Pigeons are "Too Coo" for the Suburbs with Elizabeth Carlen

Nerdin' About Podcast Transcript, Season 1 Episode 4

Michael
Hey everyone welcome to Nerdin' About, I'm space Michael, and with me as always is my co-host who last episode indulged me by going into the Star Wars universe, for you know maybe the first time that she's ever been able to do that. Kaylee, how are you doing?

Kaylee
Oh, hey, now, I've seen one or two of the Star War.

Michael
We took a deeper dive than you've ever done before though.

Kaylee
Oh, then I've ever done, or ever wanted to do. I'm doing pretty good actually. How are you doing over there?

Michael
Yeah, all of our programs at the Space Centre are now in my kitchen, which I am now recording this from. You know, it's like Wayne's World over here, like a community TV station.

Kaylee
I love it. Today we're joined by esteemed pigeon wrangler, Elizabeth Carlen. Elizabeth is a PhD candidate at Fordham University in New York where she uses genetics to study pigeon ecology and evolution. Oh, hey, Elizabeth, how you doing?

Elizabeth
Hello, it's good to see you.

Kaylee
It's good to see you, too. So today we're going to talk a little bit about your work. We're going to talk about pigeons. We're going to talk about how you study them. But maybe, first of all, tell us how you got interested in studying pigeons in the first place?

Elizabeth
I kind of ended up on pigeons because all the good animals were taken. I knew I wanted to study urban evolution and urban ecology, and when I got to my lab my lab mates were working on mice, and rats, and coyotes, and salamanders, and I kind of looked around and was like, "Well, they have all the good animals, we should probably add a bird model if we really want to figure out what's going on with urbanization, and how it influences all these different types of organisms". Pigeons kind of seemed like the easiest bird to catch, the city bird that was kind of everywhere. So everybody got the good animal, I came in late, and was stuck with pigeons.

Kaylee
Well, you know, everybody got the good animals, and I don't disagree rats are among the best of the animals. But do coyotes and rats end up on Saturday Night Live like your recent study did?

Elizabeth
Maybe sometimes. That was one of the craziest things to wake up to. I was actually asleep when I got the text message from my undergrad Gabby telling me that they had just talked about my research on SNL.

Kaylee
Maybe tell us a little bit about that research. What is it that you were working on that they featured it on Saturday Night Live?

Elizabeth
So I've been looking at pigeon population genetics in the northeast. Really kind of trying to figure out how pigeons are related to each other. I kind of call it like a big 23andMe for pigeons. So I've been catching pigeons from Boston all the way down to Washington, DC, and then taking a little bit of blood that I then bring back to the lab to analyze to see how these individuals are related to each other.

Kaylee
So you sample these pigeons from all over, and you look at their genetics. What did you find?

Elizabeth
So my hypothesis going in was that pigeons aren't going to move very far. They have plenty of food and plenty of mates within the city, and so why should they leave? What I actually found was that from Southern Connecticut and New York, all the way down to Washington, DC is one population of pigeons, and from Boston, and Providence, and Northern Connecticut that's a different population of pigeons. This kind of surprised me, and I started to look at some landscape features about why this might be and this weird suburbanization break. So from New York down to Washington, DC its heavily urbanized, and then there's a weird suburban break in Connecticut, and then again, Boston and Rhode Island are pretty urbanized. So I'm thinking that maybe pigeons don't like the suburbs. Maybe they are true city dwellers to be in these more heavily urbanized areas.

Kaylee
So when you say pigeons don't move that far, how far do they move?

Elizabeth
They can move very, very far. They can move hundreds of kilometers. On average, they're moving about half a kilometre a day. We know this from backpack studies, where pigeons got little GPS backpacks put on them and flew around all day. Then researchers came and looked at where they went, and on average, they're moving about half a kilometre. So those pigeons in your neighborhood really are your neighbors. That is where they live and you probably see the same pigeons day after day after day.

Michael
Now pigeons are very urban creatures, but of course, they couldn't have started out that way. So where did they come from in the first place?

Elizabeth
Pigeons are native to North Africa, the Middle East and Southern Europe along the Mediterranean. They were domesticated around 5 to 10,000 years ago, originally as a food source. As other poultry became more popular, there's a lot more meat on a chicken or on a duck, people started breeding pigeons for their fancy traits and their racing abilities. So there's now pigeons that race really quickly, that fly very quickly. They also have fancy traits such as feathered feet or big head crests, or behavioral traits such as tumbling and rolling when they're flying in the air. So people have been breeding them for a long time to get these unique traits.

Michael
So we brought the pigeons here!

Elizabeth
We brought the pigeons to North America. Yeah. A couple hundred years ago as Europeans colonized North America, they brought pigeons with them again, likely as a food source, and then they either intentionally were released or escaped. That's what formed these first feral pigeon populations in the northeast.

Kaylee
So you're talking about some of these fancy traits. But have you seen any of these fancy traits in any of the birds that you're catching in the city?

Elizabeth
I definitely see fancy traits in my pigeons, or the pigeons that I'm catching in the city. I see things like a pink eye, which is one of the fancy traits that's bred in. I see feathered feet quite often, the degree of feathering is really different. Sometimes they'll be completely covered in feathers, and other times they have feathery legs, kind of like if you hadn't shaved your legs in a while, there's these little splotches everywhere. Occasionally I'll see a head crest in there too. I've gotten birds that have an all-black eye, and then of course, the many different colors. So we kind of think of pigeons as that grey with the two bars on the wing, and that's known as a blue bar. But you also see pigeons that are white, that are all black that have checkered patterns on them that are brown or red. So there's lots of these different colors that have been introduced into this feral population, likely from those fancy breeders.

Kaylee
Do you see any variation in the genetics that aligns with those traits? Is that anything that you're looking at?

Elizabeth
I'm going to be looking at that next. So that is the next big goal for my dissertation, and my research is to figure out how much these different fancy breeds are really contributing to the feral pigeon population.

Kaylee
Do you think that they're getting in because people are breeding them nearby, and they happen to get out when they go for a fly and find a fellow feathered friend for a while? Like, is that how you think it's happening?

Elizabeth
I think they might be intentionally released or unintentionally released. Sometimes pigeons escape, and it's very likely that they end up in the feral population. There's racing pigeons, people are actually part of racing pigeon competitions, and so if those don't make it all the way home, they can end up in the feral population too. It could also be that people can no longer care for pigeons that they've kept as pets for a long time, and so they open up their pigeon coops and let the pigeons go free. We see this a lot with other pets that people have such as turtles. We see in a lot of public spaces here in New York City, in Central Park, the ponds are filled with red-eared sliders that were pet turtles that people then released back into the ecosystem, which is not really a great thing to be doing,

Michael
And certainly not flushing the turtles down into the sewer where they will soon learn the skills of martial arts.

Elizabeth
Right, which would be great. I'm not recommending that people flush their turtles down the toilet. Though having Ninja Turtles would be pretty amazing,

Kaylee
We already have them. I know it to be true in my heart.

Michael
So I guess this brings up a big question surrounding pigeons. It's even a little bit surprising to me to hear that people breed them, because most people that I know really don't like pigeons. So when it comes down to the health of these birds, and maybe even the health of our cities, are pigeons good for cities or bad?

Elizabeth
I think that's a complex question. I think that a lot of people might not like pigeons flying at their face, which I completely understand. At the same time. I think if we lost pigeons from our cities, we would be sad. I can't really imagine New York City without pigeons. For a lot of people that are living in cities, this is one of the only wildlife interactions that they have on a daily basis, it's some of the only wild animals that we ever get to see. So I understand that desire to connect with nature, that want to connect to nature. I think we end up with these complex relationships because of that, where people feel the desire to feed these wild animals kind of forgetting that they are wild animals, and that they can feed on their own and that they don't need humans to be dumping out bags of food for them. They're actually pretty good at foraging on their own, and they can go find that food.

Kaylee
Given that people sort of fall into this range of loving pigeons to the disliking pigeons, you do a lot of outreach in the places where you're trapping, what kind of engagement do you get from people? Do they have lots of questions? Are they really interested in taking part? What's that like?

Elizabeth
As you might expect, New Yorkers are very good at minding their own business, but if I can catch their eye and invite them over, I always try to do that, because I am a guest in whatever community I'm in. So even if I'm in a different neighborhood in New York than where I live, or if I'm in one of these cities like Boston or Philadelphia, or Washington, DC, it's really important that I invite the community to come and see what I'm doing and participate. Most of them have never seen a scientist doing work in any form. I think they're always kind of surprised to hear that we don't have some of these basic questions about pigeons answered, and so it starts this really fun dialogue among these people that weren't expecting to talk about science or get a science lesson that day. It's been really fun to invite them to come in and participate even with my research where they could help me take weights of the birds, and help me record data, and help me put a band on the bird, and that's been this really fun interactive way to get the community involved in the science.

Kaylee
You just brought up a really interesting point, this idea that we actually don't know that much about them, and I think that speaks to me because something occurs similarly with urban rats. We live in really close association with them, and we don't actually understand all that much about them. So for pigeons, is there anything that really surprises you that we still don't understand? Are any of those things, things that you're working to fill the gaps on?

Elizabeth
I think we still don't really understand how their populations are structured. So I've done this study now in the Northeast, that is following up on two studies. One that was done on the island of Singapore that found a single population across that island. That island is also heavily urbanized, and pigeons arrived there in about the 1960s. So it could just be that there's a huge bottleneck effect that hasn't gone away.

Kaylee
What's a bottleneck effect?

Elizabeth
A bottleneck effect is when the population kind of gets shrunken down. So in the classic biology textbook, you imagine a bottle full of different colored marbles, maybe green and red marbles, and then you turn the bottle upside down and only a couple marbles get out at a time as you're shaking the marbles out. There's a possibility that the marbles that make it through that bottleneck are not a representation equally of the population that started beforehand. So what we see with bottleneck effects is typically when there's colonization on an island, or a new habitat, that not all individuals from that original population, not all the genes from that original population end up on that new piece of land, that new place that is colonized. We see those

signatures in the genetics as we analyze them, and we can kind of build back and try to understand the history of how this population was formed.

Kaylee
So you've talked about where pigeons are, how far they move, and sort of that relationship to urbanization. So maybe they're not hanging out in suburban areas. Which can't blame them, you know? But what can pigeons tell us about the cities that we live in? What can they tell us about urbanization?

Elizabeth
I think it depends on the city, and that's one of the things that I'm really trying to figure out. One of the things that I've just kind of anecdotally noticed is that there's tons of pigeons all over New York City. But when I go visit my parents in the San Francisco Bay Area, there's a lot less pigeons, and I can't quite figure out why that is. The Bay Area is pretty heavily urbanized, but there's also crows, which I don't typically see as often in New York City. So I wonder if there's kind of some competition going on there. I noticed the same thing when I was in Panama, that there were lots of grackles around, and a lot fewer pigeons, and so there could be some kind of competition going on there. I'm really interested in understanding what characteristics of cities allow pigeons to really thrive, and figuring out order of arrival of different species, and if there's habitat features about the city that shape what the pigeon population looks like.

Kaylee
Maybe flip that on its head for a second. So you know what it is about cities that allow pigeons to thrive, but what is it about pigeons that allow them to thrive in cities?

Elizabeth
So like a lot of good urban organisms, pigeons have a pretty omnivorous diet. I've seen them eating the typical grains, but also seen them eating hotdogs, and doughnuts and pizza, chicken wings…

Kaylee
That one seems a little close to home for them. Maybe they should steer clear of the chicken wings.

Elizabeth
So like rats and raccoons that we kind of think of as having this very omnivorous diet, pigeons have that as well. Pigeons can also breed almost year round if the city is warm enough. They're having two offspring per clutch every six weeks, and so that's a pretty fast turnaround time that can really allow the pigeon population to increase rapidly, and I think unlike rats, pigeons aren't as hated quite as much as rats. I think pretty much everybody agrees that they don't like urban rats, feral rats…

Kaylee
Speak for yourself!

Elizabeth
But pigeons, there are a lot of people who do enjoy feeding them. And you kind of think back to some of those classic movies like Mary Poppins or Home Alone 2. There was always a pigeon lady there feeding those pigeons, and I see those people all around the city that really enjoy dumping out some rice to see the pigeons.

Michael
Alright, let's get to some audience questions. So our first listener question comes from Mily and it has to do with pigeons' language. Do they have language? How do they communicate?

Elizabeth
They definitely coo, and whether that is a type of language, I'm not quite sure. They also have very particular body movements that allow them to communicate. So there's differences among the flock where you'll see a big group of pigeons, and sometimes one pigeon will take off, and none of the other pigeons will take off. Another time, one pigeon will take off and they'll all then follow suit. And so there's subtle cues that the pigeons are giving each other to let them know, "Hey, I'm just gonna fly over here. You don't need to follow me." Versus "hey, I saw something that might be a predator. Let's all take off right now". So they're communicating with their bodies. You might also see one of my favorite things, that I demonstrate for my friends, which is a pigeon mating dance. You might see the males puffing up their chest and fanning out their tail, and then kind of strutting around, and then they'll do these circles and spins in front of the female, and so that's their little courting mating dance.

Kaylee
I get that, that would work for me.

Michael
Yeah, I gotta try that. Our next question comes from Guavoz who wants to know, what is the worst pigeon nest that you've ever seen?

Elizabeth
Pigeons and doves are notoriously crappy at building nests, and they'll kind of build them anywhere and not put a lot of effort into it. I think the worst one that I've seen has been on social media where a pigeon decided to build its nest on top of an old phone booth. Just kind of piled up some sticks kind of just looked like someone dropped something. So that's the worst one that I think I've seen, but pigeons and doves are notoriously bad nest builders.

Kaylee
Why do you think that is? Do you think it's because they just don't have to be good at it. Like it's not related to how they attract mates?

Elizabeth
I have no idea why they might be bad, why that's a kind of family trait of pigeons and doves.

Kaylee
Okay, our last question. Nicole asks whether or not pigeons have a higher prevalence of disease than do other birds, or if we just generally tend to think of them as dirty?

Elizabeth
I think that people tend to think of them as dirty perhaps because you see them out on the street. In general, the pigeons that I've held and interacted with are pretty clean. They do have lice on them, that lice is not going to get on you, because lice is very specific to the host organism, and the type of feather that it can attach to, and because you're a mammal, it's not going to attach to you. So even if I get some of the lice on me they will fall off almost immediately because they can't physically hold on. I have seen a lot of pigeons without toes. That's something that I think happens quite often, and is often due to - the things that I've seen really wrapped around their feet that amputates their toes – are things like synthetic hair that comes from maybe a wig or something like that. That tends to be what I see most often wrapped around their feet. Of course if I ever catch a pigeon with something like that on them, I remove it because that's an easy service that I can provide the pigeon, because they're donating some blood to my study. The other thing that pigeons tend to have, which is not something that you might see as a disease, but they do get lead poisoning. Most pigeons actually have lead poisoning, or have high levels of lead in them, and they can actually be used as a bioindicator to tell us areas of the city where there might be a high lead prevalence. So previous researchers have found that high prevalence of lead in pigeons correlates with high prevalence of children getting lead poisoning. So we can actually use these pigeons as a bioindicator to go in and kind of look at an area and make sure that if you're seeing lots of lead poisoning in pigeons, let's go into that area and reduce the amount of lead, see where that lead may be coming from, so our kids aren't getting sick.

Kaylee
Yeah and certainly we've done some research that has shown that urban wildlife generally have higher levels of toxins in their tissues, which makes sense because you're being exposed to more of it. But being able to actually use pigeons to look at fine scale differences is really interesting.

Elizabeth
It's one of the things that wildlife rehab centers can do. If they get pigeons in from an area they can test that blood for lead levels and then report back to the city.

Michael
Alright, so shall we do a segment?

Kaylee
I would love to do a segment.

Michael
All right, Elizabeth, what have you been nerding out about?

Elizabeth
So since quarantine started, I have finally figured out how to bake sourdough bread. Last year my friend Enrique gave me some sourdough starter, and I tried last summer to rehydrate it, and get it going, then after a couple months I gave up and stuck it in the fridge and said I'll deal with this some other time. Come quarantine, I figured it was a good time, everybody was starting sourdough bread, and so I took out this sourdough starter, and got it going again got it nice and active, and then have been baking sourdough bread once a week. My diet is now 95% bread, it is delicious. Even more exciting is that I have all my friends baking sourdough as well. I've been very into the Boy Who Bakes and his recipes are so good. I got Kaylee baking it, and it got me thinking a lot about how much we as scientists are missing lab work. So much of sourdough bread making are these small steps that are timed that you have to do every half hour, every couple of hours. figuring out which ones you have to do exactly do on time, and which ones you can kind of let go longer. It is so similar to doing lab work where we have to heat things up, and cool things down, and kind of do things in a specific order to really get that end product - whether it's extracting the DNA, whatever that end product is, there's a lot of steps. So, sourdough bread has replaced my lab work, and it's a lot more delicious than anything that I've cooked up in the lab.

Kaylee
Very, very cool. And also yeah, probably shouldn't be eating things out of the lab.

Elizabeth
Don't ever eat in the lab. Food and lab do not mix.

Kaylee
Michael? What are you nerding about?

Michael
I've been nerding out about audiences, and as a science communicator, as a programmer for a planetarium, I'm always thinking about audiences for programs for the things that we do. Of course here with this podcast, we used to run a live event, and we cultivated an audience for over five years, and now we're doing a podcast, and that audience is different. Now, when I'm thinking about audiences to come to a planetarium for an event, we've been building an audience for years, our planetarium has been around for 50 years, so we have all this history. Now all of a sudden, in the past month, it's like all of that is out the window, because now we have this new audience that lives online. It's doing weird stuff with my brain, because I'm thinking about people that have access to internet, that don't have access to internet. If we're thinking about our school audiences how some kids learn better by interacting with their screens, and some kids don't. Now getting back to doing a live event on the internet, everyone comes online, but who are these people that come online, you can't see them. That's one of the main things about a communicator is that you can see the people, and you can get feedback from them directly, and now it's a whole different world, and this is going completely change my work. Even when we come out of this, I think this is going to completely change the future of programming. So, you know, at times it can get really kind of daunting, and really kind of scary, but it is kind of exciting to think that we have this new opportunity. So scary, exciting all at once, and that's what I've been nerding about.

Kaylee
Well, I mean, you did get to turn your entire kitchen into a studio.

Elizabeth
And I do want to note that you're dressed up right now. While I am in basically pajamas. You from what I can tell have a bow tie on, and maybe a button down.

Kaylee
That's just Michael's normal wear.

Michael
Well, I was just live on YouTube a few hours ago.

Elizabeth
So you felt you had to dress up? But here's your opportunity to not have to wear dress up clothes ever.

Kaylee
Yeah, come on, dress down.

Michael
Yeah, I don't have anything on my bottoms right now. I'm joking! Kaylee, what are you learning about?

Kaylee
Michael, as you know, I am a huge Buffy the Vampire Slayer fan. I have seen this show in its entirety like, I actually don't even know how many times and in the last year there's been a new comic book series about Buffy that has come out from Boom comics. It's totally reimagining Buffy the Vampire Slayer, if it was today, same characters but different situation. It's answering some of the big questions that we all have about Buffy, like, does nobody in this show have a telephone that they can just call each other, and now they've got cell phones. So last night I was reading the second volume that just came out in February, I've been saving it, and it was a real delight. It's been so fun. I thought I would have a really hard time detaching from the characters that I've really grown to love but they've managed to keep the essence of those characters, but reimagine them in 2020. It's been such a treat amidst everything else. So that's what I've been nerding about.

Michael
Well, that brings us to the end of our podcast. Elizabeth, thank you so much for joining us. If people want to learn more about your pigeon research of course they can go to SNL, and watch the latest episode, but beyond that where can they find your work?

Elizabeth
They can find out more about me on my website www.elizabethcarlen.com, or follow me on twitter @e_carlen.

Kaylee
And you can hear more about us while we are doing this fun podcast @NerdNiteYVR on Twitter, Instagram and Facebook, but until next time....
(cooing sounds)

Transcribed by https://otter.ai