

University of Vermont

**UVM ScholarWorks**

---

UVM Honors College Senior Theses

Undergraduate Theses

---

2023

## Looking a Gift Horse in the Mouth?: A Study in the Values of Visitors, Horses, and Ecological Management on Assateague Island

Nora K. Ripley-Grant

Follow this and additional works at: <https://scholarworks.uvm.edu/hcoltheses>

---

### Recommended Citation

Ripley-Grant, Nora K., "Looking a Gift Horse in the Mouth?: A Study in the Values of Visitors, Horses, and Ecological Management on Assateague Island" (2023). *UVM Honors College Senior Theses*. 588.  
<https://scholarworks.uvm.edu/hcoltheses/588>

This Honors College Thesis is brought to you for free and open access by the Undergraduate Theses at UVM ScholarWorks. It has been accepted for inclusion in UVM Honors College Senior Theses by an authorized administrator of UVM ScholarWorks. For more information, please contact [schwrrks@uvm.edu](mailto:schwrrks@uvm.edu).

Looking a Gift Horse in the Mouth?:  
A Study in the Values of Visitors, Horses, and Ecological Management on  
Assateague Island



An Honors College Thesis Presented  
by  
Nora Ripley-Grant  
to  
The Faculty of the Honors College of  
The University of Vermont

In Partial Fulfillment of the Requirements for the Honors College and the Degree of Bachelor of  
Arts Specializing in Environmental Studies

April 2023

## ABSTRACT

Non-native, wild horses have thrilled visitors for decades on Assateague Island. Their presence on the Island has resulted in legends and fascination, yet as non-native species the horses have also caused immense ecological changes to the ecosystems. The horses are a prime example of societal constructions surrounding wilderness ideals and what it means to be “wild.” As someone who has been coming to the Island for over 18 years, my research uses personal narrative, ethnography, and survey data on Assateague visitors’ values regarding horses and ecology. Assateague has a rich sense of place, with a variety of different people visiting for recreational, aesthetic, and educational reasons. This project examines cultural conceptions surrounding the Island, which in the future can offer insight into how to bring conservation plans and tourist perspectives into closer alignment to ensure a sustainable future for Assateague Island and its diverse stakeholders. My research suggests that traditional conceptions of wilderness conflict with effective ecological conservation. There is a strong sense of personal gains, especially valuing the Island because of the increase in physical/mental wellbeing, environmental benefits, education, and a lack of interference with “wildness.” The horses of Assateague provide huge value to the Island, its sense of place, and to the visitors who come. Conceptualizations of wilderness on Assateague need to be considered when it comes to the reaction of effective management strategy because it is these very values and experiences that dictate how visitors will interact with the space.

## ACKNOWLEDGEMENTS

I am deeply appreciative to the University of Vermont, the Honors College, the Department of Environmental Studies, and the Office of Fellowships, Opportunities, and Undergraduate Research for giving me the opportunity to complete this thesis. This thesis would not have been possible without support and guidance from my advisor Dr. Harlan Morehouse. Special thanks to my committee members, Dr. Cheryl Morse and Dr. Luis Vivanco. Thank you to the FOUR Office for providing me with a research grant, without which this research would not have been possible. I am indebted to UVM librarian Trina Magi for her tireless library, research, and personal support throughout my time here. I will always have the utmost appreciation for everyone who participated in my survey. Every creature great and small will always have my utmost respect and care at Assateague, the Island has made me who I am today. Lastly and most importantly, I would like to thank my family and friends for their undying support and unwavering encouragement over the past few years. Wendy, Jack, Emmett, and the residents of 68 South Willard, I couldn't do it without you.



Dedicated to Grandma

## TABLE OF CONTENTS

<b>CHAPTER 1: Introduction to Research and Ethnographic Experiences .....</b>	<b>4</b>
I. 5	
II. 8	
III. 10	
IV. 13	
V. 16	
VI. 17	
VII. 21	
<b>CHAPTER 2: Quantitative Research and Questionnaire.....</b>	<b>22</b>
VIII. 24	
IX. 26	
X. 28	
XI. 31	
Demographic Characteristics of Respondents:	30
Behavioral Descriptive Statistics:	32
Likert Scale Data	34
1. 36	
2. 37	
3. 40	
Summary of Likert Takeaways .....	40
The Importance of Horses to Visitation	40
Statistical Significance	42
The Impact of the Type of Visitor on the Answer to the Fewer Horse Question .....	42
The Impact of Nature Center Visitation on the Fewer Horses Question .....	44
The Impact of Travel Time on the Fewer Horse Question .....	45
<b>XII. ETHNOGRAPHIC SUPPLEMENTS .....</b>	<b>46</b>
Recreation-Oriented Visitors	48
Horse Encounters	50
Wild and Ecological Values	51
<b>XIII. RESULTS SUMMARY.....</b>	<b>53</b>
<b>CHAPTER 3: Wilderness Discussion and Conclusion .....</b>	<b>54</b>

XIV. REVISITING WILDERNESS VALUES .....	54
XV. ASSATEAGUE HORSES IN FUTURE CONTEXT .....	57
XVI. CONCLUSION.....	59
APPENDIX:.....	62
BIBLIOGRAPHY.....	63

## **CHAPTER 1: Introduction to Research and Ethnographic Experiences**

*“For Assateague belonged to the wild things-- to the wild birds that nested on it, and the wild ponies whose ancestors lived on it since the days of the Spanish galleon.” (Henry 1947, p. 22)*

### I. INTRODUCTION AND RESEARCH QUESTIONS

As a four-year-old, I became obsessed with Marguerite Henry’s *Misty of Chincoteague* series, which follows two young children growing up on Chincoteague Island who are entranced with the ponies on Assateague and set their sights on having one of their own. My grandparents, ever doting and eager to nurture my interests, found out that you could camp on Assateague and decided to reserve a spot for a week at Assateague State Park so that I could get a chance to see these mystical “wild ponies” and spend a few days at the beach. The first week of every summer vacation thereafter became my favorite of the year. Driving over the bridge as the Island came into view, I would stare out of the car window in hopes of catching a glimpse of a horse or two in the salt marshes. We’d pull into the same camping spot year after year and I would bolt out of the car and run the five-hundred feet to the path up over the sand dunes and straight to the ocean, letting the salty ocean air wash over me and feeling the warm sand between my toes.

As a kid from Washington, D.C. the freedom that I had to run around the Island and the plethora of activities that were offered were as close to paradise as I had ever tasted. The tortuous three-hour drive to Assateague felt almost unbearable because I was overcome with excitement knowing what was to come. Everything that Henry described in the “Misty” series felt so tangible, and the Island was the perfect setting for all my imaginary games. For seven perfect days a year, everything seemed possible, wild, and free.

I was an expert at keeping my grandparents busy, making it my mission to tire them out every day. They were met with constant begging to go to the Nature Center to see the snakes and whelk, splash in the waves, ride my bike on the trails, and walk every inch of the shoreline. Entertaining an only child on an Island that I viewed as my oyster couldn't have been an easy task. Grandma, ever the innovator, would drive the truck beside me as I biked along the trail in the hope of spotting a horse or two in the shrubbery.

Our little red Prius still makes the trip to Assateague at least once or twice a year, when we can't contain the urge to stay away for any longer. The Island has been so many things for me over the years: a playground, a classroom, an escape. I began to wonder what it was to others. I decided to dedicate my thesis to an attempt to answer this question: Why were others visiting Assateague and what did the Island mean to them?

Assateague Island has long been a part of my life in many different capacities, some more idealized than others. The central aim of my research is to identify the shared and individual sense of place and values that visitors have at Assateague. Exploring these themes required examining the symbolic quality of the horses, their ecological impact, Assateague's greater ecological context, and conceptions of what it means to be "wild." This work generated insights about possible conservation strategies that balance ecosystem needs with Island tourism.

Assateague presents a clear problem: On one side is rich cultural and symbolic idealism and on the other is ecological degradation and tension between horses and other actors. This research aims to put these dynamics into conversation so that we might better understand the relationship between idealism and degradation on Assateague.

The first chapter of this paper will tackle understanding this relationship by generating place-based narratives. These ethnographic portions serve to share my experiences, ties to the



Island, and provide personal insight. While this research was first intended to be strictly a value-based survey, I realized that the overall story of visitor values on Assateague were greatly enriched by my strong personal history there along with a few stories from others.

In addition to ethnographic work, a questionnaire was conducted. The second chapter of this paper will focus on additional value-based research aimed at discovering a sense of who is visiting Assateague and why. The analysis of the data generated offers valuable insights into how people understand and value nature on Assateague. The guiding questions for the survey were what are others' sense of place, and what values do they attach to Assateague? This information is relevant to conservation strategies that need to balance the symbolic constructions of wildness with ecosystem health. Because of the impact of horses on the Island, both ecologically and symbolically, I also focused on the role the presence of the horses plays as a motivator for tourism. In addition to asking about the presence of the horses, I used the data collected to test out theories about the relationships between certain groups of visitors and whether they would come to the Island if there were fewer horses.

The third chapter of this paper will synthesize the research and put it into a broader context about what wilderness means, and how wildness is defined. It will also provide recommendations for future research.

## II. THE SETTING

Map of Roads and Trails Around Assateague

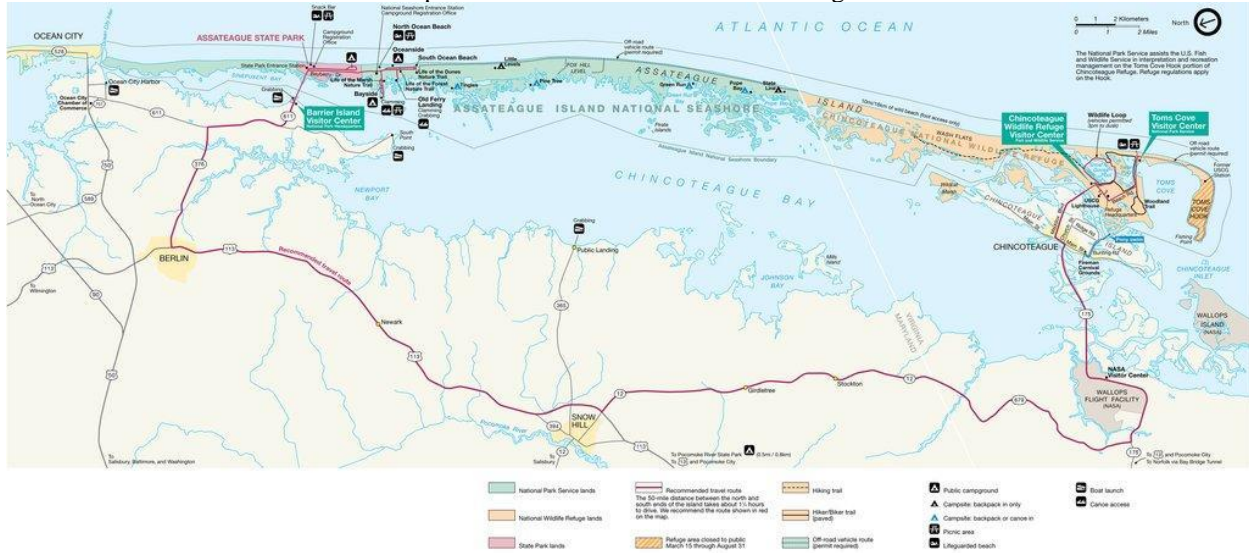


Figure 1: Map of Assateague Island with park boundaries (NPS Maps)

Assateague Island is a thirty-seven-mile-long barrier island off the coast of Maryland and Virginia. It is home to marshes, beaches, shrublands and over 200 wild ponies<sup>1</sup>. A handful of administrative buildings, roads, bike trails, several parking lots, campground facilities, and a snack shop make up the entirety of human-built infrastructure.

On the Maryland side, the Verrazano Bridge connects the mainland to the Island, and the road goes straight through the marsh to the State and National Seashore respectively. The marsh is a great place to spot your first few horses, and many people can be seen clamming underneath the bridge. Graceful egrets and massive blue herons are also often there. When I was little, the steep bike ride over the pedestrian section of the bridge always seemed nearly impossible, but it was worth it for a view of the 4th of July fireworks a few miles away in Ocean City.

<sup>1</sup> In this case, the animals are referred to as both ponies and horses. They are officially horses, but because of the unique environment, particularly the excess presence of salt, the horses have taken on many of the biologically defining characteristics of ponies. For the purpose of this research, the terms will be used interchangeably.

Pulling into the Maryland State Park, a long road connects different campsite loops that are tucked away in the towering sand dunes. Each site comes with a small fire ring, perfect for marshmallows and hot dogs, and an old, weathered wooden picnic table that Grandma would spread a floral tablecloth over as we ate dinner under the stars every night.

Campsites were feet away from the ocean, but bike paths were a bit more inland and sheltered. Thickets of myrtle and bayberry provided excellent cover for the deer that roam the Island and I would spend hours skillfully creeping through the shrubbery to avoid poison ivy while picking wild blackberries to add to our pancakes. The mosquitoes and horseflies were much more aggressive in the areas sheltered from ocean breezes, so I was always relieved to get back to the beach.

Each camping loop had its own entrance to the beach, so it was never very crowded. Grandma and I would try to get to the beach as early as possible (on days we didn't go into town for fresh, piping hot donuts from the Fractured Prune) so that we could stake our claim on the best section of sand. I would try to be as still as possible to spot the nearly translucent ghost crabs digging their burrows in the sand, marveling at their quickness and small beady eyes. Down the long stretch of beach, I could see the large crowds at the day use beach, and if it was extremely clear you could even get a glimpse of the bustling boardwalk tourist town of Ocean City. If I was really lucky that day, I'd even spot horses getting relief from the heat by the shoreline.

Aerial View of Assateague



Figure 2: An aerial view of the northern section of Assateague National Seashore (NPS)

### III. THE HORSES OF ASSATEAGUE

While blackberries, deer, and crabs held my attention, it was the presence of ponies that truly captivated me. The presence of the ponies, who are not native to the Island, is unique to the area and has resulted in fascination and legends. Folklore describes a group of Spanish ships carrying horses crashing off the coast, resulting in the death of the crew and the presence of the horses on the Island (Kotlowski 2004, Seligsohn-Bennett 1990). Once the horses swam to shore, they ran wild on the Island, thriving. Another tale posits that pirates left horses ashore to be used as food sources when they came back through the area. Another, less exciting, theory is that the horses are descended from domestic livestock brought to the deserted island by owners trying to evade taxes -- later being abandoned and left to their own devices. Whatever the case, the horses have lived on the Island for over 350 years (Seligsohn-Bennett 1990).

Natural, undeveloped areas with unique flora and fauna beckon people everywhere to visit and experience beauty and wonder against stunning backdrops. However, balancing the

needs of people and the health of the environment has always been complex. Assateague is no exception. Even as a little girl, it was clear to me that many barriers were in place to guide visitor behavior. Fences around the dunes attempt to keep humans and horses from destroying the vital dune grasses that prevent erosion. The horses, as relative newcomers to the ecosystem, are responsible for marsh and shrub habitat loss as a result of grazing patterns and trampling (De Stoppelaire et al. 2004).

The ponies of Assateague are not just symbols of lore, but a part of a much larger ecosystem. Salt marsh grasses, a favorite food of the horses, river otters, geese, turtles, and horned grebes. Shore birds, such as the piping plover, find their nests at risk when the horses head to the dunes to escape the heat (Cox 2014). Ghost and fiddler crabs are unable to burrow due to trampling as well. The presence of these ponies, nonnative and introduced by humans, has posed challenges for managers and conservationists to maintain a balance on the Island.

Three separate entities share control and management of Assateague: the National Park Service and Maryland State Park Service share management of the Maryland side, while the US Fish and Wildlife Service manages the Virginia side. As a result, the horses on Assateague are split into two herds that are managed differently. The herds are separated by a fence that runs along the state line of Maryland and Virginia. These herds have also organized themselves into bands of about two to twelve horses on average, each of which occupies a specific home range.

At the Assateague Wildlife Refuge in Virginia the herd is owned by the Chincoteague Volunteer Fire Department and is provided with basic veterinary care and winter feeding (Gruenberg 2015, Britton et al. 2021). Local volunteers round up the herd once a year on “Pony Penning Day” and swim the horses to the mainland. A certain number of foals from the herd are

then auctioned off to raise money for the fire department and to keep herd numbers under control (Kotlowski 2004).

At Assateague National Seashore, the National Park Service has chosen a different approach, limiting human interaction with the herd as much as possible because the horses are managed as a wildlife population (Britton et al. 2021). For the purposes of this study, focus will be limited to the Maryland herd managed by the National Park Service. The Seashore was designated as a National Parks property in the 1960s, under the mandate "to conserve the scenery and the natural and historic objects and wildlife therein and to provide for the enjoyment of the same in such manner and by such means as will leave them unimpaired for the enjoyment of future generations" (Seligsohn-Bennett 1990).

While tourism often dictates National Park Service designs, concerns, and focus, recent responsibilities have expanded to include preservation, environmental protection, and resource management (Miller 2001). In the case of the horses, the National Park Service has officially designated the horses as a "desirable feral species" (Cox 2014) due to the immense impact that the horses have on the Island's sense of place. The managers have decided that the importance of the horses is greater than the ecological harm that the horses cause.

Uniquely undeveloped for the area, Assateague caters to visitors seeking a variety of activities. And visit they do. Collectively the Island sees over 2.5 million visitors each year, who come to camp, fish, swim, kayak, and view the wildlife among many other activities (Prensky 2020, Britton et al. 2021). For the last eighteen years, I have been one of them.



Figure 3: A young Nora, fully absorbed into Assateague relaxation life

#### IV. HORSE SYMBOLISM AND WILDNESS

During my childhood visits to Assateague Island I spent hours splashing through the cold water, pretending to be a horse. I remembered how *Misty of Chincoteague* described the marsh grass, the horses releasing “wild snorts of happiness” as they tore into the sweet grass that “billowed and shimmered like the sea” (Henry 18). By using the legend of the Spanish galleon to explain the presence of the horses on the Island, Henry paints a picture from the horses’ point of view. The moment the horses arrived on the Island, they were “free, free, *free!*” (Henry 1947, p. 17). For hundreds of years, “The island was all their own. Not a human being anywhere. Only grass. And sea. And sky. And the wind.” (Henry 1947, p. 19).<sup>2</sup>

---

<sup>2</sup> It is important to recognize that the land now known as Assateague Island belonged to the Assateague Tribe. Colonization narratives erase Native American history and legacies in favor of a story about wild, uninhabited, open land. While Assateague was never inhabited full-time, it was used for hunting and fishing in the summer.

Pretending to be a horse, I felt that wild, independent freedom so inherent in the novel. It's no wonder that horses have long represented these characteristics, especially in American lore. Randall Miller (2001) argues that the ponies at Assateague Island are "as much symbols of an environment of freedom and of the public duty to protect such freedom as are Saratoga and Chickamauga" (Miller 2001, p. 172). The freedom to move, choose, and pursue "happiness" that the horses at Assateague National Seashore are afforded presents a manifestation of ideals that Americans are taught to hold so dear.

The exact definition of wild is often subject to individual interpretation. Grandpa Beebe in "Misty" is constantly reminding his grandchildren "[The horse] wasn't wild to begin with, mind ye. They just went wild with their freedom" (Henry 1947, p. 39). For the purposes of this thesis, "wild," when referring to horses, will employ Claudia Notzke's definition that describes wild horses as those that are without owners, free roaming, and surviving without human support for many generations (Notzke 2016).

Horses, and other wild populations of domesticated animals tend to evoke a charisma and connection that generates an emotional response, partly due to attachment of anthropomorphic and behavioral norms that they display (Lorimer 2015, Britton et al. 2021, Boyce et al. 2021). The horses at Assateague display observable social interactions such as play-fighting, nursing, and mutual care.

The narrative of a domesticated animal regaining its wild "heritage" further fosters the fascination and feelings of kinship with the ponies. Notzke's (2016) study on wild-horse tourism demonstrated that people who come to see wild horses in the western United States saw horses as part of a cultural "frontier legacy," as horses are seen to be living "self-determined" lives. The



ability of the horses on Assateague to “re-wild” and thrive despite harsh barrier island conditions are manifestations of their wildness and determination (Britton et al. 2021).



Figure 4: Horses escape from the humid summer and take in the ocean air

This idea of wildness is reinforced by the main characters in “Misty” and informs visitor expectations. Henry’s description of the transition of illustrates this “rewilding” of the horses from the strong, Spanish horses into wild Island ponies:

“With each season the ponies grew wiser. And with each season they became tougher and more hardy. Horse colts and fillies were born to them. As horse colts grew big, they rounded up mares of their own and started new herds that ranged wild-- wild as the wind and the sea that had brought them there long ago.” (Henry 1947, p. 22)

The horses are constant symbols of independence and determination as they make the Island their own, echoing the classic American narrative of the history of the United States. The dominance of horses on the Island, as they have made it their own, impacts how visitors have come to see the Island. The main character of “Misty” often struggles with this dynamic: ““Paul,

she asked in a hushed voice, “do you feel like we’re trespassing?” Paul nodded. “If you look close,” he whispered, “you can see that the wild critters have ‘No Trespassing’ signs tacked up on every pine tree” (Henry 1947, p. 29).

## V. HORSE AND WILDNESS

Attempts to preserve and protect spaces without human-constructed infrastructure are often bolstered by the presence of a charismatic megafauna that draw attention to the area and attract human interest. As a result, “the full power of the sacred land [can] inhere in a single numinous organism whose habitat then becomes the object of intense debate about appropriate management and use” (Cronon 1995). At Assateague, the ponies are immensely beloved and valued. However, they also beg the question: under what circumstances do we interact and intervene with “wilderness?”

Not all the stakeholders in the Assateague ecosystem see the horses as “wild.” There are disagreements surrounding exactly how to categorize the horses in terms of the greater ecological context. Since they have lived on the Island for hundreds of years, many have come to see them as an integral part of the habitat (Seligsohn-Bennett 1990, Notzke 2016). The reverence and respect for horses in public imagination means that management decisions are met with heightened scrutiny and emotions. The lines between wild and domestic can be blurred, especially given the history of human and horse interaction. Shared spaces force a coexistence that reflects a human desire for intimacy while also a respect for wilderness’s ostensible autonomy.

The island is multifunctional, managed as both a wilderness habitat and a beach tourism destination (Britton et al. 2021). The designation of the horses by the National Park Service as “desirable invaders” reflects this. People and horses can cross paths on trails, on the beach, at the

marsh, or in the campgrounds. Physical boundaries such as fences around the dunes keep both horses and people away from the beach grasses. Behavioral boundaries forbidding direct interaction with the horses are also in place to try and maintain a balance to the multiple functions of the Island. Constant reminders of boundaries made quite the impact on me as a little kid. I remember the dune fencing keeping out both people and ponies to protect the grasses that keep sand from eroding, and signs everywhere reminding people to keep a distance from all wildlife.

## VI. HORSE AND HUMAN INTERACTIONS

As a visitor to Assateague, I could go a day or two without seeing a pony, but their presence was always in the back of my mind, and the boundaries were clear to me. You are reminded by park rangers time and time again to be mindful: no food was allowed on the beach, coolers had to be secured so that the horses couldn't break into them, and you had to remain two bus lengths away from the animals at all times because they were wild and unpredictable. My grandparents and I would marvel as we saw horses scratching their backs on camping trailers, breaking into food supplies, and holding up traffic as they crossed roads. My grandma got a particular scare as a large brown stallion nuzzled her awake from a beach nap while he was looking for any food we may have left out.



Figure 5: Signs like this one are all over the Island, reminding visitors of the rules of horse interaction

Light and funny stories are not always the result of interaction between horses and visitors. Co-existence on the Island between these two groups requires careful management and space sharing. Signs all over the Island remind people to maintain a safe distance from the horses to avoid an injury or fine, and are posted on the highways, information booths, paths to the beach, and inside the bathhouses. Speed bumps are in place on the roads to ensure cars don't drive too fast, but unfortunately there have been car accidents resulting in the death of horses. As of 2021, at least 35 horses have been killed in “hit and run” incidents at Assateague, and another 18 have been hit but have survived since 1982 (Aiken 2021).

Humans have also been injured by the horses. In May of 2022, one horse had to be removed from the Island because it “became increasingly aggressive towards park visitors and staff when going after human food” (Tristan 2022). The horse, nicknamed Chip, had been involved in “about half of the incidents which resulted in injury to visitors, which included

biting, kicking, stomping, or shoving the humans around” (Tristan 2022) since 2017. When campers leave food lying out or in easy to reach places, horses have adapted to learn how to access the food. To the horses, humans and food are associated with each other. Hugh Hawthorne, Superintendent of Assateague National Seashore, warned visitors at the time that they needed to “take this food storage issue seriously and help us reduce the frequency of inappropriate interactions with the wild horses. The free-roaming nature of the Assateague horses is what makes them so unique and special, but there are also issues like this that need to be addressed” (Tristan 2022).



Figure 6: Signs like these are common along Assateague roads

This is not the first time that a horse has been removed from the Island, and the topic of how to keep the horses wild and free-roaming was again at the center of the discussion. In 2011, a stallion was removed from Assateague to a horse-rescue sanctuary on the mainland after it head-butted a woman. A Washington Post article covered the issue at the time, writing that

“The horses’ behaviors undermine the majesty of the animals, which inspired the novel ‘Misty of Chincoteague.’ Tourists expect postcard images of horses galloping on beaches and manes aflutter on dunes, not a horse with its head stuck in a bag of Cool Ranch Doritos” (Jouvenal 2011).

Boundary sharing can create tensions that threaten to disrupt the “wild” constructions of Assateague. Carl Zimmerman, a park ranger responsible for the birth control program at the National Seashore, shared his concerns in the article. He is quoted saying “A horse that is raiding your campsite and is getting into your cooler — is that a wild horse anymore? That’s a shame, because that wildness is what makes them so special” (Jouvenal 2011).



Figure 7: Signs inform visitors of the rules regarding the horses

While I have always been quite a rule-follower, that isn’t true for all the visitors. While volunteering at Assateague in 2017, I had to take up the responsibility of reprimanding visitors who went too far. Walking to the parking lot one night, I saw a group of people crowding around each other, focusing intently on something. Getting closer, the outline of a chestnut brown pony became clear- everyone was trying to get as close as possible to pet it. My pace quickened as I

rushed toward them, warning bells going off in my head. Carefully maintaining my distance from the pony, I called out to the visitors, feeling empowered by the “Volunteer” title written across my shirt, “Please, stop touching the horse! You could be seriously injured!” They turned to me, yet continued to pet the horse. “Who cares?” one asks me. “This is what we came for,” snided another. Threats and warnings that I had heard all of my life started spilling out, “These horses are not pets,” I reminded them. “They are wild animals, and they could hurt you at any second. Please stay forty feet away,” I was spared from further rebuttals by the park ranger truck that turned into the parking lot, dispersing the group with only its presence. The complicated relationship that Assateague Island, horses, and visitors share, however, is ever present.

## VII. HORSES IN THE GREATER ECOLOGICAL CONTEXT

Beyond the horses, the Island had its own appeal - both natural and created by managers. Days were spent reading on the beach, constantly begging Grandma to swim or boogie board with me, and going to all of the events that Nature Center offered. The touch tank provided incomparable opportunities to marvel at whelk while cautiously avoiding the terrifying horseshoe crabs that inhabited the tank. From the very first trip, I carried my notebook with me everywhere, keeping a dutiful tally of every single horse I spotted so that I could report back to everyone at the end of the week. Turtle, dolphin, and deer sightings eventually made their way onto the tally chart as well. Nights at Tie-dye Tuesday or eating as many s’mores as I was allowed-- which, since my mom wasn’t around, was quite a few-- only solidified my love for the Island.

The Assateague National Park also had a visitor’s center, right before the bridge leading across to the Island. There, the same video has been showing since I first started coming: “Back

to the Wild,” a roughly 20-minute documentary about the horses on Assateague. I would sit in the dark theater, a welcomed reprieve from the hot summer sun after a long bike-ride over the bridge, and insist that my ever-patient grandparents watch the movie over and over and over again. It was here that I first began to understand the impact the horses were having on the Island ecosystem.



Figure 8: Managers have had trouble mitigating erosion, demonstrated by the signs and dune infographics

As a barrier island, Assateague is particularly vulnerable to storm erosion and sea level rise. The Island’s nonnative feral horses are responsible for the destruction of marshes, dune grasses, and shrublands – accelerating erosion and habitat loss (De Stoppelaire et al. 2004). Marsh grass quickly consumed by horses fails to grow past ankle length, causing the exodus of numerous plants and animals as well. However, the horses are significant cultural symbols that hold immense social value and are protected by Congressional Act (Carruthers et al. 2011, De Stoppelaire et al. 2004), so simply removing them from the Island is not an option. The horses



are an important part of Assateague's historical and cultural identity, but as a nonnative, invasive species, they are also causing disruption to natural processes (Carruthers et al. 2011, De Stoppelaire et al. 2004).

The Nature Center video was transparent about the conflicting goals of horses and humans and provided insight as to how the National Park Service was managing the herd. To maintain ecosystem balance, the program needed to find a way to control herd population that required minimal human interference. Dr. Jay Kirkpatrick and his team devised a horse contraceptive program in which each mare is injected with a vaccine-filled dart that promotes infertility for a year. The innovative program has been successful in reducing herd numbers (Kirkpatrick and Turner 2008, Kirkpatrick 1995, Turner et al. 2007), and has been replicated in many parks due to its success.

As I grew older, my focus turned from the horses to a broader fascination with the Island itself. I spent hours collecting and organizing shells, listening to the sound of the waves, watching in fascination as I witnessed a turtle laying eggs, spotting a fever of stingrays in the water and laughing hysterically as Grandma and I rushed to get out of the water as fast as possible. I fearlessly picked up the touch tank horseshoe crabs that I once stared at with such apprehension, showing them to younger kids and rattling off all the facts that I had memorized over the years. By the time I was sixteen, I was volunteering for the State Park, leading nature talks and monitoring visitor behavior — bolstered by finally having an official “title” and role on the Island I love I was finally able to lecture visitors about the importance of staying off the dunes and keeping far from the horses.



Figure 9: Volunteering at popular Park Service event “Tie-Dye Tuesday”

Due to circumstances outside our control, after fourteen years of vacations, my grandparents could no longer make the trip to Assateague. My mom and I tried to fill the hole in my heart by taking shorter day and weekend trips to the Island when we couldn’t stand the oppressive DC humidity. On the last day at home before leaving for college, I convinced my boyfriend to make the three-hour drive to Assateague in a last-ditch effort to ground myself and hold on to childhood before facing the fear of the unknown. Assateague had become a way to escape, enjoy the solitude and quiet, and return to the carefree child that I had been able to be for so many summers.

## **CHAPTER 2: Quantitative Research and Questionnaire**

### VIII. RESEARCH BACKGROUND

Inspiration for this research came from a desire to know why people visit Assateague, and what it means to them. My experiences on Assateague, along with the experiences of so

many others, contribute to an overall sense of place. A sense of place can be described as the attachments and meanings to a setting held by either an individual or a group (Masterson et al. 2017). Human-animal interaction, along with human-location interaction, produces place-specific meanings and can dictate social-ecological dynamics (Britton et al. 2021). Linking social and ecological conditions, and gaining a sense of visitor perceptions of “nature” can prove to be extremely valuable for future management decisions.

To gather information on Assateague visitor motivations and values, I camped on Assateague and administered a survey. Questionnaires are flexible and cost-effective, and can provide insight into social trends, attitudes, and values (McGuirk and O’Neill 2016). Values, for the purpose of this research, are defined as guiding principles that inform and shape peoples’ attitudes and behaviors (Rossi et al. 2015). When the word “value” is used to describe national parks and protected areas, economics and financial considerations are often the most discussed. Natural spaces provide a huge boost to tourism and the outdoor recreation industry, as well as revenue generated from visitors and the built-in benefits of protecting ecological services (Carruthers et al. 2011, Hardaway 2015).

It is imperative to begin to look at values in a more holistic sense that incorporates awareness of how human behavior is driven by individual value orientations alongside shared values and beliefs (Nelson et al. 2019, van Riper et al. 2019). Social values are directly experienced by individuals and tied to intrinsic motivations for ownership, management, and research protection. Examining collective and individual values in protected areas can provide indications of support for environmental policies and management practices (Rossi et al. 2015, van Riper et al. 2017).

Social value indicators are sometimes sidelined in decision-making but studying visitor motivation can have a direct impact on ecological awareness. A study on tourist motivations for visiting the Channel Islands empirically examined and integrated social values for ecosystem services and environmental conditions, comparing perceived benefits of natural areas (van Riper 2017). The study found that respondents guided by concern for non-human species were most likely to ascribe nature-based qualities to a protected area landscape and engage in activities that reflected environmentalism.

With respect to Assateague, once visitor values towards perceived biodiversity and the wild horses are recorded and analyzed, these responses can help dictate how to adapt management practices to work within and move closer to existing value structures that encourage environmentally sustainable values and behaviors (Kyle et al. 2004, Nelson et al. 2019, van Riper 2019). The sense of place-based approaches clarify local contexts, values, and priorities. Plans that take local conditions into account will be much more effective, and various bodies of work emphasizes how emotional attachment to a place can serve as a bridge between ecosystem function and stakeholder engagement in behavior considered to be environmentally friendly (Masterson 2017, Keiper et al. 1978).

## IX. RESEARCH QUESTIONS REVISITED

The guiding question for the survey was what are others' sense of place, and what values do they attach to Assateague? Visitors were asked about travel motivations, activities on the Island, travel time, length of stay, and a variety of personal and environmental values questions.

A secondary research question in the survey was how important are the horses in determining and motivating value and visitation? This question is referred to as the "fewer horse

question,” because I asked visitors whether they would still come to Assateague if there were fewer horses.

I also used the data collected to test three hypotheses about the relationships between certain dataset groups and whether they would come to the Island if there were fewer horses.

The hypotheses are as follows:

- *Hypothesis 1: Overnight campers are more likely to answer “Yes” or “Now Yes” to the fewer horses question.*

If visitors are spending extended time on Assateague, the wider variety of activities will make visitors less inclined to be motivated to visit the horses specifically.

- *Hypothesis 2: Respondents who have visited the Nature Center are more likely to answer “Yes” or “Now Yes” to the fewer horses question.*

Since the Nature Center provides information regarding the ecosystem disruption caused by horses, and has exhibits that focus on placing the horses as a small part of a larger island-wide context, respondents who have been exposed to this material will be more likely to accept the presence of fewer horses.

- *Hypothesis 3: Visitors who are coming from < 30 minutes away are more likely to answer “No” to the fewer horses question.*

Ocean City, Maryland is a popular tourist town only a 15-minute drive away.

Since almost all the visitors coming from < 30 minutes away are only coming for the day, it is likely they will be drawn in by the horses and not the beach since they are already on vacation.

## X. METHODOLOGY

To get a better understanding of visitor motivations, I have incorporated ethnographic information with an analysis from a value survey (See Appendix). This approach capitalizes on the growing body of mixed methods research that understands qualitative and quantitative data as complementary. Mixed methods research provides opportunities to apply both materials to expand results to a broader, richer picture of the research question (Millington et al. 2017, Philip 1998). Patricia Price (2010) makes compelling arguments for the use of autoethnographic vignettes to strengthen research. Stories are a mode of “producing and expressing knowledge gleaned through embodied and intersubjective experience” (584). They can express the personal, yet be interpreted as embodiments of broader social and political contexts.

Autoethnographic material of my years at Assateague provides orientation and affective experience (Price 2010, Rose 2006). Assateague has been such a formative part of my life that neglecting to share my own experiences of the Island would weaken my research. First-hand experience, lasting for over fifteen years, provides invaluable insight into personal motivations for visiting the Island. It also helps explain my motivations for wanting to understand the values of other visitors. Neglecting to share my experiences would, essentially, be denying my own history that contributes to the Island narrative.

The values survey issued was an on-site, respondent completed intercept survey of visitors at Assateague State Park in Maryland during two weeks in July and August 2022. As an exploratory study, the results were geared towards establishing a baseline of information, with the caveat that conclusions were based on responses from a limited window of time. Intercept surveys are one of the most appropriate and commonly used methods for surveying park visitors (Rossi et al 2015).

In groups of people, the person with the most recent birthday completed the survey to avoid group leader bias (van Riper et al. 2017). No one under the age of eighteen, however, was interviewed. The data was collected in a stratified schedule throughout the week to ensure randomness in responses (Rossi et al. 2015). It was also collected in different locations: on the beach, on the boardwalk, near the Nature Center, and in camping loops. To assess a variety of visitor's values, I surveyed both day-use and overnight campers.

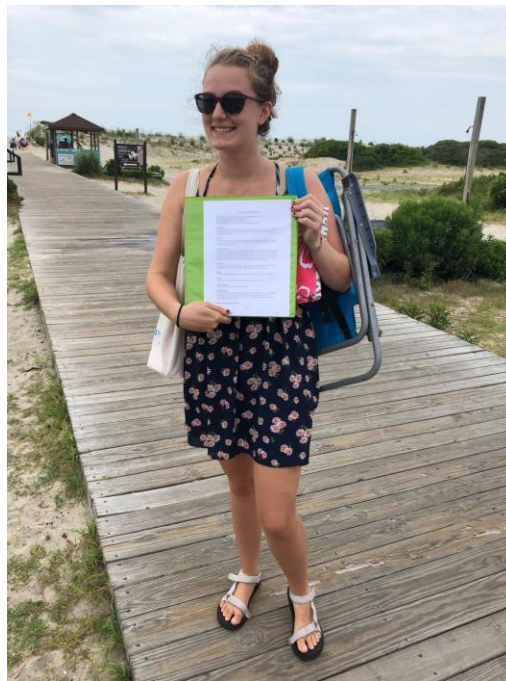


Figure 10: Off to administer surveys

The questionnaire was broken down into three sections, guided by De Vaus' (2014) four distinct question types and van Riper et al. (2017) and the 12 social values for ecosystem services listed in a typology adapted from past research. "Attribute questions" establish respondent characteristics. Visitors were asked about their age, education, and race. "Behavior" questions are used to discover what people do. These questions include how far the respondent had traveled to get to Assateague, length of stay, activities planned, and motivations for visiting.

“Attitudes” and “belief” questions were asked to discover visitor priorities and values. Apart from one question asking about horses in relation to visitation, the Likert Scale was used to rate how strongly visitors agree with a statement on a scale of 1-5 for this section (van Riper et al. 2019, Rossi et al. 2015, De Vaus 2014). Each statement spoke to a specific value that the respondent may hold, such as aesthetic, recreational, educational, or well-being based. Several questions were also framed with either anthropocentric or ecocentric leanings to provide indications about visitor conceptions of the world and the place of humans in the greater context of the world.

To make the survey efficient, all questions were read to the respondent. This does run the risk of what is referred to by McGuirk et al. (2016) as “interviewer effects.” Interviewer/respondent interaction can shape responses of social expectation when interviewed face-to-face and may tailor their answers according to perceived desirability. However, none of the prompts contained particularly detailed questions, and that is a weakness inherent in interpersonal surveys. Open-ended questions were asked to the first few respondents, but hardly anyone elected to answer them because of their more time-consuming nature. As a result, they were omitted from analysis. There is an immediate sampling bias because not everyone was willing to take the survey. Since the survey was performed in the height of summer, the results can only speak to the motivations of summer visitors. It is possible that visitors from different times of year have different motivations and values, and there is a rich possibility for further research in the area.

For my three hypotheses, I tested the statistical significance of different factors with respect to the horses as visitation motivation. To test if there is a difference two-proportions, a



two-proportion Z-test was used. This is a common format of statistical analysis used to determine statistical significance between two samples of data.

This research was conducted with the permission and approval of the UVM IRB, and I committed to keeping responses anonymous.

## XI. QUANTITATIVE SURVEY RESULTS

On-site survey data were collected from a representative sample of visitors who were over the age of eighteen and visiting Assateague Island State Park during the end of July and early August of 2022 (n=315). Visitors were intercepted at a variety of locations on the Island. Day-use visitor surveys were administered on the beach, the parking lot, and the boardwalk connecting the parking lot, snack shop, and beach. Overnight camper surveys were administered throughout the camping loops, including outside of the bathhouses, and on the camping loop beaches. All surveys were stratified by day, week, time, and location to best ensure a lack of sampling bias during the study period (van Riper 2017).

The results to the open-ended questions on the survey were organized into categories used to quantify the data. It is important to note that the sampled respondents are visitors who have already decided to make a trip to Assateague, as opposed to potential visitors. As a result, the results can only be applied to people who are visiting Assateague in July and August. There is also an inherent bias since it was not a random sample survey.

### Demographic Characteristics of Respondents:

The following is a summary of the highest level of education attained, age, and race of the respondents. The number of respondents is displayed in a percentage.

Highest Level of Education of Respondents

EDUCATION (Highest Level Attained)	% of Respondents
High School	31.1
Some College	22.2
Associates	15.9
Bachelors	24.1
Higher Ed	6.7

Table 1

Racial Distribution of Respondents

RACE	% of Respondents
White	75.6
Black	5.4
Latin America/Hispanic Origin	6.7
Asian or Pacific Islander	12.4

Table 2

Age Distribution of Respondents

AGE (years)	% of Respondents
< 25	22.9
26-45	30.8
46-65	29.5
66+	17.1

Table 3

*Table 1* shows the highest year of education completed by respondents. Educational attainment is relatively even. 31.1% of respondents completed high school, while only 6.7% had completed a degree higher than a Bachelor's degree. Every single person interviewed had completed at least a high school degree.

*Table 2* shows the racial makeup of respondents. The pool was overwhelmingly white, making up over 75% of total respondents. Asian or Pacific Islander was the second most prevalent category of respondents. As of 2022, Maryland was 58% white, and neighboring Virginia is 68.8% white. Worcester County, where Assateague National Seashore and State Park are located, is 83.4% white (US Census Bureau).

Table 3 displays the age brackets within which the respondents fell. Age distribution is relatively even, with 26-45 and 46-65 making up the highest percentages. However, the < 25-year-old bracket makes up 22.2%, and that is notably high because that only covers 18–25-year-olds while the rest of the brackets represent a greater range of ages. This means that a higher number of < 25-year-olds travel to Assateague than any other age bracket.

Behavioral Descriptive Statistics:

Effect of Type of Visitor on Assateague Visitation Frequency  
Are you staying overnight?

		Day	Overnight camper	Total
How often	<b>First Time</b>	70	63	<b>133</b>
	<b>More than Once a Week</b>	20	0	<b>20</b>
do you come	<b>Once a Month</b>	27	1	<b>28</b>
to	<b>Few Times a Year</b>	42	15	<b>57</b>
Assateague	Once a Year	9	49	<b>58</b>
Island?	< Once a Year	4	15	<b>19</b>
<b>Total</b>		<b>172</b>	<b>143</b>	<b>315</b>

Table 4

Table 4 displays the total number of day visitors and overnight campers as organized by how frequently they visit Assateague. Over 35% (133/315) of visitors surveyed were coming to the Island for the first time, and were evenly split between day-use visitors and overnight campers. It makes sense that no overnight campers would come more than once a week, which explains the absence of respondents there, whereas 20 day-use visitors tend to travel to Assateague at least once a week.

About 15.6% of total respondents (49/315) were overnight campers under the travel frequency categories “Once a Year,” and an additional fifteen (15) respondents were overnight campers who visited < Once a Year. Since only eleven (11) day-use respondents fall into these categories, it is logical to conclude that those coming yearly or intermittently over the years are much more likely to be overnight campers, while people coming more frequently are more likely to be day-use visitors. This relationship is not surprising because campsites can be difficult to book and require a longer time and planning commitment than coming for the day. As a result, those spending at least a night camping on Assateague should be less likely to visit more frequently -- a relationship which the data supports.

Effect of Time Spent at Assateague on Time to Travel to Assateague  
How long are you here for?

		Half Day	One Day	Overnight	Two Nights	Three or More Nights	Total
How long did you have to travel to get to Assateague?	< 30 minutes	37	39	5	3	3	87
	< 1 hour	5	69	32	-	-	106
	> 1 hour	-	22	18	36	46	122
	<b>Total</b>	42	130	55	39	49	315

Table 5

Figure 5 shows how long each respondent planned to stay at Assateague, displayed in relation to how long the respondent traveled to get to Assateague. There is a relatively even distribution of travel time categories, with > 1 hour accounting for a slightly higher number of total respondents at 38.7% (122/315). As for time spent at the Island, 41.3% (130/315) of respondents were staying for one day, while 13.3% of respondents planned on spending half a day. As for overnight visitors, the number of nights spent is relatively evenly distributed.

The differences in travel time to the Island between day and overnight visitors is very interesting. The length of time traveled appears to increase depending on length of stay. Only 11 overnight visitors drove < 30 minutes while 37.7% (46/122) of visitors driving more than once hour were staying at least three nights. Of the 87 respondents who traveled < 30 minutes, 87.4% (76/87) of them were staying at Assateague for a day or less. The proximity of Assateague to popular beach town Ocean City means it is very possible that a large number of the day-use visitors coming from < 30 minutes away are people on vacation in Ocean City who wanted to stop and see the Assateague.

However, while the proximity of Ocean City is a possible explanation for the large number of day trip visitors coming from such a short distance, the data indicate that many visitors view Assateague as a place for a day trip, regardless of how far the drive is. While many more respondents were driving less than one hour to get to the Island, 12.8% (22/172) of day-use visitors surveyed drove over an hour to Assateague.

#### Likert Scale Data

The Likert scale data, collected from the surveys, has been organized into three separate sections based on the subject matter: personal gains, ecologically oriented, and anthropocentric leaning. These themes were created in order to better organize similar statements that would speak to general values that visitors had. This in turn made it easier to identify wider patterns among respondents. Visitors were asked to rank each statement based on a scale of 1-5, with 1 being “strongly disagree” and 5 being “strongly agree.”

## 1. Personal Gains

Based on van Riper et al. (2017) and De Vaus (2014), questions indicating value of aesthetics, recreation, and therapeutic/wellbeing indicate the personal gains that visitors believe to have received from visiting the Island.

1a. Wellbeing: I value the Island because it makes me feel better physically and/or mentally.

1b. Aesthetic: I value Assateague because I enjoy scenery, sites, and atmosphere.

1c. Recreation: I value the Island because it is a place for my favorite recreational activities.

Likert Descriptive Data: Personal Gains					
	% Strongly Disagree	% Disagree	% Neutral	% Agree	% Strongly Agree
Aesthetic	0%	0%	2.54%	39%	58%
Recreation	0%	3%	8%	37%	64%
Well-Being	0%	0%	0%	23%	77%

Table 6

Motivations for visiting the Island, as demonstrated by the Likert data in *Table 6*, are heavily influenced by aesthetic, recreational, and wellbeing goals. No other category of Likert data was so heavily skewed away from “Strongly Disagree” and “Disagree.” Out of the 315 respondents, not a single person answered “strongly disagree” to any of the three questions assessing personal gains from the Island. These responses indicate that Assateague Island is valued by all visitors surveyed in this study for its restorative properties, recreational offerings, and especially because it makes them “feel better” to be there. This information is significant because perceived personal gains from the Island demonstrate what people believe they receive from visiting, which can be helpful when constructing long term management plans based on visitor values.

Personal gains are clearly at the forefront, as 100% of respondents answered “Agree” or “Strongly Agree” to the “Wellbeing Question.” Of the three statements, 76.8% (242/315) of respondents “Strongly Agree” that the Island makes them feel better physically and/or mentally which is the highest percentage of “Strongly Agree” in the entire survey. As a result, among respondents surveyed, Assateague is most highly valued as a space for increasing personal wellbeing.

The question about the island’s recreational benefits was the only question in this category to receive any “Disagree” answers (11/315) and also had the most “Neutral” (24/315) answers from respondents. Given that an overwhelming 88.9% (280/315) “Agree” or “Strongly Agree,” these answers could be due to differences in how respondents define their “favorite recreational activities” which may or may not be directly associated with the Island. It could also indicate people who are simply looking for something else from Assateague or did not make the individual decision to come to the Island.

## **2. Ecologically Oriented**

This set of statements is also based on van Riper et al. (2017) and De Vaus (2014). The statements are organized by respondent values of the environment and preservation.

- 2a. Environmental: I value the Island because it helps produce, preserve, clean, protect, and renew natural resources.
- 2b. Ecocentric 1: It is never ok to interfere with wild animals; they should be free to lead lives without disturbance.
- 2c. Environmental Education: I value the Island because we can learn about the environment through scientific research and observation here.
- 2d. Ecocentric 2: The most important reason for parks is to protect plants and animals.

Likert Descriptive Data: Ecological Oriented					
	% Strongly Disagree	% Disagree	% Neutral	% Agree	% Strongly Agree
Environmental	0%	6%	16%	42%	37%
Educational	0%	17%	51%	15%	33%
Plant/Animal Protection	0%	22%	21%	28%	30%
Human Interference	0%	14%	19%	24%	43%

Table 7

As in the first dataset, not a single respondent answered “Strongly Disagree” to the ecologically oriented statements, which in itself is notable. *Table 7* respondents displayed strong environmental conservation leanings, with 78.7% (248/315) of people valuing the Island for its role in preserving, protecting, and renewing resources. This indicates strong support for ecological management plans that prioritize Island ecosystem health and wellbeing.

NATURE CENTER	
Yes	No
165	150

Table 8

*Table 8* shows how many respondents have visited the National Seashore Nature Center, with a narrow majority of people answering “Yes.” This is interesting because 17.5% (55/315) of respondents disagreed with the statement “I value the Island because we can learn about the environment through scientific research and observation here,” and 34.3% (108/315) of respondents felt neutral. Combined, these groups make up 166/315 total respondents, which is similar to the number of people who did not visit the Nature Center. It is not clear, however, if



these two sets are causal or related especially since each individual has unique values and opinions. More research would be necessary to investigate a possible link between Nature Center visitation and environmental education values.

Statement C and D, unlike all of the previous statements, do not ask about Assateague specifically. Instead they help gauge the overall inherent ecological values of respondents with regards to the importance of parks and interference with “wild” animals. These are important measures because this information provides insight into how managers can incorporate visitor values into conservation plans.

About 21.6% (68/315) of visitors surveyed answered “Disagree” to the statement “The most important reason for parks is to protect plants and animals.” About thirty percent (29.5%) of respondents answered “Strongly Agree” to this section, which was the smallest percentage of “Strongly Agree” answers in the ecological dataset. These answers indicate that, given how personal values align, the primary goals of many visitors at Assateague lean more towards aesthetic, wellbeing values than ecological ones. While this does not mean that respondents don't also support protection of parks and animals as a park purpose, the “most important” aspect of the question appears to result in lower numbers of “Agree” or “Strongly Agree” responses.

The results about human interference with wild animals could provide interesting information regarding horse management and “wild” concepts. 14.3% (45/315) of respondents disagreed animals should always be free to lead lives without disturbance and absent of interference. Another 19.4% (61/315) felt neutral on the issue. About 66.3% (209/315) of people chose “Agree” or “Strongly Agree.” Since a substantial majority do not disagree, it appears surveyed visitors support the idea of minimal interference and disturbance with wild animals. This strong support is interesting because Assateague is not currently constructed to facilitate a

complete lack of interference or disturbance between humans and wildlife, especially horses. It appears that the aesthetics and “wildness” of the Assateague atmosphere that visitors value so much is in contradiction with values that don’t support interference. What exactly constitutes interference is subjective based on how it was interpreted by the respondent. It is important to note that despite the strong support for “wildness” and minimal human interference with nature, the National Seashore and State Park is a heavily managed space. This contrast will be discussed further in a later section.

### 3. Anthropocentric Leaning

This last set of statements is again based on van Riper et al. (2017) and De Vaus (2014). The statements are organized based on anthropocentric value statements. Anthropocentric refers to the belief that humans are central and most important in the universe, thus reality is evaluated exclusively in terms of the value of something for humans.

- 3a. The value of an ecosystem only depends on what it does for humans.
- 3b. If humans do not manage nature, it becomes a threat.

Likert Descriptive Data: Anthropocentric Leaning

	% Strongly Disagree	% Disagree	% Neutral	% Agree	% Strongly Agree
Nature as a Threat	84	111	105	14	1
Value for Humans	57	113	135	10	0

Table 9

Table 9 displays the responses to the anthropocentric leaning questions. These two statements were the only statements to receive any number of “Strongly Disagree” answers. Similar to the last two questions in the previous set, the anthropocentric leaning statements focus

on much more general themes and are not specific to Assateague. Rather, information gathered from them can be applied to Assateague.

The use of “only” in 3a serves to emphasize only ecosystem benefits for humans. About 53.9% (170/315) of respondents answered “Disagree” or “Strongly Disagree,” with 42.9% (135/315) answering “Neutral.” Since there were zero “Strongly Agree” answers and only ten (10) “Agree,” these answers are consistent with the strong support for environmental and ecologically oriented statements, and the perceived “wildness” of the Island. Visitors at Assateague value the ecosystem for more than just the benefits for humans.

Out of all the statements, the highest percentage of people (61.9% or 195/315) answered “Disagree” or “Strongly Disagree” regarding the threat of nature if it is not managed, with another 33.3% (105/315) who feel “Neutral.” This demonstrates weaker anthropocentric values as opposed to ecological ones. Surveyed visitors at Assateague do not feel threatened by “wild” nature and do not appear to associate management with a need for safety.

### **Summary of Likert Takeaways**

Visitor values at Assateague, as demonstrated by the Likert data, are heavily influenced by personal gains aimed at achieving aesthetic, recreational, and wellbeing goals. No other category of Likert data was so heavily skewed away from “Strongly Disagree” and “Disagree.” The responses indicate that Assateague Island is highly valued by individuals because it is considered to be a beautiful place with recreational opportunities and restorative properties.

Respondents demonstrated strong ecological leanings with a large majority valuing the Island for its role in preserving, protecting, and renewing resources. This indicates strong support for ecological management plans that prioritize Island ecosystem health and wellbeing. With

regard to interference with wild animals, there is strong support for the idea of minimal interference and disturbance. The lack of “Disagree” and “Strongly Disagree” throughout the datasets, except for the anthropocentric statements, demonstrates weaker anthropocentric values as opposed to ecological ones. For many Island visitors, “wildness” is not a threat but is rather something to be encouraged.

The Importance of Horses to Visitation

The survey asked, “Would you still come to Assateague if there were fewer horses?” This question was added to discover how much the presence of horses impacted motivations to travel. Responses provide indication of the value of horses to the overall draw of the Island. The “Now Yes” category was constructed to encompass a variety of answers that were not a simple yes or no. When discussing with many respondents, people gave answers such as “I heard of Assateague because of the horses, but I would come back again just for the overall atmosphere” or “Yes, now that I have been I don’t care as much about seeing them again.” The “Now Yes” category represents a change of heart after an immersive experience at Assateague.

FEWER HORSES			
Yes	Now Yes	Not Sure	No
113	57	42	103

Table 10

*Table 10* displays the breakdown of answers to the question. Out of the 315 respondents, 113 answered yes, with another 57 answering something to the effect of “Now Yes.” In total, this is about 54% (170/315) of respondents. 32.7% of respondents answered “No,” meaning they would not want to visit the Island if the number of horses is reduced or declines. “Not Sure” refers to anyone who answered “I don’t know” or “I would need more information.”

The “Now Yes” answers were not anticipated when constructing the survey, so I have found it very interesting that 18.1% of people answered something to that effect. As a result, I decided to further investigate the relationship of the “Fewer Horses” question to a variety of the descriptive data questions.

Since the Fewer Horse question was asked in an attempt to figure the importance of the horses to visitation, I also wanted to see if certain variables made someone more or likely to answer the Fewer Horses question a certain way. I had three theories about the variables that might impact the answer to the Fewer Horse question: whether the visitor was staying overnight, whether or not the respondent had visited the Nature Center, and whether or not the visitor was coming from < 30 minutes away.

#### Statistical Significance

For each of the following hypotheses, I wanted to determine if the difference between groups was statistically significant. To do so, I used a 2-prop z-test which is used to determine if a difference exists between two proportions. In my study, the proportions were the categorical response from individuals. For all tests, we used an alpha level of 0.05. An alpha level represents the “cutoff” probability where we conclude if a relationship is statistically significant.

Conceptually, if we assume there is no difference between the groups, an alpha level of .05 means only 5% of the time we will incorrectly conclude a statistically significant relationship between the groups. Due to the rarity of this event, if the p-value, the probability of seeing the observed difference between our groups, is less than or equal to 0.05 we will conclude that there is a statistically significant relationship between the two groups.

#### **The Impact of the Type of Visitor on the Answer to the Fewer Horse Question**

Hypothesis 1: Overnight campers are more likely to answer “Yes” or “Now Yes” to the fewer horse question.

Since day-use visitors spend less time on the Island, they will be more likely to have a desire to see horses. If there are fewer horses on the Island, then there is a smaller chance of a horse sighting. As a result, overnight visitors, who spend more time on the Island and have more opportunities to experience a variety of Island activities, will be more likely to answer “Yes” or “Now Yes” to the fewer horses question.

Effect of Staying Overnight on Fewer Horses Answer

		Are you staying overnight?		
		Day (% of respondents)	Overnight Camper (% of respondents)	Total
Would you visit Assateague	<b>Yes</b>	37%	34%	113
	<b>Now Yes</b>	13.95%	23%	57
if there were fewer horses?	<b>No</b>	38%	26%	103
	<b>Not Sure</b>	10%	17%	42
<b>Total</b>		172	143	315

Figure 9

Figure 9 shows the relationship between the type of visitor and the answer to the Fewer Horses question. Day-use visitors were almost equally as likely to answer “Yes,” as they were to say no, with 37.2% (64/172) of respondents saying “Yes” and 38.4% (66/172) answering “No.” Day-use visitors were more likely to answer “No” to the fewer horses question than overnight campers, with 25.9% (37/143) answering “No.”

Taking “Now Yes” into account, about half of day-use visitors would come to Assateague if there were fewer horses (51.2% or 88/172), and a little more than half of overnight visitors would do the same (57.3% or 82/143).

The number of overnight campers who answered “Now Yes” (23.1% or 33/143) was higher than the number of day-use respondents who answered “Now Yes” (14% or 24/172). This suggests that those who camp overnight are more likely to change their minds about the reasoning behind travel to the Island, with the presence of the horses becoming less significant.

When testing for statistical significance in the first hypothesis, a p-value of .3899 was obtained. Given that the p-value of .3899 is more than the alpha level of .05, we have strong evidence to reject the hypothesis and conclude that overnight campers are not more likely to still visit with fewer horses on the Island.

### **The Impact of Nature Center Visitation on the Fewer Horses Question**

Hypothesis 2: Respondents who have visited the Nature Center are more likely to answer “Yes” or “Now Yes” to the fewer horses question.

Visits to the Nature Center can impact how respondents answered the Fewer Horses question because there is information at the Center that discusses the negative ecological impacts that horses can have on the Island, as well as instances of horse and human interaction that have endangered both parties.

Effect of Nature Center Visitation on Fewer Horse Answer

Did you visit the Nature Center?			
No (% of respondents)	Yes (% of respondents)	Total	

Would you	<b>No</b>	43%	23%	103
visit Assateague	<b>Not Sure</b>	17%	10%	42
if there were	<b>Now Yes</b>	6%	23%	57
fewer horses?	<b>Yes</b>	27%	44%	113
	<b>Total</b>	149	166	315

Table 11

*Table 11* displays the relationship between the answers to the Fewer Horses question, and whether or not visitors have been to the Nature Center. Of the people who answered “Yes” or “Now Yes” to the Fewer Horse question, 67% (111/166) visited the Nature Center. The high percentage of these responses led me to further test the significance that visiting the Nature Center has on the Fewer Horse question.

When testing for statistical significance in the second hypothesis, we obtained a p-value of 0.012. Given our p-value of 0.012 is less than our alpha level of .05, we have strong evidence to conclude that visiting the Nature Center has an impact on how visitors answer the Fewer Horse question.

### **The Impact of Travel Time on the Fewer Horse Question**

Hypothesis 3: Visitors who are coming from < 30 minutes away are more likely to answer “No” to the fewer horse question.

The proximity of Assateague to Ocean City, Maryland makes it an ideal location for visitors who want a day trip while they are already on vacation somewhere else. Almost all the people coming from < 30 minutes away were day-use visitors. The horses may be a large



motivator for wanting to take a day trip, so people coming from < 30 minutes away will be more likely to answer “No” since they are more likely to want to see horses.

Effect of Distance Traveled on Answer to Fewer Horse Question  
How far did you have to travel to get to Assateague?

		< 30 (% of respondents)	< 1 hour (% of respondents)	> 1 hour (% of respondents)	Total
Would you visit Assateague if there were fewer horses?	<b>No</b>	40%	36%	25%	103
	<b>Not Sure</b>	8%	15%	16%	42
	<b>Now Yes</b>	11.5%	17%	24%	57
	<b>Yes</b>	40%	32%	36%	113
	<b>Total</b>	87	106	122	315

Table 12

When testing for statistical significance in the third hypothesis, we obtained a p-value of .135. Given our p-value of .135 is greater than our alpha level of .05, we fail to prove that people traveling from < 30 minutes away are more likely to answer “No” to the Fewer Horse question.

Interestingly, the opposite is statistically significant. When testing the statistical significance between visitors coming from < 30 minutes away and people answering “Yes” and “Now Yes” to the fewer horse question, a p-value of .0009 was obtained. Given our p-value of .03 is less than our alpha level of .05, there is strong evidence to conclude that the relationship

between visitors from < 30 minutes away and those who answer “Yes” or “Now Yes” to the Fewer Horses question is statistically significant.

## XII. ETHNOGRAPHIC SUPPLEMENTS

The conversations I had with respondents were eye-opening, engaging, and informative. Instead of categorizing responses to the questions “Why do you come to Assateague?” and “What do you plan on doing while you are here?” to quantify the data, I decided instead to share some of the most relevant and memorable answers in narrative form. While time did not permit me to undergo extensive ethnographic field research, the rich insights these responses provided were too valuable to omit. While most respondents were eager to finish the survey and head to the beach, some were more willing to share their personal stories and experiences.

Motivations for visiting the Island, as demonstrated by the Likert data, are heavily influenced by aesthetic, recreational, and wellbeing goals. No other category of Likert data was so heavily skewed away from “Strongly Disagree” and “Disagree.” This was also evident in extended responses about visitation. When asked about what plans the respondent had while they were on the Island, activities including “swimming,” “fishing,” “relaxing,” “surfing/watersports,” and “bird-watching” were common.

Picture of Nature Center Programming


Discovery Station- Birds of Prey National Park Visitor's Center	Nature Outpost Open Ranger Station Lot		Nature Outpost Open Ranger Station Lot	Nature Nook Exhibit Day Use boardwalk	Nature Outpost Open Ranger Station Lot	Nature Nook Exhibit Day Use boardwalk
	1:00- 4:00 LaLa, RS, AM (2-4) Nature Nook Exhibit Day Use boardwalk	1:00- 4:00 DM, Nora Nature Nook Exhibit Day Use boardwalk	1:00- 4:00 RS, AM Nature Nook Exhibit Day Use boardwalk	2:00- 4:00 DM, AM Discovery Station- Marine Mammals National Park Visitor's Center	1:00- 4:00 DM, EB (230-4) Nature Nook Exhibit Day Use boardwalk	Bulletin boards RD
		2:00-4:00 CS, CD Bayside Kayak Tour \$ Sign-up at Nature Center		EB- Scrapbooking PM	2-4pm CS, AM Critchett SUP Drop-in GSA	
		2:00- 3:00 EB Beads, Bracelets, & Keychains; Oh My! \$1 per project	3:30-5:00 CD, NM Drop- In Paddle Board Sessions Marina \$2 donation	3:00- 4:00 JC, CD Sand Castle Building Challenge Beach Between D-loop to E-loop		
		3:00- 4:00 DT, Brady Sand Castle Building Challenge Beach Between D-loop to E-loop	3:30-5:00 JC Bayside Crabbing Marina Pier	6:30-7:00 NM Critter Encounter Rose Defalco C22 & C24 1Child + 5 adults		
		4:00-6:00 Dinner on the Deck This week's special is Fried Chicken Dinner	8:15- 10:00 CD, NM Campfire & Marshmallow Roast + Outdoor Movie Showing Of "Moana"! Behind Nature Center	8:30-9:30 NM, CD Edge of Night Hike Meet a live Owl! Bring A flashlight!		
		7:00- 8:00 CD, Nora Tie-Dye Tuesday- Donations Accepted Day Use Boardwalk				
<p><b>* All programs held at the Nature Center unless otherwise noted *</b>  <b>* All Children under 12 years, must be accompanied by an adult *</b></p>						
 <p><b>Coffee With Friends</b> Join Friends of Assateague State Park for a cup</p>						

Figure 11: Screenshot of an example of Nature Center weekly programming

Regarding recreation, overnight campers also mentioned NPS and Maryland State Park nature center program activities. The NPS offers kayaking, clamming, campfires, and animal talks among many others. The State Park has small nature center talks, movie nights, tie-dye opportunities, soap carving, bracelet making, yoga, and sand-castle building competitions. As a kid, one of the very first things that I did when we got to Assateague was collect the two event calendars and circle everything I wanted to do, so I was always excited to provide the respondent with advice on my favorite activities if prompted.

The following stories were collected while administering the surveys and resulted from dialogues with visitors who wanted to talk more and share their stories.

### Recreation-Oriented Visitors

A boy-scout troop leader that I encountered was especially excited to teach the kids camping skills such as setting up tents and starting fires in the provided fire pit. While the 3+

hour drive from Baltimore, Maryland was long, many of the boys had never even seen the Atlantic Ocean before, let alone camped. Plenty of time was set aside to teach them to fish, sing campfire songs, and swim. Assateague provided a stark contrast to the urban environment the boys were growing up in, and he told me that their excitement and wonder had yet to dwindle.

Assateague Island also provides unique recreational opportunities for locals. Early one Thursday morning, I woke up around dawn because a mosquito had been buzzing incessantly in my ear. Deciding to immediately head to the Day-Use beach to talk with fellow early-risers, I struck up a chat with a young surfer who, despite his frustration with the large summer crowds, felt extremely lucky to have a beach like Assateague so close to his hometown-- a town some 15 minutes down the road called Berlin. After bonding over our mutual love for the “cherry jubilee” flavor at the local ice cream shop there, he told me that he surfed at Assateague all throughout high school, and it was one of the things he was going to miss the most when he headed to the University of Maryland in the fall. Unlike most of the visitors, who he believes only come in the hopes of catching a glimpse of the famed wild horses, he couldn’t care less if he sees them or not. While acknowledging that it may be because the years have worn away any novelty, he saw Assateague in stark contrast with other beaches in the area that tend to be built up and crowded. In the early mornings, if he’s lucky, he can still get in a few hours in the water and feel like he’s the only person on the Island.

Nora, Posing After an Afternoon of Boogie-Boarding



Figure 12: Not a professional surfer, but I did love to boogie-board!

One woman was maximizing her first time on the Island with her favorite past-time: walking the beach up and down with her trusty metal-detector. With a large, gap-toothed grin she excitedly recounted to me the times she had been lucky enough to find gold coins, wedding rings, and old metal artifacts. Waving her hands around wildly, causing her brightly patterned beach cover-up to flow in the wind, she told me that she hadn't found anything yet but could only hope to find Spanish gold that could've washed ashore during the legendary shipwreck.

### Horse Encounters

One of my favorite interviews was repeatedly interrupted by young kids talking over each other in attempts to tell me about everything they had seen in the last few days. Horses, bugs, snakes, birds, you name it! And, better yet, they'd both been allowed to eat three marshmallows last night. The young family from Pennsylvania was spending their first ever weekend camping at Assateague and was loving every minute of it. The kids were convinced they had seen every horse on the Island, and named them all... Sausage, Sparkle, and Steve were some of the

favorites. They promised me they would spend all day looking for dolphins after I mentioned that there was a possibility of spotting some and assured me they would be coming back here year after year just like I had done.

The sun was already beating down when I talked to visitors coming in on a large tourist van from Ocean City. In hopes of escaping overstimulation and quieting the insistent begging for boardwalk prizes from their kids, they had discovered Assateague after a quick Google search and intended to spend a few hours before heading back to their hotel. The horses seemed to be the big draw that drove their interest in the Island. According to first impressions, the sand was softer and the beaches less crowded, although they were wary about the lack of snack options and activities.

One couple learned to “horse-proof” their campsite the hard way. Returning from the beach one afternoon, they found a band of about four horses rooting through their two coolers and attempting to open their tent. They were shocked that the horses had learned to unlatch the coolers, and that they had eaten all the chips, a bag of lettuce, cookies, and even sampled the hot dogs. Even though both had seen the signs and warnings about potential horse campsite visits, they thought latching the coolers was enough, and were sorely mistaken, “at least we have some funny pictures and a good story!”

### Wild and Ecological Values

One man I talked to appreciated the solitude that Assateague provided. After a long, hot day of walking around the Day-Use area to administer surveys, I decided to go for a walk on the shoreline on the Northern stretch of beach. Since there are no campsites this far up the beach and day-use visitors don't want to carry all their beach equipment so far, this stretch of sand is almost

guaranteed to be quiet and nearly free of other visitors. When I came upon him, he was staring out to sea in a sun-faded, well-loved beach chair. During our conversation he told me that he insists on coming to Assateague whenever he wants to go to the beach because it is so undeveloped and “wild.” Growing up by the ocean his whole life, he considers the Island to be the place where he “does his best thinking.”



Figure 12: Far from the crowds, a horse eats dune grasses on the Northern stretch of beach

One visitor who tugged at my heartstrings was a retiree from Florida who had made it her mission to stop in every US National Park before settling down close to her grandkids. My grandparents sold everything when they retired, using the money to travel all over the country, making sure to send me postcards from each location, so I felt closer to them as I talked to her. Interestingly, Assateague was too crowded for her. She felt that the campsites were too close together, and the lack of trees and shrubs among the dunes made her feel crowded by others. However, she was still enjoying the proximity to the beach and the relative quiet.

While at the bathhouse washing dinner dishes, I ran into the Camp Host for our loop. One Camp Host(s) is assigned to each loop. It is a volunteer position that runs in month long

increments. Hosts are responsible for welcoming campers, serving as advice-givers who clean up campsites and horse poop that may end up on roads. I have absolutely fabulous memories of our camp host in the E Loop, Gemma. She was the host for as many years as I could remember until we stopped coming, and she would always make an extra effort to keep sand and poop off the sites and welcome us with the biggest smile-- her teeth always seemed so white against her tan face that she had gotten from hours spent outside on the Island. While Gemma was nowhere to be found when I returned last summer, the camp host that I talked to couldn't sing enough praises about their position. They loved being able to talk to a wide variety of campers, and had been coming to Assateague as a camp host for years after moving to Maryland post-retirement. As a former wildlife conservationist, they saw being a Camp Host as a wonderful way to spend time in nature and share their ecological knowledge with all those who would listen, "and what better place to do it then 300 feet from the ocean!"

### XIII. RESULTS SUMMARY

Based on my autoethnographic experiences, it appears that my experiences and values regarding Assateague are in line with many other visitors to the Island. The strong sense of personal gains, especially valuing the Island because of the increase in physical/mental wellbeing resonated with me. I also consider myself a member of the "Now Yes" group of people, because I first came to the Island drawn to the horses yet the other benefits are now more than enough to keep me coming back regardless of the horses.



While Assateague is most strongly valued for its personal enrichment based on the highest levels of “Strongly Agree,” there is also strong support for environmental benefits, education, and a lack of interference with “wildness.”

The importance of horses as a motivator for tourism is complicated. Over 1/3rd of visitors would not come to the Island if there were fewer horses, suggesting that the horses play a vital role in drawing people to Assateague. However, the strong presence of “Yes” and “Now Yes” answers suggest that people value Assateague for much more than just the horses. The fact that over eighteen percent (18%) of people changed their mind after initially coming to the Island for the horses speaks to the multiple definitions of the “sense of place” of Assateague.

Statistical significance tests revealed several things about the presence of horses. Whether the visitor was staying overnight had no visible impact on whether the visitor would support the presence of fewer horses. Respondents who visited the Nature Center were more likely to respond “Yes” or “Now Yes” to the Fewer Horse Question. Visitors coming from < 30 minutes away were not more likely to answer “No” to the fewer horse question. In fact, they were more likely to respond “Yes” or “Now Yes.”

### **CHAPTER 3: Wilderness Discussion and Conclusion**

#### XIV. REVISITING WILDERNESS VALUES

The questionnaire data and the common conversations suggest that the “wildness” of the Island is one of its most important and unique qualities. The horses, although nonnative, have become part of the conceptualization of wildness and wilderness at Assateague and are here to stay. Under current management and concepts, however, there seems to be a dichotomous break between humans and the nonhuman aspects of the Island. To form a more beneficial coexistence

for all, the mode of relation may need to shift. There is a clear desire to interact with the horses, and everything they represent, but also a clear desire to keep them “wild.”

William Cronon provides valuable insight into how “wilderness” is much more of a social construct than we may understand. While many view it as an “island in the polluted sea of urban-industrial modernity, the one place we can turn for escape,” it is closer akin to a “spectacle” that is the “product of civilization” (Cronon 1995). As a result, wilderness “is entirely a creation of the culture that holds it dear, a product of history” (Cronon 1995). This is very much the case at Assateague. The horses are a constant reminder of this human cultural history, and managers are often left struggling with how to grapple with the role of horses within the greater ecological context. The horses are a rich part of the story of the Island, but the narrative itself is human-made.

To highlight the ecological damages caused by horses and humans to the greater ecosystem and the dangers of horse-human interaction while maintaining the enormous sense of value that people place on Assateague, we have to go back and reckon with current wildness conceptions in order to form a more complete understanding of human-nature relations. Kim Ward, in “For Wilderness or Wildness? Decolonising Rewilding” defines wilderness as “our subjective and interpretive experience of the natural world, an interpretation that reflects the socio-political values and cultural hegemonies of our time” (2019, pg. 3). Notions and understandings of what exactly is “wild” or “natural” are conceptual, based on cultural norms, beliefs, expectations, and experiences.

In traditional American society, wildness is a “conceptually separate, distinct and pure sphere” (Ward 2019, pg. 3). Centuries of scientific philosophy frame nature as a completely separate, inhuman entity, resulting in “the protection and preservation-based approaches that we

have seen historically in conservation policy and practice and upon which wilderness preservation is based” (Ward 2019, pg. 3). By separating nature and wilderness from our everyday, modern, urban life we have allowed it to take on a life of its own. It has become equated with purity and divinity and, as such, it is difficult to locate ourselves and our lives within it.

The presence of the horses has permanently changed the landscape of the Island. Bartolini and DeSilvey, in “Landscape Futures: Decision-Making in Uncertain Times,” discuss how to manage landscapes based on human action, especially in the face of the climate crisis. In order to understand how landscapes are altered and understood by humans, one must “appreciate the fine balance between what can be touched and seen and what is perceived and experienced” (Bartolini et al. 2021, pg. 11). Once there is an understanding that landscapes have been shaped by humans, we can focus on the ecologies that have emerged from these “unintentional landscapes” that make the character of the area “inherently mixed and messy” (Bartolini et al. 2021, pg. 15), which we see at Assateague.

In these unintentional landscapes, certain animals can be prioritized over another. Thom van Dooren, in his ethnographic work on whooping cranes in the book *Flightways*, investigates human interaction with animals and landscapes. In scientific conservation practices, it is clear that “care for the species often trumps other considerations” (van Dooren 2014, pg. 108). Under the label “conservation science,” goals are seen as objective and not personal. However, van Dooren argues that any given “scientific” process is also a social practice. At Assateague, horses are managed with conservation in mind, but current constructs do not always make it clear that in unintentional landscapes conservation is a social process driven by cultural values.

Nature and all things seen to be wild are not absent of human intervention and management. Especially in the case of National Parks and Seashores like Assateague, spaces are carefully curated to achieve certain desired aesthetics. So many people I talked to value the Island because it was a place to “escape,” “relax,” and “recharge.” Perceived restorative properties are heavily illustrated in the Likert data, as are the Island’s aesthetic aspects. Assateague is a place that relies on money from tourists, and the horses play a key role in the framing of Assateague. Susan Davis, in *Spectacular Nature: Corporate Culture and the Sea World Experience*, explores the idea of nature as a display and attraction. Using ethnographic research, history, and cultural criticism Davis paints a picture in which nature has been commodified and framed to tell a specific story and attract visitors. Sea World has “Carefully cultivate[d] nature as the theme park’s central story” (Davis 1997, pg. 28). As a result, the entire concept of nature has become a commodity because Sea World markets the idea of nature as living creatures in harmonious environmental balance-- a balance that is special, unique, and worth paying to experience. In the process, nature becomes “a world beyond the human that is invented out of inevitably human meanings and desires, an escape from the limited, the routine, the mundane” (Davis 1997, pg. 30).

While Assateague is not a theme park, the horses do represent an immense draw. Assateague is a direct illustration of how conceptions of nature and wildness have manifested themselves to form a managed space that conveys the feeling of an absence of human interference. When scientific practices are referred to as social, this is an example. Fences, roads, information signs, horse birth control programs, and any other human action on the Island offer proof of human presence, but the horses and undeveloped areas provide a counterbalance that allows for an appreciation of nature and the feeling that the space is a separate sphere from

everyday life. The movement of the horses is conceivable unimpeded, so visitors feel lucky, excited, and special to witness it. The unintentional landscapes produced by human actions can provide entertainment and value, but it is important to acknowledge how that value is produced.



A horse stands in the Day Use parking lot

Integration of the separate “human” and “nature” spheres is vital to creating more accurate relational management plans at Assateague. “Rewilding” is a term that has been applied to a variety of different management practices and visions, and provides useful insight into what a new conceptualization of Assateague could look like. Lorimer et al. (2015) define the term broadly to describe plans that “share a long-term aim of maintaining, or increasing, biodiversity, while reducing the impact of present and past human interventions through the restoration of species and ecological processes” (Lorimer et al. 2015, p. 40).

Rewilding does not necessarily have an end goal, which can make it harder for people to understand as a management plan. Instead, rewilding is meant to support “natural dynamics that will result in habitats and landscapes characteristic of specific area(s), with abiotic, biotic and social features that together create the particular ‘Sense of the Place’” (Ward 2019, p. 11). It is

this sense of place that the environmental values survey and ethnographic data are meant to help identify. To know how to move forward with integrating a management approach that emphasizes rewilding, we must first identify the shared and individual sense of place that visitors have at Assateague.

Conceptualizations of wilderness on Assateague need to be considered when it comes to the reaction of effective management strategy because it is these very values and experiences that dictate how visitors will interact with the space. In order to reimagine Assateague with a wider lens that treats horses as much more than “desirable invaders” within the greater Island context, we must first reckon with the symbolism of the horses, their importance to Island visitors, and the ecological impact of their presence, which this research seeks to contribute to.

## XV. ASSATEAGUE HORSES IN FUTURE CONTEXT

Not all aspects of human-constructed wilderness are viewed or valued the same way. Different socio-spatial categories come with “distinctive frames for investigating the differentially constructed ethics of human-animal interaction and, consequently, the varied ways we live together with non-humans” (Buller 2016, p. 424). These frames, in turn, create “differential conditions for moral behaviour and social/ethical practice with respect to non-humans” (Buller 2016, p. 424). Love and value for specific places and species is unevenly distributed based on cultural influence.

The presence of the horses plays a significant role in the perceived wildness and sense of place at Assateague. As charismatic megafauna with important American symbolic history, they serve to emphasize the “wildness” of the Island. It is “the aesthetic charisma of (certain) feral non-humans that engages our ethical and caring sensibilities; a charisma that is relational,

ethological and affective too” (Buller 2016, p. 426). They are also a stark reminder of the human impact of nature, since they are an introduced, non-native species. Not only are they non-native, they have had a drastic impact on the Island ecosystem.



Horses don't read signs: a horse has climbed over the fencing to reach the dune grasses

Yet the horses are also a huge draw to Island tourism. The horses of Assateague provide value to the Island, its sense of place, and to the visitors who come. Roughly 32.7% (103/315) of respondents said that they would not come if there were fewer horses, which emphasizes the importance that these horses hold to conceptions of the Island. In many instances, connections to nature and certain spaces can be enhanced and strengthened by horses and other animals. The symbolism and draw of the horses for visitors on Assateague is clear.

The values survey revealed other draws to Assateague than just the horses, however. Since the respondents were people who had already decided to come to Assateague, and had thus personally experienced the Island, the data reveal an appreciation for Assateague that extends

beyond just the horses. Excluding the people who answered “Not Sure” to the question about fewer horses, over 62% (170/273) of visitors would still come if there were fewer horses.

“Now Yes” was a very interesting category because it represents the change that being physically present at Assateague can have on an initial answer. The “Now Yes” is supported by the extremely high value of wellbeing, aesthetic, and personal gains that respondents receive from Assateague. Respondents also highly valued Assateague the ecological and environmental reasons, further emphasizing that although the horses are charismatic megafauna that serve as a cultural and historic draw to the Island, the Island encompasses so much more than that.

In many ways, I share the values of so many of the visitors. Eighteen years ago, I arrived at Assateague full of excitement and innocence, and obsessed with each and every horse that I came into contact with. Over the years, my obsession grew to include the dolphins, marsh birds, ghost crabs, tidal pools, horseshoe crabs, dune grasses, Nature Center activities, bonfires, and so much more.

## XVI. CONCLUSION

This survey and ethnography are only the first step in what is hopefully a long-term project examining the conceptions of wildness and the “sense of place” at Assateague. More in-depth value surveys that question visitors specifically about human-horse interaction and potential management plans are great next steps. Questions specifically about horse behaviors, knowledge about horses, where visitors are originally coming from, and questions about potential management plans are recommended.

Non-material values and cultural ecosystem services should play a large role in conservation practices and deserve focus in future research. Rachelle Gould has been a long-time advocate of social values research because they “reflect the interaction of a series of factors”



(Gould et. al 2020). Using the framework from Gould et. al in “Looking into the Dragons of Cultural Ecosystem Services,” the research in this paper reflects what is considered “Convener and Illuminator” work. This research convenes distinct parties, illuminates individual and collective values, and provides space for individuals to reflect on what is meaningful to them (Gould et. al 2020).

The importance of this work is highlighted by another paper written by Gould et. al in 2015. Stakeholders’ “nonmaterial desires, needs, and values often critically influence the success of conservation projects” (Gould et al. 2015). It is challenging to articulate these values, which is an explanation for their current limited use in management and policy strategies. However, studies aimed at discovering stakeholder values can “provide efficient, contextual, and place-based data on the importance of particular ecosystem attributes for human well-being” (Gould et al. 2015).

This work, and further work to come, will be vital to respond to complex challenges of sustainability and ecological change. Bednarek et al. (2018) advocate for a more critical conversation surrounding evidence-informed decision making and management practices. Social value research is contingent on understanding specific contexts and situations (Boda 2015, van Riper et al. 2019), and understanding the unique historical, cultural, and social relationships that visitors have with Assateague is necessary when considering future managerial procedures.

Human interaction with the surrounding environment has a complex past. Assateague is an example of these messy points of contact where making clear divisions between human and non-human proves to be impossible. There is a clear nature and cultural divide, identified by Bartolini et al. (2021), wherein the “management and conservation of natural landscapes in policy frameworks continue to be largely separate from the management of cultural landscapes”

(Bartolini et al. 2021, pg. 12). To combat this, we must align “ecological and biological goals with cultural values and experiences, as foundation for decision- making in changing landscapes” (Bartolini et al. 2021, pg. 15).

So, what does this mean for the future of Assateague? My research suggests that traditional conceptions of wilderness conflict with effective ecological conservation. Focus must shift from prioritizing the horses, and instead management plans need to create inclusive definitions using the entire “sense of place” instead of a more dualistic approach that leaves horses and the ecosystem in one sphere and humans in an entirely separate one. Current definitions that label the horses as “desirable invaders” fail to capture the complexities of the horses as coexisting with Island ecology and tourist values, while at the same time instruments of destruction to the surrounding flora and fauna.

Assateague is a microcosm of contradictions in our society revolving around symbolism, constructions of wilderness, and ecosystem management. Culture matters to the development of conservation strategies because values held by visitors dictate behavior. Our conceptions of space, in conversation with management strategies, should serve to strengthen and protect the areas that we value so much and hold so dear. Despite the complexities and tension that result from the interactions of different constructed spheres of society, it is the unique environment and experiences that makes Assateague so special to so many.



Horses on the beach at dusk

At the end of *Misty of Chincoteague*, the grandfather remarks that the horses “belong to Assateague... [they] ain’t horses, just pieces of wind and sky” (Henry 177). It is undeniable that the horses add an element of magic, intrigue, and draw to the Island. I’ll be the first to admit my heart still skips a beat when I spot one. Yet, I would make the three-hour drive to Assateague over and over and over again even if I knew I wouldn’t spot a horse. Sometimes the purpose of a visit is simply to reconnect with the place that holds the fondest memories of my childhood. I’ll let the waves lap at my feet, close my eyes as the wind washes over me, and feel a sense of calm that cannot be attained anywhere else.

#### APPENDIX:

##### Interview Questionnaire:

How long did you have to travel to get to Assateague?

Are you staying overnight?

How long are you here for?

What activities do you plan on doing while you are here?

Why do you come to Assateague?

How often do you go to Assateague Island?

Have you been to the Nature Center here?

Would you visit Assateague if there were fewer horses?

#### LIKERT SCALE (1-5)

I value Assateague because I enjoy scenery, sites, and atmosphere. (aesthetic) \_\_\_\_\_

I value the Island because it is a place for my favorite recreational activities. (recreation) \_\_\_\_\_

I value the Island because it helps produce, preserve, clean, protect, and renew natural resources. (env.) \_\_\_\_\_

I value the Island because we can learn about the environment through scientific research and observation here. (educational) \_\_\_\_\_

I value the Island because it makes me feel better physically and/or mentally. (wellbeing) \_\_\_\_\_

The value of an ecosystem only depends on what it does for humans. \_\_\_\_\_

If humans do not manage nature, it becomes a threat. \_\_\_\_\_

The most important reason for parks is to protect plants and animals. \_\_\_\_\_

It is never ok to interfere with wild animals; they should be free to lead lives without disturbance. \_\_\_\_\_

I would pay more taxes to protect my local parks. \_\_\_\_\_

#### Demographics

How old are you?

What is the highest level of education you completed?

What is your race?

#### BIBLIOGRAPHY

Aiken, M. (2021). *Assateague horse dies after apparent hit-and-run in Oceanside Campground*. The Daily Times.  
<https://www.delmarvanow.com/story/news/local/maryland/2021/07/07/assateague-horse-dies-after-apparent-hit-and-run/7885976002/>

- Assateague horse banished for bad behavior. (2022, May 4). *ABC27*.  
<https://www.abc27.com/national/assateague-horse-banished-for-bad-behavior/>
- Berlin, M. A. 7206 N. S. L., & Us, M. 21811 P. 410 641-1441 C. (n.d.). *Nature—Assateague Island National Seashore (U.S. National Park Service)*.  
<https://www.nps.gov/asis/learn/nature/index.htm>
- Bartolini, N., & DeSilvey, C. (2021). *Landscape futures: decision-making in uncertain times, a literature review*. *Landscape Research*, 46(1), 8-24.
- Boyce, P. N., Hennig, J. D., Brook, R. K., & McLoughlin, P. D. (2021). Causes and consequences of lags in basic and applied research into feral wildlife ecology: The case for feral horses. *Basic and Applied Ecology*, 53, 154–163.  
<https://doi.org/10.1016/j.baae.2021.03.011>
- Britton, J. L., & Hunold, C. (2021a). Bordering Processes and Pony Wildness on Assateague Island. *Society & Animals*, 1(aop), 1–20. <https://doi.org/10.1163/15685306-BJA10042>
- Buller, Henry. "Animal Geographies III." *Progress in Human Geography* 40.3 (2016): 422-30.
- Carruthers, Tim., Beckert, Kris., and Dennison, Bill. "Assateague Island National Seashore Natural Resource Condition Assessment." US Department of the Interior. (2011)
- Cox, J. (n.d.). *Assateague horses reach ecological milestone*. Retrieved April 18, 2023, from <https://www.delmarvanow.com/story/life/outdoors/2014/07/26/assateague-pony-non-native/13227989/>
- Cronon, William. *Uncommon Ground : Toward Reinventing Nature / William Cronon, Editor*. 1st ed. New York: W.W. Norton &, 1995. Print.
- Cronon, William. "The Trouble with Wilderness; Or, Getting Back to the Wrong Nature." *Environmental History* 1.1 (1996): 7-28.
- Davis, S. (1997). *Spectacular nature : Corporate culture and the Sea World experience / Susan G. Davis*. Berkeley: University of California Press.
- De Stoppelaire, G. H., Gillespie, T. W., Brock, J. C., & Tobin, G. A. (2004). Use of Remote Sensing Techniques to Determine the Effects of Grazing on Vegetation Cover and Dune Elevation at Assateague Island National Seashore: Impact of Horses. *Environmental Management*, 34(5), 642–649. <https://doi.org/10.1007/s00267-004-0009-x>
- Gould, R., Adams, A., & Vivanco, L. (2020). *Looking into the dragons of cultural ecosystem services*. *Ecosystems and People* (Abingdon, England),16(1), 257-272.
- Gould RK, Klain SC, Ardoin NM, Satterfield T, Woodside U, Hannahs N, Daily GC, Chan KM. 2015. *A protocol for eliciting nonmaterial values through a cultural ecosystem*

services frame: analyzing cultural ecosystem services. *Conserv Biol.* 29(2):575–586. doi:10.1111/cobi.12407.

Gruenberg, B. U. (2015). *The wild horse dilemma: Conflicts and controversies of the East Coast herds*. Strasburg, PA: Quagga Press

Jouvenal, J. (2011, July 8). At Assateague, struggles to keep the horses wild. *Washington Post*. [https://www.washingtonpost.com/local/at-assateague-struggles-to-keep-the-horses-wild/2011/07/07/gIQAuwgM4H\\_story.html](https://www.washingtonpost.com/local/at-assateague-struggles-to-keep-the-horses-wild/2011/07/07/gIQAuwgM4H_story.html)

Henry, Marguerite, and Dennis, Wesley, Illustrator. *Misty of Chincoteague / by Marguerite Henry ; Illus. by Wesley Dennis*. Chicago: Rand McNally, 1947. Print.

Keiper, R. R., & Keiper, L. A. (1978). A Survey of Visitor Knowledge, Attitudes, and Judgement of Feral Ponies on Assateague Island. *Proceedings of the Pennsylvania Academy of Science*, 52(2), 136–142.

Kirkpatrick, J. F., Turner, A., Kirkpatrick, J. F., & Turner, A. (2008). Achieving population goals in a long-lived wildlife species (*Equus caballus*) with contraception. *Wildlife Research*, 35(6), 513–519. <https://doi.org/10.1071/WR07106>

Kirkpatrick, J., & United States. National Park Service, issuing body. (1995). Management of wild horses by fertility control : The Assateague experience / Jay F. Kirkpatrick ... (Scientific monograph (United States. National Park Service) ; 92/26).

Lorimer, Jamie, Chris Sandom, Paul Jepson, Chris Doughty, Maan Barua, and Keith J Kirby. (2015) "Rewilding: Science, Practice, and Politics." *Annual Review of Environment and Resources* 40.1 (2015): 39-62.

Lorimer, J. (2015). *Wildlife in the Anthropocene: Conservation after nature*. Minneapolis: University of Minnesota Press. Marie, A. (2020, May 17). *Camping with Wild Horses on Assateague Island—Allie Marie Travels*. <https://alliemarietravels.com/2020/05/17/camping-on-assateague-island/>, <https://alliemarietravels.com/2020/05/17/camping-on-assateague-island/>

Masterson, V. A., Stedman, R. C., Enqvist, J., Tengö, M., Giusti, M., Wahl, D., & Svedin, U. (2017a). The contribution of sense of place to social-ecological systems research: A review and research agenda. *Ecology and Society*, 22(1). <https://www.jstor.org/stable/26270120>

Masterson, V. A., Stedman, R. C., Enqvist, J., Tengö, M., Giusti, M., Wahl, D., & Svedin, U. (2017b). The contribution of sense of place to social-ecological systems research: A review and research agenda. *Ecology and Society*, 22(1). <https://www.jstor.org/stable/26270120>

McGuirk, P. M. & O'Neill, P. (2016). Using questionnaires in qualitative human geography. In I. Hay (Eds.), *Qualitative Research Methods in Human Geography* (pp. 246-273). Don Mills, Canada: Oxford University Press.

- Miller, R. M. (2001). "To Faithfully Preserve: History and Lore from Americas National Parks." National Archives and Records Administration—Mid-Atlantic Region, Robert N. C. Nix Federal Building, 900 Market St., Philadelphia, PA 19107. *Journal of American History*, 88(1), 171–172. <https://doi.org/10.2307/2674930>
- Millington, J. D. A., & Wainwright, J. (2017a). Mixed qualitative-simulation methods: Understanding geography through thick and thin. *Progress in Human Geography*, 41(1), 68–88. <https://doi.org/10.1177/0309132515627021>
- Millington, J. D. A., & Wainwright, J. (2017b). Mixed qualitative-simulation methods: Understanding geography through thick and thin. *Progress in Human Geography*, 41(1), 68–88. <https://doi.org/10.1177/0309132515627021>
- NPS Maps. "Assateague Map Landscape." *npsmaps.com*, <https://npsmaps.com/wp-content/uploads/assateague-map-landscape.pdf>
- Philip, L. J. (1998). Combining Quantitative and Qualitative Approaches to Social Research in Human Geography—An Impossible Mixture? *Environment and Planning A: Economy and Space*, 30(2), 261–276. <https://doi.org/10.1068/a300261>
- Prensky, M. (2020). *Maryland state parks, Assateague smash attendance records thanks in part to COVID-19*. The Daily Times. Retrieved April 16, 2023, from <https://www.delmarvanow.com/story/news/local/maryland/2020/10/13/md-state-parks-assateague-national-smash-attendance-records-thanks-covid/5910144002/>
- Price, P. L. (2010). Cultural geography and the stories we tell ourselves. *Cultural Geographies*, 17(2), 203–210.
- Rose M (2006) Gathering 'dreams of presence': A project for the cultural landscape. *Environment and Planning D: Society and Space* 24: 537-554.
- Rossi, S., Byrne, J., Pickering, C., & Reser, J. (2015). 'Seeing red' in national parks: How visitors' values affect perceptions and park experiences. *Geoforum*, 66, 41-52.
- Seligsohn-Bennett, K. (1990). Mismanaging Endangered and "Exotic" Species in the National Parks. *Environmental Law*, 20(2), 415–440.
- Tadaki, M., Sinner, J., & Chan, K. (2017). Making sense of environmental values: A typology of concepts. *Ecology and Society*, 22(1). <https://doi.org/10.5751/ES-08999-220107>
- Turner Jr, J., Liu, I., Flanagan, D., Rutberg, A., & Kirkpatrick, J. (2007) Immunocontraception in Wild Horses: One Inoculation Provides Two Years of Infertility. *The Journal of Wildlife Management*, 71(2), 662-667.
- U.S. Census Bureau *QuickFacts: Virginia*. (n.d.). Retrieved April 10, 2023, from <https://www.census.gov/quickfacts/VA>
- Van Dooren, T. (2014). *Flight ways : Life and loss at the edge of extinction / Thom van Dooren*. (Critical perspectives on animals).



van Riper, C. J., Kyle, G. T., Sherrouse, B. C., Bagstad, K. J., & Sutton, S. G. (2017). Toward an integrated understanding of perceived biodiversity values and environmental conditions in a national park. *Ecological Indicators*, 72, 278–287.

<https://doi.org/10.1016/j.ecolind.2016.07.029>

van Riper, C., Winkler-Schor, S., Foelske, L., Keller, R., Braitto, M., Raymond, C., Eriksson, M., Golebie, E., & Johnson, D. (2019). Integrating multi-level values and pro-environmental behavior in a U.S. protected area. *Sustainability Science*, 14(5), 1395–1408.

<https://doi.org/10.1007/s11625-019-00677-w>

Ward, K. (2019). For wilderness or wildness? Decolonising rewilding. In J. T. du Toit, N. Pettoirelli, & S. M. Durant (Eds.), *Rewilding* (pp. 34–54). Cambridge University Press.

<https://doi.org/10.1017/9781108560962.003>