

But Why: A Podcast for Curious Kids

Nine questions about nature in cities

May 5, 20023

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This is But Why: A Podcast for Curious Kids, from Vermont Public. I'm Jane Lindholm. On this show, we take questions from curious kids just like you and we find answers. A few weeks ago we did a live presentation with and for some students in Burlington, Vermont, to talk about urban wildlife. It was a kickoff event for the city's nature celebration, where people who live in Burlington were encouraged to go out and see what kind of local plants and animals they can find. That's actually part of a much bigger global event called the City Nature Challenge. In the City Nature Challenge, communities around the world have a friendly competition to see how many species of plants and animals can be documented in their city over a certain time period. Last year, more than 50,000 species were recorded. In Burlington alone, people documented 584 species in just a couple of days! Sometimes we think of cities primarily as human spaces: lots of people, lots of buildings, cars and concrete, but we're just part of the ecosystem of an urban space. Even with all that human activity, cities are also teeming with wildlife, from ants to squirrels to hawks to trees. So we were thrilled to get a chance to talk about urban wildlife with some local students here in Vermont's biggest city. At the event, we asked each class to come up with one question they wanted us to explore and pick a classmate to come to the microphone and share it. And of course, we were joined by a local expert who could help us find the answers. His name is Teage O'Connor, and he runs an organization in Vermont called Crow's Path. Teage is a really cool person to hang out with, because he can teach you things like how to make a fire out of sticks, how to make your own bow and how to track animals across the landscape.

02:16

I have lived in cities my whole life. I was born in rural Alaska, but when I was four, I moved down to a suburb of Los Angeles. I lived in New York City. I've lived in Chicago, and now in Burlington. Living in all of these urban spaces, one of the most exciting challenges for me is to figure out where are the wild spaces within an area that feels really built up. It feels like it's just buildings, it's just asphalt. And so I've gotten really excited about this question of where are the wild animals in my neighborhood? And then once I started to realize that that was kind of a silly question, because they're absolutely everywhere. And if you're in a city, your chances of encountering a wild animal are far greater than your chances of encountering a wild animal when you're up at the top of Camel's Hump or hiking the Long Trail or wherever else you are in a more rural or forested area. One of the interesting things I was just reading is that with raccoons, raccoons in wild areas, like a forest made up of maples and beeches and birches, there are about 15 or so to 50 raccoons every square mile. So, one mile by one mile by one mile by one mile. And in a city, there can be up to 1000 raccoons in one square mile. And here in Burlington, Burlington, our population about 40,000 people, and our square mileage for our city is about 15 square miles. So how many raccoons could there potentially be here in Burlington? Yeah, 1000 times 15. So 15,000, raccoons. So, compared to 40,000 people, it's, you know, kind of close. Yeah. So wild animals

in urban spaces are really easy to encounter. And I think because we don't expect to encounter those wild animals, the opportunities we do have to look into the eyes of raccoons staring right back at us, or to look into the eyes of a peregrine falcon and have them looking back at us, those moments feel more precious and more magical.

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You know, there are a lot of really great wild places outside of Burlington that a beaver could live in, or a raccoon could live in and not have to encounter so many humans and so many roads and so much concrete. So why are animals who choose to live in a city environment living here? What's the benefit to those animals?

04:42

Yeah, so living in a city is hard. And for animals that live in cities, there's a lot of food, there's food year round, they never have to worry about it because humans are always bringing food in. So there's not sort of an up and down and the winter's really hard because there's no food that's not true for animals and cities. There's always food around. And and so, city animals have higher populations. But because they have higher populations, they come into conflict with each other, there's more stress, there are lights on in the city, you know, 24 hours a day. And so their natural rhythms are disrupted, they get messed with. So a beaver actually, what's interesting with the beavers in the winter, where they live inside of a lodge, and they don't come outside of their lodge all day, they stop getting cues from the sun. And so instead of being on a 24 hour day, they slow down and their natural rhythms syncs up with 26, 27 hour days. If you live in a city, and every time you, you know, open your eyes, or look out a window or wherever, you're always seeing city lights, and so it disrupts your your cycle. So animals in cities are really stressed out, they have worse immune systems than animals that live outside of cities, their death rates are much higher than animals that live in cities. And so you ask why do they choose to live in cities? I don't know that they necessarily choose to live in cities. But the advantages are, there aren't nearly as many predators, which is great. There aren't big predators. So raccoons and skunks and these other animals are predators, but they're like what are called mesopredators or the middle level of predators. And so they don't have to worry about getting eaten as much. Cities tend to be warmer than areas outside of it, so you have to spend less energy keeping yourself warm during the winter. So there are a bunch of different advantages, yeah, that animals get from being in a city.

06:35

Okay, so let's get to some of your questions. And the first question asker today is Maeve.

06:41

Do animals like bears ever appear in Burlington?

06:45

Yeah, that's a great question. The answer is yes, animals like bears definitely appear here in Burlington. When we think about what it means to be in a city, there are a few different ways that you could be in a city. One is you could be just kind of traveling through. And a lot of cities are built right on rivers or right next to the ocean or next to a lake or here in Burlington, we have both a river and a lake. And those rivers and those waterways wind up being really really excellent corridors for animals to go

from one area to another, whether they're looking for new food source or, with bears, where they're looking for a place to hibernate. And so they tend to move along those rivers. And often what happens if you're a bear, and you're moving along the Winooski river or one of the other rivers in the state, then you're traveling along the river, and there's a little forest next to it. And you can sort of be safe and secluded as you're moving through that area. And then all of a sudden, you get to the city and you're like, "Ah, where am I?!" And you start to like move out from the river and trying to find a good place to find food or shelter. And then you start to encounter a city and you get lost and start to wander all over. So every now and then there are bears that appear in Burlington. They just don't live here. If you were a bear, and you are trying to find a place to hibernate in the winter, in Burlington or another urban environment, you would have a really hard time to find that space.

08:17

Amina, you are next. Amina has a question.

08:21

Why did crows gather in the Old North End of Burlington this winter? And why are they gone now?

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Over the last 15 years or so I've been following crows all through the winter to these, what are called, nightly roost sites. And they only occur starting in about October and going through about March or April before they break up. It's this incredible thing. And crows are coming from as far away as probably 30 or 40 miles. Some of them come from north, some come from the south, come from east, west. But they're coming into the city from all over these rural areas. It's mostly the young ones, the juveniles, and they're coming into the city. And they're coming in to share really complex information like, "Hey, I found this really great carcass out on 89. It's a big dead deer. I'm not big enough to eat the whole thing. But tomorrow, you guys should come check it out. And I'll share that resource with you that food with you." And so they're sharing information about where food is. Like, if you discover some new awesome thing and you share it with your friends and your friends are like, "Oh, that guy's really cool. They know where all the, like, good toys or whatever, the good fun activities to do." And that person gets more, like, street cred. Or they get, you know, popularity points or something like that. And it's the same with crows; they get popularity points. And the more popularity points you have, the easier it is in the springtime to find a mate. So that's one big thing I mentioned earlier, that cities have fewer predators. And if you're a crow, you are a predator but you're also a prey for things like barred owls. And so in cities there are fewer barred owls, fewer great horned owls than there are in forested areas around cities. So by coming into a city, so here in Burlington, our crow roost, it's hard to get a number on it, but it's probably about 10,000 crows. And if you're one of 10,000 crows, your chances of getting eaten by an owl are really low. But if you're one of a hundred crows... So the crow roosts in the early 1900s, 1800s, 1700s, and far back, used to be like 100, 200 birds. And now the largest crow roost in the world is about 200,000 birds up in Canada. And so if you're one of those, you're just WAY less likely to get eaten than the smaller crows. So urban crow roosts have gotten larger, and there are now fewer crow roosts in North America, as crows are finding out cities are really great places to, yeah, go spend their time in the winter.

10:49

Hi, my name is Alana. I'm 10 years old. My question is why have there been so many raccoons around Burlington?

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In cities, there are so many raccoons compared to in forested areas outside of cities. And so why are there so many raccoons here? Some of the reasons is that there's just more food here. There's more food during the winter, more food during the spring. And then the biggest hazard is you have to deal with cars. And you have to deal with trash cans.

11:18

And in fact, raccoons have a nickname.

11:20

Trash panda. I don't know if anyone's heard that. Yeah. Which is such a great name. And this is actually another reason why they're such good urban animals. So if you're in an urban environment, and you go from a dark, like, a basement or an attic, or an alleyway, and then you come out onto a street and you have all these bright lights, it takes a moment, you know. It can start or you it can kind of scare you. And it can be hard to just see. So if you go from inside your house out into the bright sunlight, it takes a moment for your eyes to adjust. But if you have some ability to make it easier to do that adjustment, like wearing sunglasses, right, as you go outside, or with the panda having that black mask over their face, that mask breaks down some of the reflection that happens from--I wish I had it right now because we have these bright lights on us. But if I was a baseball player and I played on this bright field, I might put black lines under my eyes, so the lights hitting my cheeks and reflecting up into my eyes would be dulled, it wouldn't be as strong. And so raccoons have this, cardinals have this, chickadees have this, house sparrows have this. A bunch of these animals that go from dark areas to light areas have these little masks that make it less bright when they go into the sunlight. So having an adaptation like that makes it more likely that a raccoon doesn't get as startled. If it goes into a bright area, it can still know where potential predators are. So that's one reason. They're also generalists. They don't just eat one type of thing. They will eat hundreds of different types of foods. And if you just specialize, like a panda's not a city animal, because pandas just eat one type of food: bamboo. And in a city there might not be enough bamboo to support them. But raccoons that can eat corn dogs, they can eat Fritos, they can eat crayfish, they can eat staghorn sumac fruits, they can eat all these different things. They can do really well in in cities. And they're also incredibly curious, and will spend hours and hours trying to figure out how to get at those food sources. But a raccoon can have a three square block home range, it never goes farther than that when there's a dumpster nearby, as opposed to one that lives in the woods that can go for 10, 15 miles over the course of a year.

13:36

So see if you live near any raccoons, try observing them and see if you can start to spot your raccoon. Because they kind of all look similar if you don't know them very well. But as you're thinking, as you're watching this raccoon, you might be able to say, see the way that it walks or some special patterning on its face or tail and you could see if it's the same raccoon. See if you can figure out that one raccoon coming back to where you live. Let's hear now from Annabelle.

14:04

Why does Vermont have so many maple trees?

14:07

Why does Vermont have so many maple trees, Teage?

14:10

Yeah, so it's a great question. It's a hard question to answer because maple trees, there are a bunch of different maple trees. So we have as many maple trees as we have different types of squirrels here in Vermont. And there are occasionally surveys that foresters do of all of the trees in Vermont. So I looked at the records. And back in 2012, I looked at all the numbers and about 15% of our forests are covered by maple trees here in Vermont, which is kind of a lot for just seven species or so, and we have maybe about 70 species that are on the list included in that. So we have a lot. I guess I don't really know how to answer the question because every maple tree has really different habitat needs. So something like box elder, which is also called ash leaf maple, does really, really, really well in cities. I've heard them called junk maples. They do really well growing in ditches growing on the sides of roads. But something like a sugar maple, which is the most abundant tree here in Vermont doesn't do well at all with disturbance, and you rarely ever find it in the city unless it's been planted. So the reason that sugar maples in particular is so abundant here in the state, not necessarily in the city, is because Vermont happens to be about 80%, forested, and most of that forest is built on top of rocks that are really rich in calcium, which makes great growing conditions for sugar maple. If you go to the Adirondacks, they have conditions there that are not as good for growing sugar maples. They have more red maples. So yeah, every maple has its own special habitat needs. And here in Vermont, we have really excellent conditions for sugar maples to grow.

15:57

R has a question for us.

16:00

I'm 11 years old. And I want to know why are flowers different colors.

16:04

Flowers are different colors. They have different smells. They have different amounts of sugar in the nectar. Rhododendrons have nectar--that sweet stuff that is attracting pollinators--that's toxic to a bunch of things. So bees that feed on rhododendron make toxic honey. So flowers have all these different characteristics. And a plant produces flowers to get the pollen from one plant to the flowers of another tree. And you can do that in a bunch of different ways. You can have the wind take the pollen from one flower to another. And if you have the wind doing it, you don't have to create a big, beautiful bright colored flower. You don't have to produce a lot of nectar. But then there are other things like milkweed that has these small little waxy flowers. They're whitish to pink. They tend to attract honeybees. They smell really, really strong. And they have really sugary, thick, it's not like molasses, but it's like thicker than other plants for their nectar. And so they're attracting bees that require a lot of sugar to keep them alive through the winter. And they're really small. And milkweed flowers have this little slot. And as the bee or the fly or the occasionally butterfly is landing on there and trying to get their

little tongue inside the flower, they're slipping around on it because they're trying to get a hold. And sometimes their foot will slip and get stuck in that little slot. And that keeps them on the flower for a longer period of time. So they're trying to, they're like, "I gotta get loose from this flower, but I also gotta get this nectar!" And so then eventually they'll get free and fly away. But they spent all this time wobbling around on the flower getting dirty with pollen on themselves. And then they go to the next flower and they bring the pollen to the next flower.

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There's another cool thing that flowers can do where, if they feel a bumblebee come by, and yeah, I said the word "feel," they feel the vibrations from a bumblebee's wings. That causes some flowers to produce more nectar. So they, within three minutes the plant can start to produce more nectar, that sugary water they're providing to the bees or whatever pollinator. So they're saying, "Hey, when you come here, you're gonna get really, really good treats from me." And that'll make it more likely that the bumblebee goes to like a chicory flower, which is purple. And then after that is like "Whoa, this is really really really good flower for getting nectar. I'm gonna go to another chicory flower after that." But then this is the other cool thing. So they're not working hand in hand. Flowers and pollinators are competing with each other to give as little and get as much as possible. And so about 80% of plant species will have individuals, individual plants, that don't produce any nectar at all. So if you go to one chicory plant, and it's amazing, and then you go to another one, and there's no nectar, you're like, "Where's that nectar?" And you're searching all over and you're investigating. And while you're investigating, you're getting pollen all over your body. And then you go to the next one, and it's a huge reward. And you're like, "Yeah, chicory is great again." And then you go to the next one, and there's no pollen, or no nectar. And so then you're like looking for it. And so you go back and forth between good and bad. And you spend more time at each individual flower. So yeah, so that you could tell a lot about the shape of the flower for who pollinates it. Like hummingbirds love red flowers that have deep tubes to them. And so if you get a hummingbird bird feeder, it's got their red and they have these deep tubes that the hummingbirds have to lick the nectar out of.

19:41

We have some more questions, but before we get to them, I think we need to have a wiggle break. So maybe do your best pollinator dance right now and then in just a minute we'll learn more about flowers and how cities support wildlife.

19:57

BREAK

19:57

This is But Why: a Podcast for Curious Kids. I'm Jane Lindholm, and today we're sharing a recent live event we did with upper elementary school students in Burlington, Vermont as part of the global City Nature Challenge. Naturalist and educator Teage O'Connor was up on stage with us at the Flynn Theater. And he helped answer questions like this one, from Lucky.

20:18

How are snakes born with venom?

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How are snakes born with venom? Not all snakes have venom, but snakes that have venom typically make it in their head. Often snakes with venom are called pit vipers, there's a type of snake venomous snake called a pit viper. And they create the venom in the pit in the back of their head, and then it goes into their fangs. And there's a big difference between venom and poison. So both are toxic things that can hurt or kill another animal, but venom has to be injected. So a snake has to actually bite down to put venom into its prey. And for snakes that have venom, that's what they're trying to do. That, it's called a neurotoxin. It's a type of toxic substance that makes the prey animals stop moving so that the snake can catch it. And we often think of venomous snakes as very dangerous to us. But that's not always true. Do you know the only venomous snake in Vermont that is actually dangerous to humans is a rattlesnake? But that's not the only venomous snake in Vermont. Garter snakes are venomous. Isn't that a surprise? Garter snakes, for a long time, people thought they did not have any venom, partly because they don't hurt humans. But scientists have discovered in the last 15 years or so that garter snakes do have a mild venom and it sometimes helps them kill the prey that they're eating. And so they have venom, but they do not have venom that's going to hurt you. So you do not need to be afraid of a garter snake either because even if you got bitten by a garter snake, it wouldn't be able to hurt you. And you know, we were just talking about honey bees. Honey bees are also venomous. We think about snakes as being the only venomous animals but things like honey bees and garter snakes, they do have venom, but they're not usually dangerous to humans, unless you have a specific allergy to that kind of venom. Are there other venomous animals in Vermont?

22:33

Yeah, we have, one of my favorite animals is the short tailed shrew. And they will hunt kind of like bats where they run around. They look like mice, but they're not mice, they're insectivores, so they eat insects. And they run around making a little clicking noise and you can actually hear it. So I watched one hunt near my house for probably about 30 minutes or so during the winter and it would run around and have these long whiskers and they make a clicking sound. And then they have these whiskers that touch the ground. And the clicking sound freaks out insects. And so then insects like a little larval beetle or something like that, a baby beetle, will then wiggle around and be like, "Oh no, there's a predator I gotta hide." And then the whiskers of the shrew, they'll be able to detect that movement. And then they can run after it. And they bite it and they have a venom in their saliva. So when they bite it, they inject that venom into the animal, and it paralyzes the animal, and then they can store that animal underground and then come eat it later.

23:37

Liam and Ella have another question for us.

23:40

Why don't some foxes turn white in the winter?

23:43

Why does fox turn winter?

23:46

Okay, so why don't all of the foxes here turn white in the winter? And why do some foxes elsewhere turn white, Teage?

23:53

Yeah, so if you're turning white, it's usually because you are getting eaten by something. And you have to be camouflaged in the winter. Red foxes are possibly native to this area, but are really a more southern species that has followed humans and expanded their range moving farther and farther north where it's colder and colder, but our red foxes don't change colors in the winter because there isn't a long enough winter. I know winter feels really long up here, but the winter isn't long enough for them to have that need in the winter to avoid predators that would be hunting them. They're also a little bit larger, so they're less likely to be prey. So, arctic foxes are about half the size of red foxes and they regularly get eaten by golden eagles. We have golden eagles here occasionally, but they're farther north. And so golden eagles are eating them, snowy owls are eating arctic foxes. And we don't have those predators that are specialized for hunting in the snow here.

24:56

Israe you're up next.

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Israe is absent today. I'm actually Mika. Uh, what are some good places around Burlington to view wildlife?

25:05

Yeah. So, wherever you are is the right answer. So yeah, I, you know, on my ride down here, I was paying attention to what was going on around me. And while you guys were all coming here, you likely encountered probably a half dozen different species of birds. So rather than where can you go to view wildlife in your city, it's how can you change your level of awareness to know that there are animals around you all of the time. And that if you just remind yourself, be aware, pay attention, you can observe those animals. And for me, the really cool thing is, yeah, those animals, you can watch animals. But if you start to watch animals, you get to have a better sense of how those animals are responding to you. So like when I go out into this little grassy field next to my house, my dog just sprints out because he's so excited to be outside, and all the robins just fly away. But when I go out with my daughter, and we're really quiet, and we walk quietly through this yard, the robins don't just disappear in front of us. They just kind of hop around and move off to the side. But they stay and they wait and they watch us. So if we change both our level of awareness, but also how we are walking, so we're not like Boots McGovern, my dog, but we're more like my daughter Linden, who's quiet and paying attention, we're more likely to see the animals that are around us. The other thing with a lot of the urban animals that do well, particularly the larger mammals, the furry animals, they're active at night. So I love going out at night. I also spent a lot of time snorkeling in the Winooski River, and just changing where you're looking can open up a new world to you in terms of what animals you're able to see.

26:51

Alright, and then we have a question from Walker.

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How do urban wild places support wildlife in cities?

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Oh, that's a great question to have as our final of all of the planned questions.

27:01

Yeah, so we've been talking about what makes a great urban environment. And there are just some things about the city that make it good for certain species. So if you're a raccoon, or if you're a skunk, you have less predators that can eat you. If you are also, like, a raccoon, or a grey squirrel or a pigeon or something, you're eating food that gets left behind. And so yeah, I think, you know, being in a city, and having access to just the the waste that humans produce constantly, that is like the largest way that animals are supported by by people. There are also a lot of efforts to make areas more connected. So I mentioned black bears that are moving from forested areas through cities and then trying to find other areas. So there's some great efforts to have what are called buffers or like a forested area along a river, so that animals that are moving through here, they have a safe zone that they can use to transport themselves from one end of a city to another end of a city. I paddled the Chicago River, which, there's signs all along the river that is like the water's totally toxic, don't, you know, get it on your body. But as I was paddling it, there are beavers that I saw, there were deer that I saw there, all these wild animals that were all living along the forested area, in one of the most urban areas on the entire planet. And as I was paddling at night, I saw more of these animals, raccoons that were coming out to feed, possums. And I kept a list of birds and I saw probably about 70 or so species of birds on that trip over about 20 miles. And so these corridors that we can work to promote, to have habitat corridors for animals to move through or to preserve forested areas, because animals aren't necessarily living on the streets, they're living in forested areas, and then going into those more urban areas to eat out of trash cans, and to forage in other places. So ensuring that our cities have nice little areas that are you know, a little bit more wild. So not mowing your lawn is a great strategy or making sure that there are strips of forests scattered throughout city can be a helpful way of encouraging wildlife to thrive in these urban environments.

29:18

Can we thank Teage Connor for being such a great expert for us today. [Applause] Thanks to all of you for being such amazing contributors here today to this conversation. [Applause.] That's it for this episode. We also want to thank Kelly Kimball for inviting But Why to do that live show and the Flynn Theater and its staff for letting us use their space. If you are inspired to go outside and see what nature you can find near you, that's awesome. You won't have to go far and you probably don't even need to find a park or other green space to get started. Try checking the cracks in your sidewalks to see if you can observe any anthills and then spend some time observing ant behavior. It's fascinating. Or look up and let your eyes adjust for a few minutes and then start to see if you can find insects whizzing through the air. Maybe there are birds using a window ledge for a perch or resting in a nearby tree. Take a look at the bark of that tree. You might see some camouflaged insects climbing up it. Now grab a leaf. Turn it over in your hands a few times. Can you see the veins in that leaf? Those veins carry nutrients to and from the stem. Maybe there's a little insect egg on the underside of the leaf or a hole where a very

hungry something-or-other took a nibble. There are all kinds of nature all around you. You just have to start looking. And don't forget to be patient. It's not all going to appear right when you open your eyes. Try doing your own scavenger hunt. We have some suggestions on our web page for this episode at butwhykids.org. If you try it, let us know. Tag us into picture on social media or send a picture of your discoveries to our email questions@butwhykids.org That's also where you can send your questions about anything. But Why is produced by Melody Bodette and me, Jane Lindholm, at Vermont public. Our team also includes Kianna Haskin and Kaylee Mumford. We are distributed by PRX. Our theme music is by Luke Reynolds and we'll be back in two weeks with an all new episode. Until then, stay curious!