



*2023-2024 Annual Report*

*TOWN OF KILL DEVIL HILLS*

*OCTOBER 2024*



# Table of Contents

- 1.0 VISITOR SERVICES ..... 1
  - 1.1 Office..... 1
  - 1.2 Staff..... 1
    - Map 1. Protected lands in the Albemarle-Pamlico Sounds region ..... 2
  - 1.3 Preserve Visitation – Trail Counters ..... 4
  - 1.4 Signage ..... 8
  - 1.5 Audio Tour..... 8
  - 1.6 Facilities and Trails ..... 9
- 2.0 Partnerships, Volunteers, Community ..... 10
  - 2.1 Interns and Volunteers..... 10
  - 2.2 Education through Partnerships..... 11
- 3.0 Conservation, Management, Biology ..... 11
  - 3.1 Invasive Species..... 11
  - 3.2 Deer Management ..... 14

# 1.0 VISITOR SERVICES

Visitor services, especially through the summer months, continue to be an important component of Nags Head Woods Preserve (Preserve) management.

This year our new signage improved traffic flow by highlighting our outdoor informational kiosk which provides visitors with maps, Preserve rules, and other literature.

Indoor visitor reception is generally available most weekdays during normal business hours.

Restrooms, drinking fountain and water bottle refill services, air conditioning, a few comfortable chairs and opportunity to interact with staff are often appreciated by hikers during the hot months.

## 1.1 Office

Our offices have been more routinely open during the regular work week. But some days during the regular work week, you may not see us due to a reduced staff who are still working flexible, hybrid work schedules and juggling field work. We strive to have both the Nags Head Woods Preserve administrative office and indoor visitor facilities open for visitors during the regular work week, Monday – Friday 9 am to 5 pm, especially during the summer months when visitor numbers are high.

## 1.2 Staff

Nags Head Wood Preserve is home base for The Nature Conservancy's Albemarle-Pamlico Sounds Office. We have three staff based here who live on the Outer Banks and one new hire based out of a home office in Edenton. Their work stretches from the Preserve to the lands and waters around the Albemarle-Pamlico Sounds which includes the five river basins – Pasquotank, Chowan, Roanoke, Tar-Pamlico, and Neuse – and six major sounds – Albemarle, Pamlico, Core, Croatan, Currituck, and Roanoke - spanning northeastern North Carolina and southern Virginia. See map 1 for region and protected lands.



Map 1. Protected lands in the Albemarle-Pamlico Sounds region

Aaron McCall is our Northeast Land Steward. Aaron’s work goes beyond his management of Nags Head Woods to the over 75 other large tracts of land owned or managed by The Conservancy in this region. He also oversees the planning, design, and implementation of ecological restoration projects such as building of shoreline oyster reefs or reconnection of floodplain and creek habitat along the Roanoke River.

Lora Eddy is our Conservation Coordinator and Resilience Specialist. She supports stewardship activities and office management at Nags Head Woods Preserve this extends from maintaining our two

pollinator gardens to support of our broader restoration and protection work across the A-P region. Her resilience work is focused on providing technical assistance to communities to facilitate their use of natural and nature-based strategies to manage their risk to coastal hazards and the impacts of climate change.

Eric Soderholm, who is our Coastal Wetlands Restoration Lead, coordinates the restoration of peatlands and forested wetlands on both public and private lands in the Coastal Plain of North Carolina to improve their biodiversity, ecosystem function, resiliency, and climate mitigation potential of these incredible natural systems.

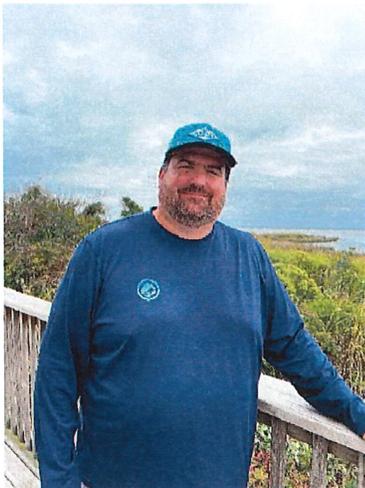


Photo 1 - Dr. Aaron Bunch, image credit: Lora Eddy

We recently hired a new Coastal Applied Scientist to lead our planning and coastal conservation work. Dr. Aaron Bunch joined TNC in September 2024. Bunch is from northeastern North Carolina and completed his undergrad at NCSU, his master's at University of Florida studying fisheries and aquatic sciences, and his received his Ph.D. from Clemson. He spent 11 years at state agencies including NC Wildlife Resources Commission and game agencies in Arizona and Virginia. He will guide planning and science that will advance the conservation and restoration of our important coastal habitats in NC.

In June 2024, we welcomed 2 temporary staff in partnership with Conservation Corps North Carolina (<https://corpsnc.org/>).

Devon Bolt joined us for 8-weeks as a Coastal Habitat intern. She reviewed what indicators we should monitor to track changes due to climate in our maritime forest habitats, owned by The Nature Conservancy and our partners at the NC Coastal Reserve sites: Buxton Woods and Kitty Hawk Woods Reserves. She started a water monitoring project to help with assessing potential salinity change in the waters around these forests systems.

Hannah Keiper spent 12-weeks as our Preserve Assistant to help with our seasonal influx of visitors. Hannah primarily focused on stewardship activities

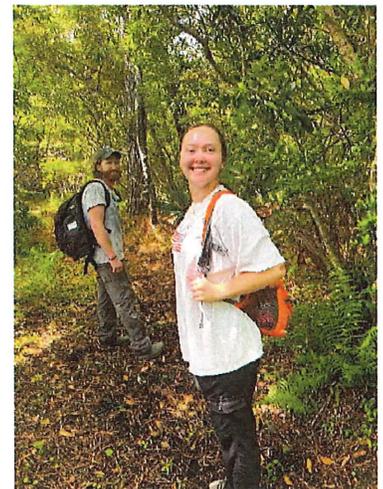


Photo 2 - Intern Devon Bolt, image credit: Lora Eddy

Photo 3 - Intern Hannah Keiper, image credit: Lora Eddy



on the trails and office as well as providing services to our visitor. Additionally, she assisted with butterfly monitoring in the woods. The

### 1.3 Preserve Visitation – Trail Counters

We continue to monitor the six infrared trail counters which were installed in Nags Head Woods Preserve in January 2021. This data helps us understand the use of the woods for both trail and road traffic.

This reporting period we relocated one of our trail counters from Sweetgum Swamp to the visitor center so that we can capture a count for the number of visitors that park, use our facilities, or maybe grab a brochure.

29,050 visitors have been counted here since installation October 16, 2023 to June 30, 2024. This averages to 79 per day, but at this time our count trends here are incomplete as the station has only been established for 231 days.

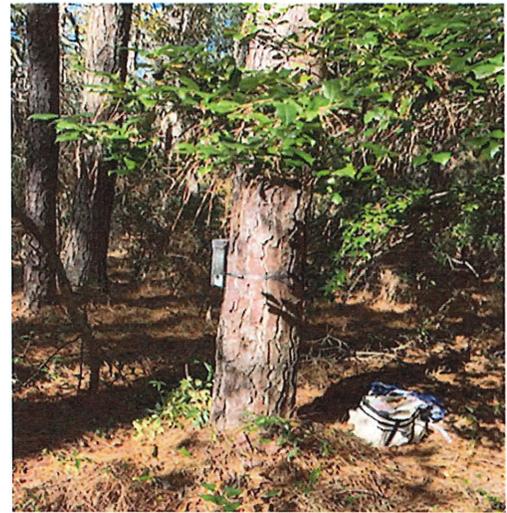
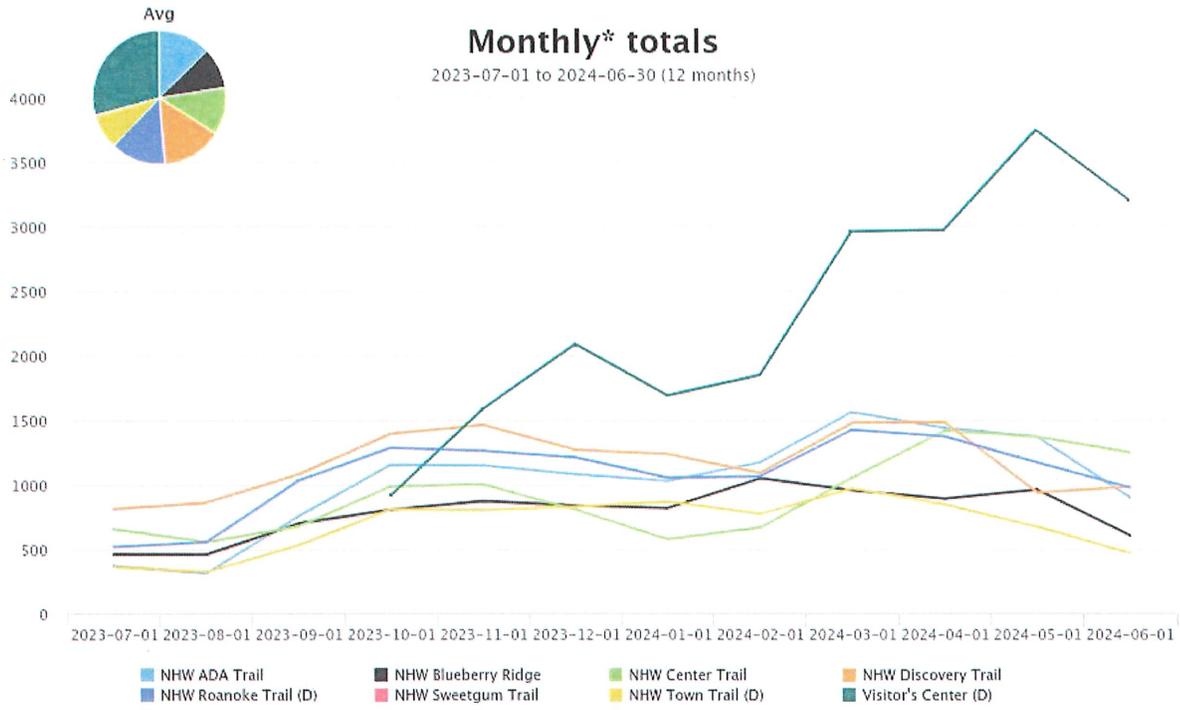


Photo 4 - Trail counter

The counters are reporting 22 – 40 hikers per day or between 700 – 1,200 hikers per month on each of the trails. Our most popular trails are the Discovery, Roanoke, ADA, and Center trails.

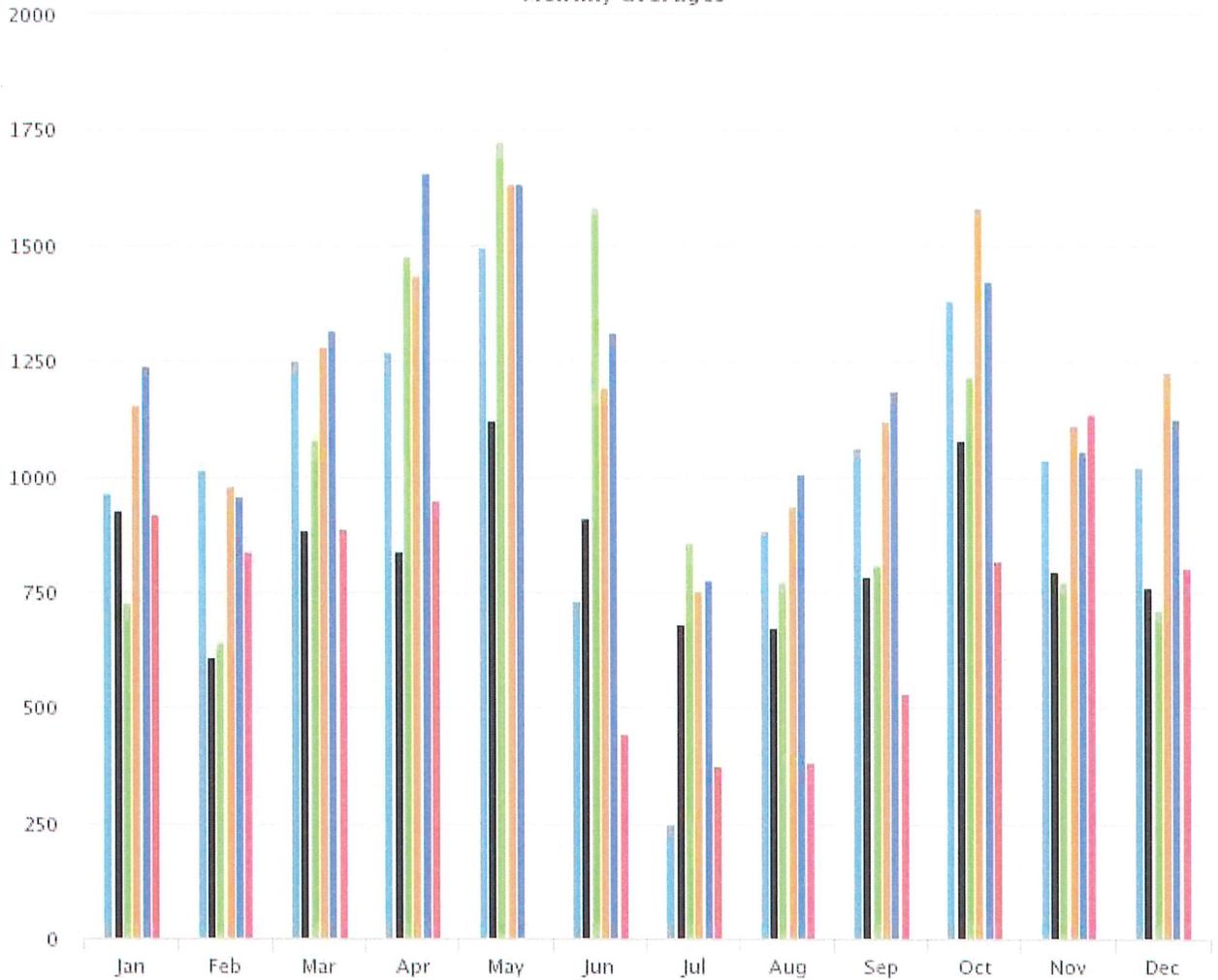


Graph 1. All Trail Counters by Month Line Graph

# Months of the year

2022-07-01 to 2023-07-01

Monthly averages



| Site Name             | Average | Median  | STDV  | Min   | Max     |
|-----------------------|---------|---------|-------|-------|---------|
| NHW ADA Trail         | 1,029.4 | 1,028.5 | 312.8 | 248.0 | 1,495.0 |
| NHW Blueberry Ridge   | 838.0   | 815.5   | 149.7 | 608.0 | 1,122.0 |
| NHW Center Trail      | 1,030.4 | 831.2   | 362.8 | 641.0 | 1,723.0 |
| NHW Discovery Trail   | 1,200.8 | 1,174.0 | 247.2 | 752.7 | 1,634.0 |
| NHW Roanoke Trail (D) | 1,223.2 | 1,212.0 | 252.7 | 776.9 | 1,654.0 |
| NHW Town Trail (D)    | 734.6   | 818.0   | 245.8 | 373.9 | 1,134.0 |

(D) = divide by 2 applied

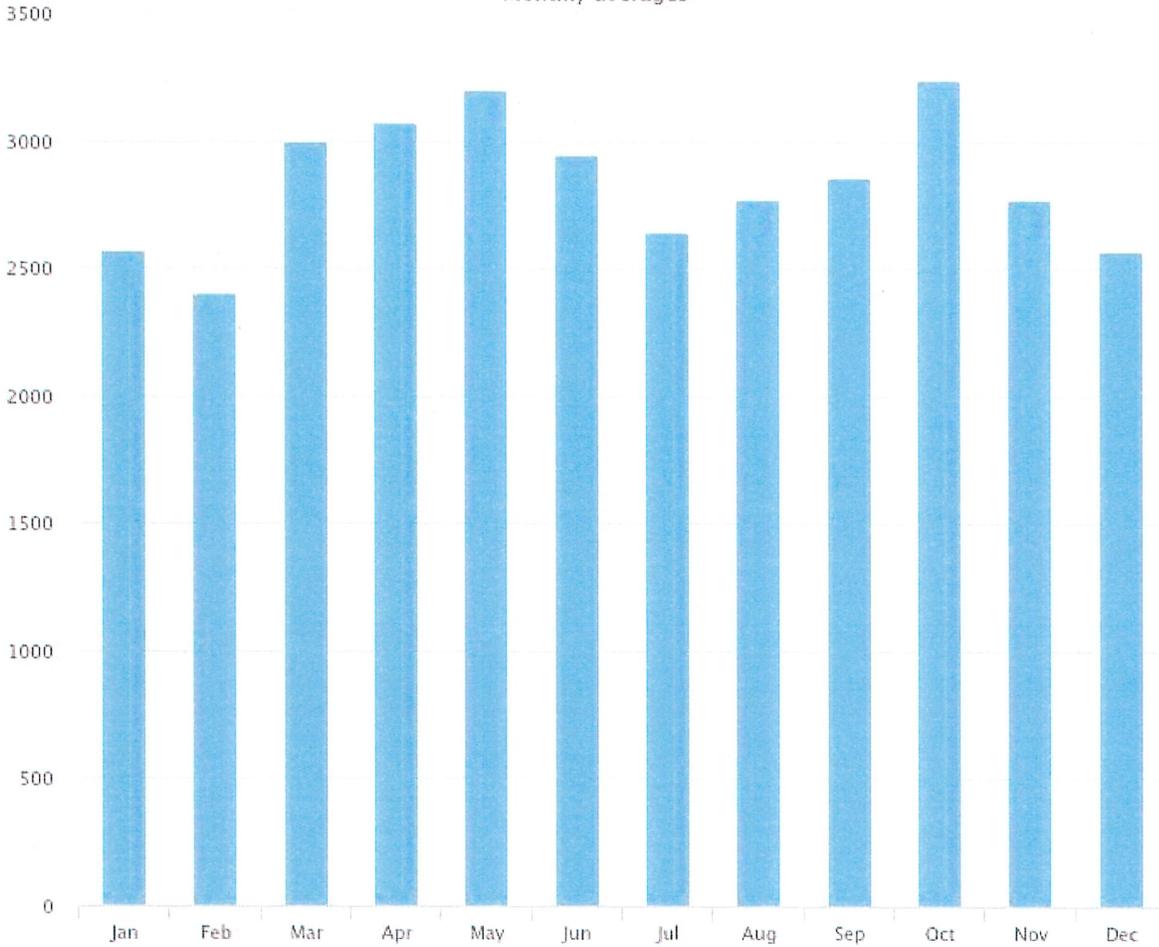
Graph 2. All Trail Counters by Month Bar Graph

We also have a roadside vehicle counter, and with 12 months' worth of data for this reporting period, we are seeing just an average of 2,835 vehicles per month on Ocean Acres and Old Nags Head Wood Road.

### Months of the year

2023-07-16 to 2024-07-30

Monthly averages



| Site Name               | Average | Median  | STDV  | Min     | Max     |
|-------------------------|---------|---------|-------|---------|---------|
| NHW Vehicle Counter (D) | 2,835.0 | 2,814.5 | 253.0 | 2,399.3 | 3,239.0 |

(D) = divide by 2 applied

Graph 3. Ocean Acres Vehicle Counter by Month

## 1.4 Signage

Since we are mostly a self-guided facility, signage is a critical part of our visitor services.



Photo 5 - New parking directional signage, image credit: Lora Eddy

In 2021 The Nature Conservancy's Nags Head Woods staff worked with Destination by Design, a NC firm to design a signage master plan for accessibility and visibility that offered clear message and direction to all visitors. The resulting recommendation was to create larger more durable wayfinding and navigation signage to guide our visitors to the trails.

The big new this year was the addition of new directional signs, larger trail head signs for trails 4 and 5 as well as our ADA trail, and two new entrance signs. This completes Phase 1 and 2 of our signage projects. We have begun planning efforts on Phase 3 of our signage which will improve signage for the Town/Barnes Street Park and YMCA Trails.

These projects were funded by the Town annual

contributions as well as a generous grant from the Outer Banks Community Foundation.

We are also in the process of redesigning the Nags Head Woods trail map to aid to these wayfinding projects and improve visitor experience.

These projects help ensure a safe and educational visit for all kinds of visitors.



Photo 6 - New entrance signage on Ocean Acres Drive, image credit: Lora Eddy

## 1.5 Audio Tour

Since its debut in the summer of 2019, our audio tour has been well received. Summer camp programs and visitors can call in for access to a guided hike about the 18th century community that was present in the Woods. The tour is based upon audio interviews for the book "Everyone Helped His Neighbor: Memories of Nags Head Woods".

The audio tour has a cumulative number of 2,040 calls.

In 2019 in partnership with Manteo Elementary School Dual Language Immersion teacher, Alejandra Oropeza we added a Spanish translation of the audio tour which was highlighted on our Facebook and Instagram social media posts during Hispanic Heritage month.

## 1.6 Facilities and Trails

Maintaining our over 8 miles of trails, 5 wooden bridges, 7 wooden benches, and 1,000 linear feet of wooden boardwalk on the ADA trail is a big part of the work at Nags Head Woods Preserve.

Again, thanks to assistance from App State we replaced another 100 feet of wood decking on our ADA trail. Staff and volunteers continue to work on replacing sections of this wooden boardwalk.

App State also conducted much needed general maintenance and improvements around the parking area such as an improved oyster bin area and screen around the portable toilet.

We are still working towards addressing sections of our wooden boardwalk along the Discovery Trail as well as addressing some much-needed bridge repairs on the Center Trail.

We continue to seek funding for our Pavilion refresh project which will make improvements to the exhibits and displays in our Pavilion. Our Pavilion currently serves as an open meeting space for TNC and community. These improvements will enhance our meeting space as well as provide additional



*Photo 7 - ADA Trail boardwalk repairs*



*Photo 8 - New Oyster Recycling bin area*

Photo Credits: Lora Eddy/TNC

opportunity for self-guided educational displays and information for visitors, community and local partners. Stay tuned as we continue to work on improvements to our Pavilion space and trails.

## 2.0 Partnerships, Volunteers, Community

In addition to everyday interactions with preserve visitors, NHW participates and partners with others for successful outreach events.

### 2.1 Interns and Volunteers

In the fall of 2023, we hosted 2 student volunteers from East Carolina University's Coastal Studies Institute Outer Banks Field Site Program. They helped with stewardship tasks around the Preserve such as trail maintenance and invasive species removal. As well as working with Currituck County to update their Open Space Preservation inventory in support of their continued enrollment in the National Flood Insurance's Community Rating System program.

In March 2024, we hosted ten students from Appalachian State University at Nags Head Woods during their alternative spring break. With their assistance we replaced approximately 100 feet of wood decking on our ADA trail, conducted much needed general trail maintenance, and constructed a 100-foot loose shell oyster reef behind Pea Island National Wildlife Refuge in partnership with the refuge and NCCF oyster shell recycling program.

We want to recognize our dedicated volunteer Chip Walton who for the past almost 3 years has been instrumental in improvements at the Preserve from signage to repairs to our boardwalks.

In total for our 2024 report period, we had over 958 Volunteer Hours logged at Nags Head Woods Preserve.



*Photo 9 - 2024 App State Alternative Spring Break Group image credit: Haley Radogna*

## 2.2 Education through Partnerships

April 2023 in partnership with the NC Aquarium, we hosted First Flight Elementary School and Nags Head Elementary's 5th grade classes at the Preserve for the Sea2Sound (S2S) event. A total of 135 students were a part of this program, which is a full day, hands-on science field trip that starts at the Atlantic Ocean and traverses the width of OBX, mostly on the Town Trail in Nags Head.

Additionally for the past 3 years Rhana Paris, NC Aquarium Outreach Coordinator, has given a "Maritime Forest Ecosystem" virtual program at Nags Head Woods.

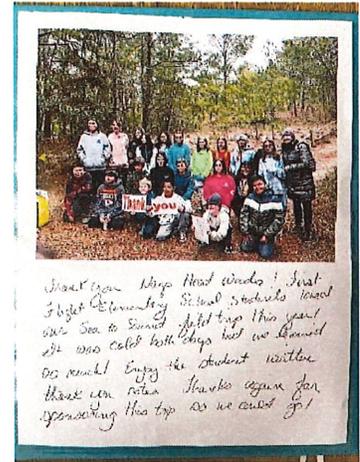


Photo 10 - Sea2Sound Thank you note



Photo 11 - TNC Intern Hannah leads NC Aquarium camp on guided hike image credit NC Aquarium

This year there were fifty-four 5<sup>th</sup> graders from Sherwood ES in Gaston County and 3 teachers who participated.

This summer our interns held weekly guided hikes and open house events in June and July. In partnership with the North Carolina Aquarium, Coastal Studies Institute, and Dare County Parks and Recreation we also hosted guided hikes for summer camp programs.

In total all these educational efforts reached over 292 visitors and students.

## 3.0 Conservation, Management, Biology

### 3.1 Invasive Species

This year we contracted with a local licensed trapper to control the nutria that had made a home in our ponds. Nutria are large rodents that are native to South America and were introduced in the 1800s for fur trade. Nutria have destroyed tens of thousands of acres of marsh and wetlands on the Gulf and Atlantic coasts. They will eat just about any plant and eat all the way through its roots – destroying plants. The trapper caught 11 individuals over 6 weeks.

We continue to manage invasive plants within Nags Head Woods. This is hard work and a constant effort during the warmer months. The ecology of Nags Head Woods would be critically impacted without continued management and control of these invasive plants.

For the second year in a row, we have added a new invasive plant to our list.

Thank you for doing your part in encouraging residents to not plant these species as many are commonly sold at smaller local and large landscaping stores. A good resource to check is the Invasive Plant Atlas of the United States: <https://www.invasiveplantatlas.org/>

See table below for detailed management and control practices:

| Invasive  | Management & Source   |
|---|---|
| <p>Asiatic (common) dayflower - commelina</p>  <p><a href="#">This Photo</a> by Stefan.lefnaer is licensed under <a href="#">CC</a></p> | <ul style="list-style-type: none"> <li>• <b>MANAGEMENT:</b> Controlled by hand pulling</li> <li>• <b>SOURCE:</b> It comes in with the gravel for the roadways. It can spread aggressively and is resistant to herbicides. Seen along the roadway with blue/purple flowers and stems that are erect.</li> </ul> |

| Invasive  | Management & Source   |
|---|---|
| <p>Bush Clover – lespedeza</p>  <p><a href="#">This Photo</a> by Katja Schulz is licensed under <a href="#">CC</a></p> | <ul style="list-style-type: none"> <li>• <b>MANAGEMENT:</b> Controlled by hand cutting and herbicide</li> <li>• <b>SOURCE:</b> It comes in with the gravel for the roadways therefore very difficult to manage. It can form massive strips along the roadway with knee high long stems and small pea-like white flowers and seeds/spreads quickly.</li> </ul> |
| <p>Russian Olive</p>  <p><a href="#">This Photo</a> by Unknown Author is licensed under <a href="#">CC</a></p>        | <ul style="list-style-type: none"> <li>• <b>MANAGEMENT:</b> Controlled by hand cutting and herbicide</li> <li>• <b>SOURCE:</b> Russian Olive is a popular ornamental sold extensively at local stores. Its seeds are brought in by birds, unknowing hikers, and vehicles.</li> </ul>  |
| <p>Oriental Bittersweet</p>  <p>Image via UGA Bugwood Center for Invasives</p>                                       | <ul style="list-style-type: none"> <li>• <b>MANAGEMENT:</b> controlled by hand cutting and herbicide</li> <li>• <b>SOURCE:</b> Once a popular ornamental and brought in by birds. It can form massive swaths of heavy cover in trees quickly.</li> </ul>  |

| Invasive  | Management & Source   |
|---|---|
| <p>Japanese Stilt Grass</p>  <p>UGA2308019 Image via</p> <p>UGA Bugwood Center for Invasives</p> | <ul style="list-style-type: none"> <li>• MANAGEMENT: controlled by herbicide</li> <li>• SOURCE: It comes in with the gravel for the roadways therefore very difficult to manage. It can form massive swaths of ground cover vegetation quickly.</li> </ul>   |
| <p>English Ivy</p>  <p>Image via Flickr by James St. John</p>   | <ul style="list-style-type: none"> <li>• MANAGEMENT: controlled by hand cutting and herbicide</li> <li>• SOURCE: English Ivy also a popular ornamental for ground cover. 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.</li> </ul> |

### 3.2 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. The bow hunt helps manage the deer population to alleviate nutritional stress and lessen the probability of further declines in herd health.

The bow hunt offers affordable, important heritage and consumptive recreation for local citizens who hunt. Many hunters provide important feedback about the Preserve.

The regular bow hunt season ran from September 9, 2023, to January 1, 2024, with an extended Urban Archery season which closed February 18, 2024. A total of 37 hunters registered for the 2023-2024 season, with a total of 9 deer harvested.

Hunter's requirements:

- 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.



*We are very grateful for the Town's support both this year and in past years!*