

# Building Empathy for Wildlife ...Conservation Action and Caring

📅 Thu, Jan 23, 2025 9:44AM 🕒 1:16:04

## SUMMARY KEYWORDS

Empathy, conservation action, wildlife, zoos and aquariums, empathy development, pro-environmental behaviors, animal encounters, emotional processing, anthropomorphism, visitor experiences, research review, empathy fatigue, cultural context, habitat design, empathy measurement.

## SPEAKERS

Speaker 2, Marta Burnet

---

Welcome everyone. My name is Marta Burnett. For those of you don't know me, I am the director of advancing empathy at Woodland Park Zoo, and I use she her pronouns. I'd like to welcome you all to today's event hosted by the advancing conservation through empathy for wildlife, or ACE for Wildlife network. I'm coming to you from Seattle on the Coast Salish lands, as you may have heard, the network is currently working on a revised land acknowledgement in partnership with the native governance center to create something that collectively calls us to action and solidarity with indigenous peoples, so that more formal and acknowledgement is in the works, but in the meantime, I just want to mention that practicing empathy for wildlife challenges human exceptionalism and instead helps us to recognize our similarities and inter relationality with other living things. This way of thinking has existed for millennia and continues to exist in cultures around the world. We want to recognize this perspective that it has been historically discredited in the US, and that we are working to address the harm that has been inflicted as a result. So stay tuned for more on that front and how we can incorporate traditional ecological knowledge into our work, and since we have so many in attendance that are new to the network, I wanted to share a little bit about the network and also some links to learn more. So the ace of wildlife network is a global community of more than 600 educators, keepers, communicators and leaders who promote empathy for animals and people, to advance conservation action learning as we go, we offer free events, resources, networking and professional development opportunities, and you can visit. I think Sarah will help me putting this into the chat. You can visit our introduction, dot ace for wildlife.org, to learn more about everything, practices, examples of projects at partner organizations and about the network. And if you are interested in joining, she's also going to put the link in the chat on how to join the network. So now on to the reason that we are all here today. It's my pleasure to introduce Alison Bowers from the Social Ecology Lab at Stanford University, and Wilson Sherman, who is a network affiliate, formerly with Oakland Zoo and now a PhD student with the Institute of the Environment and Sustainability at UCLA. We started this project last summer to dig into the most common and important question folks have when they learn about the empathy practices. Is there really a link between empathy and conservation. So Allison and Wilson are going to share a bit about the lit review that they worked very hard on, and then open up to questions and discussions with the whole group. So feel free to either

put your questions into the chat or save them for after their presentation. And now, without further ado, I'll turn it over to you, Allison and welcome. Thank you, Marta. Thank you so much. Thank you everyone for coming today. I was telling Marta and Wilson and the rest of the team that I'm coming with great humility, because I am not an expert in empathy or in zoos and aquariums, and I bring the expertise in methodology and research reviews, so I'm really excited today to get some feedback, and you'll see in a second that a lot of the presentation today will be kind of discussion and everything. So thank you all for coming and making this possible, and thank you to Marta and the team for giving us this opportunity. But I really feel like this final document and this review is a true partnership. I could not have asked for better partners on this with Marta and her team at wpz and Ace really bring in a practitioner and expertise that they did. So I'm very grateful for that, and thanks for also in my lab too, and my colleague Wilson, who we will be hearing from shortly as well. So today, if the forward, move it forward there. There just a quick agenda. As Marta said, I'll give kind of a summary of the review process and the findings. About 20 minutes we're aiming for that it's going to be really quick, because we do want to save some time for Q and A. If you all have questions, I'm not a great multi tasker, so I would totally rely on the rest of my colleagues here to let me know if there's a chat, if there's questions come up there, and then we do have some discussion prompts that we'd love to hear from you all if we have time. But if the Q and A is organic, we are happy to let that go as well, and also happy to throw it back to Marta and team, if they have questions they want to insert too. So pretty flexible format today, and I'm actually going to throw it to Wilson next, who's going to be the true expert in empathy on the team here. And so he's going to kind of cover we know that most of you know what empathy is, but we thought it would be important to talk a little bit how we thought about empathy, how reframed it for this review, before we launched into the review findings themselves. So we'll,

yeah, absolutely. Thanks, Allison and and most of what I know about empathy, I know from folks on the network and through the network, and so I'm grateful to you all, hardly an expert, but yeah, just to introduce empathy. And as we know, there's so many different definitions, and many of us use definitions in different ways. And this review, we drew on kind of, we looked at, you know, how people across disciplines are talking about and defining empathy, and sort of identified that empathy is about understanding, feeling and sharing what someone else is experiencing while still maintaining a clear sense that this experience belongs to them and not us. So it's about that kind of balance of understanding and recognizing a little bit of distance. And we broke this down into this kind of understanding and feeling portion. So that understanding side, we might also call cognitive empathy. So this is the ability to recognize, use what we know and context to make an educated guess about what someone else is experiencing, whether that's a human or a non human animal. And then on the other side, we have that affective empathy. So this is the feeling side of things, when we see someone else having an experience, and then feel that emotion in ourselves, and there is a biological basis of empathy. So this is rooted in neuroscience, something called mirror neurons, where when we see someone else experiencing an emotion, parts of our brain associated with emotional processing and emotional regulation, you know, activate as highly social creatures. This ability to empathize with others and understand the experiences that those around us are having is really baked into our evolution. This said empathy is not, you know, exclusively hard wired. It's also something that's developed over time and highly dependent on kind of cultural context and what one learns growing up. So this is kind of one of the reasons that zoos and aquariums are such exciting places, because there are spaces where families and especially young children, can kind of be taught to practice those empathetic skills in and extend them to the more than human world you know, and practice not just feeling those feelings, but also learning to kind of toe that line of knowing when it's when we can't fully understand something, and we'll talk more about

that perfect thank you, Wilson. We just thought it was important again, that kind of the way we think about empathy. Because as we dove into all this literature, we saw there's lots of viewpoints on how to define empathy, what certain aspects to emphasize, how to measure it, lots of different ways of thinking about it. So I wanted to kind of kick off my part talking about why even care about empathy, as Wilson alluded to, that that it can be developed, and it's important to do these things because it contributes to just overall human health and well being right? So that's a very basic reason why to care about that. If we care about people, we should care about empathy. It can improve their lives at certain jobs, this research shows that being more empathetic helps in being a teacher, being a health care worker, being law enforcement, that so and certainly in career rise, there's things to care about that way. But also a lot of it has to do. Is Wilson was saying, with it develops and your moral development. So empathy plays a huge role in moral development and in what, in academics, they talk about, pro social behaviors. So getting people to take actions, to help others, to help the planet, just any kind of helping behaviors show is tied to empathy for zoos and aquariums. There's the additional interest of the link, which is what this research focuses on, between empathy and conservation action, caring behaviors Pro Environmental behaviors, which we'll talk about more. And so then the case comes, and we'll look at kind of a pathway that you want to create encounters, create experiences, that develops empathy with the understanding that it contributes to the taking of action and for something, for a cause you care about, in this case, wildlife conservation and wildlife caring. It's kind of the urgent story of this review, Marta and team came to us, which was so excited about our lab at Stanford is very interested in making sure academic research connects to practice, but that can be really hard to do, because academics have a tendency to hang out in their silos, and we get deep into our work and we forget that those are the real purpose is change on the ground. So doing something like this was a great opportunity for our lab. As I said, I'm not an expert in empathy or in zoos and aquariums. I'm a methodologist with expertise in research reviews, and that's actually a bonus when you're doing a review like this. I don't know if I ever shared with Marta. I know I've talked with Wilson before that. I coming into this. I was almost anti empathy. I'm a big was a fan of Paul Bloom's book about, you know, against empathy. And I was like, I'm not so sure if you know what it is, but let me tell you this. I cannot a better thing that came out of it was it convinced me. Wow, there's really some evidence, strong evidence, which is hard in social sciences to get such strong evidence that there's a there's something going on here, right, repeated in study after study. And so that's what I think we were hoping in this review, to get all this evidence, look at it as comprehensively as we could, and gather it together for you all to make a case to people like even to doubters like me, that, hey, there's something worth investigating, and it is worth your time and your resources and incorporating this into the work that you do. I know I do a lot of work in environmental education, and a lot of times we're having to kind of justify, like, why even spend time on something like environments or education, and I think and we often struggle to find evidence, but I gotta tell you, folks, there's a strong evidence base here, and I don't often get to say that, so I am super excited to share this in this report, and grateful for the opportunity. I could go into details. I could spend the whole 20 minutes talking about the review process, because that's the part that fascinates me, but I won't. I did want to say that we aim to be comprehensive. It's hard to do because I think there was a lot more research and evaluation than I initially thought. And that's always a challenge in a review, is the scope. Right where to stop? We were not aiming to do a systematic review, because that's a very in depth process that can take, you know, a year or more, but, but we definitely incorporated systematic searching into it, and that's kind of how we launched the review. We learned we use search terms like empathy, conservation, zoos, aquariums, those kind of search terms across academic databases. And so our search started in academic academic databases like Web of Science and Scopus, and we we ran those searches using the same search terms and then imported those into covidence, a systematic review management software, and vetted over 2000 citations. We would move duplicates, over 600 duplicates, and then read the title and abstract of over 1200 citations and then narrow those down based on the review questions I'll talk about in a minute. But we didn't just

stop there. We we did other forms of searching, including Google Scholar searches. We did what we call serendipitous searching, where where you talk to colleagues. We posted on we were interested in unpublished research and unpublished evaluations, so we reached out to networks, to practitioners, and invited them to share any evaluations or unpublished work they might have. We also did some Citation Searching, forward and backward meaning we had core articles that we looked at their reference list and said, where are these papers cited? What papers did they cite? It was a lot. It was a lot to go through, because there's a lot on the topic. And then from there, we looked at our research questions, the review questions, and I we imported a lot of it into in vivo, and did some basic coding grouping and seeing what are the trends, red are the themes and kind of shape those by the research questions, and then the final document is a report, I think is available now, Marta and so hopefully, I really encourage you to check that out to show our synthesis as we kind of address the questions. We're not done. We're hoping to get an academic publication this quarter on it, and as you'll see, it also, the great thing about review is it opens up so many other pathways and say, what other topics should we be looking at? And so we're really interested in figuring out what our lab can look at, what other researchers can look at, and what would be useful to you all. So as I said, the research questions, we kind of had three, and they're really driven by this idea of an empathy for action pathway. And it starts with a meaningful visitor experience. This could be an encounter in a zoo, aquarium or a similar setting, with the idea that something in that experience, when that encounter develops empathy, whether intentional or not, empathy is developed. And then the part that we're interested in is, what happens, where, what does that empathy do? And for this review, we initially were focusing on wildlife conservation action and wildlife caring behaviors. So wildlife conservation action meaning things where you're trying to protect wildlife and their habitats. And it can be simple things like, you know, even addressing climate change by turning off lights, that kind of thing, to things about sharing on social media, or about wildlife conservation, getting involved in a wildlife initiative, supporting wildlife conservation causes and organizations, caring behaviors to be a little more focused on individual animals, and they can be things like taking care of pets and domestic animals. They can be developing wildlife friendly habitats in your in your home, or it can refer to the visitor behavior at a zoo or aquarium, right if, being quiet when asked to not banging on the glass. So we were interested in those two questions. We did find that there wasn't a lot of research on empathy development and caring behaviors that likely was influenced by kind of research terms that we were focused on conservation. We saw some research that was looking at animal rights and animal welfare, and that's something that we could, you know, really target, and I think we'd get more of the caring behaviors. But in the report, we do call for more, more research into empathy for caring behaviors. And something else we found is the there's a connection a lot in the research on empathy development and Pro Environmental behaviors. So we weren't initially thinking Pro Environmental behaviors, but we found a lot of the research that cited in conservation behaviors relates back to studies that also look at Pro Environmental behaviors. And if you think about Pro Environmental behaviors as a bigger umbrella that capture wildlife conservation and caring behaviors, but can also refer to things like, I said, like turning off lights for climate change, or driving an EV or using solar power, recycling behaviors, things like that are just a general, broader kind of behaviors. So from this kind of pathway, our three review questions were, what's the research linking empathy, excuse me and wildlife conservation action and caring behaviors. We were also interested in what research and evaluation was saying about interventions that were happening to create the empathy and in settings such as zoos and aquariums. We also had kind of a an add on question, knowing that there are these empathy adjacent constructs, right? Like a connection to nature, are compassion, emotional connections. And we were interested in seeing what other constructs, kind of these, empathy, adjacent, related constructs, are being examined in research and evaluation. So review was really being driven by those questions. The first question, as I said, with let's look at the link between empathy and conservation action and caring. What is the research base? I think that's one of the main things, as we've said, is, is getting gathering that evidence and saying, is there an evidence base? What's the strength of that evidence base? So that you could take this to funders, to

stakeholders, to your bosses and saying, Hey, listen, this isn't just something. We say there's there's actual proof. And looking across the base, we we found other like 30 strong studies that show some kind of connection. Now if you dig deeper into it, sometimes they're looking at Pro Environmental behaviors. Sometimes they're looking at empathy for nature versus empathy for wildlife, but taking as a whole, like I said in the beginning, it's, there's really a strong evidence base showing there's some kind of link, even if we don't understand the mechanisms yet, that there's that, that it's, it's worth our time to continue looking into it and continue supporting this. Something we noticed in terms of the evidence base is in the research at least. And in some of the evaluation, they were citing three studies over and over again. And this often happens in academia. You develop this research base that gets cited over and over again. And we found these three studies, so I wanted to share a little bit about these, and we dug into them and said, Okay, everyone citing these studies, are they, in fact providing evidence? The Schultz study was looking at 180 university students in the United States, and it was an experimental study where half of them were shown an image and said, Think whatever you want about the image, and the other half were shown an image and said, We want you to take the perspective of whatever in the image, if it's a person in nature or an animal in nature, they asked him to really focus on perspective taking, and then they measured environmental concern. And the study showed that indeed, the group that was asked to take the perspective of the person in nature or the animal in nature, they showed higher levels of environmental concern. Another off sited study was the bar and gar 2007 very similar study to Schultz. This was in students in Spain, again, looking at an image, same kind of thing, rather than environmental concern. That study went a little further and said, Would you be willing to donate to an environmental cause? And the folks, again, that had been instructed to take the perspective of in this case, it was like a bird covered in Oriole or a tree that was about to get cut down. If they'd been asked to take the perspective of the tree or the bird, they were more likely to donate to an environmental cause than the folks who hadn't been given any kind of instruction. And then finally, the TAM study of 2013 was a huge series of survey based studies of over 800 people in Hong Kong. And there, they survey people measuring empathy with nature, and then measuring Pro Environmental behaviors like recycling or donating to a cause. And across the different studies, they found a pretty clear connection between the level of empathy for nature and their desire to undertake or intention to undertake environmental behaviors. And so these studies get cited a lot, but that doesn't mean there aren't others. And we found that, indeed there are studies since then across a diverse set of contexts. And I was really impressed by this. This oftentimes in research, you see certain pockets of research, and it's all in one country, or it's all with just a certain group of people, but we really saw a range of studies using a range of methods, which, again, really contributes to a strong evidence base. And in our report, we list a lot of these. And you can, I really encourage you to go into the appendix there and explore the studies we also saw. There were studies specific to zoos and aquariums that add that even that looked at the link between empathy and Pro Environmental behavior or conservation action. So I'm going to throw it back to Wilson. He's going to talk about, as he has experience actually working in a zoo, he can really speak to about what we found in terms of studies that reported on interventions to develop empathy in zoos and aquariums.

Yeah. Thanks. Alison, so through kind of qualitative analysis of these studies on development of empathy in zoos and aquariums, and, you know, attention to specific practices that have a lot of strong evidence, we've identified these kinds of five key principles for best practices in developing empathy in our contexts. And a lot of these will be familiar to those of us who've worked on this to some degree, but the first one is all about designing thoughtful animal encounters. You know, we know that that's, you know, really powerful is these engagements with individual animals, but there are things we can do to make those engagements even more salient, and, you know, developing that empathy. So these are things like, you know, ensuring that visitors can see that these animals and

zoos and aquariums have opportunities for choice and control in their environment. And this is not just, you know, modeling that caring behavior, but also demonstrating that animals have that kind of capacity or agency to make choices about where they want to spend their time and how they want to engage in different types of interaction. So choice and control is super important encouraging extended periods of observation of these animals, so that kind of slow seeing opportunities where you can really see an animal engage in a range of natural behaviors over time, and get a sense of their individual personality, to a certain extent, also along those lines, in addition to creating spaces and opportunities for natural behaviors, providing opportunities for visitors to witness some of those kind of behaviors that really demonstrate intelligence so or problem solving abilities so complex enrichment, devices, different types of training, enrichment, these kinds of moments where people can watch animals actually try to solve problems, demonstrate their capacity for thinking and understanding the world. Those can really help develop empathy, um, strategic interpretation. So whether this is through signage, through presentations, through those you know, really rich, one on one conversations, we can be strategic about what we share to kind of highlight that as empathy. So things like emphasizing individual animal stories, their backgrounds, what we know about their personalities, helping you know, helping our guests see that these animals are not, you know, a stand in for their species alone, but also an individual with a background and preferences, and then highlighting similarities between people and animals that are based in sound science. So you know, this is what we refer to as critical anthropomorphism. We want to highlight the things that are similar to us, but not go too far or make folks think that animals are exactly like us. So when we can use critical anthropomorphism to highlight those similarities, that's really valuable. And then the next principle is using multiple learning modalities. So we found evidence that many different types of experiences can help cultivate empathy. So this can be things like, you know, facilitated hands on touching when that's appropriate and conducive to good well being, using immersive technology like virtual reality, or even things like augmenting experiences with animal statues, there's evidence that there's empathy development when interacting With statues. There's evidence that nature play areas can complement animal experiences, so just different ways of learning and then emotional processing is really important. So we know that emotions are so powerful in developing conservation action and motivation for conservation behavior, but people need time and space to kind of reflect on those emotions. So whether this is through facilitating family conversations, group conversations about how we feel and what we observed in animal encounter, and then also opportunities for reflection, relaxation, calm, to think about and process what we've experienced again in all of those contexts, we want to be really mindful of how we use anthropomorphic language, focusing on these kinds of evidence backed, science based understandings of how animals experience the world, and then finally, connecting to conservation action, of course. So these emotions are really powerful, and it's really important to take those emotional experiences and connect them to specific, clear, concrete steps that visitors can take to support wildlife conservation. So we want to connect to those specific behaviors and then also make that link between the individual animal that they might have experienced and their species in the wild. And when we're doing this, especially when we're talking about these powerful emotions like empathy, we want to be careful not to excessively focus on really serious environmental challenges like climate change or mass extinction. It's important to touch on these things, but we know that many of our visitors are aware of these to a certain extent, and when we over emphasize these serious crises, we can actually trigger sort of empathy, disengagement, emotional disengagement, and lose that kind of opportunity to directly link what we're feeling with opportunities for clear and specific Action.

I'll pass it back to Allison.

-----

I thank, Wilson. And a lot of these, Wilson, I were talking before the call today, like we know, a lot of you know these things already, and are doing a lot of these sort of best practices already. What we hope our our document provides, what our report provides, is some evidence behind that to really show you that that it's worth your time and effort that it takes, because we know these things take time to be so thoughtful in your interventions and so thoughtful in your design, and we can't rate as going forward to hear like as you do these things, we're hoping that's where the research goes into evaluating and assessing. You know, your experiences with those as Wilson mentioned, all some of these strategies that it may seem easy like, oh, okay, let's develop empathy and let's that'll spur everyone to take action, but we know in practice that is much more complicated. One of the things we were mentioning is empathy fatigue, the idea that people can over empathize. They can disengage because of that, if you overwhelm them with too much feeling, too much thinking, too much perspective taking. So it's really, it's balancing that that's talked about, the over personification. I know Marta shared with us some great resources they have on Anthro morphism, and the kind of the challenges with that and the way to do that correctly. Jess had a great question that she clearly saw that we were going to talk about this, the cultural and personal context. So I did make a point, right? I was super excited. We saw that the evidence base reaches across context, across cultures, and seems to be saying the same thing. But the caveat is exactly what Jess pointed out, that there are still differences. There are differences in the way that people develop empathy and the way that there are social norms around empathy. And this relates at a cultural and social level as well as an individual level, the way that people empathize, the levels that they're comfortable with, and how this develops depends on the person as well, depending on their emotional capacity, the capacity their knowledge, that kind of thing. So you do have to take, it's not a one size fits all approach that you need to consider your cultural and personal context when developing this kind of programming. We talked about at the beginning, the kind of cognitive and affective types of empathy, and our review, other types of empathy also popped up, reflective empathy, situational, dispositional, positive, negative empathy. So it gets really messy very quickly, and those are things that need to be teased out, and something we point to in our report, and as we hand it out, there's other constructs that overlap a lot with empathy, and can make measuring empathy and measuring the link to action challenging, because what's really going on? Is it empathy exactly that's leading to this? Is it because empathy creates compassion? Is empathy just the mediator? Is it a moderator? All these kind of complex things lead to this. This bullet point about there is a complex relationship between empathy and action. So yes, I'm over exuberant about the link between it and the evidence, but it is still complex, lots of nuance, and something that needs to be explored further, and also something that we kind of hint at in our report is there's some evidence saying, Oh, does it always work? And so you've got to pay attention to that research as well, like why it might not work, and why it's what the other things you need to consider and be careful about. And then something I really appreciated, too, when we gathered the evaluations, or the insights from the evaluations, I was super impressed with and it goes back to I saw a question I didn't get respond to yet in the chat about the the tools to measure empathy for wildlife, the really innovative methods going on in the evaluations we got and, and I think that's an area right for research, is, how do we measure empathy? Are you measuring empathy in general? Are you measuring it? Empathy for nature? Are you measuring empathy for wildlife? Empathy for animals? We saw a lot of species specific research that we detail in the in one of the appendices of the report. Are you measuring empathy for just a particular species, and how does it differ among those? Lots of things to think about. I can't help when I do a research review saying selfishly, what does this mean for the field? What are the research directions? And almost every single review we do, no matter on the topic we call for long term impact research. This is hard to do, it's expensive, it's time consuming, but it is true for this empathy research as well. A lot of research has done. Hey, did you create empathy in this one moment, and are you feeling, in fact, more ready to take action in that moment? But what are the impacts two weeks down the road, six months down the road, five years down the road? It's hard to do, but we always call for it. And with things like empathy, when you're talking about behavior, behavior, human behavior, is so hard to

study. It's not just this one factor causes this it's a suite of factors. And so their visit to the zoo or aquarium is just one experience they have that would influence whether or not they take conservation action. That makes it hard to prove a causal link, right? It's hard to show that this one visit to the zoo caused them to go out and take great actions. But figuring out the piece is an important part. As I said, the measuring the empathy and action right area for research, developing tools. We definitely saw a range of tools to measure empathy and for wildlife specifically, and that's something we should look into more, and we try to highlight that in the report, and again, getting back to the question about different context. Yes, there's a lot. There's no great diversity in the research. There can always be more. And we'd love to hear from you all and our discussion, what specific context are you interested is it working with certain cultural groups? Is it working with certain age groups? And we did see it across all those we saw research with very young kids. We saw our research with adults. We saw our research with different cultural groups as well as different geographic locations. So it's such a good start. We've talked a lot about the different barriers to developing empathy that would lead to action, and definitely lots of room for research and to into that, to figure out, right now, the research base is really good at identifying those barriers. I'd love to see some more research on how we overcome them, and reporting on interventions that do that also. It is a nuanced discussion. Is similar to the over personification that if you do too much empathy, you get the empathy fatigue. In fact, it can sometimes even have the opposite effect of what you want. As Wilson was saying, people can disengage, and that's a that can be a challenge. And then in a lot of educational research right now, this, this looking into the digital tools. We saw a big chunk of research on virtual reality and how you can use VR to develop empathy and other tools, would be social media use and zoos and aquariums, as well as technology use among the animals themselves, and how that impact impacts development of empathy and visitors. So that's the end of a kind of a formal presentation. Hopefully we're doing okay on time. So I am super excited to hear any questions you have and and then we also have some prompts on the next slide, if we have time. But I think if we, you know, kind of delve into the Q and A, I'll take a minute to stop and look in the chat, and then Marta or Wilson, anything you all want to add, feel free to do so too. As I look at them, I just want to thank you, Allison and Wilson for, I think, a great presentation and capturing and digging into some of the things that you shared in the lit review. So thanks for that, and I want to get right to the questions, just so people have a chance to share. Does anybody have a question to kick us off?

Otherwise

we can turn to the chat you great I saw Kristin from Sharon. That's a great question asked, was there a specific moment or in your research that was most impactful in your shift to seeing the link between empathy and action? I think it was more the slow building right as I got into this, I honestly thought, well, this could be an easy review to do. There's not much research on it. We'll, you know, look at about 10 papers, and we are good to go. And we did know, and I meant to mention this earlier, we really were building on the work of young and colleagues. Published a paper in 2018 that did a review, did a review, and some interviews, and so we were really building on that. So we, you know, I had an inkling that there was going to be research on it, but really the just the amount of research is, I gotta tell you, Social Sciences, it's always complicated, right? These kind of looking at relationships between constructs like empathy and action empathy is hard to measure, actions hard to measure. So the link between the two really hard to measure, right? And so you get a lot of discussion, but there was such a diversity in terms of research designs. We had experimental evidence, we had survey evidence, correlational evidence, we had qualitative evidence, and again, just across the different context, it wasn't in just zoos and aquariums. It's in non for other non formal settings. It's in wildlife watching tours. It's marine mammal watching tours. It's in museums. It's in formal education

setting, and then some is just everyday life. And so I was just struck by the number when I was putting the appendices together, I was like, wow, 30 studies like, that's that's a lot. I want to be clear, not every study is looking specifically at empathy for wildlife and conservation action that they the constructs get messy, but the totalitarian of it. So there wasn't a one A ha moment. It's just when we got down to writing and in our when we were discussing it amongst our team. I was like, they're really a great number of studies to show, and it's really exciting to be able to share those with you on that's what we hope the report does. But I think the report ended up with like 160 different cited articles that that talk about this. So yeah, so hopefully that helped. I That's okay. So, oh, go ahead. I was gonna say, you see the question from Bethany? Okay, I do yes, yes. And I was actually gonna throw it back to you all on that one, Wilson and Marta or team, if I know Marta and I think Sarah posted in the chat to the great document on anthropomorphism. So, yeah, so do I have thoughts? I don't really have thoughts. I want to throw it. I don't know, not expert there. I

can jump in briefly. I'm sure many people have great thoughts. I'd love to hear what Marta or Woodland Park City team have to say about this. But I think when it comes to young children, we there, you can kind of assume that anthropomorphism is the given that they have very little human animal distinction and and so I almost think that, like at that stage, it's like, I don't know exactly how to say this, but like, you're not really going to start developing that critical anthropomorphism in really young children who are just developing language. And so in terms of, like, that specific balance, I'll pass to Marta, but I know when I was at the Oakland Zoo, we would kind of talk about like, in those early stages, we just want to be kind of cultivating that connection and that kind of thing, not as focused on like. And certainly, I think at that stage, especially not focused not on the actually police or the kind of over correction of like you're wrong to assume that, and just kind of encouraging the connection. And once they get a little older, then you can start to kind of pick things apart a little more carefully, but curious what others have to say.

Yeah, I would agree with you, Wilson. I think at that age, it's really just getting focusing on that, the empathy piece, and helping them to take that perspective and understand that. You know that, depending on the animals, they have family structure then and that sort of thing, and not getting too bogged down into specifics or correcting them, you know, I think there's ways of activating that imagination and allowing them to go, and if they, you know, I think about with the imaginative play that some of our partners have different play spaces and things where that kids can do that, not trying to police that. And it's really just about focusing on that, getting them to connect with the animal and see the animal as somebody worthy of care and respect, rather than really getting too fine tuned. So I would worry less about it at that age with the because, you know, there are a lot of books that maybe will show animals and clothes or speaking and so focusing on kind of that under underlying message, rather than too specific of what they actually would do or not. I love this, and it made me think of two studies that specifically were working, one specifically with younger children, and one with the general public. But it was one that looked at just the natural play areas in zoos. And so that's they were looking at just just having this, this natural play area for young children was their connection to empathy. And I don't remember the exact findings, but I remember that being positive in general. And so I'll definitely encourage you to look at it's one of the ones listed in our appendix. So for young children, just the play being the intervention itself. And then there was another one that looked at just having animal statues, and it looked at the research there, right? They looked at just having the young kids interact with the statues and developing empathy. Kind of things. Really cool research going on with young kids. And so yeah, I saw a couple more questions. One, Brian, did you come across any notable negative results? We did. And yes, absolutely, you referenced the idea of publication bias, right? That's the idea that journals, academic research tends to publish positive

results, and so it's always great, in a way, to see that there's some negative or some null findings, right? That people did an intervention hoping to develop empathy, but they find they didn't. I'd have to look back at to get the specific studies so Brian definitely feel free to reach out and we can we? We list some in our report, and the citations are there. The one I think about was Costa Rica. I believe they did a survey of Costa Rican adults. They saw they had strong empathy for animals, but what that led to was people keeping wild pets as animals, and so that was kind of one of the the negative results that was brought out in the literature. Sometimes we saw two people worried about empathy fatigue, that they were just afraid in an experience, that people it was, it was too much. It's just too much emotion. And oh my goodness, you are we live in these crazy times, right? And so sometimes people don't want to be hit over the head with I need to be doing more. I need to be feeling bad about this issue as well, kind of thing. And so I think that came up as well. So there were some negative there was one other two that I never cited in the paper, but sorry, I can't think of them off the top of my head, and I see Ashley had a question, oh, a way to build habitats to help people understand that? Yes, I would definitely say we saw some, some practical like recommendations from studies. Listen, I don't know if you remember any of them. I'm not coming off, but I almost

want to not to be this guy. But point you to another paper that Allison and I worked on with our colleague, Ashley Terry, about perceptions of well being, which I think is kind of what you're referencing here. But like we did a series of qualitative interviews about the kinds of things people are paying attention to when they evaluate animal habitats, and we found there's a major link to empathy and empathy development when we talk about well being and well being practices. So I and I think in that paper, we talk about, you know, this connection between the habitat, pointing out ways that it allows the animals to engage in natural behaviors that, in and of itself, being a practice of empathy and considering the needs of others, I can link, I'll link to the paper in a second. But in terms of, like, specific exhibit design, things I'm not familiar with, anything off the top of my head, if the questions about, like, those kinds of specific fabrication details, I'm not sure. I'm curious if other people have thoughts on that.

I was just gonna say, Zoo Boise did a great grant project where they knew they wanted to redesign some of their habitats, and so they looked at the ethogram of like where the animals were, what things that they were seemed to enjoy most, as well as observations and feedback from guests looking at that space. And so they there's a report. And so folks are interested, you can just email us at [empathy@zoo.org](mailto:empathy@zoo.org), and we can link you up with the folks at Zoo Boise to see that report that they did and how they they use that to inform, use the empathy, really, to inform their design for their red panda habitat that will be opening, I think, here in the next Couple months, just kind of follow up to look at in in our report, in the appendices, most of the time, in the discussion section, they will make like when they looked at a between empathy, they make suggestions about it. And usually it was things like, you know, about signage and things like that. I had some of them do, and so yeah, definitely follow up with me and I can dig more into it. There were just so many studies when I was telling Wilson, I'm just overwhelmed trying to remember every single one, because there were so many good studies. But I do remember people talking about that kind of thing. I just can't think of anything. I don't remember any study that specifically looked at it. But then in their recommendations and follow up, they would kind of make recommendations about it. Hey, Allison, do you want to move to your discussion that there's no further questions coming through? Absolutely so we were, I was kind of big. I don't get an opportunity always to talk to this many practitioners and folks doing the hard work on the ground. So I would love any thoughts, if we have time to talk about them, if not, definitely follow up with Marta Wilson or myself. We are interested in your thoughts on prioritizing topics for future reviews. But love any feedback on that. Love any feedback about what format or

elements in a report such as this are useful to you all. If there's a certain not just topic, but a way to present this information or share this information, let us know. And then the other kind of prompt is, if there's additional research, doesn't have to necessarily be review research, but any kind of empirical research that you would like us to or even thought pieces that kind of thing that would help you in your work. As I said, we're always concerned about this, what we call the research implementation gap. We can things can seem great ideas in working in our lab, and then we then, then just fall apart when they hit the ground. And the kind of the follow up is how we can better share data and learnings across institutions. So if you want to throw things in the chat, if somebody wants to has a question, or just follow up with if you caught our email addresses, or in get in touch with Marta and she can put you in touch with us. We would love any feedback on this. Really interested. As Wilson, I came here with great humility, knowing that we were talking to experts about this. And so we would, we would love to tap into your thinking about it. I and I did see the request for the the exotic pet ownership, so I look for that for a second, if anyone else wants to. I think Emily shared it in perfect in the chat. Yes, the one that we did a couple year ago, actually a year ago. And, I mean, unfortunately, a lot of what it says is really like, there just hasn't been a lot of research in the zoo space. It's sort of a gap that there's nothing that shows that empathy does cause people to want to have exotic pets, but there really hasn't been studies specifically on that. We do have recommendations on sort of ways to try to avoid that, because that is something we hear a lot about people saying, Oh, if we do this empathy thing, then people are going to want to have them as pets. And really just stressing the, you know, the high level of care that they are required, and making sure to, you know, be responsible pet owners and to look, make sure that you're using responsible forces for your pets, that you're not participating in illegal wildlife trafficking. And I did put the into the Costa Rican one that I specifically mentioned in there, and as I was typing the the the citation in there, I was like, Oh yeah, that was one of the questions around the 2000s early 2000s there did seem to be this, just this burst of research into those kind of related topics, and then it kind of died out. And so, not that I want to say that 2002 studies old, but it is, it is not recent. And so, so I thought that was something that was, you know, research goes through trends, and that was, I think one of them, at the time was looking at that. So, yeah, seems like an area, I know I do some work with some folks at Virginia Tech on on wildlife trade, and we found that that research very limiting, that there's not a lot right now in terms of they were looking at turtles specifically and so, and certainly not, and don't remember much on empathy at all. It was more on just figuring out which species, and seemed to be almost nascent kind of research, yeah, and I think you know, when you're competing with the tiktoks and reels and everything else of cute videos of of people who actually have these animals as pets, is probably more more damaging than what is happening at zoos and aquariums. I also give a plug. Oh, sorry, a quick plug for we are working on a learning agenda within the network. So if folks have not yet joined the network and are interested in talking more about research and things that we would like to do. Please feel free to join us, and you can access that for folks who are members, you can see the latest draft of just getting the last little bits of feedback in. And then we will be finalizing that and working on like, what are the next things we want to, you know, do additional lit reviews on and start to try to coordinate some of these ways to gather evidence and do some studies across multiple sites. So definitely happy to hear folks thoughts on those things. These are great comments. Yes, Sharon, I appreciated your comment about right connecting empathy with wildlife and empathy with people, I think that's a really interesting area to be looking at. And, yeah, how to tie in? You know, sustainability issues, social justice issues,

with this as well.

Oh, I love Katie's question about we had some conversation. This is one of those areas where we

could have gone down a rabbit hole and had to pull ourselves out. But, and now I'm going to blank on what's the Allison? Do you remember the what's the term for that whole area of research? We

call it, like species specific. There you go. Compassionate. Yes, yeah.

Katie, the Compassionate conservation debate kind of gets into some of this stuff where it's true that when we're talking about doing this work in the field, there is sometimes, like a direct conflict between the well being of individual animals, as in the case of invasive species removals, and, you know, these well being of ecosystems, and you know, values like endemism and things like this, and, and, and so that's kind of, you know, a potential limit, or a place where empathy is maybe not as relevant. But you know, I hesitate to say that too, and I think there's also and As Alison mentioned, some of the literature that we review is not just about empathy for individual animals or empathy for individual people, but actually empathy for nature more broadly, and this includes not just animals, but also empathy for landscapes and some of these more abstract connections to the more than human world. So I think that some of what we reviewed was not just about individual animals.

For sure, yeah, Wilson brings up the compassionate conservation and how. Yeah, we could have written a whole review on that. There was definitely since, like, a few years ago, that was a really big it's still in the literature today, but there was a big discussion, and a lot of, like, the conservation journals and things like that, about that. But I think it did lead to Exactly, yeah, kind of what you're calling for. We're seeing, you know, does empathy for an individual? We had some case studies that did this, that looked at, you know, an animal that got a lot of media coverage, did that transfer to, you know, empathy for wildlife in general, kind of thing? And so, yeah, that's an exciting field and very promising. You Yes, yes. Lindsay, yeah, if you could follow up with me too, that's what I don't know. Off the top of my head, would I 100% sure there were some studies that looked at kind of looking between, like signs versus, you know, having an interpreter there on site, there was yes, it just so I can't come up with a study. I as there was a great dissertation that was Lindsay talking to your point, right? That was looking at, I think, in person versus not having somebody there. So hopefully, maybe it'll come to me by the end, but I definitely will follow up. I Marta Marty muted, oh my gosh, that's so funny. Yeah, so I just wanted to say we're at time. Thank you everybody for attending. Thanks Wilson and Allison, so much for all of your hard work on this. I think we're definitely more at a jumping off point than an end point. So we'll continue to work with you on future topics. Feel free to share more questions with us on At empathy, get zoo.org and have a great rest of your day. Thanks, everyone.

Thanks, everybody.

Thank you. Applause.