The Nature Conservancy
North Carolina

Nags Head Woods Preserve

2019-2020 Annual Report
Town of Kill Devil Hills

September 2020

All photos copyright The Nature Conservancy

ATTACHMENT CA-4A

COVID-19

The Nature Conservancy closed all offices in late March 2020 and maintains significant restrictions for all staff on meetings and travel through the end of the calendar year. Staff have been working remotely and on site to maintain stewardship, visitor services, research and restoration projects to the best and safest standards possible.

Visitor Services

From July 2019 through March 2020, visitation and visitor services were on par with prior years: visitor reception was generally available during business hours and included restrooms, drinking fountain and water bottle refill services.

Since March of 2020, we have made several visitor services adjustments due to COVID-19 such as: installation of port-a-potty, creation of additional signage and updates to our website and social media outlets.

Since the COVID-19 pandemic, our neighbors Jockey's Ridge State Park and The National Park Service have recorded very high visitation. Though we do not have specific numbers, we assume the same based on our observations and gracious feedback from visitors. Trail use counters will be implemented in Fall 2020 to gain a better understanding of visitor use in the Preserve.

See the link and summary on page 13 "Parks and the Pandemic" by the Trust for Public Land 2020. This study highlights the importance of natural areas for communities.

Trail Maintenance and Improvement

There are 8 trails that encompass over 8 miles of hiking opportunity. Our trails are the focal point of the preserve and keeping them clear and safe is a significant, year-round job.

Due to rot and storm damage, approximately 70 ft of boardwalk on the ADA Trail and 15 ft of boardwalk on the Roanoke Trail were replaced . Photos below are before and after repairs on the ADA Trail.

Trail Maintenance and Improvement

Staff worked with Tim Johnson, a trail development instructor and consultant, for feedback to begin development of an updated trail and visitor service plan for Nags Head Woods. Based on that feedback:

- Two significant sections of the Sweetgum Swamp Trail were rerouted to reduce erosion from water runoff and foot traffic
- Aging Sweetgum Swamp Trail infrastructure (stairs and bridges) were removed for improved trail flow and safety

Old infrastructure like these stairs were torn out and removed before the trail was re-routed due to erosion.

One segment of the Sweetgum Swamp Trail re-route after about 2 months. Note that the soft soils have already been compacted around the topography. This is one of many reasons why biking is not allowed on the trails.

Outreach and Events

An audio tour entitled "The Land Speaks: Stories of Nags Head Woods" was launched for the Roanoke Trail in Nags Head Woods Preserve. This tour connects visitors with voices from the 18th century community that was present in the Woods and builds upon the re-release of the book "Everyone Helped His Neighbor: Memories of Nags Head Woods".

Nags Head Woods 40th Anniversary was celebrated in November 2019 with key partners and stakeholders. Many reconnections were made and fond memories shared over short presentations, food and cake.

Partnerships

Alternative Winter Break students from Vanderbilt University spent a hard working day clearing around the ADA Trail.

Appalachian State Spring Break students worked on fire break maintenance, trail re-routing and fence installation. The COVID crisis was unfolding on their last two days but they were able to maintain focus and complete the tough work that they started.

We provided meeting space for The National Park Service, Coastal Environmental Educator's Network, Carolina Nature Photographer's Association and other non-profit groups at Preserve facilities.

The NC Aquarium hosted about 50 Cape Hatteras Elementary 5th graders at the Preserve for the Sea2Sound (S2S) event. S2S is a full day, hands-on science field trip which starts at the Atlantic Ocean and traverses the width of OBX, mostly on the Town Trail in Nags Head.

The NC Wildlife Resources Commission hosted a "Batting the OBX" citizen science workshop and acoustic bat survey at Nags Head Woods in February.

Nine students from Vanderbilt University and ten students from Appalachian State University volunteered at Nags Head Woods during alternative winter and spring breaks, assisting with trail maintenance and rerouting, fence installation, and fire break maintenance. This is about our 15th year in partnership with Appalachian State University Alternative Spring Break Program.

Staff assisted two boys scout groups in meeting their scouting goals. Photo below shows a local scout upon completion of building and installing a bench at the end of the Roanoke Trail.

Conservation, Management and Biology

Invasive plant control is ongoing for several plant species. This work is constant during the warmer months. Failure to control invasive plants would result in critical changes to Nags Head Woods ecosystem. **Invasive plants are...invasive. They can spread rapidly and prevent native plants from flourishing.**

Russian Olive: controlled by hand cutting and herbicide; a popular ornamental sold extensively at local stores is brought in by birds, unknowing hikers and vehicles .

English Ivy: controlled by hand cutting and herbicide; also a popular ornamental brought in by birds, hikers and vehicles. Some English Ivy may have been planted by members of the Nags Head Woods community in the 18th and 19th century and by the company that had planned to develop the Woods in the 1970's.

Japanese Stilt Grass: controlled by herbicide; is especially difficult to control because it comes in with the gravel to improve the roadway. It can form massive swaths of ground cover vegetation quickly.

Oriental bittersweet: controlled by hand cutting and herbicide; once a popular ornamental brought in by birds. It can form massive swaths of heavy cover in trees quickly.

Help us spread the word to GO NATIVE in your yard to help Nags Head Woods stay healthy!
NC State Extension will show you how at the link.

Trail cameras were installed this year at several sites throughout the Preserve. The cameras are helpful tools in determining how wildlife and people are using the property. Below are photos of bobcats on the Preserve. The photo on the right shows a bobcat with a nutria. We suspect that the bobcats may help lower the nutria population in the Preserve which is very positive from a management perspective.

Conservation, Management and Biology

Deer Management

Since 1995 we have coordinated with the North Carolina Wildlife Resources Commission to manage the Nags Head Woods deer population through a registered bow hunt. Hunters are required to have a current North Carolina hunt permit, attend an orientation session at Nags Head Woods, complete registration forms including vehicle information, pay a $50 fee, display a registration card in their vehicle while hunting and complete a year-end survey.

The bow hunt helps manage the deer population to alleviate nutritional stress and lessen the probability of further declines in deer herd health. Only deer and coyotes are allowed to be hunted.

The bow hunt offers affordable, important heritage and consumptive recreation for local citizens who hunt. Many hunters provide important feedback about the Preserve by letting us know what they see while hunting. This year approximately 700 hours were reported in the year-end hunt survey.

The regular bow hunt season ran from September 2019 to January 1, 2020, with an extended Urban Archery Season which closed in February 2020. A total of 40 hunters registered for the 2019-2020 season, with a total 4 deer harvested. For both seasons, about half of the registered hunters completed year-end surveys and we assume that the other half of registered hunters did not hunt.

Photos from a trail camera. Note that the deer in the bottom photo does not have a functioning left eye.

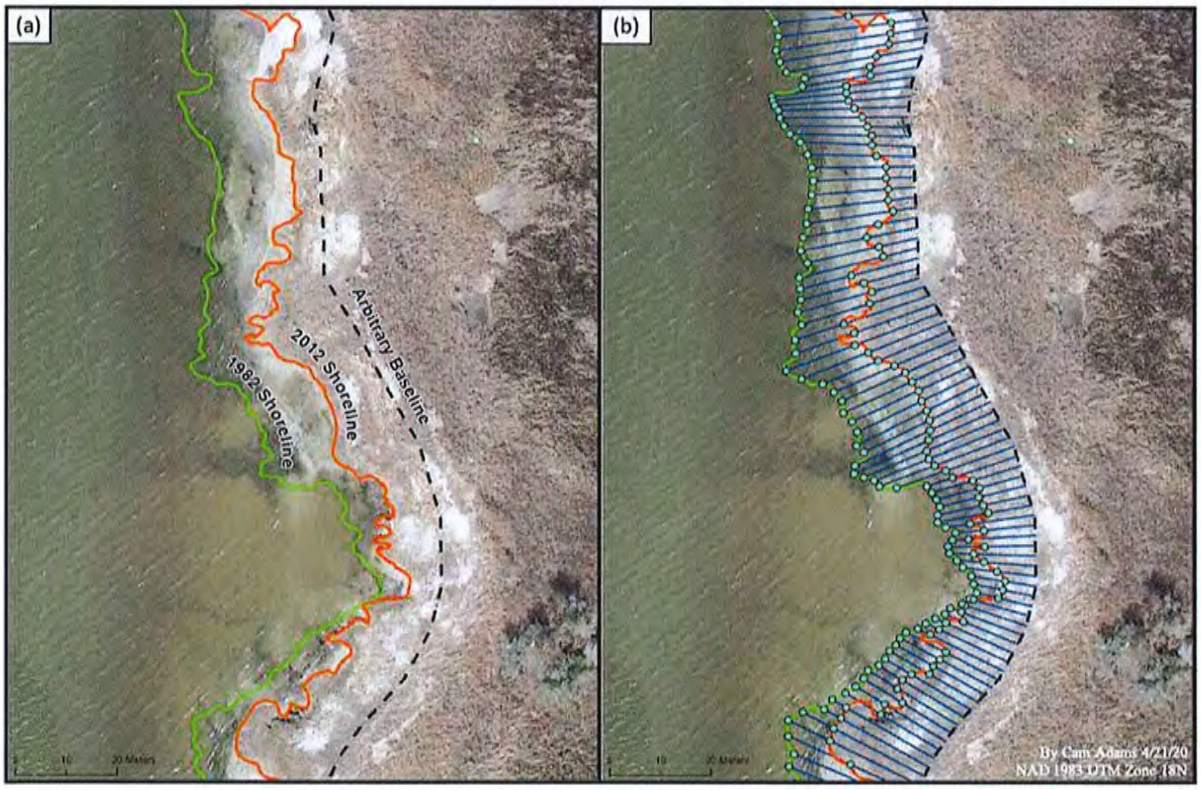
Conservation, Management and Biology

Soundside erosion and effects on Nags Head Wood forest systems

Duke student Cameron Adams completed a Master's Degree project which identified the scale of sound side shoreline erosion and potential effects on the forest systems along the wester boundary of the Preserve.

Cameron established a baseline where much of the vegetation has been lost and compared the baseline with aerial photos from 1982 and 2012. The data was entered into an ArcMap Shoreline Analysis tool. The results showed:

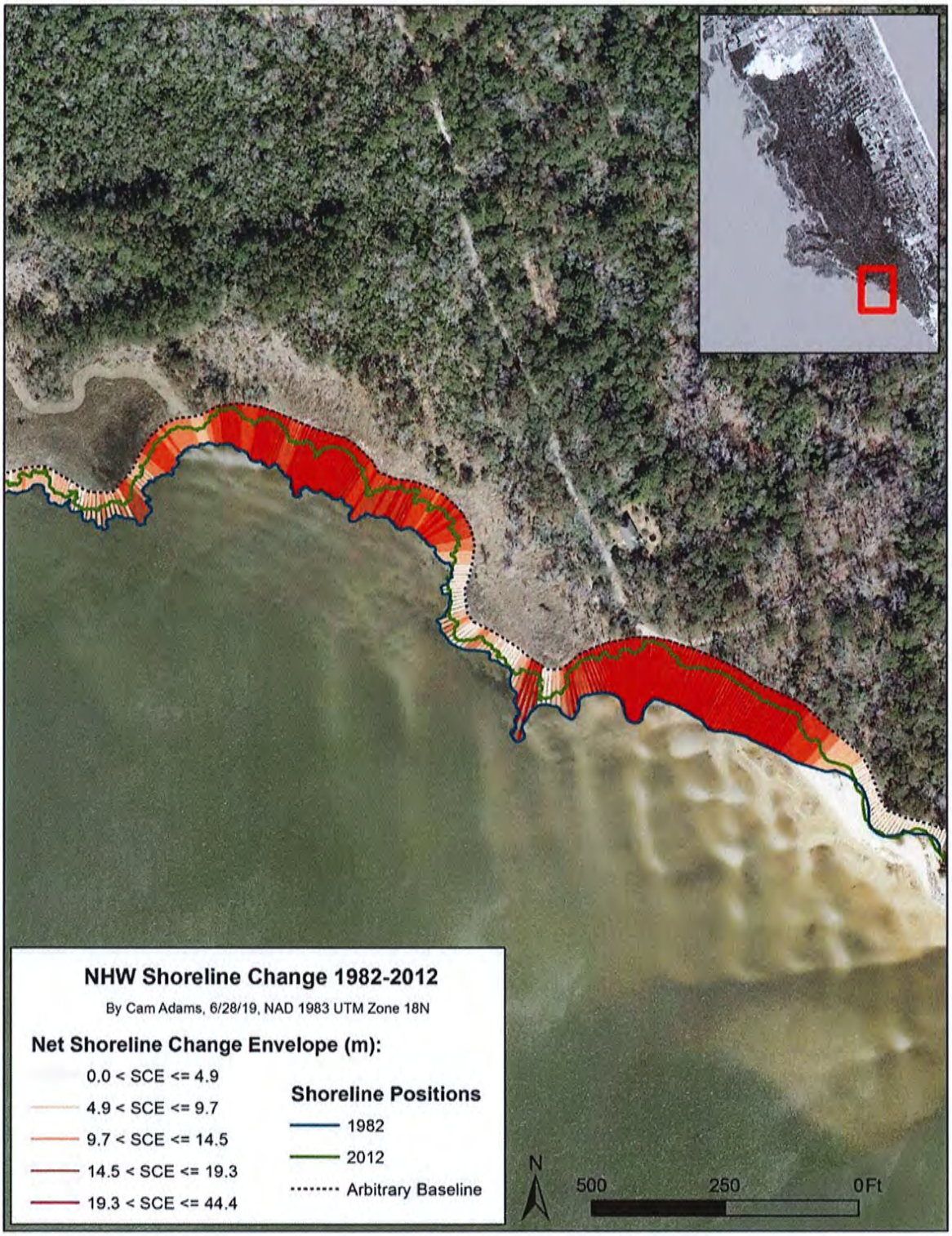
- Since 1982, 22 acres (17 football fields) have been lost to erosion.
- Nearly all of the shoreline is eroding.
    - A drone was used to investigate areas of concern more closely.



Conservation, Restoration and Biology

Soundside erosion and effects on Nags Head Woods forest systems

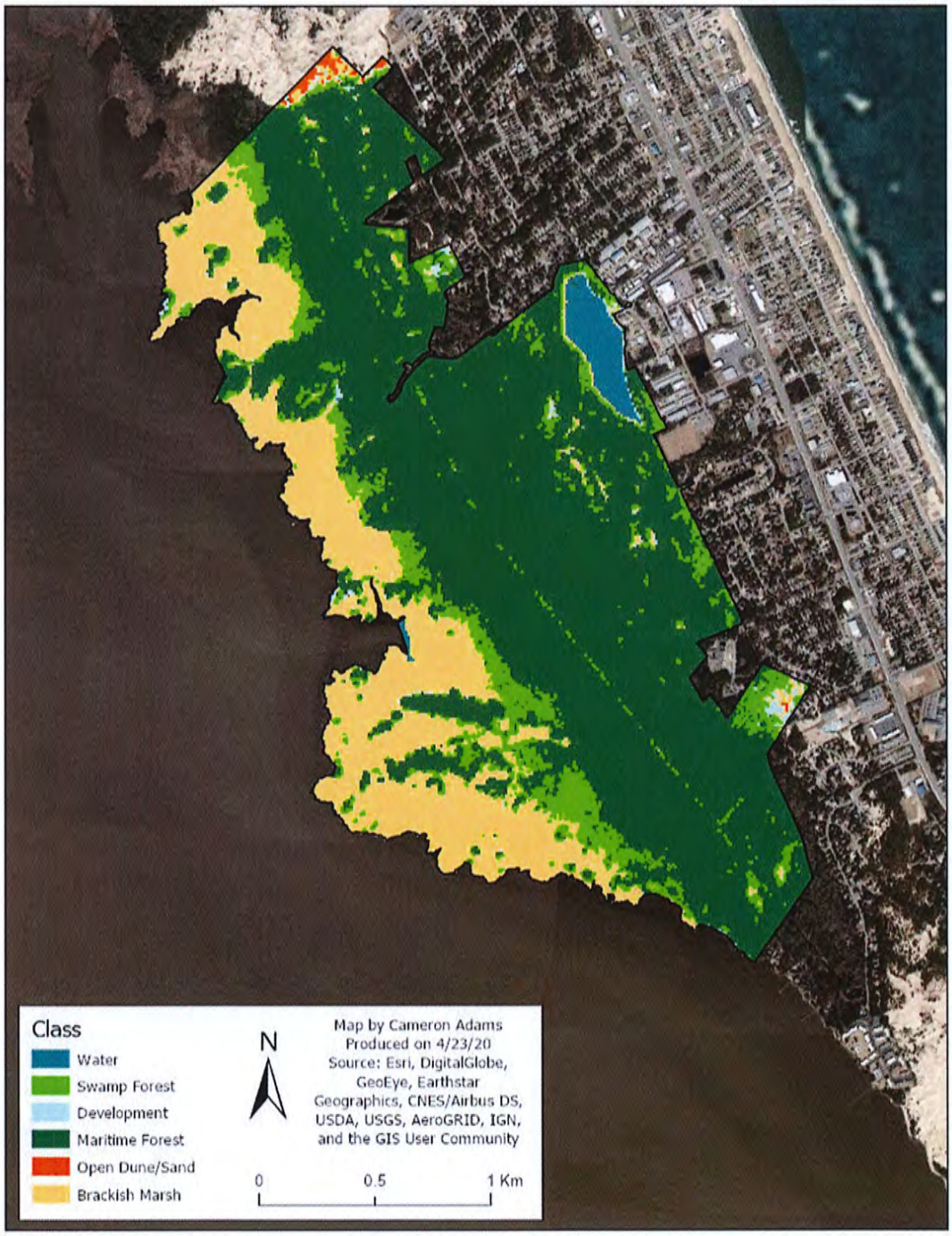
Southwest facing shorelines are showing most erosion on the south end of the Preserve



Conservation, Restoration and Biology

Soundside erosion and effects on Nags Head Wood forest systems

Given the rates of erosion, there is concern about the effects of land loss and water intrusion into the forest community, specifically the swamp forest community type. Cameron's research was an innovative first step into using GIS and drone tools to understand impacts of changes to Nags Head Woods ecosystems.



Community Services

Nags Head Woods provides many benefits to the Outer Banks community

For the public:

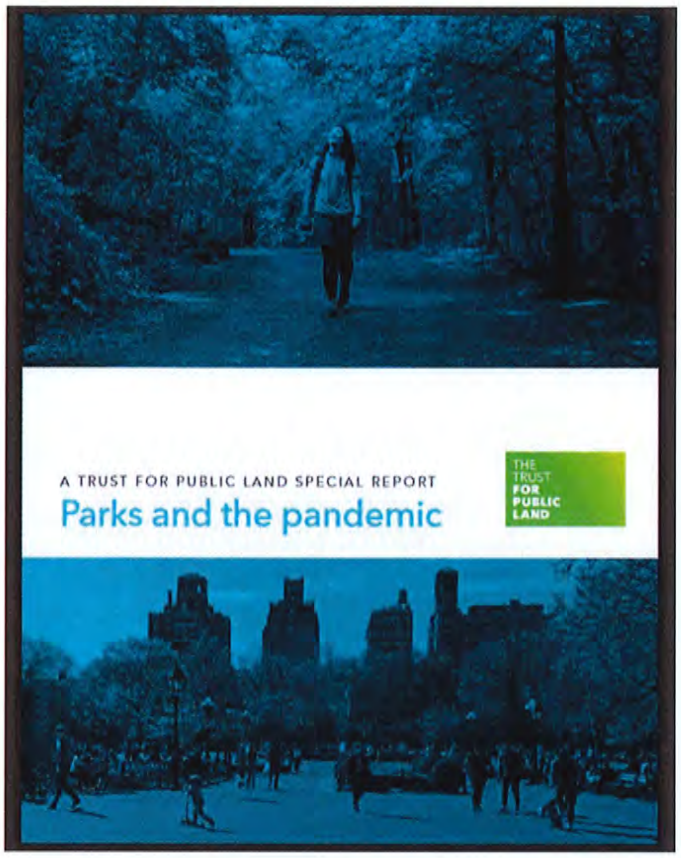
- Access to healthy greenspace for community members and visitors free of charge.
- ADA compliant trail and observation deck.

For students and learning:

- Living laboratory for students of all ages in science, conservation, research, art and other studies.
- Historical audio tour in Spanish and English that highlights the 18-19th century community in Nags Head Woods.

For municipalities:

- It's a great value since so many activities can happen within the same space: exercise, dog walking, bird watching, running, hunting, fishing, photography and other art such as painting and drawing.
- Provides open space for CRS rating with possibilities for future additional open space points for CRS.
- Provides stormwater reduction through evapotranspiration, soaking up rainfall and releasing it back into the atmosphere. See example on page 14.



Trust for Public Land Special Report "Parks and the Pandemic" 2020

As COVID-19 strains communities, access to the outdoors matters now more than ever. Park agencies at the local, state, and national levels have experienced surges in park visitation, sometimes increasing by more than 150%.

Visiting parks and open spaces can provide:

- low-risk opportunities for exercise and reduced stress
- improving physical and mental well-being

This is especially important during a pandemic when gyms are closed, and stress is high.

Parks with more natural land (e.g., forests and wetlands) provide a range of other benefits in addition to recreation. These natural spaces help:

- to filter water
- increase water storage
- reduce flooding
- provide habitat for wildlife and pollinators
- carbon storage

Importance of forest conservation in urban areas

Preserving and expanding Virginia Beach's forests is key in fight against flooding, study says

By Peter Coutu The Virginian-Pilot | Feb 24, 2020 at 11:05 AM

Virginia Beach's forests, including Back Bay, play an outsized role in the city's fight against flooding by silently managing massive amounts of water every day of the year, according to a new study released this week. (Stephen M. Katz, photo)

The authors of the study point to a few figures to help drive home the point: Virginia Beach's wetland forests suck up about 230 million gallons of water from the ground each day and pump it back to the atmosphere.

"This is happening every day and quietly and essentially for free," said Brian van Eerden, the director of the Nature Conservancy's Virginia Pinelands Program and co-author of the study.

Virginia Beach's urban canopy provides more than $250 million in annual savings and benefits, according to the city's urban forest management plan. Roughly $84 million of that comes from stormwater reduction. The forests help in a process called evapotranspiration. They soak up rainfall and release it into the atmosphere, said Daniel McLaughlin, the lead scientist of the study. And different types of forests provide different benefits, with wetland woods providing high rates of evapotranspiration and upland forests offering massive amounts of storage, according to the study.

These forests could provide the backbone of the city's green infrastructure as officials brace for the impacts of sea level rise in the decades to come, according to the study.

"Trees are functionally straws in the ground," Van Eerden said. Read the full article.

We are very grateful for the Town of Kill Devil Hills' support both this year and in past years.
Please contact us for additional information, questions and feedback.