

## Sidedoor (S11E22) – Turtles - Part One final web transcript

**Lizzie Peabody:** This is Sidedoor, a podcast from the Smithsonian with support from PRX. I'm Lizzie Peabody.

*Lizzie: Gosh, it is beautiful out here.*

*Chris Polinski: It really is.*

*Lizzie: These are really old trees.*

*Maxwell Earle: Yeah this is a nice, more mature forest.*

**Lizzie:** I'm walking through the woods on a fine spring morning guided by not one but two Smithsonian researchers: Maxwell Earle and Chris Polinski. And out here, they are not used to having company.

*Maxwell Earle: Chris, we gotta make sure we're on our best behavior today.*

*Chris Polinski: Yeah.*

*Maxwell Earle: No slip ups.*

*Lizzie: No, you should be on your worst behavior because it makes for great audio.*

*Chris Polinski: Okay good.*

*Maxwell Earle: Well then, I generally make great audio.*

*Lizzie: [laughs]*

**Lizzie:** I wish I could tell you exactly where we are, but Max and Chris have sworn me to secrecy.

*Maxwell Earle: You can just say, like, maybe [bleep] county or just say, like, [bleep] Virginia.*

**Lizzie:** [laughs]

**Maxwell Earle:** We're on the [bleep] half of the state, sort of.

**Lizzie:** You know, I'm gonna bleep all of this.

**Maxwell Earle:** Okay, good.

**Lizzie:** That's because the animal we're searching for is also highly prized by poachers. That's right, poachers—people who take wildlife out of the wild. And when I think about the kind of animals being smuggled across borders, I picture a parrot, an exotic cat. Maybe a baby monkey.

**Tom Akre:** But people do not know that turtles are actually the most illegally trafficked four-legged creature in the world.

**Lizzie:** Turtles.

**Tom Akre:** Turtle trade has trumped all other four-legged creatures.

**Lizzie:** Tom Akre leads the Turtle Conservation Ecology Lab at the Smithsonian's National Zoo and Conservation Biology Institute. He says turtle trafficking is a big problem.

**Tom Akre:** And is responsible in large measure for either driving some animals extinct, or taking them to the brink of extinction.

**Lizzie:** But it's just one of many challenges these ancient reptiles are facing, with 60 percent of the world's turtle species threatened or endangered. So why is it turtles versus the world? And what would it mean for us if turtles disappeared? Turns out we have no idea, because even though turtles have been around longer than the dinosaurs ...

**Tom Akre:** We don't actually know anything about the majority of the world's turtle species, that is, it's not collected in western science.

**Lizzie:** So this time on Sidedoor we're talking turtles, in a two-part journey across field and forest in search of our prehistoric friends. What's behind the slow and steady decline that scientists today have dubbed the "global turtle crisis?"

**Lizzie:** In part two, we'll delve into the criminal underworld of turtle poaching. But first, we'll walk alongside Smithsonian experts to meet some of these charismatic creatures, all to better understand what makes turtles tick. And why, after millions of years, they're struggling to persist.

**Chris Polinski:** *The first time you're out looking for them for some reason it feels like it's impossible. And then you find one, and all of a sudden you're finding, like, two, three, four.*

**Lizzie:** It's turtle time. After the break.

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**Lizzie:** Picture a turtle. And be honest, is it a majestic sea turtle floating gently through crystal blue waters? Or is it a dirt-covered little box turtle trundling over some leaves in a forest?

**Maxwell Earle:** *Sea turtles are like people that go to Coachella, and box turtles are like people that work for a living.*

**Lizzie:** [laughs]

**Chris Polinski:** Nice!

**Lizzie:** Wow! A little judgment!

**Maxwell Earle:** Well, they get all the funding!

**Chris Polinski:** No, I know.

**Lizzie:** Maxwell Earle and Chris Polinski of the Smithsonian Turtle Conservation Ecology Lab are quickly getting me on the box turtle bandwagon.

**Lizzie:** We love an underdog.

**Chris Polinski:** Yeah.

**Lizzie:** And turtles seem like the ultimate underdog.

**Maxwell Earle:** Yes!

**Lizzie:** So the underdogs within the underdog.

**Maxwell Earle:** Exactly. We are champions of the downtrodden out here.

**Chris Polinski:** Yeah.

**Maxwell Earle:** They're small, they're understated, they're quiet, but they persist. They are everywhere, but they're misunderstood. They are the working American turtle.

**Lizzie:** And my red-blooded American spirit is stirred as we veer off the path in search of our cold-blooded brethren: the eastern box turtle. Eastern box turtles can be found from New England all the way down to Florida, and as far west as the Great Lakes region. And they're just one of the species of turtle that the Smithsonian Turtle Conservation Ecology Lab is working to understand and protect in the wild.

**Lizzie:** This 250-acre plot of land in [bleep] is one of several research sites where the team is monitoring turtle populations, answering questions like: how many turtles are here? What kind of shape are they in? How old are they? Today, we're out on what you would call a turtle survey—basically, counting how many turtles you can find in a set period of time over a set distance. And I want to be the first one to spot a box turtle. The problem is I'm not entirely sure what a box turtle looks like.

**Lizzie:** How—how big are we looking for here?

**Maxwell Earle:** So you're looking for something about the size of a, I don't know, maybe half of a grapefruit, depending on the size of the turtle. They do vary in size a good bit.

**Lizzie:** Oh, really? That's smaller than I was thinking.

**Chris Polinski:** I was thinking like a bocce ball, maybe.

**Maxwell Earle:** I don't even know what a bocce ball is.

**Lizzie:** [laughs]

**Chris Polinski:** Fair enough. It's my Midwestern roots. It's a great game; you should get into it.

**Lizzie:** We scan the ground, nudging at leaf piles, peering under logs.

**Chris Polinski:** If I was a box turtle, where would I be right now?

**Maxwell Earle:** See, the problem is you would be anywhere out here. That's the thing.

**Chris Polinski:** Yeah.

**Lizzie:** Now it's right around the time of year for these bocce ball-sized patriots to be emerging from their winter burrows.

**Lizzie:** Do they basically, like, hibernate in the winter? They burrow down somewhere they can stay warm, and then they just don't move until it gets warm enough to come out?

**Maxwell Earle:** Yep. That is exactly what they do.

**Lizzie:** Take me through the sort of calendar year of the turtle.

**Maxwell Earle:** Okay, so it is roughly the beginning or middle of spring. You are waking up because there's vegetation growing up out of the ground. It's warm enough, the daytime temperatures are in the 60s, 70s. There's precipitation, and you can feed, you can frolic, you can fornicate. All the great things for the turtles.

**Lizzie:** The three Fs.

**Maxwell Earle:** Exactly. The 3 Fs of turtles.

**Lizzie:** When box turtles come out of the ground in late spring, they are hungry! And they're foragers; they'll eat whatever they can. They're munching mushrooms, biting berries, eyeing insects.

**Maxwell Earle:** You know, digging for worms or doing little worm stompies. They do a dance

*to stomp on the ground sometimes to trigger worms to come out of the ground.*

**Lizzie:** Really?

**Maxwell Earle:** Yeah.

**Lizzie:** Max demonstrates, thumping his hands on the ground.

**Maxwell Earle:** *they'll kind of, you know, do a nice little dancey-dance.*

**Lizzie:** So they're feeding, frolicking, and ...

**Maxwell Earle:** *Fornicating opportunistically. There's not, like, a mating season. It's more just bump into each other in the woods. There you go.*

**Lizzie:** Bumping into a box turtle in the woods is proving easier said than done.

**Maxwell Earle:** *Actually, let's hook a right over here.*

**Lizzie:** Okay.

**Maxwell Earle:** *See if we can't find something.*

**Lizzie:** Because as we climb over downed trees, traipse through waist-high brush and clamber over rocks ...

**Maxwell Earle:** *Meandering steps through here.*

**Lizzie:** ... we're not finding any turtles. But we are finding plenty of other things.

**Maxwell Earle:** *I don't have a turtle, but I have a salamander.*

**Lizzie:** Ooh!

**Maxwell Earle:** *A tiny little baby red-back. Look at this little sweetie.*

**Lizzie:** We see raccoon footprints, deer droppings. Producer James Morrison found a frog.

**Lizzie:** You found a frog?

**James Morrison:** Yeah.

**Lizzie:** Or a toad?

**James:** Oh yeah, a toad.

**Maxwell Earle:** This is an American toad.

**James:** Yeah, really light colored.

**Maxwell Earle:** Exactly. He peed on me, too.

**Lizzie:** Did he?

**Maxwell Earle:** Yeah.

**Lizzie:** Max says that the fact that we're having this much trouble finding a turtle isn't so surprising. Box turtles historically have been abundant, but research indicates that their populations—along with many other kinds of turtles—are declining. And this is troubling because they've been here a long time. And by "long" I mean ...

**Tom Akre:** Well, they're definitely prehistoric. I mean, they're over 240 million years old.

**Lizzie:** For context, the dinosaurs went extinct 66 million years ago. And Tom Akre, program director for the Smithsonian's Turtle Conservation Ecology Lab, says turtles aren't just prehistoric, they're a totally unique branch on the tree of life, split off from all other living animals 220 million years ago! They are like nothing else we know today.

**Tom Akre:** We call them reptiles, but they're not any more like snakes and lizards than mammals or birds are, right? I mean, you know, they're so different in that regard.

**Lizzie:** Turtles were partying with T-rex. They survived the asteroid impact that wiped out the dinosaurs, multiple ice ages, mass extinctions.

**Tom Akre:** So they've seen all of that.

**Lizzie:** But now they face a grave new threat: homo sapiens. Just imagine you're a cave person, wandering through fields and forests looking for food, when suddenly you spy ...

**Tom Akre:** *A turkey-sized tortoise or turtle that is slow, and typically not that readily able to get away from you. And all you have to do is wrap a piece of rattan or some other kind of vine around it and sling it under your arm. You would never forgo that much protein and that much food and that much calories.*

**Lizzie:** Turtles are slow and easy to catch. Most of them can't even bite you very well. But their shells are stronger than most claws or jaws, so for millennia they were adequate defense from animals without opposable thumbs or tools. But humans changed that game.

**Tom Akre:** *And so they've been, in some ways, disappearing at a pace that more or less reflects the growth of the local human population.*

**Lizzie:** Tom says the thing about turtles is ...

**Tom Akre:** *Turtles do things slowly.*

**Lizzie:** Including evolving. According to the fossil record, turtles haven't changed much at all in the last 200 million years. But even though they've been around for so long—and are found on every continent except Antarctica—turtles just haven't been studied that much compared to other animals. And Tom says we can't really know what's going on with turtles ...

**Tom Akre:** *If we don't understand the underlying status of the species and the threats that are impacting that population. So we do spend kind of an extraordinary amount of time out there counting stuff!*

**Lizzie:** *[laughs]*

**Tom Akre:** *You know what I mean?*

**Lizzie:** Oh, now I know what he means. And our current turtle count is zero. However, I would

say the intrepid turtle team is developing the kind of camaraderie necessary to overcome any obstacle. We are really getting to know one another.

**Lizzie:** *I'm seeing lots of cool spiders.*

**Maxwell Earle:** *If you see jumping spiders, tell me. If you see anything else, don't, because I get scared of spiders.*

**Lizzie:** *You are scared of spiders?*

**Maxwell Earle:** *I've gotten much better about it, I will say that, but I am still a little bit afraid of them. Those and horses.*

**Lizzie:** *And horses?*

**Maxwell Earle:** *Yep.*

**Lizzie:** *Huh! Did you have a bad experience with a horse?*

**Maxwell Earle:** *Nope.*

**Lizzie:** We crunch along, talking about our irrational childhood fears. Max's? Horses. Mine? Alligators coming out of the toilet. But believe me, our eyes are still laser focused on the ground. Max seems to know every plant in the forest.

**Maxwell Earle:** *Comfrey. Barberry. Perfoliate bellwort, maybe?*

**Chris Polinski:** *Oh, I just thought of an irrational fear.*

**Lizzie:** *What?*

**Chris Polinski:** *Stickers.*

**Lizzie:** *Stickers?*

**Chris Polinski:** *Yeah.*

**Maxwell Earle:** What does that even mean, dude?

**Chris Polinski:** Stickers.

**Maxwell Earle:** What does that mean?

**Chris Polinski:** I don't like stickers.

**Lizzie:** You don't like them, or you're afraid of them?

**Chris Polinski:** I'm afraid of them.

**Lizzie:** [laughs]

**Maxwell Earle:** Are you lying? Are you just trying to fit in?

**Chris Polinski:** I'm not. I'm serious.

**Lizzie:** Fit in with all the sticker-fearing folks?

**Chris Polinski:** It's just like—it's not like a sticker that's attached, right? Like, once it's attached, like cool, great.

**Maxwell Earle:** Also there's native yam, the little guys right here. I think those are native yams, if you want to see the leaves of them.

**Chris Polinski:** I really had to dig deep for that one, guys.

**Maxwell Earle:** Chris, I'm glad you did, and I'm glad we're starting to have this conversation.

**Lizzie:** So you're glued to stickers? Okay.

**Chris Polinski:** Yeah.

**Lizzie:** *This does sound like it's probably rooted in an early experience that you may have repressed.*

**Maxwell Earle:** *Are you trying to rationalize his irrational fears?*

**Lizzie:** An hour later, we are still looking for turtles.

**Maxwell Earle:** *I mean, this is—this is legendary.*

**Lizzie:** *This is like an unusually difficult ...?*

**Maxwell Earle:** *I don't know. I just think Chris is not locked in. I think his heart's not in it.*

**Chris Polinski:** *To be fair to myself, this is my first time doing a survey at [bleep].*

**Lizzie:** Oh!

**Chris Polinski:** *This year.*

**Lizzie:** Until finally—finally—Max freezes.

**Maxwell Earle:** *Come here. Everyone come here. Yeah, just right here. Come here. This—this path.*

**Lizzie:** He points to a nearby tree.

**Maxwell Earle:** *You see the tree knee right there?*

**Lizzie:** Uh-huh?

**Chris Polinski:** *To the right of it.*

**Lizzie:** *[gasps]*

**Maxwell Earle:** *You're looking at it.*

**Lizzie:** Oh my gosh, right there!

**Maxwell Earle:** Look at that little creature.

**Lizzie:** Just chilling.

**Lizzie:** There, stock still, is our elusive hero—a box turtle. It's propped up on its front legs, neck craning out of its shell as though it's trying to smell us. It has bright red eyes. Its back end is still nestled into its winter burrow.

**Maxwell Earle:** *This young male, who's probably coming out from his overnight/over-winter burrow.*

**Lizzie:** Oh!

**Lizzie:** Max reaches for the turtle

**Maxwell Earle:** *Come here, you little burger.*

**Lizzie:** Oh, he's backing up.

**Maxwell Earle:** *He's backing up. That's what they do.*

**Lizzie:** Whoa! Oh my gosh! Oh, he's gorgeous!

**Lizzie:** He holds the turtle aloft, and it really is a stunning animal. Its domed shell is the shape of a combat helmet, with its edge slightly flared out like a skirt. As Max lifts it, the turtle stretches out its scaly forearms and paws the air with its sharp little claws like it's trying to swim.

**Lizzie:** *Look at his little scaly—it looks prehistoric.*

**Maxwell Earle:** *Mm-hmm. He's a little dinosaur. And this is actually quite a bold turtle, because normally, I mean their defense mechanism is this: they can close all the way up.*

**Lizzie:** Oh, really?

**Maxwell Earle:** The shell can enclose entirely.

**Lizzie:** There's a sort of hinge across the turtle's underbelly. To show me, Max coaxes it closed, nudging the turtle into his shell.

**Lizzie:** *[laughs] He looks like he's peeking out from, like, a little sleeping bag.*

**Maxwell Earle:** He is.

**Lizzie:** The turtle peers out at us with his red eyes. Silent.

**Lizzie:** *Can I touch the shell?*

**Maxwell Earle:** *Absolutely.*

**Lizzie:** The shell is brown with dabs of yellowy orange. It feels cool to the touch and slightly silky under my finger, like touching jade or soapstone. And the plates of its shell are covered in concentric rings.

**Maxwell Earle:** *And each of these little rings is an annuli, and those roughly correspond to a year of growth, kind of like a tree.*

**Lizzie:** So how old is this turtle?

**Maxwell Earle:** *Well, at least 15. And we can see that ...*

**Lizzie:** He turns the turtle over to look at its underbelly—or plasteron—to see how smoothed it is from trucking around the forest floor.

**Maxwell Earle:** *So he's probably in his 30s.*

**Lizzie:** *So this turtle's, like, maybe my age?*

**Maxwell Earle:** *Probably a little bit older.*

**Lizzie:** Box turtles can live well into their 80s, 90s, even 100s, so this turtle—[clears throat] just like me—is in the prime of life. But before we can release our new friend to pursue the three Fs of Turtleland and live its best turtle life, we need to log him as a research subject.

**Maxwell Earle:** Are you ready for some measurements?

**Chris Polinski:** I'm ready.

**Lizzie:** Max and Chris get down to business, measuring the shell's length.

**Maxwell Earle:** We are 143 for our carapace length.

**Lizzie:** Width.

**Maxwell Earle:** 111.

**Lizzie:** Height.

**Maxwell Earle:** 64.

**Chris Polinski:** 64.

**Lizzie:** And the turtle's weight: 470 grams.

**Maxwell Earle:** That is a decent-sized creature.

**Chris Polinski:** Now I want to know how much a bocce ball weighs.

**Lizzie:** 970 grams. So this turtle really is like half a bocce ball. Then Max and Chris give the turtle an identification number so they can log all the data.

**Maxwell Earle:** Let's do 542.

**Lizzie:** To mark the turtle, Max uses a triangle file—like a super sturdy three-sided nail file—to

make little notches at specific intervals along the edge of the turtle's shell.

**Maxwell Earle:** *Quick little notch. I apologize, it smells like burning hair because it's keratin.*

**Lizzie:** The filing doesn't hurt the turtle any more than filing your nails hurts you. But the notches create a kind of secret turtle researcher code that lets Max and Chris and any other researcher who happens upon it to identify this turtle when they see it again. And it has a side benefit of making the shell less valuable to potential poachers, who might also know that the notches mean this turtle is being watched.

**Maxwell Earle:** *Sometimes they get GPS and VHF equipment, so our stuff that we use to actually track them physically.*

**Lizzie:** Still to come, turtles enter the digital age. How can GPS help researchers like Max and Chris learn more about what turtles get up to when we're not looking? That's coming up, after the break.

**Maxwell Earle:** Goodbye. Oh, he's off.

**Lizzie:** *Oh, there he goes. Trundle, trundle. Look at him. He's looking around. "Where shall I go?"*

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**Lizzie:** *So are there any turtles with just like irrepressibly big personalities?*

**Maxwell Earle:** *Yeah, there's one we have called Giga-Chad. He's a wood turtle and he's insane. He's gigantic ...*

**Lizzie:** Max and I have traveled to a different undisclosed location full of turtles Max has already found. By this point, there are a bunch of turtles Max knows pretty well.

**Maxwell Earle:** *Who else do I have? I have Lil' Big Man, LBM. He is a very, very pretty young box turtle. He's like a teenager who has a Camaro and his parents' credit card.*

**Lizzie:** *[laughs]*

**Lizzie:** There's Big Mama.

**Maxwell Earle:** *She's massive. She's probably one of the heaviest box turtles I've ever seen, and I love her dearly.*

**Lizzie:** Sick Boy.

**Maxwell Earle:** *He lives over by the house, and he just stays there half the year. And he's very predictable.*

**Lizzie:** And the aforementioned Giga-Chad.

**Maxwell Earle:** *And I picked him up and I was like "This guy is just mean, but he's awesome and hilarious!"*

**Lizzie:** But we're off in search of one of Max's favorite venerable elders: Misty the box turtle. She, like many other turtles on this research site, is wearing a tracking device logging where she goes and when. Max pulls out what looks like an old-school TV antennae that you'd see on the roof of a house.

**Maxwell Earle:** *And this is a different version, but the same kind of piece of equipment.*

**Lizzie:** In his other hand he carries a VHF radio receiver, kind of like a walkie-talkie.

**Maxwell Earle:** *Yeah. A fancy walkie talkie, with a few more bobbles and doodads on it.*

**Lizzie:** He presses some buttons.

**Maxwell Earle:** *So I'll turn on one.*

**Lizzie:** *So you're looking—you've basically programmed in a specific turtle you're looking for?*

**Maxwell Earle:** *Mm-hmm. Yeah.*

**Lizzie:** *Oh, wow!*

**Maxwell Earle:** Yeah. That's—that's the beauty of this is we can fine tune to individuals.

**Lizzie:** Somewhere in the forest is Turtle 4041. Her tag emits a unique signal that can be picked up by Max's antennae, and comes through the radio as a little click. The louder the click, the closer we are to the turtle.

**Maxwell Earle:** So it's basically playing, like, hot and cold hide and seek.

**Lizzie:** Huh!

**Lizzie:** And off we go.

**Maxwell Earle:** There we go. We picked up the signal.

**Lizzie:** Oh, is it that little tock?

**Maxwell Earle:** Mm-hmm. That little beep.

**Lizzie:** Oh, I hear it. So we're—we're basically listening for it to get louder?

**Maxwell Earle:** Mm-hmm.

**Lizzie:** Okay.

**Lizzie:** We crunch along through the forest, pausing every few minutes to listen.

**Lizzie:** Warmer.

**Lizzie:** He points the antennae to the left.

**Lizzie:** Oh, weaker.

**Lizzie:** Points it to the right.

**Lizzie:** Stronger. So we need to go right.

**Lizzie:** Following the clicks as they get louder and louder. We make our way out into a field, until Max stops in front of a clump of tall grass.

**Lizzie:** *Oh, there she is!*

**Maxwell Earle:** *This is just textbook.*

**Lizzie:** *Oh, she's just sunning herself right there.*

**Maxwell Earle:** *Yeah, she's getting a little bit of filter basking in where she's not directly exposing herself. So she's just sitting behind a bush and getting some sun. Oh, she's so cute. You're getting a picture. You're one of my favorites.*

**Lizzie:** Misty is an older gal, about 50 years old. She's a little smaller than the first turtle we met. Glued to the back of her shell is a featherweight, Lego-sized box—her GPS tracker. She also has an accelerometer that picks up her smaller movements, and a thermal sensor to measure her temperature. So Max knows her habits well.

**Maxwell Earle:** *She has experience, and you see that in the way she acts during spring. She's in areas where there's gonna be a lot of food, and she knows where to go to not be in danger. But this is also a good nesting spot for her if she's ready to nest, which is a little early, but she could.*

**Lizzie:** *So it sounds like her actions informed by experience sounds like wisdom to me.*

**Maxwell Earle:** *Exactly. She is a wise, wise turtle. You know, these older female turtles are really, really important for a lot of reasons.*

**Lizzie:** Because remember how Tom Akre said turtles do everything slowly? Well, that includes reproducing. Take a rabbit, for example, or a cat. They can get pregnant just a few months after being born. But a female box turtle can't start laying eggs until she's around 10 years old. And with basically every animal in the forest wanting to eat turtle eggs and babies, it can take 40 years—that's right, four decades—for a single female turtle like Misty to replace herself in the wild.

**Maxwell Earle:** *So a smarter, older, wiser turtle like this is really important.*

**Lizzie:** Misty looks like she might be carrying eggs, so it's not surprising to Max that she's

made her way to the edge of the field where we tracked her, using "turtle telemetry." And as fun as this hot-and-cold game is, it's not just for funsies. See, back in 2022, Max and his team started to notice something perplexing.

**Maxwell Earle:** *We would notice when we were doing fieldwork that there were box turtles that were, you know, consistently being hit by cars.*

**Lizzie:** And when they were working near farmland ...

**Maxwell Earle:** *We often would find box turtles hit by mowing equipment. It wasn't super, super common, but was common enough that it made me furrow my brow.*

**Lizzie:** He wanted to know, if box turtles mostly hang out in forests, why does this keep happening?

**Maxwell Earle:** *I was really curious and confused as to how they were even getting hit by equipment, because I think of box turtles—or did—think of box turtles as a forest turtle. They primarily are. They spend most of their time in the forest.*

**Lizzie:** So he began a study of box turtles in forests that bordered farmland, or what's called "working landscapes." He's tracking dozens of turtles like Misty to learn their movement patterns down to the hour, and how these change with the seasons and weather.

**Maxwell Earle:** *Sometimes if it gets really hot, they're gonna go hang out in little wetlands. They're gonna go and be little reptilian hippos and hang out in streams and hunker down. There's one turtle that we tracked out here that stayed in a wetland for, I don't know, two months, almost completely underwater, not doing anything, paying no bills, living his best life.*

**Lizzie:** [laughs] That does sound really nice.

**Maxwell Earle:** *It is really nice.*

**Lizzie:** As it gets warmer in June and July, female box turtles will start moving toward open, sunny areas to make their nests in places where the sun can warm and incubate the eggs. And the best places like that are fields, yards and the edges of roads. It's these nesting instincts to pass on their genes that put turtles directly in the line of danger. Because while their shells were an adequate defense for things like pterodactyls and bears, they are no match for modern cars, tractors and mowers. So as more forests are turned into farmland, suburbs and cities ...

**Tom Akre:** All of that is part of, generally speaking, the decline of turtle populations, because turtles are very, in general, intolerant of urbanization, right? Because they don't do anything fast.

**Lizzie:** Right. They don't move at a human pace or a car pace, or ...

**Tom Akre:** Right. And they don't reproduce at a pace that enables them to actually outpace the destruction, number one, or adapt, right?

**Lizzie:** But we can't just stop building houses and growing food because it's bad for turtles. I mean, one could say, "Well, turtles just weren't built for the modern world. If they go extinct, that's just the way it is." But our fast-and-furious progress as a society doesn't necessarily mean we have to leave the slow-and-steady behind. Maybe it's possible for us to adapt to them in little ways that make a big difference.

**Maxwell Earle:** By understanding when and where they're moving, we can tell farmers and landowners how to not hurt turtles, how to have turtle-friendly land management. And that's the big goal of this project. We can't stop people from farming, and we can't stop people from managing the habitat that they own in the way they want. But what we can do is we can tell them about the threats to turtles, and if they're empathetic towards turtles, they will make management decisions that will be positive for them on their land.

**Lizzie:** For example, they've learned that turtles get injured by blades that are lower than six inches off the ground. So the Smithsonian, in collaboration with other conservation groups, has started the "Raise the Blade" initiative, where farmers agree to raise their blade height over six inches when they're haying, brush hogging, and mowing.

**Maxwell Earle:** So that way that they're passing over turtles. So it's—you know, it's about giving the freedom of knowledge and empowerment to people.

**Lizzie:** Information is power. Max says they've gotten great responses collaborating with local farmers. And the telemetry data they're gathering now will arm scientists with even more information down the line, so that over the next few years, they'll be able to issue public alerts that forecast when box turtles are likely to be on the move, so that the rest of us can keep an eye out for turtles crossing the road.

**Maxwell Earle:** We have the team, we have the capacity. And it takes a village. And out here we have the village, we have the villagers. And we are making strides for turtle conservation.

**Tom Akre:** There isn't really any part of the world that is not deeply impacted by humanity, and yet humanity needs every square inch of the natural world in order to survive.

**Lizzie:** We need the Earth, and the turtle team's research is helping us better understand our own impact.

**Tom Akre:** *In order to be able to preserve nature for the benefit to people, we need to work with people who have agency on the landscape.*

**Lizzie:** But there is one group of people we don't need to work with, we need to work against. That's right: poachers. In part two of our turtle excursion, we explore the dark underbelly—or under-plasteron—of turtle trafficking, and the people working to stop it.

**Tim Dooley:** *My agents that work for me, they're in the woods, they're on the waters. They're fighting crime.*

**Connor Gillespie:** *You need to have evidence of the crime so you need to have that turtle that ...*

**Lizzie:** Oh, "Your honor, I present ..."

**Connor Gillespie:** *[laughs] I present to you the turtle that was confiscated.*

**Lizzie:** *[laughs]*

**Lizzie:** That's coming up in the next episode of Sidedoor.

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**Lizzie:** You've been listening to Sidedoor, a podcast from the Smithsonian with support from PRX.

**Lizzie:** This was just part one of our grand turtle adventure! Make sure to tune in to our next episode for part two. To learn more about the work of the Smithsonian's Turtle Conservation and Ecology Lab, check out our newsletter. You can subscribe at [SI.EDU/Sidedoor](https://si.edu/sidedoor). And find us on social media for some behind-the-scenes pictures of the turtles we met. That's [@SidedoorPod](https://www.instagram.com/@sidedoorpod).

**Lizzie:** For help with this episode, we want to thank Tom Akre, Maxwell Earle and Chris Polinski—as well as Misty, Giga Chad, Sick Boy, Big Mama, and all the other turtles holding it

down out there in the woods. Thanks also to Ellie Tahmaseb.

**Lizzie:** Our podcast is produced by James Morrison and me, Lizzie Peabody. Our fact checker is Nathalie Boyd. Executive producer is Ann Conanan. Our editorial team is Jess Sadeq and Sharon Bryant. Episode artwork is by Dave Leonard. Transcripts are done by Russell Gragg. Extra support comes from PRX. Our show is mixed by Tarek Fouda. And an extra special shoutout to Breakmaster Cylinder for composing our very own bespoke patriotic turtle tune—my new favorite song of all time. They also composed our theme song and other episode music.

**Lizzie:** If you have a pitch for us, send us an email at Sidedoor [at] si [dot] edu! And if you want to sponsor our show, please email sponsorship [at] prx [dot] org.

**Lizzie:** I'm your host, Lizzie Peabody. Thanks for listening. Oh, and watch out for those loose stickers.

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**Lizzie:** *Do you ever sing to periwinkles to get them to open up?*

**Maxwell Earle:** *[laughs]* No.

**Lizzie:** *If you hum to periwinkles, they'll open right up.*

**Maxwell Earle:** *Really?*

**Lizzie:** *Yeah.*

**Maxwell Earle:** *Is that—like, is that real?*

**Lizzie:** *Yeah.*

**Maxwell Earle:** *Oh my gosh.*

**Lizzie:** *Try it.*

**Maxwell Earle:** *I have periwinkles in my front yard. I'm gonna go do that.*

**Lizzie:** Sorry, I meant the snails, not the flowers.

**Maxwell Earle:** Oh, that's much less fun.

**Chris Polinski:** [laughs]

**Lizzie:** [laughs] No, I mean the little snails. The little snails.

**Maxwell Earle:** My heart is broken.

**Lizzie:** [laughs]

**Chris Polinski:** I knew that we've always been trying to, you know ...

**Lizzie:** Now I wish I hadn't corrected it, because the idea of you singing to flowers in your front yard ...

**Maxwell Earle:** Yeah, now every podcast listener is like, "Look at this doofus!"