

Diamondback Terrapin Nesting Activity

Summer 2026 Research

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The Balance of Human Impact and Habitat

The survey area of Pleasure House Point, in Virginia Beach, Virginia, is a prime example of a space where the balance between nature and human impact is constantly trying to reach equilibrium. It is important to have open spaces intended for recreation, as well as the ability of humans to experience nature. However, as conservation scientists, we must determine how best to integrate humans into a natural environment without causing undue harm to wildlife.



Female diamondback terrapin resting in the sand after laying her eggs

Diamondback terrapins are a keystone species in Atlantic Coast estuarine ecosystems; however, they are considered a species of "Very High Conservation Need" by the Virginia Department of Wildlife Resources (DWR). Their populations are threatened by a variety of anthropogenic factors, including entrapment in crab pots, habitat loss, and negative human-wildlife interactions.



*Map of survey sections within the survey site -
Section A is the protected restoration site -
Section B is the accessible perimeter*



Image of Pleasure House Point, ideal nesting habitat for diamondback terrapins

Diamondback terrapins are a charismatic species at Pleasure House Point. Since the park's dedication in 2012, protections for the diamondback terrapin population have consisted of limited educational materials and the occasional protection of known nests using makeshift wire boxes. Though the success of these methods was not formally studied, instances of dug-up terrapin nests and the mishandling of both adult terrapins and hatchlings by the public evidence the need for improved protective strategies. Additionally, in March of 2025, the creation of a wetland mitigation bank, through a wetland restoration project, resulted in a significant impact on existing Terrapin nesting sites. During the site construction, there was significant public speculation about the direct impacts on the terrapin population.



Aubrey Moore checks female diamondback terrapin for eggs

This study aimed to generate a comprehensive evaluation of the diamondback terrapin nesting population at Pleasure House Point. The data establishes a baseline to monitor terrapin activity within the site in the future and can be compiled with other studies of larger terrapin activity within coastal Virginia. This study also examined the efficacy of different terrapin and nest protection strategies for a high-pedestrian-traffic park, like Pleasure House Point.

Methodology

This research was conducted primarily through the use of an ArcGIS Quick Capture Application that enabled volunteers to take photographs and record spatial data of diamondback terrapin activity they observed during the survey.



A trail camera placed within the wetland restoration site

Supported by the Anne Davis Environmental Advocacy Fellowship, three trail cameras provided supplementary wildlife monitoring within the Wetland Restoration Site. Because public access to this restoration area was restricted to protect the establishment of vegetation, direct surveys were limited to periodic checks by trained volunteers. The trail cameras enabled continuous, non-intrusive surveillance of wildlife activity.

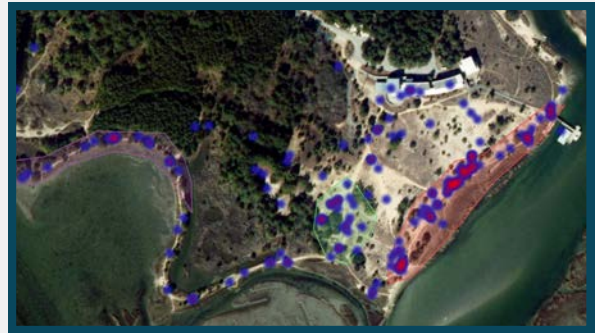
As a citizen-science-based research project, engaging volunteers and community support was critical to its success. We are deeply grateful for the valuable collaboration and support from the following organizations throughout the planning and execution of this project. Additionally, dozens of volunteers participated beyond these listed organizations, contributing simply as passionate community members. This project's success is equally owed to their effort.



Results

The map on the right shows a heatmap of recorded Diamondback terrapin activity throughout the entirety of the survey. It was created using the following layers, which were chosen because they most accurately indicate terrapin activity:

- Live Terrapins
- Tracks
- Confirmed Nests



Heatmap of recorded diamondback terrapin activity

The map shows that although activity is widespread, there are three clusters of "high-activity areas." These clusters are similar in that they border areas of dense marsh, potentially indicating a correlation between shoreline type and terrapin activity, though this cannot be confirmed.

During this survey, three methods of terrapin nest protection were evaluated: leaving the nest as is (covered in sand by the female), adding pine straw on top of the nest, and covering the nest with a cage. These methods yielded varying degrees of success, each with clear benefits and drawbacks. Leaving nests untouched draws the least amount of public attention, preventing parkgoers from intentionally disturbing them. However, it leaves the nests vulnerable to natural predation and accidental human disturbance. Covering a nest with pine straw has shown positive results for terrapin populations in New Jersey; it is theorized to mask the scent of disturbed soil, which predators track when hunting for nests. Nevertheless, the efficacy of this method in this setting remains uncertain. Finally, placing a physical barrier over the nest is the most effective way to prevent predation. However, maintaining the cage, such as ensuring it does not shift due to weather or human intervention, makes it a labor-intensive approach. It also draws public attention to the site, increasing the risk of intentional tampering.



Aubrey Moore checks the status of a known laid nest that was protected using the cage-protection method



New educational signage posted at Pleasure House Point

Improved public education is clearly a cornerstone of protecting Diamondback terrapins. This includes clear signage that instructs parkgoers on how to safely observe terrapins and minimize impact during their land movement.

Driven by this understanding, the City of Virginia Beach installed additional signage along the fencing of the Wetland Restoration Site. These signs were created by Gillian Tang and Audrey Perry, students in the Virginia Beach City Public Schools Environmental Studies Program. These students remain committed to expanding educational signage across the property to foster greater public awareness and stewardship of the terrapins.

Acknowledgements



Female diamondback terrapin sits in the sand on her way to nest

This research was made possible through the support and resources provided by the William & Mary Keck Environmental Field Laboratory, with special recognition to Dr. Randy Chambers and Cheryl Leu for their guidance and assistance. Funding for this project was awarded by the Charles Center through a Summer Research Grant. Additionally, this work was significantly enhanced by the Anne Davis Fellowship, which provided the financial support necessary to procure trail cameras for continuous wildlife surveillance. As a result, I was able to monitor activity within the wetland restoration site, resulting in a more accurate and in-depth understanding of how human influence is impacting the diamondback terrapin population at Pleasure House Point.

Want to learn more about this research? Use the link below!

<https://arcg.is/SD9402>