and the reckless misuse of natural resources. It explores how the environment and the struggles of people affected by these changes intersect, using ant societies as a metaphor for human society. In fact, it is the central section of the book, the *Anthill Chronicles*, which is garnering the most praise.

When asked why he chose to write a novel, Wilson says “One rule I’ve learned, people respect nonfiction, but they read novels. People are basically storytellers. One of the main motivations was to create a channel to talk about the issues that concern me.” *Anthill* mixes the scientific study of ants with a story of defending a place you love, and saving biodiversity.

Later that day, in Stetson’s Elizabeth Hall, seated in front of the chapel’s towering pipe organ, Wilson is asked “What do you do about the ants?” He answers in all sincerity, “Be careful of little lives,” and in a lighter vein, “they like little bits of peanut butter and tuna. Watch them and you will understand what social life might be like on another planet.”

Toward the end of the interview, a reporter asked Wilson to talk about the alliance between science and religion. His book *The Creation* had recently been published, and his evening lecture was titled “Can Nature be Saved? E.O. Wilson on Science, Religion and Our Future.” He says that he calls himself a “secular preacher of the environmental movement,” describes hellfire as the dire condition of the earth’s environment, redemption as what we can do to save ourselves, and sums up by stating “The big question is... do we want to save the creation as a moral mandate? Or do we want to see it disappear quickly?”

In his evening lecture, attended by nearly two thousand people, Wilson outlined ideas that could help maintain biodiversity in the face of an ever-expanding human population. Strategies such as preserving biodiverse “hotspots” could

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*In amnesiac reverie it is also easy to overlook the services that ecosystems provide humanity. They enrich the soil and create the very air we breathe. Without these amenities, the remaining tenure of the human race would be nasty and brief.*

*The life-sustaining matrix is built of green plants with legions of microorganisms and mostly small, obscure animals – in other words, weeds and bugs. Such organisms support the world with efficiency because they are so diverse, allowing them to divide labor and swarm over every square meter of the earth’s surface. They run the world precisely as we would wish it to be run because humanity evolved within living communities and our bodily functions are finely adjusted to the idiosyncratic environment already created.*

– E.O. Wilson, *The Diversity of Life*

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save large numbers of species at a cost considered cheap in global terms.

Wilson believes that by preserving 35 different global hotspots, 40% of all species could be preserved. That figure would increase to 70% if the Amazon, Congo region, and New Guinea were included in the preservation effort. He went on to cite his self-titled Wilson’s Law – “If you save the living environment, the biodiversity that we have left, you will automatically save the physical environment. If you only save the physical environment, you will ultimately lose both”

In closing, he states that preserving biodiversity is largely a matter of will, and quotes John Sawhill – “A society is defined not only by what it creates, but by what it refuses to destroy.”

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## The Quarterly Journal of the Florida Native Plant Society



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**The purpose of the Florida Native Plant Society**  
is to conserve, preserve, and restore the native plants  
and native plant communities of Florida.

**Official definition of native plant:**

For most purposes, the phrase Florida native plant refers to those species occurring within the state boundaries prior to European contact, according to the best available scientific and historical documentation. More specifically, it includes those species understood as indigenous, occurring in natural associations in habitats that existed prior to significant human impacts and alterations of the landscape.

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**Editorial Content**

We welcome articles on native plant species and related conservation topics, as well as high-quality botanical illustrations and photographs. Contact the editor for guidelines, deadlines and other information.

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