CONSERVANCY OF SOUTHWEST FLORIDA

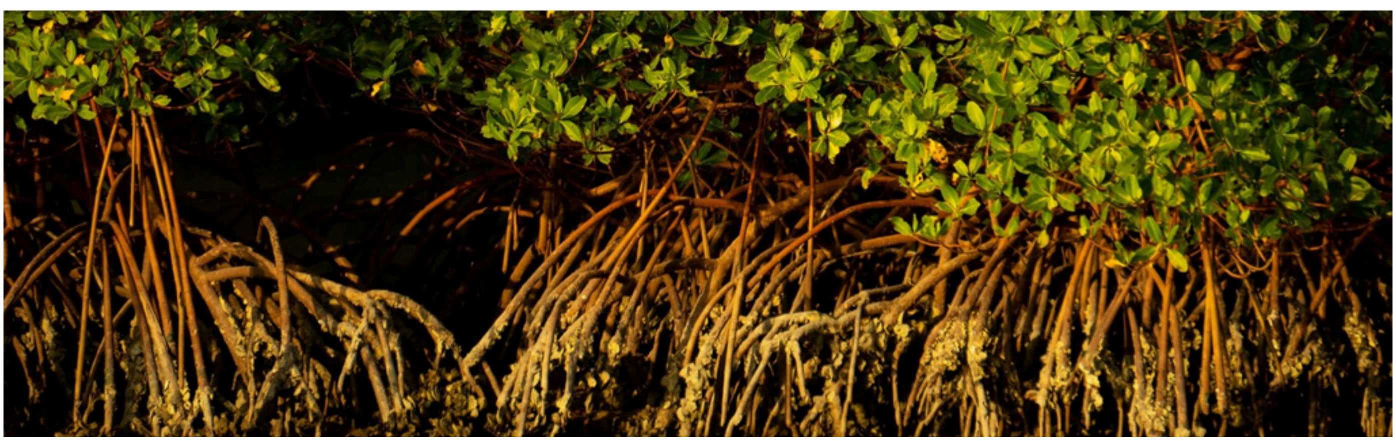
climate corner

by Carrie Schuman, Ph.D., Climate Resilience Advisor

Happy Spring!

Welcome to our newest issue of Climate Corner. Read on to hear about the tools we're developing to profile and share more about nature-based solutions around the state. This issue also highlights how the Conservancy showed its commitment to sustainability during our recent Magic under the Mangroves fundraiser, the momentum resilience conversations are having in our community, and resources residents and business owners can consider as they evaluate resilience improvements to buildings. We also include interesting climate stories and upcoming events.

Previewing Nature-Based Solution Case Studies



In our December 2024 Climate Corner issue, we told you about the Working with Nature symposium the Conservancy held on December 3rd. We had 12 expert speakers for the event, and many of them presented on case studies of nature-based and hybrid solution projects that have contributed to their local community resilience in response to challenges like hurricanes, street flooding, water quality issues, and more. You can also watch sessions from the day here.

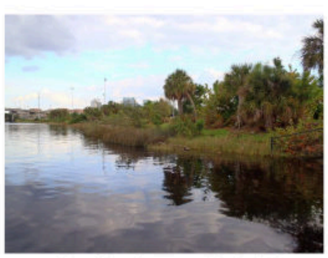
While planning the symposium, we had already begun brainstorming how we could continue to showcase these projects from across the State. Our survey during the event confirmed that our attendees really want to see continued examples of how these types of solutions are being used in other places.

Since then, we've been creating tools around those case studies so everyone can access them in easy-to-digest formats. These include detailed fact sheets that profile each project and a GIS StoryMap (a web-based format that combines narrative, maps, and other types of multimedia to explore a topic). The long-term goal is to create a "living library" of projects that can be a resource to anybody interested in seeing how nature-based and hybrid options are being used successfully in Florida. Once we finish with our starting case studies, we'll plan on adding new ones at regular intervals.

We'd like to preview two of the fact sheets here in anticipation of these initial resources being completed in the next 1-2 months. The first case study showcases a living shoreline project that was installed on an eroding shoreline outside the Stewart Middle School in Tampa, Florida. The school wanted to try using a shoreline stabilization method that would also allow them to use the space as a living, outdoor classroom. As a result, multiple partners came together to assist the school with completing the living shoreline that is today still successfully protecting that stretch from wave energy.

The second fact sheet highlights the Good Neighbor Stormwater Park in the City of North Miami. The City had, in past years, proactively purchased lots that continually flooded so they would not be used for housing. However, the lots sat vacant and unused for some time until City planners began to envision how regreening these spaces could make them even more effective against flooding and make them more suitable for public use. A design competition supported through a partnership with the Van Alen Institute and completed with rich public input, led to the creation of the Good Neighbor Stormwater Park which features multiple important Florida habitats interspersed with walking trails. The Park has been a very successful pilot project for helping to alleviate some of the stormwater flooding problems experienced by the surrounding neighborhood.

While these may continue to undergo some changes before being finalized, what's shared below should give you a sense of their expected look and feel. Please click on the screenshots below to open up pdfs of the fact sheets.



Case Study: Stewart Middle School Living Shoreline

Photo of the project 15 years after installation

Problem: The project site at the school was an area previously covered in invasive plants, including non-native trees originating from Southeast Asia, *Leucaena leucocephala* (commonly called lead trees). There was also a very eroded shoreline with a 4-foot escarpment (a very steep and sudden drop off).

The Solution/Project: Staff from Stewart Middle School wanted to create student access to the location by turning the space into a living classroom while simultaneously stabilizing the shoreline. They worked with multiple groups – including the local school district, Pinellas County, the Southwest Florida Water Management District, and Ecosphere Restoration Institute – to see the living shoreline come to fruition, and the project has become a broader example of a successful nature-based solution for the area.

Case Study: Good Neighbor Stormwater Park

Problem: Much of the City of North Miami is in a low-lying basin prone to flooding. These issues have worsened over time with climate change-induced impacts, including sea level rise. The City has proactively used grant funding, including through FEMA's Hazard Mitigation Grant Program, to purchase parcels of land that have experienced repeated flooding problems. These lots, however, sat vacant and remained flood-prone.

The Solution/Project: In 2018, City planners began focusing on these lots as sites for: regreening for flood mitigation, including public art, establishing native vegetation, and providing additional city amenities. They submitted a winning proposal focused on repurposing these sites to the timely 2019 Van Alen Institute's Keeping Current: A Sea Level Rise Challenge for Greater Miami initiative. The Institute then put out an international call for architects and designers to submit concepts for re-imagining these spaces. Dept. Landscape Architecture and Urban Design (Dept.) provided the selected concept. A lot in the City's Sunny Acres Neighborhood that had sat untouched for 15 years since purchase was selected as the initial pilot site, and the project also called for a master plan that would outline how to replicate these ideas in other similar city properties.

Project Goals:
- Convert unused, repetitive flood loss lots into safe, usable community spaces
- Adapt to climate impacts over time, especially flooding
- Contribute to reduced local flood insurance premiums through the National Flood Insurance Program's Community Rating System
- Implement a project that was forward-thinking and scalable across the City
- Re-establish biomes that were originally in the City
- Provide education regarding flooding
- Create a first pilot project that was shaped by feedback from the residents in the neighborhood where it was sited

Spotlight on Sustainability at Magic Under the Mangroves

SUSTAINABILITY INITIATIVES

IN-TENTS

- Carpet will be donated to Habitat for Humanity
- Astroturf will be recycled
- 100% cradle-to-cradle recyclable plastic sub-flooring
- Reduced energy usage resulting from tent construction materials

LEAPHART'S SPECIALTY AIR AND POWER

- Waste-free, 100% reusable equipment and supplies
- Use of electrical power reduces fuel emissions by 33% compared to fuel-burning generators

HARMON'S AUDIO VISUAL

- LEDs use up to 75% less energy than traditional lighting
- LEDs extended life span reduces waste
- Avoid single-use plastics and styrofoam

DWY LANDSCAPE ARCHITECTS & TLC PLANT RENTAL

- 100% locally sourced native plants

THE RITZ CARLTON

- Locally sourced fish and produce
- To-go offerings, including straws from compostable bamboo

EDGEWATER NAPLES

- Minimize waste
- Use of glass bottles, no single-use plastic and straws

PARADISE HOSPITALITY

- No single-use plastic
- Locally sourced and organic menu ingredients

CONSERVANCY OF SOUTHWEST FLORIDA

- Avoid single-use plastics and styrofoam
- Reduce paper consumption through use of digital communication
- Select supplies with reuse in mind
- Select vendors who support our sustainability initiatives

This year's Magic Under the Mangroves was a beautiful spectacle as always, from Paul Arsenault's animated painting, to the beautifully crafted dishes, bespoke wild Florida-themed chocolate bars, and the soul-stirring entertainment.

But, this annual fundraising gala was also an excellent opportunity for the Conservancy to weave its dedication to sustainability into the planning process and outcomes from the event. Events Manager Terrie Maines described how this figured into her team's process: "We had some specific sustainable goals at the planning and negotiation stage that we kept front of mind as we made our decisions. We then sought out vendors who were willing to help us realize those goals."

Maines went on to say, "It is important for everything we do at the Conservancy to be consistent with our mission, to set an example for the community and to encourage those we work with to make similar choices, not just when working with us, but in potentially meaningful, lasting ways." She further shared that she has seen gratifying instances where vendors have made sustainability-focused changes for Conservancy events and then decided to adopt some of them going forward.

The specific sustainability efforts for Magic were highlighted on the back of the evening menu (shown here on the left). The majority of these related to choices around energy and materials.

The choices of LED lighting, electrical power (as opposed to fuel generators), reusable materials, and locally-sourced food ingredients reduced greenhouse gas emissions associated with the event, which is an important part of collective action to reduce future climate impacts.

Minimizing single-use materials, including plastics, helps us avoid contributing to issues like microplastic pollution. Studies also suggest that reducing plastic use is a critical strategy for combatting climate change since plastics are almost exclusively derived from fossil-fuel based chemicals.

So while Magic Under the Mangroves continues to be a charmed and beautiful evening, you can also see the ways that we strive to make sure the event incorporates our core organizational values.

Local Climate & Resilience Conversations Gaining Traction

In recent months, it's clear local communities and organizations have had a fervent interest in discussing the changing climate, and how we can respond and build resilience. The Conservancy is heartened to see the level of local engagement around this issue and hope we can continue adding to this conversation about how to safeguard our future.

Image by UNDP Climate Promise

The following are a sampling of some of these recent events:

- The Gulf Shore Association of Condominiums (GSAC) had their 3rd Annual Water Forum: Building Naples Coastal Resiliency on Feb 5th. The event was hosted by City of Naples Council Member Ray Christman, and featured discussion from panel members Brett Moore of Humiston & Moore Engineers; Chad Washburn of the Naples Botanical Garden; and Jenna Phillips of Cummins Cederberg Coastal and Marine Engineering. Topics included the need to continue to proactively plan for the future in the City of Naples and across Collier County, the role of dunes and beaches as one of our most important first lines of shoreline defense, and a suite of additional shoreline protection options that also include alternatives to traditional hard infrastructure.

- The Sanibel Captiva Conservation Foundation hosted an evening with The Climate Music Project, who performed their composition "Climate," which tells the story of two potential climate futures — one where we do little to respond and a more hopeful future where we've been able to tamp down climate impacts. The impactful soundscape was followed by a panel discussion featuring the piece's composer, Erik Ian Walker, SCCF's Environmental Policy Director, Matt DePaolis, and Florida Gulf Coast University Professor, Molly Nation. The conversation ranged from discussing the unique role of sound and music in translating climate data for the audience, the future outlook for barrier islands like Sanibel, and the role of personal action and policy in improving that outlook.

- As of March, Artis-Naples is featuring a new exhibit at the Baker Museum, "Entangled in the Mangroves." Nine Florida-based artists, including representation from the Miccosukee Tribe, use various mediums to share their unique relationships with the Everglades. Climatic changes are highlighted as just one of many persistent threats to this crucial "River of Grass." Artworks will be on view into September. Read a feature about the exhibit's curator and the exceptional contributing artists here.

- On March 20th, the Collier Community Foundation, Greater Naples Leadership, and Naples United Church of Christ held "Taking the Punch Out of Powerful Hurricanes: A Forum on Building Resilience." Local Meteorologist Matt Devitt walked the audience through a history of hurricane exposure in our area and discussed what contributes to the formation and strengthening or weakening of individual storms. Dr. Jennifer Jurado, Chief Resilience Officer of Broward County, gave an overview of the successful and proactive planning efforts their region has been undertaking. Finally, Dan Summers of Collier County Emergency Management described how his organization keeps local people safe, their challenges in doing so, and what improvements have been coming online to help them in their mission. The Conservancy was also pleased to be featured in a closing video, along with the City of Naples Natural Resources Division, and the Naples Botanical Garden, in describing our vision of what balanced adaptation looks like.

Resources for Resilient Buildings

Addressing challenges like increased rising heat and flooding calls for putting a wealth of overlapping strategies in place. For example, the City of Naples [Critical Assets and Facilities Adaptation Plan] contains a list of 47 different strategies (page 40) the City is pursuing in its current adaptation process, with about 40% of them being physical and 60% non-physical (policy changes, additional studies, etc).

Table 3: Strategy score breakdown

#	Strategy Title	Strategy Type	Tier	Score
1	Conduct a Watershed Master Plan	Non-Physical	1	10
2	A Business Case for Resilience Study	Non-Physical	1	10
3	Expand Coordination with County for Regional Flood Protection	Non-Physical	1	10
4	Evaluate Options for Climate Hazard Protection of Socially Vulnerable Neighborhoods	Non-Physical	1	10
5	Enhance Stormwater Debris Management Program	Non-Physical	1	10
6	Increase Shade Opportunities in Neighborhoods	Physical	1	10
7	Implement Naples Airport Master Drainage Plan Improvements	Physical	1	9
8	Incorporate Consistent Sea Level Rise Considerations into City Planning and Design Documents	Non-Physical	1	9
9	Develop Climate Resilience Outreach Materials	Non-Physical	1	8
10	Perform Summer Hot Spot Thermal Analysis	Non-Physical	1	8
11	Continue Beach Nourishment and Expand Dune Revegetation Pilot Projects	Physical	1	8
12	Install Additional Stormwater Pumps	Physical	1	8
13	Harden Wastewater Treatment Plant and Elevate Shoreline	Physical	1	8
14	Floodproof Wastewater Lift Stations	Physical	1	8
15	Coordinate with FP&L to Harden Electrical Infrastructure	Non-Physical	1	8
16	Install and Elevate Backup Power Generation for Critical Infrastructure	Physical	1	8
17	Inventory Seawalls and Update Seawall Height Ordinance	Non-Physical	1	8
18	Enhance Resilience of City Data Centers	Physical	1	8
19	Assess Opportunities for Natural Based Solutions	Non-Physical	1	8
20	Continue Current Wastewater Sewer Maintenance and Replacement Program	Physical	2	7
21	Elevate Airfield Electrical Vault	Physical	2	7
22	Floodproof Stormwater Pump Stations	Physical	2	7
23	Continue Efforts to Consolidate Current Coastal Stormwater Outfalls	Physical	2	7
24	Identify and Raise Critical Roadways	Physical	2	7
25	Establish Flood Impact Monitoring Program	Non-Physical	2	7
26	Monitor Naples City Dock Shoreline Improvement	Non-Physical	2	7
27	Relocate and Elevate Police Station Complex	Physical	2	7
28	Complete Mast Arm Conversion Projects	Physical	2	7
29	Pilot Cool Pavement Projects	Physical	2	7
30	Update Climate Projections as Necessary	Non-Physical	2	7
31	Create Vehicle Storm Relocation Plan	Non-Physical	2	7
32	Expand Oyster Reef Restoration	Non-Physical	3	6
33	Develop SLR Best Practices for Businesses	Non-Physical	3	6
34	Convert Fleischmann Park into A Floodable Park	Physical	3	6
35	Expand Cooling Center Network	Physical	3	6
36	Survey Public Drinking Fountains	Non-Physical	3	6
37	Develop an Extreme Heat Educational + Awareness Program	Non-Physical	3	6
38	Expand Cooling and Efficiency Funding Program	Non-Physical	3	6
39	Incentivize Cool/Green Roofs	Non-Physical	3	6
40	Survey City Buildings FFEs	Non-Physical	3	5
41	Install Temporary Flood Barriers for City Facilities	Physical	3	5
42	Develop Historic Building Flood Guidelines	Non-Physical	3	5
43	Conduct a Climate Action Plan	Non-Physical	3	4
44	Develop a Homeowner's SLR Guide	Non-Physical	3	4
45	Establish Home Flood Improvement Grant Program	Non-Physical	3	4
46	Establish Extreme Heat Monitoring Program	Non-Physical	3	4
47	Purchase Emergency Response Watercraft	Non-Physical	3	2

40 City of Naples • Adaptation Plan

City of Naples • Adaptation Plan 41

Physical barriers of all kinds — natural coastal systems like dunes and mangrove forest, nature-based designed options like living shorelines, hardened infrastructure like seawalls — while essential resilience tools, can be overwhelmed during especially extreme events, like the storm surge associated with Category 4 and 5 hurricanes. It's important to have realistic expectations around these strategies and to look at other opportunities for improvements that reduce risk and damage.

One avenue is exploring the additional measures we can use in our public facilities, businesses, and homes while building new, repairing, or retrofitting. While this is not an active area of Conservancy expertise, we would like to point our readers to existing resources that might provide some possible ideas to consider:

- The Keep Safe Florida Webpage with resources like Keep Safe: A Guide for Resilient Housing Design in Island Communities, Strategies for Multifamily Building Resilience, and Hazard Strategies Guide
- FEMA's Homeowner's Guide to Retrofitting: Six Ways to Protect Your Home from Flooding
- Urban Land Institute's Report – Resilient Retrofits: Climate Upgrades for Existing Buildings. Has a good high-level section on the type of retrofits to consider for flooding and a Miami example/case study
- Energy.gov, Office of Energy Efficiency and Renewable Energy's Design and Retrofit for Flood Protection webpage and Design for Extreme Heat webpage
- HUD's (Department of Housing and Urban Development) policy development and research Disaster Recovery Tool Kit page with tabs for both hurricane and flood recovery
    - Contains resources like Designing for Natural Hazards: a Resilience Guide for Builders & Developers
- HUD's Resilient Building Codes Toolkit Report

Climate Stories of Interest

- 'We left pieces of our life behind': Indigenous group flees drowning island, BBC
- Clean energy powered 40% of global electricity in 2024, report finds, The Guardian
- DOGE cuts could cause meteorologists to miss the next nightmare storm | Opinion, Fort Myers News-Press
- This Florida program offers money to elevate homes. How does it work?, Tampa Bay Times
- FEMA to Halt Billions in Grants for Disaster Protection, Internal Memo Says
- Diverse forests and forest rewilding offer resilience against climate change, Mongabay

Upcoming Climate, Resilience, & Sustainability Events

Events are not officially endorsed by the Conservancy but may be of interest to our membership.

Click here to explore listings for upcoming climate-focused events. Listings for the upcoming months include seminars, panel discussions, documentaries, time in nature, and art-themed events on a range of topics including climate change, water quality, and native plant gardening. There are multiple events listings taking place on Earth Day, with some being offered virtually.