The Magical World of Houston Squirrels (Ep. 11)

https://houstonnature.com/11

Nivien Saleh: Imagine a battle between a squirrel and a snake. Who do you think would win?

I'm Nivien Saleh, with Houston and Nature.

I bet you've watched squirrels in the tree canopy – arguing loudly and chasing each other non-stop. And perhaps you've had a few questions about them. For example: How deadly are these chases? How many squirrel species live in our city? How can I protect my vegetables from squirrel attacks without harming the animals?

In this interview, Kelsey Low of the Houston Arboretum will tell you all about our little rodents and what they do to survive. And I bet you that once you've heard just how fun, quirky, and intelligent these animals are, you'll appreciate them in an entirely new way.

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Nivien Saleh: Welcome to Houston and Nature, Kelsey.

Kelsey Low: Thank you so much. I'm glad to be here Nivien.

Nivien Saleh: You are the adult program manager at the Houston Arboretum, correct?

Kelsey Low: Yes. I teach classes, and I organize outside instructors to come teach classes about everything from cooking to birdwatching, to native plant gardening and all kinds of things in between.

Nivien Saleh: Do you teach cooking?

Kelsey Low: I do. Yes, I'm a hobbyist chef and I love cooking. I try to make it mission appropriate for the Arboretum.

How did you get to the Houston Arboretum?

Nivien Saleh: I know you're from Canada and typically I can tell Canadians, but with you, that's not the case.

Kelsey Low: Because I was born in Canada, but I was raised in Houston. So I've got a mongrel accent.

Nivien Saleh: That explains it.

Kelsey Low: I was born in Canada. I was raised in Houston. But then I went back to Canada for college because I wanted to see what it was like to live up there as an adult, because I didn't remember being there when I was a kid. And then I came back down again for a variety of reasons and wound up back in Houston.

Nivien Saleh: And how did you become interested in nature and all that the Houston Arboretum covers?

Kelsey Low: I've been interested in nature since I was a little kid. My parents were very outdoorsy. They strongly encouraged a love of nature in me. They weren't birdwatchers, but when they knew that I was interested in birds, they immediately found me a hand-me-down pair of binoculars and a field guide, and they said, go for it.

So it's completely their fault. We spent a lot of time near the ocean. So I was very interested in marine biology, and they really encouraged that. I actually remember doing field trips when I was a little kid to the Arboretum.

And so when I came back down here after having been in college for biology and working on things like bird behavior, I took a chance and said, I remember the Arboretum doing fun biology and nature education things. And I checked it out and they had an opening for a weekend naturalist.

I applied, got in and I've been there ever since. That was about six years ago.

Kelsey learns about Houston squirrels

Nivien Saleh: Oh, wow. So, quite a while. Your primary interest really is birding.

But I'm not talking to you about birds today. I'm talking to you about squirrels.

How did you get into that?

Kelsey Low: Squirrels are a really funny story for me. I grew up ignoring them because they just seemed like random backyard destroying-your-feeder wildlife. And birds were much more exciting. And then as I'm started studying birds, squirrels became an actual negative issue for me because the birds that I was studying in my schooling were cavity nesters.

So they'd nest in little holes in trees. And one of their biggest predators is squirrels. Squirrels can climb up the trees, climb into the holes and eat the birds nest and the eggs and the adults sometimes too, which is always a fun surprise when you're checking nests and you stick your hand in there, and there's a dead bird.

I really disliked squirrels pretty intensely through my college years, but there's this weird thing where sometimes you dislike something so much, you become fascinated by it. I

became fascinated with my hatred for squirrels because they were eating my birds. My birds! So I started reading up on them cause I wanted to know what makes them tick.

The more I read about them, the more I grudgingly admired them for being so incredible. And I wound up falling in love with them. I've done a complete reversal on my opinion.

I think squirrels are super neat now.

Nivien Saleh: And probably at some point you told yourself birds are predators too.

Kelsey Low: Yes. Turnabout is fair play because birds eat squirrels all the time.

Houston squirrels like to eat birds

Nivien Saleh: How important are squirrels as predators of birds? What you just say sounds like they're a real threat.

Kelsey Low: Yeah, they can be - not for all cavity nesting birds. Obviously the larger cavity nesting birds like owls aren't going to be worried so much about squirrels. But chickadees are heavily targeted by squirrels. And one of our most rare and endangered birds here in America is the red-cockaded woodpecker.

You can actually see them here in Texas, North in Houston, closer to Conroe. But flying squirrels are one of their biggest nest predators. So they can have pretty big impacts on specific species of bird.

Nivien Saleh: A chickadee is smaller than a sparrow. Is that correct?

Kelsey Low: Yes. Very small.

Nivien Saleh: The squirrel is don't go up against the blue jays, the bullies of the bird world.

They go after the little ones.

Kelsey Low: Yeah, the little ones.

Yes, Punxsutawney Phil is a squirrel!

Nivien Saleh: Do squirrels exist all over the world?

Kelsey Low: They do. There are squirrels almost everywhere. They're in deserts, they're in tropical rainforests. They're in grasslands, and they're in mountains. Even on Mount Everest there are squirrels: Himalayan marmots, which people might not recognize as squirrels when they see them, because they're quite big.

They're the size of a chihuahua and very fat. If people have seen Groundhog Day and have seen the groundhog in that Punxsutawney Phil, the big fat teddybear-looking thing, that's a

marmot. So that's one sort of squirrel, and that's the kind of squirrel up high on mountains. So squirrels are all over the place.

Nivien Saleh: I grew up in Germany, and I remember squirrels there, too. But they were a lot shyer than the squirrels that I know from the United States. And when I say from the United States, particularly Washington DC, where I lived a long time because I went to school there and then Houston. So the squirrels that I grew up with were also different in color.

They looked more like fox.

Kelsey Low: Yes. You have European red squirrels in Germany, which are a different genus, I think, than the squirrels that we have here in the States, I'd have to double-check that. They're a little different. They've got tufty ears, they've got, sort of tufts of fur that perk up.

They're very cute. And they are more timid than a lot of the squirrels that we have here in the States. But where I'm from in Western Canada, we have a relative of the European red squirrel, and it is also timid, unlike some of its louder cousins in North America.

The world's biggest and smallest squirrels

Nivien Saleh: What's the difference in size in that big family?

Kelsey Low: Oh, I need to go check my stats. The biggest squirrel is the Indian giant squirrel. It's three feet long.

Nivien Saleh: Are we talking tail or without the tail?

Kelsey Low: With tail.

Three feet long with the tail and about four pounds and very colorful. I encourage people to check out online "Indian giant squirrel".

They're really neat-looking. Sort of maroon rusty with black legs. And then the smallest squirrel, there's a whole group of squirrels called the pygmy squirrels, which as the name implies, they're very small. I believe the smallest is the African pygmy squirrel, which is barely three inches long. They weigh 0.6 ounces.

Nivien Saleh: When you say three inches long, do they have a tail?

Kelsey Low: They have a tail, but I believe it's fairly short. They're very shrew-like in their appearance, they have a very large head and a very small body and small tail. They look a little weird. A shrew is like a mouse, but they have a longer and more pointy nose and a much shorter tail, and they have sharp little teeth.

They eat insects instead of grain.

There are three types of squirrel

Nivien Saleh: All over the world, I think we have three types of squirrel, right?

Kelsey Low: Yes. There's three main types of squirrels. Pretty much every squirrel fits into one of these three categories. They can be ground squirrels, tree squirrels or flying squirrels.

Kelsey Low: So ground squirrels, we already talked about the marmot and the groundhog. Ground squirrels are specialized for digging burrows. They're not running around climbing trees. They have short stocky legs, really strong muscles for digging. They have sharp, strong claws, really short ears, so their ears don't get clogged with dirt when they're digging underground.

And they have short tails because they don't really need to have a long tail cause they don't need to balance. Prairie dogs are a really good example of a ground squirrel that people might be familiar with.

Houston has tree squirrels

We also have tree squirrels.

Most people, at least in Houston, are familiar with tree squirrels because that's mostly what we see. Tree squirrels have long bodies, a little longer legged than the ground squirrels. They're a little slimmer. They have longer ears, and they have really long fluffy tails to help them balance while they're climbing around in trees. Both tree squirrels and ground squirrels are primarily active in the daytime.

They're what we call diurnal. The last group of squirrels is not.

Houston also has flying squirrels

Kelsey Low: The last group of squirrels is the flying squirrels, and they are nocturnal. They're active at night. They look a little different than the other two groups. They have really big eyes, so they can see in the dark. They have very small bodies and really long legs, but you can't really see the legs very well because they have a skin membrane stretched between their wrists and their ankles, which they use to glide from tree to tree.

And they have long, fluffy, flat tails.

Nivien Saleh: They should really be called gliding squirrels because they don't fly like birds.

Kelsey Low: No.

They're pretty good at it. They can glide for a really long way, but they don't have true powered flight.

Nivien Saleh: I've never seen a flying squirrel.

Kelsey Low: If you've lived in Houston for any length of time, I can almost guarantee that you've heard one, but you don't know that you've heard one, cause they're actually really common in Houston, but they're very difficult to see because they're active at night and they're very small. But they have a really distinctive, squeaking sound.

And I bet if you google Southern flying squirrel or flying squirrel noise and you play it, you'll be like, I totally heard that on a summer night.

Nivien Saleh: Here is the sound of a southern flying squirrel. It comes from the North Carolina Wildlife Resources Commission [squirrel vocalization follows].

Kelsey Low: You probably thought it was an insect.

Why Houston has hardly any ground squirrels

Kelsey Low: Houston currently has three species of squirrels. A long time ago, when Houston was mostly prairie, we would have had prairie dogs, antelope squirrels, ground squirrels which you can still see in many parts of Texas. But because of a variety of factors, including the suppression of wildfires and a lot of forests growing in Houston, which never used to be here, we only have the ground squirrels on the edges of Houston. And really, for most Houstonians, we just see tree squirrels, which are the eastern gray squirrel and the eastern fox squirrel, and then flying squirrels, southern flying squirrels.

Cause the tree squirrels and the flying squirrels, they like the trees. They enjoy the forested habitat that we've got here.

Nivien Saleh: Hmmm.

How do you tell an Eastern gray squirrel from a Houston fox squirrel?

Kelsey Low: The squirrels that you probably think of when you think squirrels in Houston are the eastern gray squirrels. They're gray on top. They've got a long gray, fluffy tail and they have white bellies, really striking white bellies. The fox squirrels are a little bigger. They also have gray backs, but they have a rusty or foxy bellies.

The fox squirrels are a little bigger, a little rustier.

Nivien Saleh: In our garden, we do have eastern gray squirrels. And that is what I think of when I think of a Houston squirrel. They are grayish and have this white belly. Fox squirrels have yellow bellies and are a little sturdier.

I thought that they were one and the same thing, and so once I went to Hermann Park and there was this fat squirrel just munching stuff, and it had this yellow belly. And I'm like,

"People really been feeding you, haven't they?" Then I realized that's not a bigger version of an eastern gray squirrel. That's an entirely different species.

Kelsey Low: Yeah, closely related. And they sometimes interbreed, but they are different species.

When Houston squirrels chase each other – is it kill and be killed?

Nivien Saleh: So, having said that eastern gray squirrels are the squirrels that I am familiar with, the behavior that strikes me most is: they're constantly chasing each other. My husband and I every now and then, and especially during COVID, we'd sit behind the house in the garden, and we look up the trees, and my husband has this thing of saying, "Oh, the community of life, it's such a wonderful community of life." And I'm like, "Did you see the squirrels chasing each other, killing each other? This is survival of the fittest. This is not a community. This is kill and be killed." So tell me, what's the deal with those squirrels chasing each other? Is it community or is it the other thing?

Kelsey Low: It's both. It really depends. Squirrels chase each other for a variety of reasons. But the two most common are play. So often it's playfulness, especially when you see them in the early summer, mid-fall when the youngsters are out and getting more independent, they play all the time.

So they'll chase each other and jump over each other. And it's really cute. It can look quite violent because they're so into it, but they're actually doing it for fun.

Squirrel promiscuity

But chasing is also the most common way that squirrels mate. And that's what most people notice. So in the really late winter or really early spring and then again in late summer, early fall, you'll get these mating chases. A female squirrel when she's ready to mate, she'll indicate to all the males in the neighborhood that she's ready to go, and she'll start running. And the males will, one by one, start following her, and they'll compete with one another.

By the end of the chase, usually the only male that's left, who's got the stamina and the strength and has been able to push everyone else aside, he's going to be the one that she chooses to mate with. But it doesn't always work that way.

Females will mate with pretty much anyone if they can catch her. Squirrels are what are called promiscuous maters. So females will mate with multiple males, and males will mate with multiple females. So the chases are quite dramatic. So there's a little violence and a little affection and a lot of frustration in those chases.

Nivien Saleh: Two breeding seasons a year, which litters.

Kelsey Low: Two litters.

Yes. If you ever see one squirrel being followed excitedly by two or more, I guarantee you, that's a mating chase.

What's the purpose of those bushy tails?

Nivien Saleh: Squirrels have long tails. Do they use these tails for interesting stuff? Do they, for example, use the tails for signaling?

Kelsey Low: Absolutely. Squirrels use their tails for all kinds of things. Squirrels will use their tails to talk to one another. So they'll wave their tails like flags or they'll push them forward or lay them backward. And those will help punctuate their vocal communication. Cause they do talk to one another using sounds, but they'll wave their tails because that's much easier to see from a distance.

Squirrels will use those tail signals to indicate dominance or submission. But they'll use their tails for other things too. For balance. As we've talked about, they use their tails as parachutes, so if they fall off a branch, they spread their big fluffy tails out and wave them, to help not only slow their fall, but also to guide them a little bit as they fall. So that they'll fall in a safe place and not hurt themselves.

They'll use their tails as warmth, as insulation. They'll wrap themselves in their tails like blankets to keep warm. And they'll wave their tails around when it's hot to help get rid of heat, to cool themselves down; and they'll even use their tails to protect themselves.

How ground squirrels outsmart snakes (not in Houston)

They will wave their tails to distract predators. So the predators will try and grab the tail instead of the squirrel. And there's a really cool thing that some squirrels do with their tails. It doesn't happen in Houston, but there's a type of ground squirrel, called the California ground squirrel, that not only uses their tails to distract predators - in this case snakes - but they weaponize it. So they will find shed snakeskin, rattlesnake skin, and they'll chew it. And then they'll rub that chewed snakeskin on their tails. So when they see a snake, they'll wave their tail around, and they'll send blood to their tails. So their tails heat up.

And so their tails end up wafting snake perfume from the chewed-up snakeskin out. And snakes are primarily hunting by scent and by heat. They don't have great vision. And so all the snake senses is this big cloud of hot, scary snake stuff, and they get real confused. And that's usually buys the squirrel enough time to get away, which is really cool behavior.

How did they acquire such cool behavior?

Nivien Saleh: That is amazing. That is really cool. When I see behavior like that, I wonder. How did squirrels acquire that? I learned in biology that evolution happens through mutations, and then the better adapted behavior or mutations, they're the ones that get to propagate.

And that's how those traits will become emphasized in the entire population of a species. So I wonder, when you have a behavior like that, how does a behavior like that become adopted in a squirrel species?

Kelsey Low: It's amazing how seemingly complex behavior can arise from such simple things. Squirrels are chewers, they're rodents, just like mice and rats and beavers. So their front teeth are always growing because of their diet.

So teeth keep growing all the time. So they need to chew constantly to make sure their teeth don't start going through the bottom of their mouth. And so they chew on trees. They chew on your house. They shoe on rocks. They chew on bones and shells. So it's not a huge stretch of the imagination to imagine squirrels chewing on a snakeskin. And then squirrels also groom themselves constantly.

So you can see the chain that might lead to the proliferation of this kind of adaptation.

Teeth that keep on growing – sometimes right through the bottom of the squirrel's mouth

Nivien Saleh: Yeah, you're right. It does make sense. Yeah.

You say that their teeth keep growing unlike the teeth of humans.

Kelsey Low: Yes.

And it can really cause problems for them if they don't keep them trimmed. Their teeth really will start growing through the bottom of their mouths.

Nivien Saleh: That sounds very un-fun for these animals.

Kelsey Low: I would imagine it would be extremely unfun.

How long do Houston squirrels live?

Nivien Saleh: And how long does a squirrel live?

Kelsey Low: Not long. Squirrels are small, and they are prey animals. The vast majority of squirrels die before their first year, they're just so helpless as little tiny babies. And everybody wants to eat them. An average lifespan for a tree squirrel like a gray squirrel would be about two years.

However, if they make it past their first year, once the squirrel has made it that far, they can live for up to 10 years. It's rare, but it can happen. It's just that first year that really brings the average down.

But it's still a tough life to be a squirrel. They are constantly at risk of predators and all kinds of other things, whether falling, lack of food, stuff like that.

The largest enemies of our squirrels

Nivien Saleh: What are the biggest predators of squirrels?

Kelsey Low: Red-tailed hawks in Houston are one of the biggest predators for squirrels. Great horned owls, sometimes barred owls, hawks as well. But there's also a mammalian predator. So coyotes in Houston eat a lot of squirrels. Bobcats on the outskirts of Houston and even things like raccoons will eat squirrels. And then baby squirrels, little babies in their nests, are very vulnerable to snakes. Snakes will often climb up and snatch them out of their nests.

Nivien Saleh: So I can imagine a raccoon, maybe being able to get to a nest and grab some little squirrels, but I would think that there are no match for an adult squirrel because they're so much faster.

Kelsey Low: Never discount predators. And raccoons, even though they're omnivores, they eat both plant and animal material. They are very impressive, and they are very smart. Raccoons can do things like catch chickens. And if you can catch a chicken, you can probably catch a squirrel. And raccoons will catch frogs.

They'll catch all kinds of things that are quick. So yes, adult squirrels do sometimes get caught by raccoons.

Nivien Saleh: Raccoons figure out what is the behavior of the animal and what are they likely to do and how can I use that against them?

Kelsey Low: Basically, yes.

The incredible spatial memory of Houston squirrels

Nivien Saleh: Thank you. Nuts. Squirrels are crazy, right? They'd just constantly dig. They dig in our garden.

They dig out the little new plants that I put in there. I used to think these squirrels are really so stupid, to put all these nuts in the ground, burying them somewhere and then losing track of where these nuts are.

But then recently in a Nature documentary on PBS, I found out that squirrels actually remember where all their nuts are.

Kelsey Low: Squirrels have incredible spatial memory. Spatial memory is the memory that tells you where things are. If you have a map of your neighborhood in your brain, that's spatial memory, finding your way around places and remembering where you put things. I love reading papers about scientists studying these behaviors because they always pit the animal, like squirrels, against grad students, because the grad students are the ones who will actually volunteer to be tested, and they can't complain. So these poor grad students are always outperformed by squirrels and other creatures. But squirrels have much, much better spatial memory than humans.

They can remember the location for thousands of caches every year. They hide nuts and seeds in cracks and crevices or in your old barbecue grill.

They just do that so many times that realistically they'll forget a few of them.

A brain that expands and contracts, as needed

Nivien Saleh: And I understand that the brains of squirrels adapt to the need to maintain a spatial memory. So towards the winter, the brain seems to grow in size.

Kelsey Low: Yes. The regions of the brain responsible for that spatial memory swells in the fall and into the winter. So as the squirrel is burying these caches towards the start of fall, they'll be remembering where they've put them. And then when that behavior isn't as useful for them in the spring, when food is abundant, that region of the brain shrinks again, because brains are very expensive.

It takes a lot of energy to maintain a large brain. That's one of the reasons why we eat so much as humans. And if you can avoid having that extra weight in your head demanding energy all the time, better to cut that weight when it isn't needed. So yeah, their brains swell and shrink over the course of the year.

The bird feeder challenge

Nivien Saleh: We have a bird feeder, which, during COVID, keeps us entertained, and we get chickadees, we have cardinals and blue jays. We also get migratory birds such as rose-breasted grosbeaks. So we have these feeders for the birds and they're there for the birds, but we got squirrels, so the squirrels come, they can't resist. And we tried to make it a little difficult for them.

Instead of hanging it on a twig off a tree, which was very easy for the squirrels to access, my husband put this wire across. So the wire will be horizontal. And in the middle of the wire the feeder would hang; and we thought, Oh, surely the squirrels can't get that.

They can't just climb over the wire. Well no, the squirrels got there and no problem, it took them not even half a day to figure this out. So the next thing is, we would put a little lamp shade over, because we thought if they can't get to the top of it, they can't get to the food.

Yes they could. And it is just amazing. So the bird feeder is cylindrical, right? That is where the feed is stored. At the bottom are two horizontal perches for small birds. And Terry ended up using sort of a frisbee, which he cut in the middle. And then he pushed it down the cylinder so that it would rest in the middle of the cylinder.

And the squirrels got to that too. They just hung with their hind legs from the top of the feeder, draped themselves over the frisbee and got their mouths into the opening. It is not comfortable for them. This frisbee basically pokes into their bellies. And so they don't go for it a lot, but I'm like, wow what smart animals!

And. I always think if they're this smart, they deserve all the food that they can get out of that feeder.

An amazing pair of swiveling hind legs

Kelsey Low: Pretty much. There's not much you can do to deter squirrels. If they really want something, they're going to get it eventually. Their intelligence, their persistence and their incredible physical abilities, like they can climb, jump and as you notice, they can hang upside down cause their hind feet can swivel completely backwards. So they can be clinging by their toenails with the whole rest of their body hanging down.

Which is great when you're trying to climb down a tree head first quickly. But it's also really good if you're trying to hang from a bird feeder and trying to grab the seeds.

Nivien Saleh: Yeah. So these hind legs, they can be used to climb up a tree, but they can also be used to climb down a tree because the squirrels can, as you say, what did you say pivot?

Kelsey Low: Yeah. They're there, their hind feet can rotate. They can pivot all the way backwards, so their feet will be pointing backwards as they're climbing down.

The spatial intelligence of Houston's tree squirrels

Nivien Saleh: That is pretty cool. Yes. Squirrels are so smart, they don't just have a good spatial memory. They have really great spatial intelligence. I could see that when they were sitting at that feeder and we put up all these obstacles for them to overcome before they could get to the food. Now, when we put that little lampshade over the feeder, the question was, is it going to jump? Is it not going to jump? And if it jumps, will it slide off and end up in the mud? No, the squirrel wouldn't jump. The squirrel would sit there and look from the left and look from the right and gauge that feeder. It would not jump unless it knew that it could get there. And they did not make mistakes. I have not seen a squirrel just give it a try and then not succeed. And that tells me that they're just really good at knowing what they can and cannot do.

Kelsey Low: Yes. Once they've reached maturity generally nature has weeded out the ones that aren't good at jumping. They are, they do make mistakes. I've watched squirrels misjudge distance between branches and fall. But they are very good at falling safely. I believe I've seen quoted in the literature: fox squirrels can fall 20 feet without any particular damage. So they're fairly sure that they're going to be okay if they would fall. But they're very good at judging distance, judging their own abilities.

How do they munch while inverted?

Nivien Saleh: That's impressive. It is. Now another thing that I've seen - and maybe you can give me the answer for that - is squirrels hanging upside down on the trees. We have a pine tree here, and they would have these pine cones, and they would just twist them around in their little hands as if they were eating a cob of corn, I'm like, how can they do that?

Hanging with their head down.

Kelsey Low: It's possible that they can. Animals have surprisingly strong throats depending on what they need to do. But it's very likely that in this case, if the squirrel is eating the pine cone on the tree, they're not actually swallowing. They're storing the seeds in their cheeks. Cause they have little pouches inside their cheeks.

And they'll tuck those seeds away to swallow later. When they are in a more relaxed setting, often I'll see them take those pine cones down, usually like to a stump or a rock nearby and they'll sit quietly and eat their pine cones. And you'll see a big pile of shredded pine cones in that area cause that's their favorite eating place.

Nivien Saleh: So squirrels are a little bit like hamsters.

Kelsey Low: Yes. Both rodents.

Houston's southern flying squirrel

Nivien Saleh: The southern flying squirrel. What would you do if you wanted to see a southern flying squirrel?

Kelsey Low: The best chances you're going to have for that are at night. The best luck that I've had at the Arboretum is on a summer night because they're much more active in the warm months.

They hibernate in the winter. So in the warm months, in the summer, if you come to a place like the Arboretum where there's lots of trees, go out just around sunset, hang out in a clump of trees. There's one particular place at the Arboretum that's really good for flying squirrels.

It's a clump of pine trees on what's called the Wildflower Trail. That's altogether, right next to the savannah. And there's almost always a flying squirrel there. And if you look up, you might get lucky and actually see them moving around, but you'll probably hear them as they're squeaking to one another, because they're actually talking back and forth.

They're really social. They're much more social than the other two species of squirrels we have.

Is the Houston Arboretum a good place for watching squirrels?

Nivien Saleh: If parents want to show their children squirrels, would you recommend they come to the Arboretum?

Kelsey Low: Absolutely. The Arboretum is a great place to watch squirrels. Anywhere at the Arboretum you can see them. They're all over the place. But the best way to see them is to just come to the Arboretum, come to the nature center building, hang out and watch our bird feeders. There will be squirrels.

The squirrels will come, hang out underneath the bird feeders, and they'll interact with the birds and the rabbits. Cause we have rabbits as well that come out and eat the bird seed. And you'll see them jumping around, chasing each other, digging. We see lots of courtship behavior. We see tons of squirrel nests. Kids love spotting squirrel nests.

If you see a cluster of dead leaves balled up on tree branches, so it looks almost like someone's taken a big lump of dead leaves, tossed it in a tree branch. That's a squirrel nest. Once you know what they look like, you'll see them everywhere.

A lot of kids that we get on school field trips, especially kids from inner city schools, the squirrels are the favorite thing hands down that they see. So we're very excited about using squirrels as a tool to get people excited about nature. Cause they're always there. They're always there at the feeders, and they're cute and they're interesting.

And they can open up a lot of conversations, just like we're having: all these conversations about adaptations and ecology and predators and food chains and things like that, that these kids might not otherwise have.

Do squirrels play an important ecological role?

Nivien Saleh: Do you tell them that squirrels play an important ecological role? Or do you think that their role is not that important?

Kelsey Low: It's very important. Squirrels have a very important role in our ecosystem. There's lots of things that they do. But the two main things that I think of as their important tasks are seed dispersal and being prey. Squirrels are by far the best seed dispersers in our North American forests. Birds are very good at it.

Birds can carry seeds farther cause they can fly, but squirrels tend to be targeting the big trees with big seeds like acorns, chestnuts, the big sort of founding trees of different forests. And so squirrels will take those, bury them. They'll forget a few. And those seeds grow into the new forest.

So not only are the trees being pushed out to expand the boundaries of the forest. But also the nutrients are getting carried away from their parent trees. So they don't try to reproduce with each other because that reduces the health of the next generation. You want to avoid inbreeding, even if you're a tree.

So squirrels are absolutely vital for maintaining the health of our forest ecosystems. If we did not have squirrels in our forests in North America, our forests would look completely different. Probably much smaller and less healthy.

Tips for squirrel-proofing your homestead

Nivien Saleh: Many Houstonians don't really see it that way, it seems to me. What I have in mind are home owners who tend to think of squirrels as pests. They dig through the garden, they nest in the attic, which is a big no-no. Or they go off to the bird feeder as they do in our case.

So they think of squirrels as a pest. What is your response to those emotions?

Kelsey Low: I completely understand. And I deeply sympathize cause all of those things are real problems. Very inconvenient and quite annoying. But it's something that we have to learn to live with. And because we are smarter than squirrels, and we have better technology, it's our responsibility to change things, to make it harder for squirrels to annoy us. They're just doing what they're supposed to be doing. They're trying to survive and be squirrels. We can do lots of things to make them have less of an impact on us. For example, you can make sure you've plugged up the holes in your siding, cause the squirrels have to get in somewhere. If they can't get in, they can't nest in your attic. So it's really good to have someone come and check and plug up those holes. I had that same problem with mice just recently. And yes, we found that there were quite a few holes that they were coming in.

So we just plugged those up in our mouse problem is now gone. There are ways to mitigate squirrel problems with bird feeders. We have great success using things called baffles. Like your frisbee on your feeder, a big, very smooth, very curved plastic dish on the top and at the bottom of the feeder - especially if the feeder is on a pole - that's probably the best way to do it.

Have the feeder mounted on a pole with baffles on the top and bottom. One of the best things you can do to help squirrels from eating your garden plants is to provide a bird bath.

Nivien Saleh: Ha. Why is that?

Because a lot of time when squirrels are eating your garden plants, especially when they're eating your vegetables, what they're really looking for is water. I had squirrels eating my tomatoes, but they wouldn't eat the whole tomato. They'd only eat part of the tomato, and I'd get really annoyed. "Why are these squirrels eating my tomatoes?" Until finally one of my coworkers said they're just trying to get the moisture.

Cause they're thirsty. Cause it's Houston and it's hot. I put out a bird bath, and immediately the amount of chewing was reduced.

Nivien Saleh: I feel I understand squirrels a little bit better, thanks to you.

Kelsey Low: That's awesome.

Nivien Saleh: Is there anything you would like to leave our listeners with that we haven't covered?

Kelsey Low: I just like to remind people that even the boring quote, unquote wildlife, the everyday backyard things that we see and we take for granted are really important in our ecosystems. And they're really fascinating. There's always so much more to them than meets the eye. So if you see a critter like a squirrel or a cardinal or a raccoon in your backyard and

you spend a little time learning about it, you will find just the coolest stuff that you could ever imagine going on in their lives. They're really worth your time and attention.

Nivien Saleh: Very well said. Thank you so much, Kelsey.

Kelsey Low: You're very welcome.

And this is it for today. So, how do you like our Houston squirrels now? I think they are fascinating, and I am grateful when I get to see one – especially one that doesn't eat my tomatoes.

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For Houston and Nature, I'm Nivien Saleh.