



CNN's "The Next List" profiles Nalini Nadkarni who shares her wisdom and convictions about science and math education from the tree tops.



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Nalini Nadkarni: The tree-climbing scientist who brings plants to prison

>To view the video, goto <http://www.csme.utah.edu/nalini/>

(CNN) - Nalini Nadkarni is a pioneer in tree canopy research and co-founder of the Sustainability in Prisons Project, which aims to teach inmates about ecology. Watch a 30-minute profile of on Sunday at 2 p.m. ET on CNN's "The Next List." Here's a primer on why she is fascinating enough to make The Next List.

Why you've heard of her: You probably haven't. Unless you're a tree climbing scientist or an inmate in Washington state (more on that soon). Oh - or you may have seen "Heroes of the High Frontiers," an Emmy-winning National Geographic film. She's in that. Or maybe you were one of the lucky few to get your hands on the "Tree Top Barbie Doll" she developed.

Why she matters: She helps bring science to the masses. Not only is she conducting groundbreaking research from the mysterious and under-researched tops of 200-foot-tall trees, she also has made it her mission to share her wisdom about science and nature with everyday people. One stark example: In 2002, she helped launch Washington's Sustainability in Prisons Project, a collaboration between the state department of corrections and The Evergreen State College. Scientists visit prisons and teach inmates about conservation, sustainability, and enlist them in re-

search projects like raising prairie plants and rearing endangered butterflies. Nadkarni is working to develop a similar prison program with the Utah Department of Corrections.

Why she thinks prisoners need to know about plants: “I think prisoners, as all of us, need to learn about sustainability because it’s about being mindful of one’s life, about being mindful of limited resources, and of taking action and participating in conserving those,” she said. “And I think in the case of many people, and especially many inmates who have acted irresponsibly in one way or another, a lot of that has been about lack of mindfulness, about not knowing what the consequences of one’s actions... And so, by offering the opportunity to prisoners to say, you know, you need to hoe this garden, you need to water it carefully, you need to watch out for the bugs that are going to be attacking the things that you are growing and tending, well, that gives them a sense of responsibility. It might give some skills when they get back out.”

What she does when she’s not in prison: As director of the Center for Science and Mathematics Education at the University of Utah, she started a “Sports and Science” program, enlisting university athletes to show kids they don’t have to choose between biology and ball. Nadkarni is also working to bring science projects to assisted living homes and to refugee kids in after-school programs.

On her wide-ranging impact: Nadkarni’s Sustainability in Prisons Project is currently in all twelve Washington state prisons with about 500 inmates participating in research and conservation programs such as composting, gardening, recycling and beekeeping. The composting and recycling activities have saved one prison about \$180,000 dollars a year, according to its superintendent.

Oh, she’s a dancer, too: Nalini double majored in biology and modern dance and was torn between the two. While she was working as an apprentice at a field station in Papa New Guinea she realized nature was her true love, and by becoming a biologist she’d have more to contribute.

And she was in Playboy: It’s not quite what you’re thinking, though. Nalini was clothed. She made a 2010 Playboy list of the most interesting and imaginative college professors in the United States.

On the first tree she climbed: A self-described “HinJew,” Nadkarni was one of five kids raised by a Hindu father and an Orthodox Jewish mother. Whenever she felt overwhelmed and needed refuge from her chaotic household, she’d climb a nearby maple tree.

Why she’s so dedicated to her work: “I have felt this increasing sense of urgency to inspire more students to get the word out, to get more funding to somehow mobilize people and myself and my colleagues to understand what’s up here, to document what’s up here (in the forest canopy) because we’re losing it. I feel like I just can’t stop (working). I can’t stop. I have to work harder to make new programs, to reach new audiences, and ultimately have every single person in the world connected to nature in a way that they will take better care of it.”

Nalini Nadkarni’s Guest Blog Post for CNN

Scientist aims to connect the public with nature’s ‘last biotic frontier’

Editor’s Note: Nalini Nadkarni is a professor, a pioneer in tree canopy research and co-founder of the Sustainability in Prisons Project. Watch the 30-minute profile of her on CNN’s “The Next List” at the top of this page.

By Nalini Nadkarni, Special to CNN

“Trees are the earth’s endless efforts to speak to the listening sky.”

--Rabindranath Tagore, Indian poet

Hanging by a rope no thicker than my pinkie finger in a giant spruce tree 150 feet above the ground, I survey the view of the temperate rainforest of the Olympic Peninsula below me. Although perching in this treetop may seem more like a dream for a combination rock-climber and wilderness adventurer, the forest canopy has been my arena for a lifetime of scientific research. The forest canopy – the part of the forest high above the forest floor – has been an area of burgeoning scientific interest for the last three decades.

I was among the first forest canopy pioneers who thought that climbing vertically to explore the treetops would yield scientific paydirt. The thrill of the climb drew us to develop methods of canopy access - modified mountain-climbing techniques, construction cranes, hot-air balloons.

Those early experiences were exploratory forays into an unknown scientific world, termed “the last biotic frontier.” We observed new interactions. Arboreal mice pollinate flowers in the nocturnal canopy. Roots grow from the branches of trees to draw nutrients from canopy-held soils. Canopy-dwelling mosses sieve nutrients from rain that passes through canopies. Once, when I spent the night in a Costa Rican forest canopy, a nocturnal anteater walked right by my suspended cot, searching out columns of arboreal leaf-cutting ants. The ants carried leaf bits they had harvested to their subterranean nests, connecting treetops to root tips.

By the late 1990s, the canopy research world had swelled to hundreds of scientists whose work populated prestigious scientific journals. We reported that the organisms who live in forest canopies participate in critical processes that keep forests going: pollination, fruit dispersal, nutrient cycling and sequestration of carbon.

Recently, scientists’ interests in the canopy have focused on how human activities affect forest canopies. Forest fragmentation has led to a severe and irreplaceable loss of canopy biodiversity. Harvesting of “secondary forest products,” such as moss, for the floriculture trade leaves literal holes in the fabric of intact forest canopies, which can take decades or even centuries to replace. Many forest canopy plants and animals also are vulnerable to the effects of global climate change.

As a canopy scientist and a science communicator, what is on my “Next List” for our planet? I will continue to probe the unknown scientific questions that the treetops provide because I love learning about this still-mysterious world through the lens of science.

But a larger part of my Next List is the combination of projects that I hope will engage the public with not only knowledge about the scientific values of the forest, but also its emotional, spiritual, aesthetic and human values. With the increasing distance between humans and nature, it is not enough to provide forest facts to audiences who are already knowledgeable about forests. I must create and offer points of connection, respect and understanding with people who do not regularly pick up a National Geographic magazine or hike in their local wild lands. These days, finding links between trees and people who value professional sports, religion, hunting, art, rap and poetry is my professional frontier.

I continue to climb trees because they are terrific ambassadors to nature – due to their tall stature, quiet strength and eloquent silence. But there are other nature ambassadors: our vast oceans, dynamic rivers and tiny-but-remarkable leaf-cutter ants. We need scientists and non-scientists who can communicate the importance of these representatives of nature to others, and thereby become a part of the Next List of nature’s ambassadors.