Sidedoor (S10E21) – The Lost Woolly Dog

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

Lizzie: Early in the pandemic, Audrey Lin was at home on her phone, doing what many of us were doing.

Audrey Lin: *I was just doom-scrolling.*

Lizzie: When she came across an article that caught her attention.

Lizzie: *Had you ever heard of the wooly dog before?*

Audrey Lin: *No, not before reading the article. I'd never heard about them before. I read this article and was just absolutely enthralled by the story.*

Lizzie: In the article, Audrey read that for thousands of years, small, fluffy white dogs could be found across the Pacific Northwest. Some of these dogs lived on islands, where they had their meals brought to them by women in canoes.

Audrey Lin: *And only these powerful women were allowed to keep these dogs. Just the image of women, you know, surrounded by this flock of fluffy white dogs, I really liked it.*

Lizzie: The dogs' hair was special. It grew soft and long. Long enough to be combed out, shorn, spun and woven into blankets by Indigenous peoples of the Coast Salish territory. But as Audrey read on, she learned that about a hundred years ago these wooly dogs disappeared. They were gone. And then she read something that made her leap right off her couch.

Audrey Lin: *The only known wooly dog pelt is in the Smithsonian collections.*

Lizzie: Audrey was like "Hold the phones! The Smithsonian? I work there. And dogs are my thing."

Audrey Lin: *I studied the ancient DNA of domestic dogs during my PhD.*

Lizzie: Audrey is an evolutionary molecular biologist. At the time, she was doing a research fellowship at the Smithsonian's National Museum of Natural History, so she called up her supervisor, Logan Kistler.

Logan Kistler: *So she said, "Hey, this specimen, this dog is the only known example of this extinct breed. And it's here, so can we do something?"*

Lizzie: Logan is a curator in the anthropology department. And he confirmed that sure enough, the museum's collections did hold the pelt of a wooly dog from 1859, the only known example of this extinct breed. A sample of its DNA could reveal clues about the dog's history. But that presented a dilemma.

Audrey Lin: *When we take a bit of sample, we would have to destroy that sample in order to get the DNA out.*

Lizzie: Audrey and Logan didn't want to snip a single hair without first reaching out to members of the Coast Salish community, because ...

Logan Kistler: *It was clear that wool weaving and the tradition of wooly dogs was culturally extremely important. And it was clear that the only sort of appropriate way to do the work was collaboratively. You know, we know our toolkit, we know what we can do, but we didn't necessarily know which questions to ask or how.*

Lizzie: They needed help.

Liz Hammond-Kaarremaa: *I'm Liz Hammond-Kaarremma.*

Lizzie: They started by called Liz. She studies traditional Salish textiles as a research associate at Vancouver Island University and the Smithsonian's National Museum of Natural History.

Liz Hammond-Kaarremaa: *And I research Coast Salish spinning because there's a lot of unique tools and techniques and fibers.*

Audrey Lin: *She is a master spinner, and she had been working with the Coast Salish communities for decades.*

Lizzie: Liz was happy to be involved, but said this project was going to require a lot of different conversations because the term 'Coast Salish' refers to the many communities of Indigenous people who've lived in western Washington and southwest British Columbia for the last 10,000 years. This territory comprises more than 40 independent nations with their own languages, dialects and ceremonies, so there's no one person to speak for everyone. But ...

Liz Hammond-Kaarremaa: *I thought that Steven Point would be an appropriate place to start.*

Steven Point: *And she called me and said, "Do you know that there's this wooly dog?" And I go, "No, I had no idea!" We thought it was extinct, totally gone, right?*

Lizzie: This is Steven Point.

Steven Point: *My traditional Stó:lō name is Xwĕ lī qwĕl tĕl*

Lizzie: He's a Grand Chief of the Stó:lō Tribal Council, as well as a retired judge, the former Lieutenant Governor of British Columbia, and the current Chancellor of the University of British Columbia, so he's a very busy and important person.

Steven Point: *[laughs] Well, busy. I don't know about important.*

Lizzie: Steven had grown up hearing stories about the wooly dog from his mother, who's a weaver. So when he heard about the wooly dog pelt at the museum ...

Steven Point: *I told my mom about it, and she goes, "What?" I said, "Somebody collected one of these dogs and it's preserved somewhere." I go, "Wow, holy crow!" It's kind of like finding part of your culture hidden in a cave somewhere. It's like, "Whoa, look at that!"*

Lizzie: *Yeah. [laughs]*

Steven Point: *Something the elders told you about, something that existed, something that was in story, and now it's really—it's a real thing. So ...*

Lizzie: *Wow!*

Steven Point: *Awesome!*

Liz Hammond-Kaarremaa: *And he said, "Yes, go ahead with the research."*

Steven Point: *Yeah. Well, they wanted to take a snip here and a snip there and figure something out. I go, "Yeah, I'd be interested." That it even exists is a darned miracle in itself, right? And so we need to carry on with our analysis and see what else we can find out.*

Audrey Lin: *He was our first point of contact, but he wasn't the last.*

Lizzie: Liz assembled a group of Coast Salish people to advise on the project.

Liz Hammond-Kaarremaa: *Elders, weavers, people that knew a lot about wooly dogs, and they came from communities both north and south of the border.*

Lizzie: The idea was to combine Indigenous knowledge with Western science, in what's called a two-eyed approach to research, each view informing the other, combining to see with more depth and breadth.

Logan Kistler: *You know, we use highly quantitative, highly analytical methods to learn as much as we can about this one dog, and in doing so we sort of open the door to be able to tell this much broader story.*

Lizzie: So this time on Sidedoor, a two-eyed look at the wooly dog. Why did it go extinct? What did that loss mean for the people who relied on its wool? And how can science help restore a history that has been erased? That's coming up after the break.

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Lizzie: When Debra Sparrow decided she was going to learn how to weave, she went to talk to her grandfather about it.

Debra Sparrow: *I was learning to spin wool, and having a cup of tea and we went and sat on the kitchen table. And I said, "Do you know anything about weaving, grandpa?" And he's like, "Yeah. Yeah, I know about weaving."*

Lizzie: Debra is a member of the Musqueam Nation, a First Nations people whose territory is part of modern day Vancouver, British Columbia. And while weaving is traditionally very important to her people ...

Debra Sparrow: *We didn't really see weaving growing up at all. We didn't know about it, and it was more or less dormant in all communities over the last hundred years.*

Lizzie: So when Debra learned that her grandfather knew something about traditional weaving, she was surprised.

Debra Sparrow: *And I said, "Oh my God, you saw it?" He goes "Oh absolutely, I saw it." He said, "In fact, I used to get in their way!"*

Lizzie: She listened as he recounted how as a boy, he'd watched his grandmother and other women weave on a big loom in the back shed.

Debra Sparrow: *They'd be working away, talking away, and I'd be playing under the loom. Or they had big balls of wool that I would play with and could roll around. And like any kid, they'd kick me out*

every once in a while and say, "Go play."

Lizzie: But as kids do, he'd watched them as they worked.

Debra Sparrow: *And he's like, "Yeah, they had to collect everything they used to make a blanket." So he told me, you know, about the mountain goat they used. And then he said, "And, you know, they used to have this little—" he said they call it a dog today, but it was a little animal. Looked like a little fox. And he said they were white, and he said they were in all the villages throughout Salish Territory. You had to have them. He said if you didn't have them, you know, you'd go without clothing.*

Lizzie: 'They,' of course, are the wooly dogs. Most weaving today is done with wool that comes from sheep, but before colonial contact, there were no wool sheep in North America. Salish weavers used plant fibers and mountain goat and dog hair to make blankets and robes. And I want to pause here to note I'm using the word 'dog' in this story because that's how most people in modern Western society would understand the wooly dog. But that's not how Debra sees it. She says ...

Debra Sparrow: *It's not a dog. We used to refer to a dog as 'squame.' 'Squame' means dog, but does it mean dog, or did it mean this little thing? This little being?*

Steven Point: *Our perspective on animals is different from the Western view.*

Lizzie: Stó:lō Grand Chief Steven Point helped explain this to me, saying animals hold a different place in his culture.

Steven Point: *A lot of animal stories in our pantheon of our history and our culture talk about animals that transform into humans and humans that transform into animals.*

Lizzie: He says it's a difficult relationship to characterize, but the wooly dog would not have been seen as livestock—or even as a beloved pet.

Steven Point: *It's a spiritual thing because of the way that we look at the environment. Animals, trees and plants, everything is alive, everything has a spirit. Yeah, so it's quite a different perspective from Western society.*

Lizzie: So the little beings we today call the wooly dogs once lived in communities throughout Coast Salish territory, communities with different languages and dialects, ceremonies, and traditions. And for that reason ...

Liz Hammond-Kaarremaa: *There's no one decisive story of the wooly dog.*

Lizzie: But Liz Hammond Kaarremma has heard *a lot* about dogs from conversations with weavers and knowledge-keepers, listening to oral histories that have been passed down and reading accounts by anthropologists and ethnographers. And the descriptions are pretty consistent.

Liz Hammond-Kaarremaa: *Spitz-like tail. You know, that curved tail. Triangular ears and pointed fox-like snout.*

Lizzie: A smallish dog.

Liz Hammond-Kaarremaa: *Certainly not chihuahua size, but smaller.*

Lizzie: *But not a husky.*

Liz Hammond-Kaarremaa: *But not a husky, yeah.*

Lizzie: And she says wooly dogs were usually kept separate from other dogs.

Liz Hammond-Kaarremaa: *Some villages might have kept them in pens, some villages might have kept them on islands to prevent their breeding with other dogs.*

Violet Elliot: *They had an island that they called Squeakamay Island.*

Lizzie: This is Violet Elliot.

Violet Elliot: *Squeakamay Island is where we kept our wooly dogs.*

Lizzie: Her stories about the wooly dog have been passed down from her great-great grandfather, Joe Wyse.

Violet Elliot: *I am from Snuneymuxw First Nations. I live in Cowichan First Nations. My Hwamuxwna, which is my Indian name, is Snu'Meethia.*

Lizzie: Violet is a weaver. She's been weaving for over 28 years. And she says for me to even begin to understand the wooly dog's place in her culture, she wanted to tell me a story. When she was young, an elder in her community heard that she was learning to weave cedar baskets.

Violet Elliot: *She said, "I heard you're weaving." I'm nodding "Yep." "And did you learn how to pull the cedar from the tree?" Yes, I did. "Okay, come. Come sit down," she said. "I want you to understand*

what you're asking from a cedar tree when you pull its bark." And she said, "It's like me asking you for your skin."

Violet Elliot: *Okay, like that this is a serious thing I'm asking. She said, "So now when you go gather cedar, you put your hand on the tree and you just feel it. Does it feel okay? If it feels okay, you introduce yourself to the tree. You tell the tree who you are, that you're a weaver, and you're only ever gonna take what you need."*

Lizzie: So Violet did this for years, When she went out to collect cedar, she'd put her hand on each tree.

Violet Elliot: *Kind of on automatic, put my hand on the tree, feels good, say a prayer.*

Lizzie: But one day ...

Violet Elliot: *I put my hand on a tree. Anger, big time anger. I was confused. I was like, I've never—I don't know. I don't—I don't know what to actually do. And I went "It's okay. It's okay," to the tree. And I walked far away. Because at first I was like, "Should I introduce myself to this angry tree?" [laughs] So I went way away. I was hesitant to put my hand on a tree again, but I did.*

Violet Elliot: *But, you know, we're taught we are one with that cedar tree, and the cedar tree is one with us. And I've gone into this long story so you understand wooly dog would be our relative in the same way. We're wooly dog's relative, and wooly dog is a relative to us.*

Lizzie: Violet says in traditional weaving, the gathering of materials is as important as the weaving itself, and the wooly dog would have been treated with the same respect as the cedar tree.

Violet Elliot: *Anything that we did with any animal, we had this value: we're one with that, and they're one with us. We fed these dogs our best foods because we highly valued what they had to offer back to us.*

Liz Hammond-Kaarremaa: *Mainly the dogs would eat what their owners would eat. And so in some communities, it was elk meat or elk stew. Other communities, more commonly, it was salmon.*

Lizzie: And Liz says it was a select group of women in the community who cared for the dogs.

*[**ARCHIVE CLIP, Rena Bolton:** The women that had dogs were high-born women.]*

Lizzie: Liz spoke with Rena Bolton, a weaver from Stó:lō Nation.

Liz Hammond-Kaarremaa: *Her great grandmother was the one who made the decisions about the*

breeding of the dogs.

*[**ARCHIVE CLIP, Rena Bolton:** Nobody else was allowed to use them. They couldn't breed them without her permission.]*

Lizzie: When it came time to collect the dogs' hair ...

Liz Hammond-Kaarremaa: *Some communities plucked the hair, and some communities would cut it with a sharpened clam or mussel shell.*

Lizzie: *Wow! Plucking the hair, that sounds uncomfortable.*

Liz Hammond-Kaarremaa: *Not really, because they said that in some villages, they say the dog would shed naturally twice a year.*

Lizzie: Liz read that in one village ...

Liz Hammond-Kaarremaa: *The dog would go, "Ooch, ooch, ooch!" And they would sing to make it feel comfortable.*

Lizzie: Once the dog hair was gathered, it was painstakingly spun into yarn. And that yarn was woven into blankets. Some for practical purposes like warmth, yes—the Pacific Northwest is a chilly place!—but also for ceremonies like weddings and memorials. Violet and Debra both told me that the preparation for these ceremonies and the weaving of the blankets often took years.

Lizzie: *I wonder if, as a weaver, you could help explain the spiritual significance of these weavings. I understand that the process of weaving, it's not about just stringing up the material on a loom and doing the proper, you know, knots.*

Debra Sparrow: *So we as people, we're connected to the fiber, to the earth, to the water. We are connected. And so the value is woven. Blankets are connected, so when the woman is weaving, she's thinking. She's thinking about the ceremony. She's thinking about the child, the adult, the reason why she's making it, the reason it's coming into the world.*

Lizzie: Just as Violet was taught her how to gather cedar wood, wool-weaving traditions were passed down woman to woman, generation to generation.

Debra Sparrow: *And that's important because this is not about making a pretty blanket. It's not about selling a blanket. It's about identity.*

Lizzie: For example, when Debra Sparrow's grandfather was around five years old, he remembers

being brought to the longhouse.

Debra Sparrow: *He said, "I walked in and everybody was there. And I was stood in front of everybody, and I got my name." And he was wrapped in the robes.*

Lizzie: She says during this naming ceremony, the floor of the longhouse would have been covered in textiles.

Debra Sparrow: *You call it a red carpet today. We'd make white carpets. We would weave weavings long enough to go 20 feet down one side of the longhouse and maybe 20 feet across. So when the people came, they got to walk on them. And when it was all done, we'd take those long 20-foot weavings and we'd cut them up into smaller pieces and they're gifted to people that are there, established people.*

Lizzie: And for Debra's grandfather, his naming ceremony, which took place around 1900 ...

Debra Sparrow: *That was, he said, the last time he ever saw weaving in Musqueam.*

Lizzie: *Wow!*

Lizzie: The wooly dog lived in Coast Salish communities for generations, as kin as well as a provider of wool. But in the mid-1800s, the dogs became increasingly rare, and sometime around the turn of the century, they vanished.

Logan Kistler: *There's a few pictures that are from the early 1900s that are—they're claiming to be wooly dogs. But in all those cases, it's not necessarily clear that they are. And if they are, they're living as pets. They're not being kept in sort of the traditional way to use for weaving.*

Lizzie: Smithsonian's Logan Kistler again.

Logan Kistler: *And it's been said throughout decades in the literature that the dogs ultimately died out because cheap machine-made blankets were imported, and it was easier to buy those than it was to sort of go to the trouble to keep dogs and to weave.*

Lizzie: This is the story told by Western history, that once the Hudson Bay Trading Company imported sheep's wool blankets from Scotland and England, there was no need to weave with dog hair, and so the dogs died out.

Audrey Lin: *This is what we would read in history books, from scientific papers, from archaeology papers.*

Lizzie: *Wow!*

Audrey Lin: *Yeah.*

Liz Hammond-Kaarremaa: *There was more to it than that.*

Lizzie: When we come back, we'll meet the little wooly being in the collections of the Smithsonian National Museum of Natural History, and learn what really happened to the wooly dog. After the break.

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Lizzie: In 1857, an ethnologist named George Gibbs was traipsing around in the Pacific Northwest, one of the team of men working for the US government to mark the new border between the United States and Canada.

Logan Kistler: *And at some point, he was given or acquired somehow this dog named Mutton who traveled with him as his pet.*

Lizzie: Mutton was a wooly dog, and Gibbs was one of those Humbolt-ian 'men of science,' interested in plants, animals, rocks—anything he came across, really. He took field notes wherever he went, and sent a bunch of specimens back to the Smithsonian. As it turns out, his dog Mutton also took an interest in these specimens. Smithsonian's Logan Kistler says in a letter, one of Gibbs's colleagues complained.

Logan Kistler: *George Gibbs had sent him these mountain goat pelts, um, but when he opened them up, he could have cried because George Gibbs' famous Indian dog Mutton had chewed the heads off of them.*

Lizzie: *Oh!*

Logan Kistler: *And Mutton had recently been shorn, "But as soon as his hair grows out, we'll make a specimen out of him." I don't think that happened.*

Lizzie: *[laughs]*

Logan Kistler: *There's no evidence that actually was what ended up happening. Apparently, Mutton got sick late in life, but somebody was thinking in specimen terms.*

Lizzie: *Wow, that's, that's a little incriminating. [laughs]*

Logan Kistler: *It is a little bit.*

Lizzie: When Mutton eventually died—we assume of natural causes—George Gibbs did in fact make a specimen out of him—scientists are gonna science. He sent Mutton's pelt, basically his skin and fur, to the Smithsonian where it remains today, 143 years later.

Missy Hawkins: *So generally, we keep the smaller animals on the mall and the larger animals, including all the carnivores, out here.*

Lizzie: Missy Hawkins is about to lead me into Pod Two of the Smithsonian's Museum Support Center in Suitland, Maryland. Basically, a big ol' storage unit for lots of big ol' stuff. But, you know, top of the line.

Lizzie: *All right, let's go!*

Missy Hawkins: *[laughs] We have lots of doors. They're all obviously locked, and then there's double doors here to prevent any pests coming from outside to inside.*

Lizzie: Missy is curator of mammals at the Smithsonian's National Museum of Natural History.

Lizzie: *Whoa that's a lot of antlers.*

Missy Hawkins: *Yeah. So this is how we store a lot of deer antlers.*

Lizzie: She leads me past the elephant skulls ...

Lizzie: *Oh my gosh!*

Lizzie: ... and bison heads.

Lizzie: *Whoa!*

Lizzie: ... to one of the many rows of metal lockers. She turns a knob.

Missy Hawkins: *First case I'm gonna show you ...*

Lizzie: *Oh wow, that's a strong smell.*

Missy Hawkins: *That is a strong smell. I don't even smell it anymore, but I've become nose blind to such things. To me it smells like home. I have this weird olfactory reaction.*

Lizzie: To me it smells vaguely gamey, like jerky mixed with formaldehyde.

Lizzie: *Beef jerky and mothballs?*

Missy Hawkins: *That is usually from the antiquated way of preserving specimens, and they would treat them with different chemicals, so sometimes these chemicals kind of off-gas when you open them.*

Lizzie: Inside the locker is a drawer. Inside the drawer is a box.

Missy Hawkins: *I'm taking the top off this cardboard box.*

Lizzie: *Whoa!*

Missy Hawkins: *So there he is!*

Lizzie: Mutton—the only known wooly dog to exist in any museum in the world.

Lizzie: *You know, it kind of just looks like a pile of fur, but then you've got the paws, and the paws are so alive looking.*

Missy Hawkins: *Yeah. Yeah.*

Lizzie: Mutton's little paws remind me of a corgi's. His coat is sort of an off-white, not quite blonde.

Missy Hawkins: *In some breeds of dog they call it biscuit, which is pleasant, right?*

Lizzie: Nestled in his special storage box, Mutton's pelt looks like a cozy pile of light tan fur pointing every which way. Missy leans in closer.

Missy Hawkins: *What you'll see is kind of a very sheep-like fur, almost.*

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Lizzie: Missy says most mammals have two kinds of hair in their coat: there's the guard hairs, the longer, coarser protective hairs. That's the hair you're feeling when you pet most dogs.

Missy Hawkins: *If you feel the guard hairs, they're generally a lot stiffer than that plush undercoat. And they're more water repellant.*

Lizzie: Then there's the undercoat—this soft, dense, insulating layer of hair underneath.

Missy Hawkins: *It's very thin, but that wavy allows air to be trapped in it and kind of keep that heat.*

Lizzie: In most animals, the undercoat is a lot shorter than the guard hairs. But Mutton's coat is different.

Missy Hawkins: *So the undercoat of Mutton is nearly the same length as the guard hairs.*

Lizzie: *Wow!*

Missy Hawkins: *Yeah, and I've never seen that in any other domestic dog that I've looked at.*

Lizzie: But you can only tell so much from an animal by looking at it. That's why researchers Audrey Lin and Logan Kistler wanted to take a look at Mutton's genome. After teaming up with Liz Hammond-Kaarremma and the Coast Salish advisory group, they were ready to peer into Mutton's deep past. But getting DNA from a century-old animal isn't so easy—especially in a pandemic.

Missy Hawkins: *We were, like, completely locked down. It was like me alone in here, which you already noted that it might be kind of scary with all these skulls of large size.*

Lizzie: *Antlers and—yeah.*

Lizzie: All alone amid the skulls, decked out in protective gear so she didn't contaminate the sample with her DNA ...

Missy Hawkins: *I can show you, like, if we open them up a little bit ...*

Lizzie: *Whoa, that's the under part.*

Missy Hawkins: *Yeah. So this is the inside of the skin.*

Lizzie: Missy carefully cut little bits of skin, tissue and cartilage from various places on Mutton's pelt.

Missy Hawkins: *Look. I think actually, that might be a spot I cut. You see it looks kind of clean there? I think I used a scalpel and I cut this edge. You know, this is the base of the ear.*

Lizzie: *I see.*

Missy Hawkins: *On the inside of Mutton's ear.*

Lizzie: And then like in some wacky kind of scientific relay race, she passed the baton to Logan so he could extract the DNA.

Logan Kistler: *The way we do it, though, with an ancient specimen, and particularly such an important specimen like Mutton, is we work in a dedicated ancient DNA lab.*

Lizzie: This is because, the longer something has been dead, the more time the DNA has had to break down. Logan says it was entirely possible that they could have taken Mutton's hair and skin and wound up with no dog DNA at all.

Logan Kistler: *It happens all the time.*

Lizzie: *Really?*

Logan Kistler: *Yup. We were lucky in this case.*

Lizzie: Very lucky. Logan extracted the DNA and sent it away for sequencing, and Audrey got the results.

Audrey Lin: *It was emailed to me, you know? [laughs] And it was a big file to download!*

Lizzie: She downloaded it on the museum's supercomputer, and got to work making sense of all those A-T-G-Cs. Audrey compared Mutton's DNA to the DNA of 217 other dogs, both modern and ancient breeds, from around the world, trying to get a sense of his genetic ancestry.

Audrey Lin: *Is he most like a North American indigenous dog, or is he more related to, say, European dogs?*

Lizzie: *This is like a 23andMe for an ancient pelt.*

Audrey Lin: *Yes, exactly.*

Lizzie: Of all the dogs they compared him to, Mutton was most closely related to a 4,500-year-old dog from Port Au Choix Newfoundland.

Audrey Lin: *Which was pretty amazing given that Mutton lived in 1859. That is a lot of time that's passed!*

Logan Kistler: *And that's where we had the first indication that Mutton was from this pre-colonial lineage. He represented a much longer term lineage of dogs that went back thousands and thousands of years in the Americas.*

Lizzie: *Whoa!*

Logan Kistler: *That led us to dig more into the nuclear genome, and the nuclear genome is a much bigger, much more complicated space.*

Lizzie: And they found two really interesting things. First ...

Logan Kistler: *We saw that Mutton, he's about 85 percent pre-colonial lineage of dogs from the Americas.*

Lizzie: 85 percent! To put that in context, Audrey says very few living dog breeds today have any pre-colonial dog DNA.

Audrey Lin: *For example, the Chihuahua has, like, you know, two to three percent pre-colonial DNA. That's very small. I mean, there's humans who have more Neanderthal DNA than dogs have pre-colonial American DNA.*

Lizzie: And second, Logan looked for evidence of artificial selection. That is, an indication that the wooly dog hadn't just been kept separate from other dogs, but was selectively bred to exaggerate certain traits. Like if you wanted a dog with super huge ears, you'd have the biggest-eared dogs breed until you get a Basset hound.

Logan Kistler: *I was expecting to see nothing, because we only had one dog and these kinds of tests where you only have one sample are very crude. Instead, it was like Christmas morning. We saw so much signal associated with wool traits, hair traits, skin traits. We saw really clear indications that this isn't just another dog that people are making textiles out of, this is a dog that was bred for spinning*

and weaving.

Lizzie: The wooly dog wasn't wooly by accident, it was the result of intentional isolation from other breeds. If the wooly dog had bred with other village dogs or hunting dogs, their hair would quickly have gotten shorter, silkier, less crimpy and less good for spinning.

Logan Kistler: *This was not a short-term thing. This was a long tradition, and we could really see evidence of that in sort of the intensity of selection and the way that humans had shaped the genome over that period of time.*

Lizzie: *Thousands of years!*

Logan Kistler: *Mm-hmm.*

Audrey Lin: *The fact that Mutton has so much pre-colonial DNA is a testament to the care that the Coast Salish peoples had took in order to keep this tradition alive. That was so important. It was so important to them.*

Missy Hawkins: *It's important for people to understand that we didn't just let the dogs go away and die.*

Lizzie: So what *really* happened to the wooly dog?

Steven Point: *Contact here for us in the Fraser Valley happened around 1858 with the gold rush.*

Lizzie: Steven Point, Grand Chief of the Stó:lō Nation, says things started to change when 30,000 San Franciscans arrived looking for gold.

Steven Point: *That's when we first came into large contact with the Europeans. Up 'til then, it was mostly just missionaries and fur traders, right? And they didn't disrupt things too much, but it was when they found the gold, that's when things started changing.*

Lizzie: By the late 1800s, the Canadian and American governments were trying to assimilate native peoples into the dominant culture by dismantling Indigenous people's traditions.

Steven Point: *A lot of the culture had been outlawed in those days.*

Lizzie: In 1885, a proclamation known as the "anti-potlatch ban" declared quote, "Every Indian or other person who engages in or assists in celebrating the Indian festival known as the potlatch is guilty of a misdemeanor and shall be liable to imprisonment."

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Steven Point: *It was against the law to even have a drum in your house. You couldn't sing songs, or you couldn't dance Indian dancing. They used to raid houses where Indian dances were going on and arrest the people that were dancing, which is weird!*

*[**ARCHIVE CLIP, Rena Bolton:** Everything came to a halt. Everything.]*

Lizzie: This is Rena Bolton, Steven Point's mother, speaking as part of an oral history she recorded with Liz.

*[**ARCHIVE CLIP, Rena Bolton:** The singing, the dancing, the drumming, we were not allowed to have any of those things. The blankets were not allowed.]*

Lizzie: Rena, who is now 96 years old, was one of the many children sent to mandatory residential schools where she was forbidden from speaking her native language. She had to learn how to weave in secret because under the Indian Act laws, traditional weaving was banned.

*[**ARCHIVE CLIP, Rena Bolton:** And our people were not allowed to spin. They couldn't use their looms, tand hey would take them out and burn them. And if they caught you making baskets or anything like that then you would get fined, and if you couldn't pay the fine, you went to jail.]*

*[**ARCHIVE CLIP, Rena Bolton:** They outlawed our namings, our memorials and our weddings, so we were not to practice those any longer. So then how would we distribute the blankets anyways?]*

Lizzie: Rena Bolton's great grandmother had kept wooly dogs, and the dogs were a symbol of high status, which made them a target for government agents.

*[**ARCHIVE CLIP, Rena Bolton:** We were not allowed to keep them because that showed signs of authority and high breeding. And so the dogs were—I don't know what they did to them. They were told to get rid of them or they took them, I don't know. My mother never spoke about it. She just said her grandmother had them.]*

Lizzie: And while repressive laws were working to destroy the culture, disease had decimated the population.

Steven Point: *90 percent of the people died after Europeans arrived to introduce diseases, so it interrupted this process of passing knowledge down from one generation to the next. And then when the anti-potlatch laws came into effect, that again repressed the passing of information down.*

Lizzie: Steven Point says that story that cheap manufactured blankets made wooly dogs obsolete, it's

nonsense. 100 percent.

Steven Point: *My own view from looking at history and looking at everything that's happened to us as Indigenous people is that the wooly dog was simply a victim of colonialism. We lost our country. We lost our language. We lost our elders. We lost our brothers and sisters to residential school. We lost the wooly dog. Just a long list of things that we lost.*

Debra Sparrow: *We were a thriving people, but to be assimilated into residential school and have the bottom of your world knocked out and the bottom of that world was a blanket? We stand on them. We lay them on the ground and we stand and the ceremony begins.*

Lizzie: In December 2023, a paper publishing the results of Mutton's DNA analysis became the most-read article in *Science* magazine. The paper was co-authored by the entire Coast Salish advisory group.

Audrey Lin: *I mean, without their input, without their contribution, like, we would have had these results but we wouldn't have known what it meant.*

Lizzie: Audrey Lin says oral histories and science serve and reinforce each other. Science can corroborate narratives. Narratives can contextualize science.

Audrey Lin: *We can learn from the past. We can use, like, this knowledge to inform the scientific questions that we do ask, and also to perform science in an ethical manner that serves humanity for the better.*

Lizzie: So this isn't just a story about loss. It's also a story about a kind of rebirth, because Debra Sparrow says traditional weaving went to sleep for a hundred years.

Debra Sparrow: *And this is the awakening. This little being has woken us even more than we were before. To know—to have the scientists prove that it was unique to who we are as people is more that we stand on again.*

Lizzie: The wooly dog is gone forever, but tradition endures. Deborah plans to begin weaving with other kinds of dog hair using the method recounted to her by her grandfather. She says weaving is waking back up after a long sleep.

Lizzie: You've been listening to Sidedoor, a podcast from the Smithsonian with support from PRX. And I know by this point you really want to see what one of these wooly dogs looks like. And you're in luck. Audrey and Logan worked with a scientific illustrator to create a realistic reconstruction of the wooly dog using every possible measurement from Mutton's pelt and archeological evidence.

Logan Kistler: *And applied all of these measurements and created what we think is a very lifelike reconstruction of a wooly dog.*

Lizzie: Check it out on our Instagram page @SidedoorPod. You can also see it in our newsletter. We'll also link to the original Hakai article Audrey Lin read that launched this research project. Subscribe at SI.edu/SideDoor.

Lizzie: For help with this episode, we want to thank Audrey Lin, Logan Kistler, Liz Hammond-Kaarremaa, Debra Sparrow, Violet Elliot, Steven Point, Rena Bolton, Missy Hawkins, Susan Pavel, Michael Pavel and Chief Janice George.

Lizzie: Special thanks to Senaqwila Wyss, a co-author on the wooly dog paper whose research into colonial impacts on wooly dog populations informed this episode. We'll include links to her "Wooly Wednesday" videos in our newsletter, too.

Lizzie: Thanks also to Ryan Lavery, Jack Tamisiea, Emma Saaty, Lisa M. Gray, Jesse Woodward and Gaetan Harris.

Lizzie: Our podcast is produced by James Morrison and me, Lizzie Peabody. Our associate producer is Nathalie Boyd. Our intern is Lena Dodoo. Executive producer is Ann Conanan. Our editorial team is Jess Sadeq and Sharon Bryant. Tami O'Neill writes our newsletter. Russell Gragg transcribes our episodes.

Lizzie: Episode artwork is by Dave Leonard. Extra support comes from PRX. Our show is mixed by Tarek Fouda. Our theme song and episode music are by Breakmaster Cylinder.

Lizzie: This is our final episode of the season, but while we're on our summer break we'll keep releasing some fun surprises in our feed for you, so stay tuned. In the meantime, if you have an idea for a story for next season, send us an email at Sidedoor(@)si.edu. Make sure to follow us on social media @SideDoorPod. And if you're feeling generous, leave us a review on Spotify or Apple Podcasts—it really helps our show and helps new listeners find us. And we just—we really love it.

Lizzie: I'm your host, Lizzie Peabody. Thanks for listening, and have a great summer.

Debra Sparrow: *Even today in the chaos of the world, you go home and you wrap in a blanket. You feel comfortable when you wrap your child in a blanket. Blankets are our saving grace and we take it for granted.*

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