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Study to try cataloging the vast Smokies

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Scientists who study the Southern Appalachians want to launch an experiment that on its face may seem absurd, almost akin to searching for a needle in a haystack.

But if successful, they will accomplish something never before done: cataloging every living thing in a complex ecosystem.

Their laboratory will be the half-million-acre Great Smoky Mountains National Park, where they will scour the wilderness for all manner of organisms, perhaps thousands of them still unknown to man.

"Ultimately, we want to know what it is here, in the same sense that if you inherited a hardware store you would want to take an inventory," said Bob Miller, a public affairs officer at the park.

To get an idea of the magnitude of the project, consider that with the possible exception of the Pacific Northwest, the park comprises the most biologically diverse landscape in temperate North America. There are more species of trees here than in all of Europe. Different varieties of spiders alone number from 500 to 700, and there could be up to 20,000 types of fungi.

Then ponder the vastness of the Smokies. An area more than half the size of Rhode Island, it includes 16 peaks over 6,000 feet and countless mountain streams.

"For the mammals and the higher plants, we know most everything that is out there," said Frank Harris, director of the biology department at UT-Knoxville. "Where there will be surprises are in the fungi, herbaceous plants, soil organisms, bacteria and so forth."

Harris was among 100 scientists and conservationists from the United States and Canada who met in Gatlinburg, Tenn., last December to begin laying the groundwork for the study, called **Discover Life in America.** Their first obstacle is raising the estimated $15 million it will take to complete the project over 10 to 15 years. With national parks hurting for funds, most of the money will have to come from conservation groups and private foundations.

If the study gets under way, it could be repeated in other national parks around the country. The information, many say, would help scientists to better understand our ecosystems and to manage them more effectively.

"We talk a lot about saving diversity in the Amazon basin, but we really don't know much about the diversity in our own back yard," said Keith Langdon, coordinator of inventories and long-term monitoring in the Great Smoky Mountains National Park.

The Smokies seem the logical place to begin. For one, they may be the most endangered of all the major parks. Development surrounds the mountains, air pollution is damaging plants and vistas, and 10 million people trample through them each year. It is important to take an inventory and develop a baseline, Harris said, so that changes can be monitored. Findings can be used, for instance, to decide the best way to control exotic insects, which have ravaged Frazer fir trees and are threatening the oaks.

And as one of the most biologically diverse places on earth, the Smokies still contain thousands of unrecorded organisms. Knowledge from new discoveries could be invaluable to scientific and medical research. Who knows whether the park holds the missing piece in a scientific puzzle or the cure to a terrible disease?

"There is an incredible wealth of genes and biodiversity out there that we could be using for society's benefit that we know nothing about, that we should be preserving," said John Pickering, an ecologist with the University of Georgia.

Perhaps most important for the Southern Appalachians, Harris said, is that the project is an opportunity to train the next generation of scientists who will study the flora and fauna.

The health of the region's ecosystem, he said, depends in large part on the interest and expertise of its specialists, those who may believe as environmentalist and author Henry David Thoreau did: "In wildness is the preservation of the world."