Brains On (APM) | Brains On! Tracking wild horses at Assateague Island National Seashore 1QDE6ED43V6B25BXB174N1ZA8W

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[TRUMPETING]

Welcome to Camp Brains On, where we're serious about being curious.

CARTER WHATLEY: Also where we have pizza every Friday.

MOLLY BLOOM: We've got swimming, archery, arts and crafts, and competitive mystery sounding.

CARTER WHATLEY: Not to mention awesome lessons about the science of our national parks.

MOLLY BLOOM: Exactly. In fact, that's what we're about to do now. Come on. Grab your bunkmate, and let's go.

CARTER WHATLEY: Keep listening.

[TRUMPETING]

MOLLY BLOOM: You're listening to *Brains On* from MPR News and Southern California Public Radio. I'm Molly Bloom. And my co-host today is Carter Whatley. Hello.

CARTER WHATLEY: Hi, Molly.

MOLLY BLOOM: Carter is helping us out with our series on national parks because he has a special connection to one of them. What is that, Carter?

CARTER WHATLEY: I lived 13 years in Yosemite National Park.

MOLLY BLOOM: That's pretty cool. If you want to hear more about what it's like to grow up in a national park, check out our episode on Wind Cave. But today, we're going to the opposite side of the country.

CARTER WHATLEY: Producer Jeff Jones is taking us to a national park on the eastern edge of the United States.

JEFF JONES: I'm in the state of Maryland, standing on the shore of the Atlantic Ocean. This white, sandy beach stretches 60 kilometers, or 37 miles, along a barrier island called Assateague. It's so beautiful here-- white ocean surf, rolling natural sand dunes, and lots of the animals that you'd expect to see at the beach. There's seagulls. There's crabs. Sometimes there's even dolphins out there in the water. But also on this beach is something that makes Assateague highly unusual-- horses, wild ones.

ALLISON TURNER: Normally, there's one stallion and then his mares and offspring. In this case, we have a band with just one mare. And our largest band at the moment is one stallion and 11 mares.

JEFF JONES: That's National Park Ranger Allison Turner. She knows every single one of these horses very well.

ALLISON TURNER: The mother here is N2BHS. And the S tells us she was born in 1994.

JEFF JONES: There are dozens of horses on Assateague Island National Seashore. It's a unit of the National Park Service. The horses here have probably been around for more than 300 years. They don't name the horses here, but each one has a number. And Allison knows those numbers by heart.

ALLISON TURNER: He's N2BHS-AG. In fact, this is the son of the mare we were just looking at in the parking lot.

JEFF JONES: People love these horses. And in the summer, they come to Assateague Island not just to swim and sunbathe, but to watch the horses. They're not hard to find. For the most part they're pretty quiet, but here's the sound of one of them eating grass right by the side of the road.

[MUNCHING]

Whether you're recording them with a microphone or a camera, you have to stay a safe distance away from the horses. They look calm and peaceful, but--

ALLISON TURNER: These are wild horses. Even though they're used to people being around them-- they see people year round-- but we want to make sure people understand that doesn't mean they're tame animals. They are wild. They're in natural social groups. They make their own way. They find their own food and shelter.

And they will bite. They will kick. They will charge if they feel threatened. And we want to make sure that people keep their distance.

JEFF JONES: I'm driving the main road down the middle of this narrow island with Ranger Allison to learn about the horses of Assateague. Part of what happens when horses go wild is they naturally divide up into bands. Those are groups of horses with usually one male called the stallion and maybe a few females called mares along with whatever babies were born recently. Those are called the foals. There can be drama in these bands. Now, here's someone walking right down the road, a horse. What do we know about this one?

ALLISON TURNER: And I think this is a bachelor stallion. And he got into a fight last week. And he lost his mare and foal to another one that's a little bit farther south now.

JEFF JONES: But this is important to note. When a horse gets hurt on Assateague, it doesn't get help from people-- not from Ranger Allison, not from a veterinarian, no one. These horses are on their own. That's part of the park's mission, to keep them wild. But the park has other missions too.

I'm back out on the white sand beach. And off in the distance to the north, I see the towering hotels of Ocean City. It's a tourist town completely packed with buildings and parking lots, many golf courses. I think I can make out the Ferris wheel at the amusement park there.

Ocean City is on a barrier island too. In fact, that island and this one used to be the same island till the ocean tore a hole through it during a storm in the 1930s. That may have been a stroke of good luck for the ecosystem here on Assateague.

KELLY TAYLOR: We exist because we are one of the few remaining natural barrier islands that has absolutely no development on it. So we're special that way.

JEFF JONES: That's National Park Ranger Kelly Taylor. She told me there once were plans to develop the island with homes and shops like the islands nearby, but they were scuttled by a combination of bad weather and growing pressure to preserve this place, to preserve it as one of the last places to see the way a barrier island works. This tiny journey across a narrow island is a great way to see birds and plants that are specially adapted to sandy soil and salty sea spray. And when it's your job to preserve an important ecosystem like this, it's also your job to get rid of stuff that doesn't belong there. Ranger Allison took me to one spot on the island that had just been cleared of a plant called-- what's it called?

ALLISON TURNER: Phragmites, or a common reed is also what it's called.

JEFF JONES: Phragmites. It's a grass, but it's taller than me.

ALLISON TURNER: It's a very tall grass with a feathery seed head. And we have it. It's become established all over the island. So we decided, OK, we need to try to minimize this invasive.

JEFF JONES: Invasive, as in invasive species, as in a plant or animal that has started living in an ecosystem but doesn't actually belong there. And here's what Ranger Allison told me when I asked why they're a problem.

ALLISON TURNER: It's not adapted to that habitat. And so it may not have any predators. Say, if it's an animal in the case of a plant, maybe nothing feeds on it. There may be no natural way to keep it in check. It's not in balance with the rest of the species in the area. And so it can take over.

And one of the goals of a national park area is to keep the habitat in as natural a condition as possible with the native species looking the way it should for a seashore. And so that's why we try to find and eliminate any invasive type species.

JEFF JONES: OK, so uncomfortable question here-- are the horses of Assateague an invasive species?

ALLISON TURNER: They are.

JEFF JONES: [GROANS] I did not want to hear this. The wild horses are so awesome. Why do they have to be invasive? What harm are they doing anyway?

LIZ DAVIS: They have four feet, and they eat all the time. And if you have a whole lot of them, that's very hard on Assateague.

JEFF JONES: This is Ranger Liz Davis. I asked her and Ranger Kelly to explain what happens when there are too many horses on the island.

LIZ DAVIS: Of course, eating the grass that should normally be maybe 2 or 3 feet high ends up being sometimes 2 or 3 inches high, if that. So they can be hard on the place.

KELLY TAYLOR: Think about things like fiddler crabs, which are hiding out. You don't see fiddler crabs every day. But fiddler crabs are excavating their little holes, and they're very busy in the mud. But they can't do that if the horses are constantly standing there.

And another thing is like, for example, the secret of birds, like the marsh rails and things like that, who really rely--

JEFF JONES: Secretive birds?

KELLY TAYLOR: Yeah, totally. They're hiding out all the time. And they're really cool. They blend in perfectly. And you'll see a rail, and he will have his head straight up in the air. And he's standing perfectly still so that he or she, it is just perfectly blended in with the background. They need the tall grass in order-- because it's hard to be a bird that stands a foot and a half tall, but the grass you're trying to hide out in and be a secret so nobody can find you-- if the grass is only 6 inches tall, you're out of luck.

LIZ DAVIS: And you certainly can't build a nest there either and hide your eggs and babies, so.

JEFF JONES: So having too many non-native horses around makes life tough for the native crabs and birds, not to mention the grasses that the horses like to eat. So what's the answer here? When it was the exotic phragmites grass, the park sprayed, and burned, and treated the area until the problem was gone. So what about the horses? Here's Ranger Allison again.

ALLISON TURNER: They were introduced to Assateague, and so they are an invasive, technically an invasive. But we have the other side of it, which is that they are what would be considered a desirable exotic because they have a cultural history here in the area.

JEFF JONES: And there's the other thing that the national park has to do. It's not just about maintaining a natural ecosystem, and it's not just about making it possible for people to come out and enjoy it, but it's also about maintaining the culture of this part of the country. And the horses of Assateague are part of that culture. Even if they are an invasive species, they are still, as the park rangers put it, desirable. So see if you can find the word that each of these park rangers uses all the time to talk about this tricky line they have to walk.

KELLY TAYLOR: So it's really important to find that balance.

ALLISON TURNER: We're finding a balance where we can reduce the number of horses and see recovery in the habitat.

LIZ DAVIS: Fewer horses is exactly the sweet balance that we need.

JEFF JONES: The key to reaching that sweet balance-- keep the horses, but make sure there aren't too many. That's where the real science starts.

[VOCALIZING]

SUBJECT 1: *Brains On.*

MOLLY BLOOM: More from Assateague Island National Seashore in a moment. But first, it's time to put your ears to the test with the mystery sound.

[ETHEREAL SOUNDS]

SUBJECT 2: (WHISPERING) Mystery sound.

MOLLY BLOOM: Here it is.

[BUZZING]

Any guesses?

CARTER WHATLEY: Maybe a bug or a bee.

MOLLY BLOOM: [GASPS] Good guess. We'll be back with the answer right after this.

CARTER WHATLEY: Do you have a mystery sound you'd like to share with us?

MOLLY BLOOM: A question you want answered on the show?

CARTER WHATLEY: Or maybe you just want to send us a drawing or a high five.

MOLLY BLOOM: Email us any time. We're at brainson@m-- as in Minnesota-- pr.org.

CARTER WHATLEY: Or you can find our mailing address at our website, brainson.org.

MOLLY BLOOM: And if you're a fan of the show, please consider leaving a review in iTunes.

CARTER WHATLEY: It really helps other kids and families find out about the show.

MOLLY BLOOM: Now's the time in the show when we send high fives to all the kids who fuel this show with their creativity and energy. Here's the most recent group to be added to the brain's honor roll. Zarin from Anna Maria Island, Florida, Isaac from Duluth, Sena from Franklin, Tennessee, Seth and Carson from Sacramento, Burt, Hannah, and Abby from Sydney, Australia, Nate from Quincy, Massachusetts, Elliot from San Luis Obispo, California, Josiah from Washington, DC, Jonah from Chicago, Blake, Jordan, and Shea from Charlottesville, Virginia, Damien and Finley from Durham, North Carolina, Lydia and Elliot from Chapel Hill, Maverick from Sherman Oaks, California, Vera and Lito from Seattle, Harper and Henry from San Diego, Sebastian from Pittsburgh, Miles from Providence, Rhode Island, Hugh and Liam from Canton, Georgia, Lilith from Olympia, Washington, Luke from Andover, Massachusetts, Elsa from Boulder, Colorado, and Ezra and Noah from East Setauket, New York.

Before we learn more about those wild horses, let's go back to the mystery sound. Let's hear it one more time.

[BUZZING]

Any new guesses?

CARTER WHATLEY: Yeah, like a bug or a bee, or a wasp flying around.

MOLLY BLOOM: You are totally right. It is a bee.

CARTER WHATLEY: Yay.

MOLLY BLOOM: To hear about the special bees at one national park, here is Emily McDermott from Pinnacles National Park.

EMILY MCDERMOTT: At Pinnacles National Park, we have some of the highest bee diversity per unit area of any place ever studied. And when we think about bees, most of us think about honey bees or bumblebees. And these bees are what we call social. They live together in a big hive with the queen. But social bees are actually very rare, and they only make up a few of the other bee species here at Pinnacles.

And so almost all our bees are solitary bees, meaning that they make their own nests and take care of their own young. And about one in six of our bee species don't even make nests. Instead, they'll lay their eggs in the nest of other bees. And their young eat the food that the other mother bee left behind for her young. And these bees are actually called cuckoo bees, like the cuckoo bird.

And another thing to keep in mind about bees is that most bees don't look like honey bees or bumblebees. They range in size from a sesame seed all the way to the size of your thumb. And they're not just striped yellow and black, but they come in many colors, including black, brown, bronze, and we have metallic green and blue.

CARTER WHATLEY: We're back with the story of a national park that sits in the Atlantic Ocean.

MOLLY BLOOM: It's an island called Assateague. And Jeff Jones has been telling us about the horses there. It's a story about how park rangers are giving people a chance to see how horses behave in the wild while also protecting the native plants and animals from the effects of the horses.

CARTER WHATLEY: But Jeff, before we go back to the story, can I ask a question?

JEFF JONES: Yeah, sure, Carter. What's up?

CARTER WHATLEY: You said the horses got to Assateague hundreds of years ago. But how did they get there?

JEFF JONES: Oh, man. Wouldn't it be cool, Carter, if these horses were the descendants of horses that were thrown into the sea when a Spanish galleon was shipwrecked in a storm?

MOLLY BLOOM: Yes.

JEFF JONES: That is not what happened. At least it's very unlikely that that's what happened. It's a great legend though, and it persists in Maryland. But the rangers at Assateague told me that it's a lot more likely that farmers on the mainland who were farming there before the United States was even a country, they just put some of their horses out on the island probably to avoid the taxes for putting up fences on the mainland. And then they just brought the horses back when they needed them.

Over time, the horses weren't needed, or maybe they were forgotten about, and they were left behind. And over time, they returned to their wild ways. The cats that we see out and about our neighborhood that no one owns, they're probably feral. That means that they used to be tame, or at least their ancestors used to be tame, but now they're running wild. And they behave differently than house cats.

So the same goes for the horses. They're feral too. And that's one of the cool things about these horses at Assateague. Visitors get to see how horses behave when they're left on their own to live in the wild. It's not like seeing horses on the farm.

MOLLY BLOOM: That is cool.

CARTER WHATLEY: Very cool.

JEFF JONES: That shipwreck legend actually brings up another interesting point. There's a book about Assateague Island that a lot of kids still read. Carter, have you ever heard of the book *Misty of Chincoteague?*

CARTER WHATLEY: No, I have not.

JEFF JONES: It's a book written in the 1940s. It won some awards back then. And it's about two kids and some of the Assateague horses. It starts with that Spanish shipwreck scene. It's very dramatic.

And that's part of why the legend persists, I think. But it also describes an event that still happens today, where the horses are rounded up and forced to swim across a channel to another island. It's really dramatic.

CARTER WHATLEY: Why do they do that?

JEFF JONES: Well, some of the horses are sold off to raise money for the volunteer fire department there. But here's what the rangers want to be really clear about-- that does not happen in the national park that we've been talking about. It happens on the Virginia half of the island. And the national park is on the Maryland half.

CARTER WHATLEY: How do they keep the horses apart?

JEFF JONES: Well, there's just a fence. There's literally a fence right on the border between Maryland and Virginia. And it keeps the horses from going from one state to the other. But a lot of people who read the *Misty* books, they come to the national park thinking that they might see the big pony swim. They won't. But the popularity of that book is one of the reasons why the horses draw so many people to the park, and it's part of why they're considered what Ranger Allison called a desirable exotic a few minutes ago in our story.

MOLLY BLOOM: Are the horses in Virginia, are they in a park, or are they just like hanging out?

JEFF JONES: The horses in Virginia are in a wildlife refuge, but the horses are technically owned by the volunteer fire department. The horses in Maryland in the national park are owned by the American people. And that's one of the reasons that the rangers have such a hard time deciding how to reduce the number of horses.

MOLLY BLOOM: Do the horses like swimming to the island?

JEFF JONES: None of them answered my question when I put that to them. It's a tradition. It's very dramatic. People come from New York City and even further away to watch this. The title character in *Misty of Chincoteague* is a horse who does not like that swim. And it's why the kids are so drawn to her.

- I see, very interesting. So that brings us to where we left off. How do they make the horses and this natural ecosystem work together?

JEFF JONES: Exactly. And that's where the science comes in. Ranger Allison Turner, the biological technician at Assateague Island National Seashore here in Maryland, wants to show me something in an out of the way corner of the island.

ALLISON TURNER: And you can see this is more of a natural low marsh. It has low areas where the water is flooding in, areas where the grass has become very thick and dense. It's recovered. And this used to be just open mudflat with nothing there.

JEFF JONES: It's a beautiful spot. Marshy pools of saltwater glisten in the sun. Tall grasses sway in the wind. There are bald eagles flying overhead.

And there are probably some of those secretive marsh birds around. Can't really tell. They're being really secretive. But the point is they can be. And a few years ago, they couldn't because their home was someone's favorite meal.

ALLISON TURNER: Yeah, we do have fewer horses out here now. We were looking at this band off to the right here, which is the only one that consistently uses this area. And we used to have as many as 20 or 30, or even 40 at times that would consistently use the area in winter and summer. And now with the reduced number of horses over generations, we're getting far less grazing pressure from the horses too. And that's helped.

JEFF JONES: That's helped the grasses come back, helped the soil stay loose enough to support other animals. Basically, this marsh is back in balance. So how did they do it?

When the rangers here knew there were too many horses, they set a goal-- get from around 170 horses on this part of the island to somewhere between 80 and 100. Rangers Kelly Taylor and Liz Davis told me that that number should be enough to keep the horses healthy, but not enough to overwhelm the ecosystem. So how do we get there? Here's what I asked.

Why make it so complicated? Why not just move some away from the island?

LIZ DAVIS: Well, that's a good question. That might seem obvious since the horses that live on the south end of the island, they get sold off to the public. Why don't we just do that? Well, the horses that live in the Maryland district of Assateague Island are owned by the National Park Service, and they're public properties. They belong to all of us. So we are not going to sell them off.

KELLY TAYLOR: Yeah. I think some of these things were thought about, but it was very clear very early on that the American people wanted nothing to do with us selling the horses. And it was almost, for lack of a better term, with their blessing that we moved forward with the initial experimentation of seeing if PZP was going to work for us.

JEFF JONES: PZP?

ALLISON TURNER: Porcine zona pellucida. And this is--

JEFF JONES: Porcine zona pellucida?

ALLISON TURNER: Yes, yes. It's a protein that comes from unfertilized pig eggs.

JEFF JONES: OK then. PZP is a vaccine. It's like a flu shot, except instead of keeping the horses from getting the flu, it keeps them from getting pregnant. And PZP, it's kind of genius. If you can't get rid of 80 horses right away, do it over time through attrition. In other words, let the old horses die off naturally, as old horses do, and just make sure there aren't as many young ones to take their place. Basically, stop having as many babies for a while.

PZP was the idea of a scientist named Dr. Jay Kirkpatrick. Ranger Allison worked with him a lot. And they kept testing, as scientists do, to make sure PZP didn't have other harmful effects on the horses or on the environment. And after a few years, Dr. Kirkpatrick and the rangers at Assateague were ready to institute their plan.

Pick which female horses should not have babies next year. Then give them the vaccine, which is easy when you're on a farm. But we're not on a farm, so it's actually hard. Here's Ranger Allison blowing my mind by explaining how to get a vaccine into a wild horse.

ALLISON TURNER: It's remotely delivered, meaning that it's loaded into a dart and fired from a modified dart gun into the muscles of the horse's hindquarters.

JEFF JONES: Wait, so there's a dart involved? Explain how this works. You don't have to go up to the horse and give it a shot the way I would get a vaccine?

ALLISON TURNER: So what we do is mix the vaccine up, and that's injected into the dart. And that dart's loaded in the dart rifle. And if we get within 25 to 50 meters of the horse, then we're in range and could fire it at the hindquarters of the horse. So it injects into the muscle.

JEFF JONES: Do you do this? Are you the one to shoot the dart to the horses?

ALLISON TURNER: Yes, yes. I go out and do the darting. And usually it's done in March, which is a little bit before the normal breeding season starts. And so it'll prevent any pregnancies.

Initially, it was every mare. And now we're down to, beginning a couple years ago, only treating the two-year-olds. And that would be to let them mature a little bit before they have their first foal. Because the more fully grown they are and healthier, the more likely the foal is going to be healthier and survive.

JEFF JONES: And did you catch that last part? It's working. It's working so well that only a few horses need to get the vaccine each year now. In fact, after about 20 years of careful vaccination, they hit their goal. There were 89 horses on Assateague when I visited, including six new foals born in 2016. That's smack in the middle of the park's target range for wild horses. And now parks and preserves around the world are using PZP to help reach a balance between the wild horses they love and the ecosystems they rely on.

Hey, there's one more thing before we leave Assateague. There's another creature that isn't natural to this island--people. But here we are, visiting it, driving around it, having picnics, taking photos. That's the last part of the balance the National Park Service is trying to achieve here and really everywhere you find a national park site, how to show people the beauty of this country without ruining that beauty in the process.

So if you visit Assateague Island National Seashore, keep a safe distance from the horses. Stay on the paths and beaches that are meant for people. And stand still long enough to watch a wild place be wild. For *Brains On,* I'm Jeff Jones.

MOLLY BLOOM: That's our show. You can check out the rest of our series on the national parks at our website, brainson.org, or wherever you usually listen.

CARTER WHATLEY: *Brains On* is produced by Mark Sanchez, Sanden Totten, and Molly Bloom.

MOLLY BLOOM: Many thanks to Leslie Whatley, Lauren Dee, and Corey Shreppel.

CARTER WHATLEY: You can see photos from more national parks on our Instagram.

MOLLY BLOOM: We're at @brains_on.

CARTER WHATLEY: And that's our Twitter handle too.

MOLLY BLOOM: You can also keep up with us on Facebook or by subscribing to our newsletter. You can do that at brainson.org.

CARTER WHATLEY: Thanks for listening.