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A canopy grows in Coconut Grove

Researchers are calculating the scientific value of trees in one lush neighborhood.

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Perhaps more than anywhere else in Miami, the streets of Coconut Grove are dappled with sunlight and shadow. Look overhead and you'll see why.

Here, the tree tunnels that stretch over highways and streets are the fabric of the community. They're like the cafecito windows of Little Havana. Or the beaches that line the coast.

These green sentinels have seen Miami grow from backwater village to major metropolis. Sometimes they've been spared from the bulldozer and the winds from a hurricane. Sometimes they haven't. The fate of Coconut Grove's lush canopy seems to be constantly hanging in the balance.

Biologist Christopher Baraloto is leading the Miami Urban ReLeaf Coalition, a network of local partners mapping and monitoring trees in Miami's verdant enclaves. The initiative recently launched in Coconut Grove, where the International Center for Tropical Botany is based at the Kampong, a collaboration between FIU and the National Tropical Botanical Garden (NTBG). The Kampong is the historic home of famed botanical explorer David Fairchild and now an urban oasis with more than 1,000 species of fruit trees, palms, plants and teaching collections for botanical study.

Like Fairchild, Baraloto and the team of FIU botanists are focused on studying, preserving and finding innovative uses for tropical plants. It is work that is carried out in South Florida, in the jungles of China and South America, and other biodiverse hotspots throughout the world.

As part of the ReLeaf project, the researchers are calculating how much carbon trees remove from the air and researching possible medicinal value. They are currently mapping trees in Coconut Grove, dutifully measuring the circumference of each tree and estimating its height.

The researchers are also determining how much shade each tree provides and estimating residential savings in cooling costs. They are also looking at how much mitigation the trees' roots provide for flooding and even sea level rise.

Knowing that all trees are not created equal, they also tally the negatives. Does the tree produce messy fruits? Might it fall during a storm? Do its roots threaten infrastructure? Is it a nonnative species? Is it invasive?

City officials need these details to determine which trees merit protection and which trees should replace those that fall in a hurricane or are removed during construction projects.

"We are excited to partner with a coalition of government and community partners to work together and learn about the amazing resources we have in terms of tree canopy in the city," Baraloto said. "All citizens with whom we have spoken agree that this is vital work that needs to be completed as soon as possible."

City officials also want residents to know what is already protected, what is not, and how they can best take care of trees in their own backyards and throughout the neighborhood.

"Trees are a major part of the character of Coconut Grove," said Miami Commissioner Ken Russell, who represents the Grove. "Our residents are passionate about them and see protecting them as critical to maintaining the quality of life and environment of this unique, historic community."

Using the Grove ReLeaf page on the iNaturalist app, citizens can participate in the project by submitting photos and assisting with the identification of trees. Almost 500 participants have already made more than 3,400 observations of more than 500 plant species. They've spotted everything from the ubiquitous coconut palm to itch-inducing poisonwood and even some tasty figs.

Baraloto, himself a resident of Coconut Grove, will soon begin workshops to train the residents to take measurements themselves, broadening FIU's data collection efforts. At the conclusion of the project, this local information will become part of the data set on iNaturalist as well as other publicly available databases.

"Grove ReLeaf is important because without our trees, we can't call this place the Grove," said Anne Haywood, a National Geographic fellow who serves as director of

the Miami-based community organization Mountain to Sea Education. "This communitywide science project is a really cool opportunity for people of all ages to contribute while learning from FIU scientists."

A satellite view of South Florida's tremendous sprawl proves Coconut Grove has a lot to protect. The team at the FIU International Center for Tropical Botany is rooted in its mission to improve lives through botanical research and conservation, and ReLeaf is helping to make local conservation there a little easier. As the ReLeaf project expands, Baraloto hopes local conservation will become easier for all of South Florida. 🐾

Angela Nicoletti and JoAnn Adkins contributed to this story.