

Seeking Answers in Mangrove Swamps

Music Begins & Fades Slightly

"What we're finding is, that these coastal systems are some of the most productive in terms of their ability to remove carbon dioxide from the atmosphere."

Music Fades in, then Fades out

"Hi, I'm Larry Perez, part of the Science Communications Team at Everglades National Park, and I'll be your host for this episode of Climate Cast."

Music fades out and ends

At roughly 1.5 million acres in size, Everglades is the third largest national park in the lower 48 states. Situated at the interface between tropical and temperate climates, the park boasts an amazing diversity of plant and animal species. A rich tapestry of habitats supports all manner of wildlife, including 69 federally or state protected species-- several of which survive only in South Florida. The park protects the largest wilderness area east of the Rocky Mountains, the largest sawgrass prairie in North America, and the largest protected mangrove ecosystem in the hemisphere. These resources, however, reside upon a thin veneer of land on Florida's southernmost reaches-- an area that rises only a few feet above mean sea level. Because so much of the park seems vulnerable to sea level rise, climate change has become a topic of much interest among resource managers and scientists. Can the diverse environments of the Everglades survive the rates of sea level rise currently predicted by experts?

Vic Engle and Jordan Barr are trying to learn just that. Both are scientists with the National Park Service, and together they're conducting studies in the mangrove forests that comprise roughly one-third of the park.

Sounds of Boat Idling

About once a month, both researchers load a copious amount of gear into a 22-foot Boston Whaler for a lengthy journey deep into the Everglades backcountry. Twenty miles from the outpost of Flamingo, they kill their engines and idle to a nondescript area near the Shark River. It was here roughly six years ago that Barr, in cooperation with the University of Virginia, began construction of a large data collection tower.

Sounds of Wading in Water

The tower is set far back in the midst of the forest, and accessible only by either wading the area's tidal waters or balancing along the length of a narrow 200-foot boardwalk. The myriad instruments that adorn the tower work around the clock collecting information about how much carbon these forests are able to use from the atmosphere.

Carbon, of course, is an important player in the story of climate change. Most scientists agree global temperatures are warming at an accelerated rate largely as a result of human activities that release greenhouse gases. The most notable of these is carbon dioxide. As it turns out, the forests Barr and Engle are studying almost always act as carbon "sinks", pulling more carbon from the atmosphere than they emit. Understanding how this dynamic works takes on new importance at a time when many are looking to mitigate greenhouse gases by trapping carbon that would otherwise contribute to warming. Carbon "sequestration", as it's called, is one of the many ecological benefits we receive from large, forested areas.

Sounds of Hammering in Background

Additionally, understanding how mangrove forests utilize carbon may provide insight into whether or not these areas might keep pace with rising coastal waters. While Barr ascends the tower to work on the instruments, Engle and staff are busily making repairs to the weathered boardwalk. Amidst the movement of lumber and hand tools, Engle takes a moment to explain the focus of their study: "We measure how much carbon dioxide the trees

take up. Its a measure of how quickly they're growing, and the carbon they take out of the atmosphere is turned into soil-- eventually, turned into soil. That soil buildup is what will allow them to survive sea level rise." Initial evidence seems to suggest that mangroves may fare better than many originally thought.

Sound of Boat on Plane

By late afternoon, Barr and Engle are ready to depart on their long journey back to civilization. They'll repeat this ritual at least once every month into the foreseeable future. Each expedition gleans new information about the role these forests will play in a future influenced by climate change. Through scientific research, newfound hope may be found in surprising places-- even deep within the swamps of the Everglades wilderness.

Music Begins and Fades Out

Everglades National Park is a pound partner in the Climate Friendly Parks Program.

Earth2Sky's ClimateCast is made possible through an innovative partnership between the National Park Service and NASA. The theme music was composed and performed by Karen Sevoka. Each episode is written and produced by employees and partners of the National Park Service. For more information on the NASA Earth2Sky project and to learn more about how climate change is impacting our national park system, visit www.earth2sky.org

Music Fades In and Ends

Thank you for listening, and be sure to tune in next time for another episode of ClimateCast.