Getting Curious with Jonathan Van Ness & Laura Simone Lewis

JVN [00:00:00] Welcome to Getting Curious. This is Jonathan Van Ness. Every week I interview an amazing expert about something that I'm curious about. But honey, sometimes those experts come back and this is one of my most favorite experts ever. Welcome back to the show, Dr. Laura Simone Lewis. We're going to learn all about chimpanzees and bonobos. It's giving you, like, Graduate 201 If you did not listen to our great ape episode, like, please get it together. Hi, by the way. Laura, how are you?

LAURA SIMONE LEWIS [00:00:29] Hi. It's so nice to see you. I'm doing really well. I've been excited about this for a long time, so I'm so happy to be back.

JVN [00:00:35] I'm so excited that you're here. If you're ever, like, at school, like, will, some would ever be, like, Dr. Lewis!

LAURA SIMONE LEWIS [00:00:40] Yeah, I get called Dr. Lewis a lot now, which is really fun. It's so fun.

JVN [00:00:44] I love calling you Dr. Lewis. Dr. Lewis, darling, I'm obsessed. Also these earrings came to slay today. They are so major.

LAURA SIMONE LEWIS [00:00:52] I wore them just for you, Jonathan, honestly, aren't they great?

JVN [00:00:56] They are really—

LAURA SIMONE LEWIS [00:00:57] I call them my rainbow drops. They like rainbow drops.

JVN [00:01:00] Between these and Dr. Elizabeth Rule's earrings, like, we're going to have to do, like, a social media bit about, like, like, just our amazing earrings of, of our guests. Like, I'm obsessed. Okay, so, but will you tell people, like, what you do, what you're a doctor of and, like, where you find your, like, day in and day out work?

LAURA SIMONE LEWIS [00:01:18] Absolutely. Definitely. Hello, my name is Dr. Laura Simone Lewis. I study chimpanzees and bonobos. I specifically study their social cognition, so how they think about their social environments. I received my Ph.D. last year from Harvard University in the Department of Human Evolutionary Biology, and I'm now a UC President's postdoctoral fellow at UC Berkeley in California in the psychology department. So I span both psychology—I study social psychology—and biological anthropology because I study the social psychology of our closest living relatives, chimpanzees and bonobos. So I'm very interdisciplinary. And I'm so excited to talk with you today all about chimps and bonobos.

JVN [00:02:05] Oh my gosh, we are, too. We can't even stand it. So just briefly, if people missed our first episode or they need to just a quick catch up, who are the Fab Five of the great family?

LAURA SIMONE LEWIS [00:02:15] Absolutely. The umbrella term is primates, right? We're in the primate order. And generally, there are these three groups: lemurs, monkeys, and apes. Now, in this episode, we'll just zoom in, right, jump into the apes specifically. And there are five groups of great apes.

JVN [00:02:34] Ah! Can we test me to make sure that I still know? Is that okay?

LAURA SIMONE LEWIS [00:02:37] Yes. Pop quiz! Pop quiz!

JVN [00:02:40] The first one or the earliest, like, in the record or whatever is gorillas. And then the second are orangutans. And then it was humans. And then it was chimpanzees and bonobos. No!

LAURA SIMONE LEWIS [00:02:53] Right. Perfect. No, no, no. That, that was basically perfect: orangutans come first. But it's, honestly, that was a—right, you go first. Yeah.

JVN [00:02:58] It was orangutans first? Oh my God. I'm obsessed with that. So they're the oldest in, like, Borneo and Sumatra?

LAURA SIMONE LEWIS [00:03:06] That's right. They're the oldest *living* great apes. Orangutans, gorillas, and then chimpanzees, bonobos, and humans. So in this episode, we're going to jump right in, right into chimpanzees and bonobos, our closest living relatives.

JVN [00:03:19] And so now where do they live?

LAURA SIMONE LEWIS [00:03:21] So chimpanzees and bonobos live in Africa. We share 97.8% of our DNA with them.

JVN [00:03:29] Wow.

LAURA SIMONE LEWIS [00:03:29] So we are super, super, super related to them. Almost 98% of our DNA is shared with them. We have a last common ancestor with them that lives somewhere between 6 to 9 million years ago. Imagine, you share an ancestor with your cousins, that's your grandparents, right? You can think about, "Okay, your cousins are living on the Earth today. Your grandparents were your ancestors." Okay, if you keep going back, right, you have more and more ancestors. We actually share an ancestor—-great, great, great, great, great great grandfather, mother—with chimpanzees and bonobos, that lived 6 million years ago. It's a long time! So since that time we've evolved into separate species. And of course, as humans we live all over the world. But chimpanzees live in Equatorial Africa. So kind of this

middle belt of Africa from Senegal in the west over to Tanzania, in the east. So they live all across the middle belt of Africa, whereas bonobos only live in the Democratic Republic of Congo.

JVN [00:04:26] Okay, so if we were going to say that, like, Africa is shaped like, you know, the classic, like, ice cream cone, I feel like, you know, with like the scoop on the left side or, like, the west side, right? So the Congo, or the Democratic Republic of Congo. Isn't that, like, kind of, like, central cone, yes?

LAURA SIMONE LEWIS [00:04:43] Central. Right, exactly.

JVN [00:04:45] And so the Democratic Republic of Congo is that, like, roughly the size of, like… so it's about a quarter the size of the U.S.?

LAURA SIMONE LEWIS [00:04:51] Yeah. So it's not small. It's pretty big.

JVN [00:04:54] So that's… yay for bonobos. But they are still under threat, honey. But I'm all about silver linings right now. It's giving Silver Linings, like, Playbook or something. Except I don't remember what that movie's about, like, so, maybe not. Whatever. Okay, so. Okay, so we know where they live now. And then how did they—pop quiz for me again. The way that they ended up in those regions was because first it was the chimpanzees, but then there was the river that got, like, river-y again. And then it separated them. And that's why the bonobos are only in the Democratic Republic of Congo. But the chimpanzees are, like, more across, like, the whole African continent.

LAURA SIMONE LEWIS [00:05:33] Right, at one point they were a single species. And then parts of the Congo River dried up during a drought. Part of that population crossed the dry riverbed. The river flowed again. The drought, you know, was over and they were separated from each other and they evolved into these separate species. Exactly.

JVN [00:05:50] Now, even though 6 to 9 million years is really long ago, evolutionarily, and in, like, the whole scheme of things, like, that's actually not that far. Right?

LAURA SIMONE LEWIS [00:06:02] Exactly. So you can think about the earth being 4.5 billion years old, right. You know, even apes being 66 million years old, something like that, only 6 million years ago is really short in evolutionary history, it's really short, which means they're very similar in lots of ways, but also have really interesting differences. And actually, in my research, it's these similarities and differences in their socioecology, the characteristics of their social environment and their behaviors and the environment in which they live. I compare these similarities and differences to think about how these environments may have shaped the evolution of their psychology. So whether they're living, let's say the bonobos, living on one side of the Congo River in this lush forest with not a whole lot of competition with gorillas, as we mentioned in the last episode, there's less competition there. So this environment allowed

them to be less aggressive. It actually encouraged them to have less aggression. Whereas chimpanzees were in a much harsher environment, there was more competition. They needed to have more aggression. So this is the type of research and thinking I do is thinking about, "Okay, what environments were they in, were they involving in and how did that actually shape the way they think." This is exactly what I think about.

JVN [00:07:19] So isn't it true, Dr. Lewis, Laura, I'm just kidding. Do I remember you saying that bonobos and chimpanzees share a common ancestor from, like, one to two million years ago or something?

LAURA SIMONE LEWIS [00:07:30] Oh, yes. Right, right.

JVN [00:07:32] So basically, we're, like, six million years apart, but they're, like, one to two. So they're, like, giving, like, really first cousins, like evolutionarily. And we're more, like, second or third cousins like once removed move but still very similar.

LAURA SIMONE LEWIS [00:07:45] That's exactly right. I'm, I'm so impressed you remembered!

JVN [00:07:48] And then I, I hate to get also this off track but I have to ask, right this instant.

LAURA SIMONE LEWIS [00:07:52] Please!

JVN [00:07:53] Because that's how my curiosity works. Could there be a Romeo and Juliet love story between a bonobo and a chimpanzee, if they ran into each other, like, in the Democratic Republic of Congo, and they, like—or would their babies be, like, the great apes of mules or something? Or would it just not even work.

LAURA SIMONE LEWIS [00:08:10] Yeah! That's a great question. So actually, about 100 years ago, we didn't even know that these were two separate species. They look so similar that we as humans thought they were one species, which meant that when we had them in zoos and potentially sanctuaries, we actually kept them all together and they actually did have babies together. We call these hybrids, so they're hybrid chimpanzees and bonobos. Now, I think about 60 years ago we came to understand that bonobos were not some pygmy chimpanzee, that they're actually distinct species. It's now illegal to hold them in the same place. You have to keep them separated. You can't create hybrid offspring—

JVN [00:08:53] Why, cause the chimpanzees just beat up the bonobos?

LAURA SIMONE LEWIS [00:08:56] Exactly, for behavioral reasons—

JVN [00:08:58] But was there ever a Romeo and Juliet where they loved each other and the chimpanzee wasn't mean to the bonobo?

LAURA SIMONE LEWIS [00:09:04] Okay, I feel like you're going to love this. Apparently, sometimes they'll be separated in different enclosures, but there's wire mesh and they'll actually sometimes have sex through the wire mesh. *Apparently* this happened. Now, again, it's illegal to keep them anywhere near each other. You have to keep them separate.

JVN [00:09:22] And we already kind of mentioned this one part, and I just want to hit it before we go on, which is basically, like, the chimpanzees, like, because of where they were, were more competitive, there was more of them. So, like, a little bit more competitive, territorial. Where the bonobos ended up, it was, like, less competition. So they were, like, a little bit friendlier. So, like, so that's part of what subspecies apart. But what listeners really wanted to hear about: how do you interact with the apes that you study? And how do you track and measure their social cognition? We got to hear about that.

LAURA SIMONE LEWIS [00:09:49] Absolutely. Let me set up by saying, just in terms of, of studying primates in general: there are two ways we generally study primates. One is in the wild. So I have a lot of colleagues who actually go into these forests in Africa and Asia. They have to habituate the apes, which means they have to be really careful and gentle and cautious. This period can take ten years to get the apes used to having a few human researchers around. They don't get close to them, of course, they don't touch them, but they eventually are able to actually follow these apes as they are journeying in their normal natural wild habitats in Africa and Asia. I, on the other hand, work with chimpanzees living in zoos and sanctuaries. So I work with chimpanzees living in captivity. It's important, I think, in my opinion, to study both. So people in the wild who are studying apes in the wild are able to observe their behaviors and record their behaviors. There's sometimes some experiments that happen in the wild, but generally there's not experiments happening in the wild. What's really happening is observation. You're observing their behaviors, recording their behaviors, and then we can say a lot about these animals, the way they behave with one another, have social interactions, how they are able to track their environment and move around their environment from observation.

Then in captivity, with zoos and sanctuaries, we're actually able to run experiments with them that are controlled, where we can actually test things about the way they think, so things about their mind. Now, I want to be very upfront: as soon as we start talking about working with bonobos and chimpanzees in captivity, I want to be very clear. There's three really important things to me about my work. First, is that it's completely non-invasive, meaning it's not harmful at all to the animals. It doesn't hurt them. It's, it's actually often we call it enrichment because they're doing some sort of game or puzzle or activity that's exciting for them in a zoo or a sanctuary setting. So it's some sort of enrichment. It's not harmful at all. And if it's distressing at all to the animal, we would immediately stop. But I make sure to very carefully design my experiments so that they're fun and exciting for the apes and not harmful or distressing at all. The second is that their participation in these experiments is completely voluntary. So we set up the experiment at the edge of their enclosure and they decide to

come up or leave whenever they want. So we don't actually have control about when they come to do the experiment or not, which means sometimes some days they just don't come up at all. And other days they actually sometimes line up to participate in the experiments, like, they sit in a little line—

JVN [00:12:28] Ah!

LAURA SIMONE LEWIS [00:12:29] And it's so cute! Sometimes they can be really all over each other, other times that there's a lot of babies around. They're climbing all over each other trying to get to the experiment. So that's another really important part of my research is that it's completely voluntary. The apes decide when they'd like to participate and then they leave. And that means sometimes, for example, I remember so clearly. April 2019, the entire month of April, there was a dominance hierarchy that was switching around with these chimpanzees, and they were so into the dominance hierarchy and the switching, they did not have the capacity or time to play with my experimental setup. So I didn't collect any data, any trials for the entire month. And that's, you know, of course was frustrating as a scientist. It's like you want to collect data. But what's even more important to me is that these apes are deciding on their own whether they like to participate or not. I never want to be forcing an animal to participate in my research. There are people who do that. But for me what's really important is that it's completely voluntary.

JVN [00:13:29] And you get to work with bonobos and chimpanzees, right?

LAURA SIMONE LEWIS [00:13:32] Yes. And I work with bonobos and chimpanzees. Exactly. Exactly. Yeah.

JVN [00:13:35] Ah! I guess I just assumed all that stuff about you, because I was, like, "Duh you're not doing…" But I guess it's, like, a researcher, like you probably, like, that. Yeah, I love that you're like—but I was like, "Oh yeah, duh," but I just like that because I knew you, but, so what's the third thing?

LAURA SIMONE LEWIS [00:13:47] Yeah. And the third thing is that they're in their normal social environments in the zoos and sanctuaries, right when they're being tested. So they have other individuals around which again means sometimes there's distractions, but it means that they're not being separated from others, that overall, almost always they're actually just in their kind of normal social environments and can choose to come up and do the experiments and leave whenever they want.

JVN [00:14:08] Is it giving, like, when you go to a zoo, is it just, like, a really big ass like football stadium lookin' area with, like, a bunch of trees and, like, dirt and, like, mounds and, like, is it giving just, like, portable forest? But it's, like, big?

LAURA SIMONE LEWIS [00:14:21] Yeah, exactly. Exactly. So what's really important for these animals is they have a lot of space to move around. They have lots of vertical things to be climbing because they both—they can be on the ground sometimes, but they actually are very arboreal, right? They like to be in the trees. So having things that they can climb and swing on and play on. Right. They're trying to mimic what a forest environment actually looks like and feels like in these zoos. And they have different rooms often so that they can kind of separate from each other. Right? In our last episode, we talked about their fission-fusion social system, where they'll sometimes split off into smaller parties so they can go into different rooms in different areas. That's really important. The zookeepers are—that I work with—are incredible humans who dedicate their lives to making sure that these chimps and bonobos in the zoos have healthy, happy—as happy as possible—lives in the zoos. They're thinking all the time about different enrichment options, toys, you know, different games, making sure they're being fed well, you know, to make sure that they're having as healthy a life as possible in these zoos and sanctuaries.

JVN [00:15:21] Fun!

LAURA SIMONE LEWIS [00:15:22] Where we come in when we're doing our research is sometimes there will be kind of an area that is designated for research. And this is important so that both researchers come to a specific area and the chimps and bonobos know exactly, "Okay, this is the research area where experiments happen," and they again, can choose to come over to this area or not. Some of the zoos I work in, for example, the Edinburgh Zoo, I love the Edinburgh Zoo in Scotland, so I lived in Scotland for two years working with chimps at the Edinburgh Zoo. And the Edinburgh Zoo has an amazing setup where zoo visitors can actually come to the zoo and watch our experiments happening in action. The experimental room actually has windows so that zoo guests and visitors can watch us doing these experiments and watch the chimpanzees actually participating in our experiments. And I think that's a fantastic aspect of this research. It's something that I love a lot, is actually being able to share with the public what we're doing. You can directly see exactly, it's not harmful. The apes are participating voluntarily, all of that. So I think that's a really important aspect also of my work is making sure the public has as much access as possible to what we're doing. We're not trying to hide anything. There's no secretive things that we're doing with them. It's all accessible to the public. So there's a number of different types of experiments that you can do with apes. Some are more behavioral. So for example, you just give them a choice between two cups. Let's say you hide a grape under one cup and nothing under the other cup and give them a choice, right? So this is called a two-choice task. And they're really good at pointing, actually, in zoos. They have learned how to point. They can make choices like that. We also are starting to use new technologies in order to access other parts of their mind. And these technologies are something that, that I use in my research that I think are really exciting. One is called thermal imaging.

JVN [00:17:24] Oooh!

LAURA SIMONE LEWIS [00:17:25] Yeah, so this is like: think about, you know, a thermal imaging camera, something that actually can take the temperature of your surface, your surface temperature of your body. Right. So we can actually use a thermal imaging camera to take measurements of the temperature of the surface of their face. In this way we, can actually tell when they're aroused. When we become aroused—when humans become aroused—and when apes become aroused, we have this kind of fight or flight kind of reaction. Right. And part of that process, that automatic process is blood moves away from your extremities and towards the core of your body to prepare you for this fight or flight action. That means that blood is moving away from your extremities, your fingers, all of the tips of your body, including the tip of your nose. So blood moves away from the tips of your nose and to the core of your body, and that—we can actually measure that with a thermal imaging camera. So a colleague of mine named Fumihiro Kano, he was in Japan at the time. He showed a chimpanzee an arousing video and measured with a thermal imaging camera, *measured* the temperatures on the chimpanzee's face and saw that the tip of a chimpanzee's nose decreased in temperature. It went from red to blue. It got much colder as the chimpanzee watched this arousing video. So again, this is completely voluntary. It's not harmful to the animals at all. We're just taking this camera and recording their face. But in that way, you can tell actually when they become aroused.

JVN [00:18:47] Was it chimpanzee porn or was it more, like, food?

LAURA SIMONE LEWIS [00:18:50] No! It was actually chimpanzees getting into a little bit of an argument. It was a chimpanzee fight.

JVN [00:18:56] I love watching humans fight. Like, my algorithm is nothing but, like, Karens and racist people getting, like, the shit kicked out of them. Like, I love watching people who are being assholes just getting, like, sometimes they get punched in the face, sometimes they get cussed out. So that makes so much sense. I'm glad that it's not chimp porn. Or have you ever tried, like, cooking videos, like, a really great, like, video of, like, chimp food that they just, like love?

LAURA SIMONE LEWIS [00:19:28] Oh my gosh! That would be so cool, yeah! Yeah, my colleagues and I are thinking a lot about this, especially about emotional scenes, right? Like, what is their thinking when they're watching emotional scenes, when they're in their environment and they see a fight between, let's say, their friends and another individual. Right? Obviously that's arousing, but what else are they thinking?

JVN [00:19:45] Sad! Yeah, give them some food porn! Tasty food, like, "Mmmmm."

LAURA SIMONE LEWIS [00:19:51] Yeah, I would love that. I would love that. Okay, let me tell you about the technology that I love the most, one that I use in my research a lot. This is called eye tracking technology. Again, it's not harmful at all, not invasive, but eye tracking technology is this really cool technology that uses an infrared camera in order to tell where a

chimpanzee or bonobo is looking at any given time. So we can show them pictures and videos on a screen and the eye tracker sits directly below the screen and can tell where the chimpanzees or bonobos are looking on the screen at any given time. So in this way, in my research, I show chimpanzees and bonobos pictures of their group mates, for example, or videos of some funny scene. And with the eye tracker, we can tell where they're looking, whether they're paying attention more to some individuals over others, whether they're paying attention more to some parts of the scene over others, at any given time during the presentation.

JVN [00:20:51] How fun!

LAURA SIMONE LEWIS [00:20:53] It's an amazing technology. It's really cool. And it's taught us a lot about who they're paying attention to and how they think. So in one of my first projects, I showed them, for example, a picture of one of their group mates next to a picture of a complete stranger. And we found that chimpanzees and bonobos paid more attention to their dominant group mates, for example. Yeah, yeah. And maybe we can touch upon this, this aspect, actually. A difference between chimpanzees and bonobos that I also found in my work is that chimpanzees were paying a lot more attention to their male group mates while bonobos were paying a lot more attention to their female group mates. And that's because they have different dominance structures. So chimpanzees are male dominant, which means males make the big group decisions. They are kind of the highest in the dominance hierarchy. And then the females sit below them in the dominance hierarchy. Whereas bonobos are what we call female dominant. So the bonobo females sit at the highest levels of the dominance hierarchy. They form coalitions with each other. They make the big group decisions. And also because they're dominant, they also curtail male violence, if the males are being too aggressive. And so we can tell that not only, right, do they have these different dominance structures, chimpanzees are male dominant, bonobos are more female dominant, but that actually also shapes the way they're paying attention to their group mates. Where chimpanzees are paying more attention to their male dominant group mates and bonobos are paying more attention to their female dominant group mates.

JVN [00:22:34] I'm so obsessed. So what have you gotten to learn about, the other ways that chimps and bonobos express themselves? Like, what are some of, like, the other common gestures and behaviors that happen?

LAURA SIMONE LEWIS [00:22:44] Yes! I love thinking about how chimpanzees and bonobos express themselves because they express themselves in a huge variety of ways. So they use vocalizations to express themselves. They have a huge number of different vocalizations that they make. Each individual has their own unique voice, basically, right, their own unique vocal signature. Communities also have very specific vocal signatures, so they'll have very specific vocalizations for a certain type of food, for example. And then they also have lots of different gestures that they use. And I want to highlight some new research that has just come out. So this is not my own research. This is new research that has come out by some of my wonderful

colleagues named Kirsty Graham and Cat Hobaiter at the University of St. Andrews in Scotland. So they have found that chimpanzees and bonobos share over 90% of the same gestures. So chimps and bonobos have a lot of similar gestures. There are things like, the babies will say, like, "Carry me," or the mothers will say, "Get on my back," or, "Follow me," or, "Please groom me." So one that I love is kind of self-scratching will indicate, "Please groom me," to others, for example.

They'll do other things to indicate they want to be friendly with one another. They'll kind of hold out their hand, as we would, also, with their palm up to indicate that they'd like some food. So we have tons of different gestures that they use that are very similar. And I think the coolest thing this just came out a couple months ago. Kirsty and Cat—Cathryn Hobaiter—found that we as humans can understand their gestures. So they created this amazing great ape dictionary quiz that humans can take. You can take this. I could send you the link—it's amazing—where you could take a quiz. We watched videos of chimps and bonobos in the wild making gestures, and then you guess what that gesture means. Turns out we're really good at understanding their gestures. So it seems like, yeah! It seems like we have this ability to understand their gestures, that they may even use some gestures that are similar to the gestures that we use in humans. These gestures may be conserved across millions of years.

JVN [00:24:57] Okay, I'm obsessed with that. Based on, like, what the experiments are, like, is there ever, like, really popular experiments or, like, ones that are like, like, "Oh, none of them really like it." Like, what really motivates them to want to do stuff or, like, makes them not really interested anymore?

LAURA SIMONE LEWIS [00:25:11] There are some experiments that are a ton of fun and they love and other experiments that are maybe less exciting to them. I can talk about in my own research. They're not as interested in just looking at kind of static pictures. They're much more interested in looking at videos. And then there's also in my own research, one thing that was a lot of fun is: for this eye tracking research, right where we're actually tracking their eyes and where they're looking on the screen. We have to have their heads super still. So their heads have to be really still and their, only their eyes, basically are moving. In order to keep their head still, we give them a little straw with a little bit of diluted juice. So they're drinking this diluted juice and they're watching these videos. Turns out, they have very strong preferences about the juice flavors. So, for example, I found that chimps love pear juice, apple juice, grapefruit juice, for some reason? They're obsessed with grapefruit juice. And I quickly found out they *hate* tomato juice and carrot juice. In fact, they actually spit out the tomato juice at me when I tried experimenting with some new tomato juice. It makes sense, I don't blame them!

JVN [00:26:14] Well, that makes sense! I didn't really, like, it—until I was, like, very recently did I start to like a Bloody Mary? But it's, like, straight tomato juice is, like, nasty. It's—I don't, what about grape juice? I really love a grape juice. Do they like a grape juice?

LAURA SIMONE LEWIS [00:26:30] They love grape juice, they love grape juice.

JVN [00:26:33] Grape juice is the most delicious. Like if you give me some just and like, just like, let me see videos of people fighting and food and maybe a little bit of sexy stuff, as a chimpanzee or bonobo, like, I would probably just, like, never leave. But then you would see that, like, I was most likely into the sex one probably, which is like, annoying.

LAURA SIMONE LEWIS [00:26:49] I know, I know. No, no. It's okay. It's something that I'm thinking about doing with them too, because I think it would be really interesting, but—

JVN [00:26:56] But then I feel like I don't want you to, like, watch them, like, watching the sexy times, because then they might get embarrassed. Like, so just don't, like, let them watch it privately. Like, don't like—you don't want to watch them at diddle. Or do you have to? Do you have to like—like do you guys have to, like? Or no, they don't give a fuck because they just fucking all the time in front of people. Like, they don't even care?

LAURA SIMONE LEWIS [00:27:15] Okay. Yes, yes, absolutely. Yeah. They have sex in front of others all the time and they don't care. And this is something that I think about. Maybe we'll just pose this question to the listeners. It's something I think about all the time. Do chimps and bonobos get embarrassed? In fact, do *any* other animal species get embarrassed? Right now, a lot of people think that embarrassment is human, unique. This is just drop for the listeners to think about. Do you think any other animal species get embarrassed? I hear all the time that people's dogs get embarrassed, that their cats—

JVN [00:27:45] My dogs totally get embarrassed. Because when I, when we shame Elton for eating cat shit again, he's like, I can't help it. Like, I feel like he's totally like he feels bad and he like, wishes that he didn't get caught eating so much cat shit. But at the same time he's, like, "I love it and I feel terrible about it." Like, I feel like he really is, but maybe that's just projection. Do we notice more gay stuff in bonobos or chimps?

LAURA SIMONE LEWIS [00:28:12] Absolutely. I think this is something that actually we should talk about and touch upon now. Bonobo females also form coalitions and friendships with each other. And to maintain these friendships with each other, they groom each other. They do a lot of grooming with each other, but they also have a lot of sociosexual behavior.

JVN [00:28:33] Give it to me!

LAURA SIMONE LEWIS [00:28:34] Oh, yeah, absolutely. So bonobo females, in order to form and maintain strong social bonds, will have sex with each other. We call this sociosexual behavior because it's not for reproduction. It's in order to form strong social bonds with each other.

JVN [00:28:49] Oh yeah! But they like it.

LAURA SIMONE LEWIS [00:28:50] Yes. And it's also to release tension. So if there's, for example, if it's feeding time and there's kind of high energy, they're very aroused, before they eat, they'll actually all have sex with each other in order to kind of decrease social tensions. And then they'll, they'll have these resources to be able to eat. But recently, a paper came out last year by a good friend of mine named Rachna Reddy, showing that chimpanzee males actually do have some socialsexual behavior as well. And the thought is that it's also to form and maintain strong social bonds with each other. So they also have same-sex, socialsexual behavior.

JVN [00:29:32] Are they sneaky about it? Like how when you told us last time, when they sneak off to, like, diddle when there's, like, the other ones are, like, in the relationship but then they sneak off to go diddle. Do they do that with gay stuff or do they do that in front of everybody, the chimpanzees?

LAURA SIMONE LEWIS [00:29:44] That's—I don't think it's sneaky. I don't think it's sneaky. I don't think they need to hide it from others.

JVN [00:29:49] So they only do the sneaky stuff if it's a—that's like the sneaky link.

LAURA SIMONE LEWIS [00:29:53] Yes, that's right, the sneaky link. The sneaky link happens between lower ranking males, right, and females. Right. Because the dominant males, they get priority to have sex with the females, but the lower ranking males, the subordinate males, they don't get priority to have females. So they have to do a little sneaky link, sneak copulation is what we call it.

JVN [00:30:14] Is that chimpanzees and bonobos or just chimpanzees?

LAURA SIMONE LEWIS [00:30:17] Oh, that's a good question. I think it more happens in chimpanzees, but I think it happens in both.

JVN [00:30:23] So there's socialsexual relationships in both. I didn't mean to take such a I wasn't even there yet, but my—I'm such a gay. I'm a nightmare.

LAURA SIMONE LEWIS [00:30:30] I love it. No, I love it.

JVN [00:30:32] Oh, he said, what are their memories like? Like, is there ever experiments around, like, remembering where something is? Or, like, do they have, like, a sense of humor?

LAURA SIMONE LEWIS [00:30:39] Absolutely, yes. I would love to talk about memory because that's something I specifically study. Studies with memories started with thinking about if they can remember where things are in their environment. And they're really good at remembering where things are in their environment. So across days and experiments, across days, they can

remember where a food item is hidden. And then in—from the—wild we know that they remember where fruiting trees are located across months and sometimes even years. So across different seasons they will go back specifically to, to where they know the fruiting tree is at the time that they know it will fruit. So they have amazing—this is what we call ecological memory—so memory of their ecology, of their physical environment, where things are in the environment and at what time fruiting trees will actually be fruiting. I, on the other hand, study social memory. So that—we know they have this really amazing ecological memory, and I started studying their social memory.

So whether they remember other individuals and for how long. And this is a study that I did a few years ago with some exciting results where we showed them pictures of previous group mates that had either died or left the group next to pictures of complete strangers. And we found that they were looking significantly longer at these images of their previous group mates who had died or left the group up to a decade ago. So they have memory—what it seems like from these results is that they have memory for others that can last at least a decade, at least ten years. We had some trials where a bonobo hadn't seen her sister in 27 years and she was also looking a lot longer at the image of her sister that she hadn't seen in 27 years. So it could be the case—we couldn't actually analyze those trials, we didn't have enough data—but it could be the case that they actually have memory that lasts almost 30 years, a really long time. And that's similar to us as humans. We have memory for others that can last 30, 40 years, potentially up to 60 years. Right. We have this really long term memory for others. Turns out, so do bonobos and chimpanzees.

JVN [00:32:49] Ah! Wow. Okay. So what about, like, how would they, like, express, like, a sense of humor?

LAURA SIMONE LEWIS [00:32:56] One of my favorite things about bonobos and chimpanzees is that they have the cutest giggles. They laugh. So when they're tickling and playing with each other, they have this laugh. Let me see if I can try to do it. It's, like, [DEMONSTRATES] kind of like that. It's so cute. So they'll tickle each other. They'll play with each other. They tease each other a lot, so they'll, like, pull on each other's fur from the back or poke each other's butt from the back. Especially the babies, especially the young juveniles. They are super playful and kind of play a lot of tricks on each other. And bonobos, even the adults are playful, actually. So this is different in chimpanzees, the adults aren't as playful. But bonobos the, even the adults are very playful with each other. Another fun activity that I love that they do in the wild is they'll play airplane with their babies. So they'll hold their babies up on their feet. They'll lay down on their backs and they'll bounce the babies on their feet like a little airplane, just as we do in humans.

So they have all these different ways that they play with each other. They can be very sneaky. So there is research that shows that, for example, if they know where a food item is hidden and there's a dominant individual who's coming, they'll specifically look away from that food item and even move their body away from where the food item is hidden. Kind of be sneaky

around it. So they do have all these kind of very humorous, funny, sneaky ways of thinking about the environment that just shows us just how incredibly rich their psychology is. Right. That they have these really complex ways of thinking about their environment, thinking about others around them, kind of manipulating them, hiding things from them, teasing them, playing with them, right. They have all these really complex behaviors that show us that they think in these really rich, sophisticated ways about their social environments.

JVN [00:34:51] So then when the dominant one leaves, will they go eat the food they hid?

LAURA SIMONE LEWIS [00:34:55] Yep. Yep.

JVN [00:34:57] I was very stuck on that. I was, like, "So what happens when they move away from the food, like…" So when we last spoke, we started to sketch out a day in the life of chimpanzees or bonobos. But then in true me fashion, I got, like, distracted by 10:30 and then, like, interrogated about, like, 8 million other things. So basically, to recap, up to 10:30, they may wake up. Then what happens?

LAURA SIMONE LEWIS [00:35:22] Right. So they wake up in their nests, right? So they build these nests in their environment. They're often around other individuals. So they sleep in kind of larger groups for protection and safety at night. When they wake up, they'll pee and poop, which is great for researchers in the wild. This is a really good time to collect their pee and poo, so you can actually get hormone samples and other type of biomarkers from their pee and poo. So just like us in the morning, they relieve themselves. They'll climb down from the trees and they'll start moving about their day. So they'll actually start moving in search of food and resources, maybe water as well. And then a lot of their day is actually spent resting. I think we talked about this right in our last episode that they rest a lot. They nap a lot. And this is really important, right, that they, they are conserving energy. They're not necessarily spending all their energy, all day long looking for food. They're actually napping and taking rest and breaks throughout the day.

Throughout the day, they're playing with each other. There may be fights, right? There may be tensions. Perhaps a young individual is trying to join or jump up the dominance hierarchy. And then there may be some aggressive interactions. They may come into contact with neighboring groups. Right. So in chimpanzees, these intergroup interactions can be very aggressive, right? Whereas in bonobos, they can have these very playful, fun interactions with neighboring groups. So they may come into contact with neighboring groups. And then towards the evening they'll go back to their specific sleeping sites. So they have these very specific places in the forest where they sleep at night and they'll build their, their nests again, they'll fold down their branch to each build their individual nest again. Around sundown, around, around the time the sun is setting. That's also when the chimpanzees and bonobos go to bed again.

JVN [00:37:12] And then what does their nest look like? Like, is it the same branch? But then like what? Like what does a nest look like?

LAURA SIMONE LEWIS [00:37:18] Oh, yes. Okay, nesting behavior I think is fascinating, right, because it's not something we do as humans. We all make our bed, right? But they have these very complex behaviors to build nests that take them a really long time to learn. So I think I mentioned that, that babies will sleep in their nest with their mom practicing building a nest until they're around five. So it takes them about five years to learn how to build a nest. What a nest looks like is that the chimps and bonobos will fold down branches of a tree, they'll fold them down into—you can imagine kind of a bird's nest. That kind of round shape, they'll fold it into a pretty round shape. The, the structure is the branches kind of are holding the bottom of the nest. And then the middle and top part of the nest is filled with leaves, right? So that the ways in which they fold these branches make it so that the bottom of the branch is at the bottom of the nest and then the leaves are kind of a soft top. And it's kind of indented right, where they can kind of put their body and they might not get it right at first. They kind of have to shift around and move around and kind of maybe fold some more branches down. Sometimes they can actually reuse the nests that have been built before they have to reconstruct them and some kind of an original structure. But often they're building these nests from scratch every single night.

JVN [00:38:35] So do they fuck up the trees? Because they, do they break up little branches, but there's just so many it's okay?

LAURA SIMONE LEWIS [00:38:40] Yeah. Maybe some small parts of the trees, but overall, the trees are fine. They're actually, they're really good, they're good for the trees, they're good for the environment because what they're doing throughout the day up in those trees is they're eating a lot of fruit and pooping out the seeds. So actually, chimpanzees and bonobos are really good seed dispersers. So they'll, right, so they're consuming seeds and fruits from the trees. They go about their day, they're walking across their environment into other territories and other parts of the forest, and then they're pooping those seeds out where the trees then grow again.

JVN [00:39:17] Ah, cute!

LAURA SIMONE LEWIS [00:39:18] So they're actually really important for the environment to disperse these tree seeds all across the environment.

JVN [00:39:23] Okay, so we know with chimps and bonobos that, like, it's, like, a, like, a female dominant society for bonobos, chimps are male, dominant in their community. So like what roles or responsibilities do individuals have? Like, within their communities.

LAURA SIMONE LEWIS [00:39:38] That's a great question. So, they're structured around these sex-based dominance hierarchies. So in both chimpanzees and bonobos, they'll have

kind of some individuals who sit at the top, we call them alpha and beta, other individuals who kind of sit below them in the dominance hierarchy. But they also have really important friendships with each other and social relationships with each other. And I, I personally see these social relationships as making up the majority and the most important part of these great ape communities. They have really strong social bonds with each other, and these social bonds are really important for a number of different aspects. First of all, their psychological well-being. They decrease stress to have social partners. They have grooming partners that they groom with a lot. They'll sleep with each other a lot. So these friendships and these strong social bonds really form a huge part of chimpanzees' and bonobos' social lives.

Then, of course, the females have babies, right? And chimpanzees and bonobos, they actually have babies at longer intervals than we do as humans, naturally. So as humans, we naturally give birth around every three years, whereas chimpanzees and bonobos naturally give birth around every five years. So they have babies are actually slower rates than we do as humans, which is why we think is one of the reasons we as humans have become such a successful species as people, because we have babies at a kind of quicker rate, whereas chimps that chimps and bonobos actually have babies at a slower rate and they invest a lot in their babies. The babies, when they're first born, actually cling on to the mother's stomach. So the mother walks around the forest with a baby clinging to her stomach. Around 1 to 2 years old, they'll actually move to riding on the mother's back. So then they'll ride the mother's back, kind of like a little horse, it's really cute, they'll either be on all fours or they're sometimes, like, sit up, hold on to their fur and ride their mother like a horse.

So again, and until they're around 3 to 4, so the mothers are investing a lot. Of course, in their social relationships, in their friendships, but also in their babies as they grow. And then around five years old, the babies kind of leave their mothers, being so close to their mothers, and start kind of joining the, the fuller social environment and eventually will join the dominance hierarchy. And maybe I can talk about one, one last aspect in terms of their relationships is about aging. They live to be very old in the wild. They can live to be 40, 50, sometimes 60 years old in the wild. In captivity, they can live up to 70 years. So they have these really long life spans. And across these life spans, they have these social relationships and friendships that can last decades. They have friendships. They can last a really long time. And then into old age, we've found that they start doing similar patterns to what we see in humans as humans age, which is that they have less social relationships, so their social circles get smaller, but they focus their time and energy on their most important social relationships, the ones that are the most mutually beneficial. So they go from having kind of one-sided relationships to having much more mutual social relationships. They spend less time with lots of individuals and consolidate their time to having social relationships and friendships just with a few individuals that are really important to them.

JVN [00:42:59] Okay. So then with vocalization and communication, like, does it seem like they have names or like, do they refer to each other as, like, certain names?

LAURA SIMONE LEWIS [00:43:07] We don't actually know if they have specific vocalizations that, that act as names for each other. But this is something that I've tested: in zoos, they actually, the keepers give the chimps names and can call them by their names. And just like dogs, they recognize their own names, they'll come when they're called. But I actually ran a study to see if they recognized others' names. So if they recognize their group mates' names. And we found that they might, the jury's still out. So a data is a little mixed. What it says is we need to do some follow up research to really understand if they are picking up others names in the environment. But at the very least, we know that in zoos, when they're given names, they can recognize their own names, but we don't quite know if they have names in the wild. I think this is something we still have to figure out.

JVN [00:43:52] Like, maybe, like, some individuals can, like, recognize other people's names but then maybe it doesn't occur to other ones, like maybe there's like a spectrum or something.

LAURA SIMONE LEWIS [00:43:59] Yeah, exactly. Exactly. I mean, we do know that dolphins have names for each other, so dolphins have very specific vocal signatures. I think that tells us that there's the capacity potentially for chimps and bonobos, also very smart creatures, of course, to have names. But we just, I think we don't know. I think more research needs to be done there.

JVN [00:44:17] Oh, and then what's the deal with, like, ingroups and outgroups?

LAURA SIMONE LEWIS [00:44:21] Oh, yeah, absolutely. I think this is a fun one to talk about. So yeah, having ingroup members and outgroup members is really important for these species. So again, chimpanzees and bonobos live in these large groups of up to 200 individuals, that don't range together all, at all times of the day. And they have these pretty specific geographic ranges that they are in. Right. So a certain bonobo group has a very specific range. Same with chimpanzees, they have specific ranges. But sometimes they'll actually come into contact with neighboring groups. And so, and this is what we call outgroup members. So when you're in your own group, you're kind of in your ingroup, right? You have your own group mates. But then there's also neighboring groups. And these are outgroup members. These are individuals who are in another group who are completely separate from your own group. In chimpanzees, intergroup interactions can be very aggressive. So they'll actually have big fights that can even be lethal. So they can actually sometimes even kill each other if they have these kind of intergroup interactions. Where in bonobos they have these very friendly intergroup interactions. They're not as aggressive. Sometimes they're aggressive, but not all the time. They can spend a lot of time with outgroup members, so they actually can have these kind of big parties—playing with each other, grooming each other, having sex with each other, with outgroup members. Which is, again, very different to what we see in chimpanzees where they don't have any sort of prosocial interactions or affiliative interactions with outgroup members.

So I think it tells us a lot, right? Something about our own, I think human interactions and behaviors and how we see our group mates. Right. Maybe, you know, your, your family members or the people of Austin or people in the US, right. Maybe you think of as kind of ingroup members and then we can also think about outgroup members and how we kind of think about, you know, people outside of our groups, right. And then in bonobos, when they come across outgroup members, maybe sometimes they'll have some aggressive interactions but they can actually have a lot of peaceful interactions with outgroup members, which is the same for us in humans, right? Sometimes we'll have aggressive interactions with outgroup members, but I actually really like to think about all the times that we meet strangers. We meet people outside of our groups. We travel to other countries, right? And you meet people completely outside of your groups and you can have these really positive interactions with, with outgroup members. So I think, I like to think about, kind of thinking I'm taking from bonobos, their social environments, and how they interact with strangers and thinking about how we as humans often will do the same thing. We can have very positive interactions with people outside of our normal social groups.

JVN [00:46:57] Has there ever been, like, chimpanzee groups running into each other and being, like, "You're not so bad?" Or, like, they just kind of, like, don't get so violent? Like, if both of them are stressed or have been, like, food scarce or something, will they ever just be, like, "We don't got the energy to get into it right now."

LAURA SIMONE LEWIS [00:47:08] Yeah, exactly. Exactly. I think during periods of food scarcity, there's less intergroup interactions, they're much more focused on finding food. And then yeah, definitely sometimes even the chimpanzees, often if it's kind of bigger groups, they won't have as aggressive interactions, they'll kind of just stay away from each other.

JVN [00:47:27] And what do they eat again? I forgot! Is it all just all fruit and trees?

LAURA SIMONE LEWIS [00:47:32] That's right, that's right. Fruits. Yeah. So they're basically frugivorous. Yeah. So they eat a lot of fruit. They also eat honey. They absolutely love honey.

JVN [00:47:41] But not meat.

LAURA SIMONE LEWIS [00:47:43] So bonobos don't hunt but chimpanzees actually hunt monkeys sometimes in the wild.

JVN [00:47:48] So chimpanzees will eat a monkey like how we'll eat some chicken or something, like, so they will be, like, "Mmm this little howler monkey," or whatever the version of our monkey in, like, Africa is.

LAURA SIMONE LEWIS [00:47:57] Red colobus.

JVN [00:47:48] A red colobus monkey. Is that what Ross had? I think we talked about that last time, too, or whatever, whatever, it doesn't matter—focus, Jonathan! I don't need to know what Marcel was! But they'll catch a little monkey. They'll eat it if they get—but we've never seen, we've never seen bonobos eat meat in the wild.

LAURA SIMONE LEWIS [00:48:15] I think it's very rare. I think it has been observed—

JVN [00:48:18] So it has happened. There has been a little carnivorous bonobo.

LAURA SIMONE LEWIS [00:48:22] Yeah, but it's very, it's very rare. It's very rare.

JVN [00:48:24] He was giving, or she was giving, like, Hannibal Bonobo Lecter, like, a little bit. Yes, okay.

LAURA SIMONE LEWIS [00:48:31] Yeah, right, right. But yeah, not their own species—it's all, it's always other monkeys. Yeah. And what chimpanzees are doing that's very different is their hunting. So they actually go out, they, they see, let's say a red colobus group of monkeys and they'll actually a few of them will go and hunt that group of monkeys.

JVN [00:48:49] Will *everyone* get to eat the monkey or only the killers of the monkey?

LAURA SIMONE LEWIS [00:48:52] The ones that actually kill the monkeys, they get priority. But they won't necessarily hand out pieces of the monkey to others, but they'll do a lot of times what we call "tolerated theft." So they'll allow others to kind of take pieces from their kill. They won't hand out to everyone, right, little pieces. But they'll allow for tolerated theft. So they'll allow others to take pieces from their monkey.

JVN [00:49:18] Okay, I have one other queer LGBTQIA+ related question.

LAURA SIMONE LEWIS [00:49:21] Please!

JVN [00:49:22] Have we ever observed in captivity or in the wild, like, is there ever, like, a boy bonobo who just, like, gets along with the girls better and, like, really wants to be in like, the girl group but isn't even trying to dominate them or whatever. Just, like, is like, "I just really feel more like I want to be with the girl circles." And is there ever, like, a girl chimpanzee who's like, "I want to beat your ass? Like, I want to be a violent ass dominant boy chimpanzee. And I'm just doing much more boyish and, like, I will peg you! Like, I'm going to put a fucking, I'm going to fuck you with a stick out here, or something?"

LAURA SIMONE LEWIS [00:49:53] Absolutely. Yes!

JVN [00:49:54] And also, like, is there, like, appearance ways where, like, boy bonobos look X and girls look X and same with chimps. But then, like, is there ever transness, like, like, do we observe, like, anything that could be seen as, like, transness in bonobos or chimps?

LAURA SIMONE LEWIS [00:50:09] Right, Right. It's a good question. I would say overall, we don't know—

JVN [00:50:13] Dammit!

LAURA SIMONE LEWIS [00:50:14] And there seems to be a ton more research. We—there needs to be a ton more research on this. But anecdotally, I will say, yes, we have seen and observed chimps and bonobos that are not acting in the super masculine or super feminine ways, kind of in their normal natural social environments that they have more tendency, let's say chimpanzee females, for example, they all have tendencies to be very dominant. And they will kind of sit up in the dominance hierarchy. They won't necessarily be at the bottom of the dominance hierarchy.

JVN [00:50:44] Like they'll be over some boys and maybe like the powerful boys will be like, "Alright, she's alright. Like, she can sit with us or whatever, like, cause she kicks ass."

LAURA SIMONE LEWIS [00:50:50] Exactly. Exactly. So I've heard from colleagues anecdotally, that yes, sometimes this happens with chimp females. And anecdotally, I have experienced one of my favorite chimps ever. His name is Kendall. He lives at the North Carolina Zoo. He was actually in the entertainment industry where he was housed alone for seven years. And then he came to the North Carolina Zoo. And when he came to the North Carolina Zoo, they quickly realized that he didn't have kind of a lot of the normal natural social behaviors of chimps because he had been housed alone and he fit really well in the Mothers and Babies group. And he didn't like to be in the group with the aggressive males. He really liked to be in the group with the mothers and babies. He was very tender, very sweet, very gentle. So I think there are these instances, right, where chimps and bonobos aren't necessarily performing all of the behaviors that other chimps of the same sex or bonobos of the same sex do, that there is a lot of variation actually in their behaviors, that it's not purely sex-based is my thinking—

JVN [00:52:00] And it's not so binary. It's just giving all more spectrum! I love spectrums.

LAURA SIMONE LEWIS [00:52:04] I absolutely love spectrums, too. And I think, you know, it's of course, easy to classify with chimps and bonobos how we classify as male and female, you know, based on their sex. But I think there needs to be a lot more work done to understand what is the full spectrum.

JVN [00:52:17] So you mentioned that primatologists used to call ape friendships "the F-word." Why do you think scientists were hesitant to admit that apes have friends? Just 'cause they want to feel guilty about, like, keeping them captive or something? No.

LAURA SIMONE LEWIS [00:52:29] Friendships as the F-word. This was a great paper by Joan Silk in 2002, really pointing out that historically primatologists have been very careful in using the word friendship to characterize primate social relationships because we didn't want to anthropomorphize, right. To, to place kind of our own human relationships on, on them. Right. And say, "Okay, this is exactly what we see in chimps and bonobos is exactly like what we have in humans." So we are being careful not to anthropomorphize them. But the downside is that we weren't actually fully characterizing what their social relationships are and the meanings and importance of their social relationships—and, we know, of their friendships. So now, we do call them friendships. Maybe it's not exactly the same way that you see friendships in humans, but we're pretty clear that they are these strong social bonds that last a long time that look similar to friendships in humans.

JVN [00:53:27] So, and we mentioned earlier that the friendships can last, like, a really long time and then typically as, like, as in humans, when we age, like the social circles get smaller. What do, like, falling outs look like? Do they get in fights? Is it maybe because they—what is it?

LAURA SIMONE LEWIS [00:53:41] Okay. So one piece that I love is about chimp and bonobo jealousy. So if they see a friend of theirs being groomed by someone else, sometimes they'll go and they'll interrupt that grooming session so they can kind of get jealous of their friends. Kind of having friendships with others. Anecdotally, again, from a colleague, my colleague and friend Rachna Reddy has said that she has seen a falling out between chimp friends that lasted for months. So they had some sort of yeah interaction. I think it was around kind of jealousy and grooming partners, and then they had an aggressive interaction where one of the friends wasn't supporting them kind of in this aggressive interaction, wasn't supporting their friend. And the friend seemed upset and then didn't associate, wasn't near the friend for months. And then after a while they were able to reconciliate. Which I think again is a beautiful lesson for us as humans, right? Is sometimes we have falling out with friends that can last for months at a time. It doesn't feel good when your friend doesn't support you or when your friend is potentially, you know, forming friendships with other people that may feel threatening. But after, after a time, we can reconciliate as well. Right. And this happens in chimpanzees and bonobos as well.

JVN [00:54:55] So, I'm just so fascinated, I feel like I'm just, like, I'm, as predicted, had, like, so much fun. I can't stand it. We're, like, rounding third base. We're, like, sliding into home. But I want to circle back to family bonds. A lot of listeners, or when listeners learned that some apes carry around their babies who have died, they wanted to hear more. I think grief is such an ever present thing that so many people are going through. So what do we know about, like, perceived mourning periods in chimps and bonobos around, like, infant mortality?

LAURA SIMONE LEWIS [00:55:25] You know, it's a really interesting process that we're just starting to kind of really see into in chimps and bonobos. So again, we talked about last time,

sometimes when infants die, the mothers will carry around the corpse for days or months at a time. And we know now that this is something like a grief or mourning period, that their behaviors when their infant dies actually change. So one thing that changes is that mothers who have an infant who's died, they are grooming less with their partners. It seems like something like grief or mourning that they're not having as much social interactions and grooming interactions with their friends and that they're kind of in this mourning period where they're kind of their social interactions are decreasing. Hormonally, they'll change, they'll have some kind of hormone shift that may indicate some sort of stress or grief. And they'll also kind of be observing the corpse, sometimes observing and sometimes grooming the corpse, and in ways that are different that they groom their, their babies that are alive.

And—oh, and lastly—not only the mother, but also others who may have had social bonds with this infant, their behaviors also change. The mothers also have increased kind of fearful behaviors that happen as well. So we know that there's a lot of strategies that they're doing, behavioral strategies that they do when they're kind of potentially grieving or mourning the loss of their infant. Again, we can't just ask them and say, you know, "Are you sad? Are you mourning? Are you in a mourning period?" But what this period looks like is very similar to what we see in humans in mourning and grieving periods. And what we think this is, is an evolved strategy to mitigate the stress from loss. Right. That you change your behaviors in order to try and decrease that stress from loss. And it's a recognition of the loss as well. Right. And of course, I think it's similar to what we see in humans that we, we as humans are not alone in our ability to grieve the loss of others, that our primate cousins also likely are doing similar things when they lose loved ones.

JVN [00:57:34] What happens if, like, a parent bonobo or chimpanzee passes away? Like, is it typically, like, another female that would step in to care for them? Does the—would a dad ever step in or is it, like, a community thing or…

LAURA SIMONE LEWIS [00:57:47] Yeah. Yeah, adoption is a really beautiful part of chimpanzee and bonobo social life. So it doesn't happen all the time. So if an infant, especially if an infant or young juvenile loses a parent, it puts them at greater risk, of course. So they're more likely to die when they're young if they lose a parent. But sometimes what will happen is they actually will get adopted by a community member. Sometimes this is a sibling, right? So an older sister or brother can adopt a younger juvenile who's, who's lost a parent. And sometimes this is a not related individual. Often it will be—almost always—it's a female, although I've heard reports sometimes of males actually adopting orphans, but often there will be these females who are unrelated to the infant. So they're not kin, they're not family members who will actually adopt the orphan and take them on as their own. And these orphans then, if they are adopted, do have a much better chance of survival in the wild.

JVN [00:58:45] And that's bonobos and chimpanzees?

LAURA SIMONE LEWIS [00:58:47] That's bonobos and chimpanzees, yeah—

JVN [00:58:49] Do bonobos do it more often?

LAURA SIMONE LEWIS [00:58:51] That's a good question. That would be a great hypothesis. Jonathan I'd say that's a really great hypothesis.

JVN [00:58:56] Listeners were also curious to hear more about ape paternity, like, how do males know whether a baby is theirs?

LAURA SIMONE LEWIS [00:59:03] Generally, they don't. They have strategies to try and make sure that the female that they've mated with is having *their* baby, but they don't have certainty. There's, there's no kind of paternity certainty for these individuals. One, one thing that they do is called mate guarding. So the males will kind of stand around the females, they'll mate with the female, and then they'll kind of guard her from other males having sex with her. I talk a lot with my colleagues that it seems pretty annoying for the females to be mate guarded. Right? They're just kind of, like, always around, guarded by these males. Right. And they try to get away and the males are kind of guarding them.

JVN [00:59:45] He's, like, "It's not you I don't trust, honey. It's all these other horny fuckers."

LAURA SIMONE LEWIS [00:59:47] Yeah, exactly. Yeah, but they don't, don't know for sure, you know, even if they're mate guarding, they don't know for sure that their baby is theirs. And then I'll tell you something that I love about bonobo females, which is bonobo females do a very sneaky thing where they, during ovulation, they have what we call swellings. So the public will call them their butts, but it's actually their vaginas that swell. They get big and pink and it actually indicates, "Hey, I'm ovulating!" In chimpanzees, this is very accurate to when they're actually ovulating. So they get these big pink swellings when they're actually ovulating. Right. And then there's an actual opportunity to get pregnant. Bonobos have much less fidelity around the matching of the swelling and their ovulation. So only about 40% of the time is their swelling actually matching when they're ovulating. So we kind of have separated these two to make it so that males actually don't really know when the females are ovulating or not. So they're actually kind of hiding their ovulation periods a lot more than chimpanzee females are. So they're actually doing kind of a counter strategy to make it so that the males are less certain about whether a baby is theirs, which means that they're less likely to be aggressive to that baby. But, you know, they think if there's some chance that that baby is theirs, they're not going to be as aggressive to it. And they're going to allow that baby to have resources and live in the group and everything. So bonobos are doing this, this kind of counter strategy where they're kind of making the males have less certainty around whether they're the father or not.

JVN [01:01:22] That's, like, a strong tick in, like, team bonobos' like box, like, they're really, like, that's, they're doing that's really smart. I love that. What happens if, like, if a dad thinks it's not his, will he try to murder the baby?

LAURA SIMONE LEWIS [01:01:36] Yes, that does happen, yes, so this is called—

JVN [01:01:38] A lot or just sometimes?

LAURA SIMONE LEWIS [01:01:40] Just sometimes. Just sometimes. Yeah. It doesn't happen a whole lot. But infanticide does happen. I think we talked about it a little bit last time. Yeah. Sometimes if the males don't think a baby is there, sometimes they will be aggressive to it or kill it.

JVN [01:01:51] Rude! And then what about like, how do bonobos and chimpanzees like marked births or other major life moments? Like, do they have like, is there like major ceremonies? Like, do we ever see, like….

LAURA SIMONE LEWIS [01:02:02] So they don't have ceremonies per se, but one, one ritual that they do have is kind of a greeting and leaving ritual. When different small parties of a community come back together, they'll kind of have this big loud greeting kind of ritual or potentially ceremony. But it's a ritual where they're making these very specific vocalizations that basically are, like, "Hi, how are you? Haven't seen you in awhile, how are you doing?" And then also sometimes when they're leaving each other, they'll kind of have these gestures and vocalizations also when they're parting ways, too, to kind of say goodbye. So they have rituals, especially around kind of greetings, and leaving each other. But other ceremonies, at least not that we know of, but again, I think more research could be done here to see if they have kind of ceremonies or things like that.

JVN [01:02:48] What about, like, gifts, jewels, fashion, like, dancing, singing culture, darling, like, are we doing all of those things?

LAURA SIMONE LEWIS [01:02:53] Yes, so they definitely have culture. Let me just say that outright. They definitely have cultures that are different between the different groups. Especially, they have different, for example, different gestures that are common in some groups and not other groups, different vocalizations that are common in some groups and not other groups. They'll also use tools and different materials that are common in some groups and not other groups. And so from all of this, we can say, "Yes, these different groups have different cultures that vary right between the different chimps and bonobo groups." They will sometimes, like, put things on their head. So sometimes they'll, like, do these, like, silly, like they'll put a leaf on their head. Sometimes they'll actually use a leaf as an umbrella. So, like, to protect them from rain. Yeah. Which is really cool. And then sometimes they just kind of, like, put silly things on their heads. Sometimes they'll stick silly things in their ears and, like, some of them are just, like, hilar—like, put sticks in their ears and will walk around with sticks in the ears. So they do some sort of, like, adornment process sometimes, which is hilarious to see. They definitely do have culture. And I think this is an important point because for a long time

we thought that culture was human unique, that we only as humans have culture. It turns out that's absolutely not the case, that chimps and bonobos have their own cultures as well.

JVN [01:04:10] Does the his and goodbyes, like, thing, like, does it give dancing or singing? Is there like a—it, does it give, like, a certain way to movement or something?

LAURA SIMONE LEWIS [01:04:18] Yeah. Yeah. Okay, maybe not the highs are goodbyes thing, but yeah, sometimes they'll kind of, like, run, like, run at each other. There's one, I think, behavior that's so hilarious. It's called "buttress drumming," where the males will go and they'll bang their feet on the bottom trunk of a tree, of a huge tree. And then they'll kind of do this, like, drumming motion that makes a really loud sound. So they'll do, like, things like that. You know, I don't know, they probably don't experience music in the wild, right? Like, they don't have music—

JVN [01:04:48] The birds though, honey!

LAURA SIMONE LEWIS [01:04:51] Yeah, true, true. They do have a lot of sounds in their environment.

JVN [01:04:54] I'll pop my pussy on a fucking handstand to some birds chirping. Like, I will literally, like, literally go on and I will, I will give you like, I will give it slow. I will give it. But no, seriously. Like, I like, no, like there is so many birds where I live like it me like no, I will, I will like fully twerk to bird chirping. I feel like a jungle would be even, like, chirpier

LAURA SIMONE LEWIS [01:05:13] Yes, yes, jungle. Definitely, the jungle's full of noises, chirping, birds, insects all the time. So they're hearing a lot of sounds, absolutely.

JVN [01:05:22] Yes, c'mon! They can twerk to a cicada vibration, come on, I know they can.

LAURA SIMONE LEWIS [01:05:26] Yes! Ohmigosh, chimps twerking to cicada vibrations would be hilarious.

JVN [01:05:31] C'mon, maybe we just got to observe it. We've just gotta, like, stay long enough down there. We'll fucking figure it out. Last episode we talked about how humans have put our closest relatives at risk, and I've gotten way more curious about palm oil, where it fucking comes from. We are, like, really trying to, like, empower ourselves with peanut butter and just, like, grind our own and stuff. Cause we wanna be good friends to our, to our great ape friends. But can you remind us of what's at stake for these great ape species?

LAURA SIMONE LEWIS [01:06:57] Yes, absolutely. So all great ape species are endangered and chimpanzees and bonobos are critically endangered. So they are really, really endangered. And that's for a few different reasons. One is the pet trade. So they're stolen from the wild to become pets. One is the meat trade. So they'll they're killed in the wild and sold as meat.

Another is entertainment. So they're stolen for the wild to be put in movies and on greeting cards and things like this. And then finally, of course, human encroachment, right? So humans are cutting down their forests and their environments in order to create farmland.

JVN [01:06:36] And that's a huge issue from what we were talking about with, like, the trees and, like, knowing where the fruiting trees and it's like, can you imagine, like, walking, like, four miles? And that's what your family does every year and you go there and it's, like, not fucking there. And then you're like, wasted all that time. Then you've got to find, like, and that's, like, generations of knowledge loss because you wanted some fucking peanut butter.

LAURA SIMONE LEWIS [01:06:53] Exactly. That's exactly right. And imagine, like, roads being built through your territory, right? So now they have to potentially cross roads, which of course introduces new dangers.

JVN [01:07:02] Noooo!

LAURA SIMONE LEWIS [01:07:03] They, they may be cut off, right, from other group members. There's a lot of threats to these animals, to their territories as well. As humans, as citizens of the world, one piece is just to be informed about this, right. Is to have this knowledge. And another is to think about just as you were doing, Jonathan, in avoiding palm oil, is to think about our consumer choices, right? So, for example, avoiding palm oil is a really great way to have a consumer choice that is moving away from this resource that is completely encroaching upon orangutan territory. Another is just: chimpanzees and bonobos and other wild primates should never be pets. And I see all the time on social media people sharing videos of chimps, bonobos, other monkeys in diapers and clothes, on chains, on leashes and collars. They should never be pets. They need to be in their normal, natural, wild environments with other individuals, right? They're so social. If they're housed alone as a pet, it's really depressing for them. That's a really sad environment for them to be in. So they should never be pets. If you see videos of primates as pets, these should be reported, right?

We as responsible citizens should be reporting people who are illegally keeping these animals as pets. And a last thing is thinking about seeing these animals in our entertainment industry. Right. So you mentioned, for example, Ross and his capuchin monkey. Actually these animals shouldn't be used in entertainment. They shouldn't be used on greeting cards, for example. On a greeting card where the chimp's smiling, that's actually a fearful face that they're making, that they've been trained to make just because we as humans think it's a smile. But for them, that, that kind of grin, that grimace is called a fear grimace. It's actually a fearful face that they're being trained to use in a different context. That should never be okay. So avoid greeting cards with chimps and other primates on them. You know, if you see videos of primates as pets, we should be reporting these. And again, these aren't, like, huge actions that we're but we need to be taking US citizens. These are really small ways in which we can be helping these animals to stay in their natural social environments, informing each other that

they shouldn't be pets and that they shouldn't be taken out of their, their natural environments for illegal pet trades.

JVN [01:09:27] Okay, So that's good for free stuff. But what if you're still listening to this episode and you got coins, like, who's doing, like, good work to support them or who's, like, if you're, like, "Oh, I don't got coins, I want to volunteer." And they're like, around like if they're in the U.S. or something like, how can people get involved and who is doing good work that people can get behind, to, like, make a difference?

LAURA SIMONE LEWIS [01:09:44] Absolutely. If you got coins, listen up. So I think we mentioned last time, Lola Ya Bonobo in the Democratic Republic of Congo is the only bonobo sanctuary in the world. They're doing great work where they're rescuing bonobos who have been orphaned by the pet trade or the meat trade. They're rehabilitating them and they're releasing them back into the wild. So, Lola. Yeah, Bonobo is amazing the only bonobo sanctuary in the world. And then there's a number of other chimpanzees sanctuaries: Ngamba Island chimpanzees sanctuary in Uganda. Sweetwaters Chimpanzees Sanctuary in Kenya chimpanzees. Sanctuary. There's a number of different sanctuaries in Africa, in different African countries that are taking in chimpanzees that have been orphaned and that have been in the entertainment industry, that have been pets. And they're rehabilitating them to be around other individuals of their own species and potentially even released back into the wild. The Jane Goodall Institute is another institute that I love that's doing a lot of work to conserve not just chimpanzees, but also their habitats. Right. So you have to think about not just conserving the species itself, but also the environments in which they live. So the Jane Goodall Institute is wonderful. And then even above that is the World Wildlife Fund. This is a fund that's not just focused on chimps and bonobos, but focused on wildlife around the world that conserving not just the wildlife but the environments in which they live.

JVN [01:11:13] Yes!

LAURA SIMONE LEWIS [01:11:14] Yeah, so I'd be happy to share resources about those and others.

JVN [01:11:19] Oh, we're gonna post all the links and we're going to put them on our socials. So that's awesome. We're going to be all over that. That's amazing. And then I feel like you did a really good job throughout, like kind of telling us about, like, what we can pull and learn from bonobos and great apes about, like relationships with each other, about community, about aging, friendship. What questions remain about great apes? Like, how are you and your peers planning to answer them? Like, do are you going to be going to Canyon or are you going to go to the Democratic? Do you ever want to go out in the wild? And you are, like, yeah, what's happening? What's on the horizon for the field of Primatologist and what's next for you in your work? All three in one—hit it!

LAURA SIMONE LEWIS [01:11:56] Absolutely, yes. Thank you for asking. I would be happy to share. Yes, so hopefully this following actually will be going to, to Kenya to work in a sanctuary to study these apes. And potentially Uganda as well, at the Ngamba Island Chimpanzee Sanctuary. And I'm really excited, at least for my work. One area that I think is really important to study is about their emotions. So we know that they have emotions, right? For actually, for a long time, emotions were thought to be human, unique as well. But now we know, of course, they have emotions, but we don't know a whole lot about how these emotions are felt. We know that they express emotions in a number of different ways. But for example, do they feel things like embarrassment or pride or what? What kind of are these social emotions that they may feel with each other? How do they experience anger? How do they experience happiness? So this is one thing that I'll be focusing on my research. And then another piece that I'm really excited about is studying their social curiosity, whether and how much they're interested in kind of others and their curiosity about others in the social environment, for example, like if you hear a fight, if they hear a fight, do they want to go run and check that fight out versus if they hear some individuals playing right, like which one would be more interesting to them? Which are they more curious about? We don't really know a whole lot about kind of their social curiosity and how it is shaped and kind of how it varies based on their social environment. So this is another piece of my research that I think we'll get into. So stay tuned, those will be happening this fall.

JVN [01:13:33] We have to have you back, after your trip.

LAURA SIMONE LEWIS [01:13:36] Yes, I would love to come. You know, I would love to come back. That would be so fun. And I can give you updates and could tell you a little bit more potentially about their social curiosity and their emotion understanding.

JVN [01:13:48] Ohmigod, can’t wait. Dr. Laura, Simon Lewis, thank you so much for your time. Thank you so much for coming on. Getting Curious. We were so obsessed with you. Thank you so much for sharing your brain with us. We are so grateful and thanks for coming on Getting Curious.

LAURA SIMONE LEWIS [01:13:58] Absolutely. Thank you so much for having me, Jonathan. I had so much fun getting to know you and talk with you all about apes. This is just such a pleasure.

JVN [01:14:08] You've been listening to Getting Curious with me, Jonathan Van Ness. Our theme music is Freak by Quin. Thank you so much to her for letting us use it. If you enjoyed our show, please introduce a friend and show them how to subscribe. You can follow us on Instagram and Twitter @CuriouswithJVN. Our editor is Andrew Carson. Getting Curious is produced by me and Erica Getto with production support from Julie Carrillo, Chris McClure and Erin McKeon.