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[00:00:00] **Iroro Tanshi:** The people who are doing the most are also the people who are actually experiencing the most, and these are frontline communities. So it's not really a story of communities needing help per se or being saved per se. It's more a story that communities actually can lead the way in climate adaptation. So I started with bats and it's, I'm still with bats, but it really is a case that we need to solve all these sort of landscape problems, global problems, planetary scale problems to save bats.

[00:00:34] **Nate Hagens:** Today I am joined by small mammal conservationist, you don't say that often, Iroro Tanshi, to discuss how her journey studying and protecting bat species in Nigeria allowed her to learn the delicate skill of responding to the needs of both natural ecosystems as well as the human communities embedded within them.

[00:00:56] Iroro Tanshi is a Nigerian ecologist and conservationist whose work focuses on field biology, biodiversity research, and community-led conservation. Tanshi's work in Nigeria led to the 2016 rediscovery of the critically endangered short-tailed roundleaf bat, a species that had not been recorded there for almost 50 years.

[00:01:19] Additionally, she helped to spark the Zero Wildfire campaign with local communities in order to end harmful land burning practices that contributed to the decline of key bat and other animal populations. In the process, she co-founded the Small Mammal Conservation Organization, whose work in Nigeria continues to conserve both individual species and the forests and social systems on which biodiversity depends.

[00:01:46] In this conversation, we talked about a lot of things, and it's so interesting to meet a, uh, kindred spirit, uh, that lives on a different continent and comes from a different background. We talked about the ecological importance and common misconceptions of small mammals, especially bats. Uh, we talked about how the conservation of these animals allowed her, uh, to navigate responses that merge conservation and environmental goals with the community well-being of the people there.

[00:02:18] Additionally, we discussed what conversations around climate and species conservation are like in Nigeria, in Africa, especially the rural communities she works with. Before we begin, if you enjoy and learn from this content, I encourage you to hit the subscribe button below. I think this is the first time I've asked that.

[00:02:37] Um, with that, please welcome my friend Iroro Tanshi. Iroro, welcome to the podcast.

[00:02:46] **Iroro Tanshi:** Thank you very much.

[00:02:47] **Nate Hagens:** So my understanding is you, uh, have a love for, an affinity for, a care for bats, uh, and, uh, conserve them and other small mammals. How did this all start, your, your interest, uh, in learning about and protecting and defending bats?

[00:03:05] **Iroro Tanshi:** I think my story really started with just falling in love with them. Um, I, I'd listened to a talk about a PhD student who was studying bats in Côte d'Ivoire, West Africa. I'm Nigerian. And he would go up into the forest canopy just recording flower scents and the bats that visit them, and I thought, "This is the wildest thing."

[00:03:24] You know? I thought, "This is what I wanna do for the rest of my life," you know? So, um, so I looked around Nigeria. There wasn't really anybody doing bats, or at least not, um, on a consistent level. And I just fell in love with them, and I just started studying them, and I think maybe a, a good part of this conversation will probably revolve around the species I ended up starting to conserve.

[00:03:48] But it, it went from just the initial extreme love for bats and just the, the idea that they're so understudied, underrecognized, underappreciated, and I thought, "Why? Let's, you know, fight for the underdogs or the underbats, so to speak." So, yeah.

[00:04:08] **Nate Hagens:** So we're here at Climate Week. Um, there's a lot of people here who care about Earth's biosphere and the future, that there's warming built into the pipeline, and that's gonna have an impact on other species.

[00:04:20] And it seems to me that World Wildlife Fund and other iconic, uh, media focus on the charismatic megafauna, like orangutans and whales and elephants– Yeah ... and such. But in researching your work, uh, and preparing for this interview, I think, is it true that one in five mammals are, are bats?

[00:04:44] **Iroro Tanshi:** That's exactly right, yes.

[00:04:45] **Nate Hagens:** Yeah. Tell, tell me more about bats as part of the, the mammal kingdom.

[00:04:50] **Iroro Tanshi:** Yes, they are truly diverse. So you're right, uh, one in five mammals is a bat, and I'm not sure if that number makes people think that they're so not threatened. Um–

[00:05:04] **Nate Hagens:** And I think there's, like, 6,000 mammal species, plus or minus.

[00:05:07] **Iroro Tanshi:** There are, yeah.

[00:05:08] Yeah. And there are over 1,500, so, like, uh, 1,500 bats. Wow. Um, so a lot of bats. Every year we get a new, you know, there are a few new species getting added, a new d- be- being described and being discovered and added to bats.

[00:05:21] **Nate Hagens:** What's the environmental or ecological importance of them? Why should people care about bats more?

[00:05:27] Why are they im- im- important other than being a large part of our mammalian diversity- ... on, on the planet?

[00:05:33] **Iroro Tanshi:** Well, yes. Certainly they bring a lot of, uh, contributions to the diversity of the mammal group. Now, as far as what they do and why people should care, it's a long list. Everything from, you know, providing pest control services.

[00:05:50] Bats save millions and millions. That's a huge, um, return on, uh, on investment, so to speak, on bats, if you're protecting bats. Millions and millions of dollars, uh, annually in this country from all kinds of potential pesticide use. Um, you know, you're protecting all the cash crops, you know, corn, cotton, you know.

[00:06:11] Uh, but I kind of need to think about this m- a bit more globally, right? So, um, a lot of people use this shea butter. It's an oil that's- Yeah ... you know, derived from a plant, and it goes into almost every cosmetic product these days. There are very few production systems, in fact, maybe only started very recently, say, in the past decade or so.

[00:06:33] Otherwise, bats actually plant those trees across the landscape, 'cause the way bats, uh, feed, they pick a fruit from the tree, it's got all the seeds, and

they carry it on the wing. So we always, uh, sort of make this joke about bats, uh, pooping on the wing. You know, everything else will have to poop in one spot, but bats are doing it as they fly.

[00:06:54] So they either poop the seeds out or, in the case of shea butter, because it's a fairly big, uh, chunky seed, they carry it far away. And in biology, a parent plant for most species needs to be far away from the baby plants so that they can survive, and that's what bats do. They literally plant the landscape full of shea butter, and now we all, we all have shea butter to use.

[00:07:14] And that's one of the, one of the things we usually bring up when we, well, talk to people about the value bats bring. It's everything from timber to, you know, shea butter, for example. And I don't know if you've heard of the stinkiest spice in West Africa, potentially in the world.

[00:07:29] **Nate Hagens:** The stinkiest spice?

[00:07:30] **Iroro Tanshi:** Stinkiest spice, yes.

[00:07:32] **Nate Hagens:** Limburger cheese?

[00:07:33] **Iroro Tanshi:** No. No. I, I would like to smell that. Let's see. I would like to do, like, a smell test of that one.

[00:07:39] **Nate Hagens:** What is the stinkiest spice?

[00:07:40] **Iroro Tanshi:** Um, it's called *Parkia biglobosa*. It's a savanna plant, and bats visit it, and i- it usually, it's very... It's got red, pretty flowers. It just sort of hangs like a bulb, and bats will visit it for...

[00:07:54] It has to be visited just the night they're fertile, because they're fertile for one night. And so bats visit, and they pollinate that plant all over the

landscape, and in doing so, allow the flowers to produce these seeds that are then fermented. They really stink. It's a beloved spice in Nigeria, and not just Nigeria.

[00:08:15] In fact, across, uh, um, West Africa. I visited Burkina Faso once. I thought I had seen the extent or the limit of how stinky that spice could get, no? And guess what they do in Burkina Faso? It's almost like half-and-half rice and beans. I'm like, "That is too much." But, you know, people love it. People, you know, have all kinds of taste profiles that they go for, and, and that's, uh, that's thanks to bats.

[00:08:38] People are having fun with bats.

[00:08:40] **Nate Hagens:** I love all nature. I don't know a lot about bats. I have bats periodically at night where I live. So what you're saying is in addition to insects being important to pollinate our crops- Mm-hmm. Mm-hmm ... bats also, um, not only pollinate, but disperse seeds and are important parts of the ecosystem.

[00:09:02] Does Nigeria have a particular concentration of bats, or you just happen to live in Nigeria and study the bats that are there?

[00:09:09] **Iroro Tanshi:** Well, the answer is a combination of those things. In Africa, Nigeria holds, uh, about one-third of the number of species you find across the continent. That's extremely significant.

[00:09:18] Wow. I know. It's because we have a really huge diversity of habitat types, so we do have a lot of bats in all these different habitat types. As you know, the different vegetations, uh, mean you have different tree species there. It means you have different insect species and different types of flowers, and so that combination from place to place across the landscape just attracts different bat species.

[00:09:40] So there's a significant amount, and of course, I live there and I, I study them.

[00:09:45] **Nate Hagens:** Why are you here on Climate Week? What is the link between climate and, and your work on, on conserving bats?

[00:09:52] **Iroro Tanshi:** That's a good question. I'm gonna draw it from discovering a, a, uh, what you might consider a lost bat species, a species that hadn't been seen for 45 years.

[00:10:02] By the time you start to hit 50 years of not seeing the species, people really start to get worried. So we're kind of on the edge of–

[00:10:08] **Nate Hagens:** The, the very few people that are paying attention to it, but–

[00:10:10] **Iroro Tanshi:** Right, of course. Yeah. Yeah. We start to all get really worried that these bats are disappearing and, you know, stuff like that.

[00:10:15] So we discovered, rediscovered this species in Nigeria, and right after, um, encounter, like I'm saying, in a matter of days, we were still in the village. We hadn't even come out to tell people, "Oh, yeah, we found this bat." A wildfire broke through the forests, and it, it kind of got really close to our camp and we had to evacuate camp.

[00:10:34] Of course, it went by our camp. So that then became the beginning of the real intense conservation work we had to, uh, launch for bats. So because what that meant is that fire came through, destroyed half of that bat's habitat, and we were really worried that we just rediscovered this species, and we may actually just have lost it in a matter of days.

[00:10:57] That was terrifying, and so we immediately launched and got with the communities. Initially, people thought, "You know, fires are a constant thing in this landscape, at least in the past few years. No one's gonna listen." But no, communities, they had a different agenda. They had a different interest. They, because the fires actually start on farms before they go through forests, and so they destroy other farms near them.

[00:11:21] And so when you have big fires like that, you don't just lose bat habitat, you also lose people's crops. That's their livelihood, that's their food. And so when we spoke to communities, they wanted... It was a hot topic, quite literally. They wanted to stop fires, and that began the, the program, the Zero Wildfire program that we started.

[00:11:41] Uh, it was everything from trying to help farmers burn responsibly, burn at the right time, because this is what they asked for. They said, "We no longer know when to burn because the rainfall patterns have changed. If you could just tell us when to burn." And so we developed this whole thing, and that basically solves the, addresses the climate problem and the data problem in that question.

[00:12:03] **Nate Hagens:** So real quickly so I understand, um, farmers in Nigeria, uh, why do they burn?

[00:12:08] **Iroro Tanshi:** So fire is a very easy tool to use to clean land.

[00:12:12] **Nate Hagens:** Okay.

[00:12:12] **Iroro Tanshi:** And then it also returns some nutrients, not, you know, everything you need, but some nutrients back to the soil, which is really great for your plants. But it also has other ecological effects that are overall net negative.

[00:12:27] **Nate Hagens:** Right.

[00:12:27] **Iroro Tanshi:** But as far as managing farmer costs, it is really useful to farmers.

[00:12:32] **Nate Hagens:** So it's a yearly ritual that farmers at, in- Absolutely ... in, in the African spring- Yeah ... or late winter burn the residual from the prior year, and then that st- that's the best conditions.

[00:12:43] **Iroro Tanshi:** Yes. So they usually have to burn just before the planting season or when, uh, just before the rains come because, uh, if you manage your farm brush well, you reduce, um, pest issues or even, uh, fungal infestations and stuff like that.

[00:12:59] **Nate Hagens:** So, so that's a practice worldwide probably. Uh-huh. Um, though not in the US because we use giant tractors and combines- Machin- mechanized, yes ... and such.

[00:13:08] But climate change is now changing the standard deviation of your prior lived experience of-

[00:13:16] **Iroro Tanshi:** Exactly ...

[00:13:17] **Nate Hagens:** and so what do we do about that?

[00:13:20] **Iroro Tanshi:** That's, that's a good way to put it, because what it just means now is local people's reality, you know, these farmers' reality, no longer matches, that is because of climate change, no longer matches what they were familiar with, what they've traditionally, um, deployed in this landscape.

[00:13:38] They, they used to know the best time to burn, you know, that is to say, the low-risk time to burn, and it would be safe. You know, you kind of know, oh, at the beginning of March I burn, and that's because the first rains have come. But

sometimes the first rains don't come until April. The planting season then suddenly just arrives, and you're like, "What do I do now?"

[00:13:57] You know? So people got really confused with the rainfall patterns. I mean, if you do any kind of gardening, you know that sometimes your window of planting is, like, a couple weeks, you know? And so when they said that to us, we were, it was obvious that there were two things we're looking at. There's a climate change problem, and then there's a data problem, and that's how we came to this whole program that, um, we're now even taking everywhere around the world, and that's why I'm at Climate Week, to really show that community actions and community solutions are frontline solutions to climate change, and so adaptation.

[00:14:36] And so it's not really a story of communities needing help per se, or being saved per se. It's more a story that communities actually can lead the way in climate adaptation, and that's why I'm, you know, here. So I started with bats, and it's, I'm still with bats, but it really is a case that we need to solve all these sort of landscape problems, global problems, planetary scale problems to, to save bats.

[00:15:00] **Nate Hagens:** And when, what did you learn, um, in your work to educate and listen, uh, and change the practices in rural communities in Africa, where there was an incentive for each individual farmer to burn, but that action with thousands of farmers ended up having a negative impact?

[00:15:23] **Iroro Tanshi:** Mm-hmm.

[00:15:23] **Nate Hagens:** Kind of a tragedy of the commons sorta situation.

[00:15:26] What, what did you learn and, and what were some of the takeaways from, from all that?

[00:15:31] **Iroro Tanshi:** That's a good framing because Let's face it, it's not like communities are trying to destroy the landscape- Right ... destroy their farms, right? But the tragedy of the commons is quite a common issue when you're talking about, uh, collective impact, collective, uh, work, so to speak.

[00:15:54] What that just means is before this program started, individuals were trying in their own way to either, you know, reduce fires, but it do- it didn't always work. So in terms of solving the tragedy of the commons, it requires collective action, okay? So the tragedy of the commons will limit the capacity for individual efforts that are not coordinated, obviously, to make a, an impact.

[00:16:24] But if you can thin out that tragedy of the commons issue by making the actions much more collective, then you would approach a place where we're less likely to succumb to the effects of the tragedy of the commons, so to speak.

[00:16:37] **Nate Hagens:** And, and in your work with fires and bats, how were you able to make the, um, behaviors and strategies more collective?

[00:16:47] **Iroro Tanshi:** What we did was we said, "Look, you want your farms. We want our bats to be happy." Yes?

[00:16:53] **Nate Hagens:** Okay. We want our bats to be alive, first of all.

[00:16:55] **Iroro Tanshi:** Alive. Yeah. You know? Like, w- exactly, because, so as a bat, you have to be alive, but you also have to have the forest so you can feed in the forest, you know, 'cause the insects are there and, you know, if you're a fruit bat, the fruits are there.

[00:17:07] If the trees are down from fires, you're not, you know, y-

[00:17:10] **Nate Hagens:** Right ...

[00:17:10] **Iroro Tanshi:** you, if some of you survive the fires, some, some will not have food to eat. The, the survivors will not have food to eat. So it's a combination of things, but essentially, the way you make collective action possible is a few things. I think it really starts with listening and tuning in very carefully, uh, 'cause I, I, prior to this, I had no experience with fires.

[00:17:32] I was just a happy bat biologist, just really passionate, telling people about bats. But then this fire happened, and we started asking communities, "Look, what's, what's going on here? What have you guys done? What has worked? What has failed?" And they said, "We've done this and done that and done that, but we really need to know this bit.

[00:17:50] When's the best time to burn? 'Cause now we're confused. Everything we've tried has failed." So I think it starts with listening and listening very carefully and then finding, I wanna say, I like to say translate, you know, translating a lot of those things that you hear from communities and, and then you can start to get at the foundation of the problem and potentially the solution.

[00:18:14] So you start from there. And then the other part of collective action, and in this case, because we, we, we listened to them and developed a tool with them where they could decide the best time to burn, the leaders thought, you know, they've always had, uh, bylaws. They al- always had bylaws in the communities, and they thought, you know, it'd be nice to use this tool to calibrate those laws.

[00:18:36] And so those, the, the tool which is what we developed was a simple fire warning system. So if you were a farmer, you go into the farm in the morning, you would see a signpost that says it's a good day to burn or a bad day to burn or a medium risk day. So basically a fire dangerous, danger warning, okay?

[00:18:53] And of course, this is built based on science, you know, weather data. There's all this NASA data available, free fire data available online. We use all that.

So essentially where I'm going is we developed that tool, and so communities decided they wanted to use that tool not only make decision on a daily basis, but also give it teeth, and so they enforced it.

[00:19:16] And so some communities, in fact, have stricter rules than the others, and there's this one community that, like, you get exiled. You pay, like, a $5,000 fine or so. It's like a lot of money.

[00:19:27] **Nate Hagens:** You get exiled?

[00:19:27] **Iroro Tanshi:** Yes, you get exiled for, for burning, for, for allowing fires to spread from your farm to someone else's farm.

[00:19:36] **Nate Hagens:** If, on one of the risky days, if you do it?

[00:19:37] **Iroro Tanshi:** On one of the risky days, yeah. So if you do that, so they, they wrote this whole bylaw system that gives that whole program teeth. And so you, you kind of drive collective action that way. You, you, on the one hand, listen and work and really allow, encourage community buy-in, and then on the other hand, they decide with their own autonomy that they want to establish laws, and I think it works that way.

[00:20:02] **Nate Hagens:** But it can't be just, they can't be exiled for breaking the rules just for bats, maybe. It's like there are other benefits from keeping the forest from burning. It's protecting the ecosystem for all the other creatures and the benefits to humans, right?

[00:20:19] **Iroro Tanshi:** That's true, but you see, that, uh, enforcement strategy that they brought up, it's not because they really care about bats.

[00:20:26] I have to be honest with you, Nate. What they care about is their farms.

[00:20:32] **Nate Hagens:** Right.

[00:20:32] **Iroro Tanshi:** It's their livelihoods, because when we came to this village, at least the first village we started working in, you know, people would come up to us and be like, "I lost my farm three years ago. I still struggle to eat, you know, I, uh, I have to rely on, uh, you know, my cousins five, five times removed or three times removed to eat," you know?

[00:20:52] And there were people who would, um, you know, develop all kinds of illnesses ar- around just either losing their farm or even dying. Um, and so it really was a case of survival for communities. This elderly woman who told us about the tell us when to burn, she said, "Look, we're not, it's not like we're really trying to destroy our farms.

[00:21:18] That's obviously not the plan. That's not the, that's not what's happening here. We're not trying to bring down this forest either. We just don't know." Right. You know, so having that tool allowed communities to have something to work with, to make decisions, and to rally around. Like, they, they kind of go around saying, "Look, we stopped fire in our village without-" You know, us saying that for them.

[00:21:41] **Nate Hagens:** I have a difficult question to ask, actually quite a few.

[00:21:44] **Iroro Tanshi:** Ask away.

[00:21:45] **Nate Hagens:** So you've developed this really helpful tool.

[00:21:47] **Iroro Tanshi:** Mm-hmm.

[00:21:48] **Nate Hagens:** I mean, you're a biologist and you're here at Climate Week, so you know some of the forecasts for coming decades. What happens if

the number of days where it's the don't burn are many of the days, uh, and there aren't too many of a it's okay to burn days?

[00:22:03] **Iroro Tanshi:** I like that question. I haven't thought about it that way, but I've thought about it, I've thought about it, excuse me, in the context of what if they even just decide this is too cumbersome–

[00:22:15] **Nate Hagens:** Hmm ...

[00:22:15] **Iroro Tanshi:** altogether? And we've been surveying, you know, p– uh, farmers every year since we started this program to understand, uh, compliance interests, just are you willing to even do this at all?

[00:22:28] And it keeps showing that we're over 90%, you know, just straight up, I wanna keep doing this. So that's one thing. So that gives us hope that they see the value from the, the, the, uh, the, the tool. However, the question of having, you know, longer droughts and so higher risk days, a longer list of, uh, a l– longer, a number of days, um, of high risk is a real question, and it's a real concern.

[00:23:00] Um, but I suppose what gives me hope is the fact that communities already see this value just before we get to that point. And I wanna say that I'm sure we'll be able to find a solution if it does get to that point where people are like, "Well, now it's only one week left for us to burn safely." Um, what do you do after that?

[00:23:25] I think we're gonna, we're gonna go back to the communities and, and, and, and speak with them and, and hear what they think.

[00:23:30] **Nate Hagens:** And in Nigeria, my understanding is there's 250 different dialects. So is that, is language a problem with talking to diverse communities across the country? Or is English what is used, or is that a problem or not?

[00:23:43] **Iroro Tanshi:** Well, a few things here. So when you're in the village, you usually speak in one language– Right ... because, you know, that's a collection of, um, you know, people that know themselves. But when you're in urban centers, of course, I would live in a flat that has, you know, I don't know, 20 units, and, uh, and I say flats, apartments, you know– Yeah

[00:24:01] this is the US. Um, it will have 20 units, and every single person in each of those units may speak a completely different language.

[00:24:09] **Nate Hagens:** Okay.

[00:24:10] **Iroro Tanshi:** Maybe you find two or three people that speak your language, you know? So clearly English is, uh, not only just the official language and as a matter of necessity, if you wanna– Okay

[00:24:20] communicate in, uh, urban settings, that's what you do. But there's also Pidgin English, which is a creole of English– Mm ... with local adaptations, okay? So, uh, for the most part, there's, like, a general Nigerian English, but it's not a formal, it's not an official language, but people just speak it on the street.

[00:24:37] In fact, it's the most spoken language in Nigeria because a lot of people speak it. So we do communicate with that, uh, but we of– often bring in, um, uh, local, uh, interpreters to help, at least for people who don't, who can't speak English, and it, it, it kinda comes together.

[00:24:55] **Nate Hagens:** So in your experience, and, um, you and I have wildly different backgrounds, but talking before we, uh, started this interview, we both deeply care about nature and animals.

[00:25:07] Um, I don't know much about bats, but I love them when I see them. What is your experience with the, the people in your country or in Western Africa

and their attitude towards the natural world and the environment? Or, I mean, there are a lot of people in my country that deeply care about nature, but there's also a greater number of people that kind of just take it for granted as part of the landscape, as if it will always be there in this, uh, abundance, and it's kind of being eroded slowly, uh, in kind of a, um, shifting baseline sort of way.

[00:25:45] But what is your experience with the common people in, in Nigeria with their attitude towards the animals and the ecosystems and the forest and the natural beauty of Nigeria?

[00:25:57] **Iroro Tanshi:** I have to say it's a bit complicated, okay? But let's start from bats. At least that's our working animal here. The vast majority of people, I have to be honest with you, in Nigeria, the vast majority of people think bats are witches.

[00:26:13] **Nate Hagens:** Oh, so you have a, you have an extra hurdle- Yes ... with your work.

[00:26:16] **Iroro Tanshi:** There's a whole other level to this. However, a, the, in the exact same village, even the same individual that says bats are witches, some other kinds of bats are edible. So there's an appreciation that we will eat bats, but they're also witches.

[00:26:36] So there's that aspect of how you deal with perception and all that. But on a general level, it depends on where you live. If you live in a village, and obviously you, uh, you go to the forest, you're, you're collecting all this tim- non-timber forest products, sometimes it's snails, sometimes it's a, it's a tree bark or, you know, for medicine or, or fruits even.

[00:26:57] A lot of forest communities tend to be fruit hunter-gatherers, uh, uh, communities have, have evolved out of a hunter-gatherer community. Those are

slightly different. So people will just generally say, "You know, the forests are our forefathers', you know, they're given to us by the gods, or our forefathers have had this," blah, blah, blah.

[00:27:16] There isn't as much a romanticization, so to speak, of nature as much as it is much more, uh, transcendental, so much more spiritual. You know, like, oh, we have a connection, a cultural connection to this. Uh, 'cause I came to love biodiversity out of more of an aesthetic, you know, uh, of the visual of it or how it makes me feel.

[00:27:40] But a lot of the people we talk to in communities are more, you know, it's about the connection to the land. You know, "My ancestors live here," or, "My families used to talk about hiding in the caves when they had so and so wars, and so those caves are sacred," you know? So there's a different kind of relationship, and it's, it's n– not a case of one being less than the other.

[00:27:59] It's, it's more, uh, a different lens. Now, those are people, forest people, so, but if you're in the cities, not a lot of people care for biodiversity in Nigeria, sadly. And so part of the program that we've started at our small nonprofit in Nigeria, Small Mammal Conservation Organization, is to help educate especially young people, not just kids, but also, you know, everybody until you're sort of 18, 20, you're kind of on your way out of college or you just left college, 'cause those are the people who would, say, have a much longer influence on, you know, animals and the natural world than, um, you know, much older people, so to speak.

[00:28:41] So yeah, it's a mix of things. So that's why I said it's a bit complicated. It's not, it's not nearly black and white, you know?

[00:28:49] **Nate Hagens:** So, uh, as a biologist, do you ever tell the people who think bats are witches, do you ever call them batshit crazy?

[00:29:00] **Iroro Tanshi:** I like that.

[00:29:00] **Nate Hagens:** Ha ha. It's just a joke.

[00:29:02] **Iroro Tanshi:** Uh- You had to say it like that.

[00:29:06] **Nate Hagens:** Um- So what other wildlife, like give me a quick rundown of what's in Nigeria. I don't even know. There are ele- A lot of things. There's elephants. Are there lions?

[00:29:17] **Iroro Tanshi:** Elephants, lions, even though the lion population's probably either, uh, on its way out because, you know, I don't know, 10 years ago there were like 50 lions left in Nigeria, but this is northern Nigeria, and there's a lot of issues there with, uh, sort of, uh, land management.

[00:29:30] But lots of species. Yeah. Yeah. Nigeria's a very diverse area, like I said. You know, it's got all these different habitat types. We're also part of the Congo on the east at least, so you cross the Niger, you start to get into parts of the Congo Basin there. So there's a lot of diversity and so many different species, and so the relationships can be different, uh, uh, as well, you know.

[00:29:51] People would appreciate, uh, you know, colorful big birds over, say, uh, a bat or an owl, for example, you know. Um, all of these mythologies that, um, people have ascribed to animals that you see in the media, they're, they're quite, there's a, there's a sort of global sense to them as well, yeah. So black cats, for example, black birds are issues for, for a lot of Nigerians 'cause they're like, "Those are witches."

[00:30:18] But you see, there's a story I like to tell, and, you know, I started as, out as a young master's level biologist trying to understand bats and study them, and I have to say, quite a few people, even at my university, so these are not not

educated people, you know, uh, some of them, um, with a bit more education than, than usual.

[00:30:39] They'll say things like, "What if you catch a witch?" And I'm like, "Are you kidding? That would be a new species. I will break science if I do that." You know? Like, I want to do that. And they were like, "What if it hurts you?" I'm like, "Well, it's a witch, you know. Like, how much can we really..." Anyway, so-

[00:30:55] **Nate Hagens:** It's, it's so amazing how- It is

[00:30:58] our humans in different countries and our cultural behaviors and beliefs- Mm-hmm ... they rhyme. Here we don't call them witches. There are other terms, but the same sort of, even scientists- Right ... have these other beliefs.

[00:31:11] **Iroro Tanshi:** Yeah.

[00:31:12] **Nate Hagens:** So just out of curiosity, as a little girl, did you love nature then? Did you grow up in the city or the, the, or rural?

[00:31:18] **Iroro Tanshi:** In a city, and I grew up right next to an oil refinery where there was a gas flare up every night. Um, and so it was I, I w- I was gonna say concrete jungle, but you, we're in New York, and this is- Yeah. ... the s- the, the concrete jungle. So it's not quite New York l- level concrete jungle, but by, by way of, uh, what I'm trying to say is it didn't really have a l- a lot of natural areas.

[00:31:45] Right. I didn't grow up with natural areas as a kid. I w- I would always walk down streets that didn't have trees. Uh, and so I wanna say my lived experience was very devoid of nature growing up. However, my dad's approach to parental control on TV was to make sure you were watching nature documentaries. I s- I kid you not.

[00:32:07] Before anybody decided there was gonna be something we could call parental controls, my dad was like, "You're not watching anything but nature documentaries." So I literally grew up, you know, hearing about all these wild things, you know, the, the wildebeests, the Serengeti, and y- the crocs in Kruger National Park, you know, someone climbing the tallest tree somewhere in the Amazon.

[00:32:28] I mean, a lot of it was just mesmerizing. I just, uh, I'm grateful for that, and, and, and, and, and I think it was very formative. Although, I have to say, at the time, a lot of these nature documentaries did not show people like me. So I think that contrast between, oh, nature is beautiful, I don't know what it looks like, I've never been in it, or f- I haven't really lived it, per se, as well as, oh, I don't know if my people study bats or study so-and-so, and then hearing about a project happening, happening in West Africa, in my own backyard, and it felt like something I'd seen on TV, I was like, "I wanna do this."

[00:33:06] You know, you can never really judge your path, so to speak. Y- there are all these different things that sort of played their, you know, small roles here and there, but, uh, I think the big one that compensated for my lack of experience in nature was, uh, having nature documentaries, and I'm always grateful to storytellers who sort of bring the natural world, so to speak, to the, to the, to your living room, and, you know, kind of like what you're doing.

[00:33:31] You're, you're obviously telling people about nature and, and the change and-

[00:33:35] **Nate Hagens:** That's another thing we have in common, 'cause I grew up watching nature documentaries too. Did you now? Yeah. So tell me about, um, your personal experience and what the cultural zeitgeist and understanding is now in Nigeria about climate change.

[00:33:51] What have you noticed, um- a h-higher baseline nighttime temperatures. Uh, what, what have you, uh, experienced and as a biologist, what have you noticed on the impact of the natural ecosystems, including bat habitat, but others?

[00:34:09] **Iroro Tanshi:** Right. So, so starting out with bat habitat, 'cause that's what I'm more, more familiar with.

[00:34:13] We're, we're about that number of, you know, that critical point that's 1.5 degrees Celsius- Yeah ... um, in the forest, just straight up. Of course, uh, some of the urban areas, because, you know, concrete jungle and being really, uh, devoid of any kind of cooling opportunities are much hotter. Uh, I can't really put a number on that, but it's, it's certainly worse even, um, in those areas than, you know, natural areas.

[00:34:40] So natural areas are still a refuge in spite of the fact that climate change- In fact, they're gonna keep being a refuge because other areas are much more hotter now than ever before. So even though bats would typically enjoy being out, you know, in urban centers, some bat species, in fact, um, there's a species we call the, the rats of the bat world because they are everywhere in urban areas.

[00:35:05] But as temperatures rise, I'm not sure that they are gonna be able to keep being in urban areas, and they play a key role in pollination. You know, people-- they go to people's gardens and, you know, pick fruit or pick flowers and whatnot. You know, it's going to change the landscape for sure. So bats, like most, you know, wildlife and just about anything that breeds really, um, are at risk of, uh, impacts from climate change.

[00:35:29] Everything from, you know, sub-lethal effects, you know, to, uh, heat stress. So a lot of bats in urban centers, this, this is what we're seeing in a lot of

studies around the world, in Australia, in, in the Middle East, in, in Africa. Bats do these things where they fan themselves try–trying to cool down. Fanning–

[00:35:50] **Nate Hagens:** Takes energy.

[00:35:51] **Iroro Tanshi:** It does take energy, and it's, it's, it's becoming much more frequent too, you know, and bats are–

[00:35:56] **Nate Hagens:** You've observed that?

[00:35:57] **Iroro Tanshi:** Yeah. In places like in India, for example, bats are just falling out of trees because of heat stress, heatstroke, you know? So urban centers are not gonna be the best places for bats in the near future if we're not–– if we don't do something about the climate.

[00:36:10] It's a real issue, and we're crying about insects. We're gonna start crying about bats soon. That's how bad it is.

[00:36:20] **Nate Hagens:** The majority of b– uh, bats in the world, um, are insectivores and then– Yes ... some frugivores. Um, and then there's, like, the vampire bats, right? But that's–

[00:36:29] **Iroro Tanshi:** Yeah. There's just three species.

[00:36:30] **Nate Hagens:** Just three species?

[00:36:30] Yeah. Where are they in?

[00:36:32] **Iroro Tanshi:** Um, in South America.

[00:36:33] **Nate Hagens:** Okay.

[00:36:34] **Iroro Tanshi:** And they do vamp-- They do their blood sucking in a different way, not the way people think.

[00:36:39] **Nate Hagens:** They're, they're definitely witches, you know?

[00:36:41] I'm sorry.

[00:36:44] **Iroro Tanshi:** They're vampires. Let's not, let's not, let's not give them two ugly, terrible things, you know. Well, they're not real vampires, right?

[00:36:52] But, you know, they don't, like, suck blood the way people... They just, like, nibble, nibble and- Yeah ... you know, like a tiny slit and then blood oozes out and-

[00:37:00] **Nate Hagens:** As a biologist, but also as a human, um, and a scientist looking b- to the next century and what is likely as a default path, even if emissions were to s- peak and decline from today, do you ever have your own nature documentaries in your own mind envisioning habitat for the species you care about, uh, changing and more fanning and less viability for the species?

[00:37:31] D-do you ever have a sadness? Um, and how do you deal with that, envisioning the, the, the future of some of these ecosystems?

[00:37:40] **Iroro Tanshi:** I'll tell you this. After we ran from that wildfire in Nigeria, after rediscovering the species and eight days later running from wildfires, I have to say, every dry season after that, I just always felt miserable and hopeless, 'cause I was like, yeah, a fire could run, race through this place again, and it would utterly, you know, on top of what was destroyed last year, destroy more land, more bat habitats, less, uh, insects for bats to feed on, or less this and less that, less fruit.

[00:38:16] So when you say nature documentary, now I'm thinking, well, it– the future without action is really grim. And to play that as a nature documentary is much more, in fact, it's like sitting in the, in the turmoil of just knowing that we're not making enough progress towards the future we wanna see, and that's terrifying.

[00:38:40] After I sort of go through the motions of fear, I always try to find hope. And how I find hope is, at least from my experience, the fact that frontline communities are doing something at the very least. So a lot of governments have responded to, to, you know, the, the global targets and, and, and individuals are stepping up, you know, private partnerships to try to secure and protect, uh, nature.

[00:39:12] But the people who are doing the most are also the people who are actually experiencing the most, and these are frontline communities. And that's, for me, the f– the fact that we can actually do collective action with local communities, and it's, pays off, you know, it's almost like instant, actually, pays off, that gives me hope.

[00:39:35] So I try not to play too much of a, the grim future nature documentary, 'cause otherwise that's all we got, um, if we don't hope.

[00:39:44] **Nate Hagens:** So is it now, knowing what you know and caring about what you care about, in the spring when the rains come, do you feel, like, a joy and a relief in your body 'cause the rains came, and now we're out of the fire season?

[00:39:58] **Iroro Tanshi:** Uh, yes, for sure. Um, although, because you know what climate change is–

[00:40:05] **Nate Hagens:** S– higher standard deviation ...

[00:40:06] **Iroro Tanshi:** yes, for everything.

[00:40:07] **Nate Hagens:** Yeah.

[00:40:08] **Iroro Tanshi:** If it's fires, it's gonna burn hotter. If it's drought, it's gonna be longer. If it's rain, it's gonna be more rains. Yeah, everything's extra. We have completely left the middle. Yes.

[00:40:17] We're now in the extremes of everything. If it's snow, it's more snow, you know? Certainly not every geography is experiencing the same way, but we're really hitting extremes. We hope that, you know, the rains come, it gi- brings you joy, but that we will keep doing our very best to bring down global temperatures so that they're not, like, flooding rains. But that's what we're gonna keep seeing.

[00:40:46] I mean, see what happened in Nepal, you know. Fires right now in Indonesia, it's just beyond belief. The El Niño that's being predicted is now hitting us, and we're starting to- we're at the beginning of that whole experience.

[00:41:03] **Nate Hagens:** Yeah

[00:41:03] **Iroro Tanshi:** I don't even wanna think of what fires would look like in the American West, uh, during next fire season.

[00:41:09] It will be rough.

[00:41:11] **Nate Hagens:** We can imagine the, uh, ecological and, uh, temperature regimes that are coming and the socioeconomic stress that, that follows. Do you... I kinda can predict that no matter what, you're gonna be a champion for other species, bats, but, but maybe the broader ecological substrate in Nigeria. Is, is that your plan or?

[00:41:34] **Iroro Tanshi:** That's exactly right, and in fact, we've taken the solution that we developed with local communities in Nigeria, we've taken it global, so we're going pantropical with our solution. It's one thing to save a 10,000-acre forest in Nigeria. You know, you- maybe you bring down the local temperatures just a little bit.

[00:41:55] But if you really wanna see impact, you gotta go to scale, and that's what we're doing, is we've now launched the Tropical Fire Alliance, which is getting that solution in with partners in country, in a lot of, uh, forests, especially forests. We're, we're, we're also interested in other habitats. We're prioritizing forests for now.

[00:42:15] Getting partners in there, working with local communities, fo- uh, forest communities, to take that solution of prevent fires, you reduce your burden, and respond quickly when the fires are, like, just a couple meters or, you know, less than an acre, and you can really protect the landscape. And again, this is what gives me hope, is the fact that you can take one solution, develop it somewhere, and you can go to scale, especially when you're really good at adapting stuff.

[00:42:44] So that's kind of why we're developing our Tropical Fire Lab as part of the scale-up, which will have all kinds of, you know, technicians and scientists working to really work with local communities to fine-tune their system. Indo- in Indonesia, you're dealing with peatlands that are drained and obviously, you know, sort of like, they, they, they go like so.

[00:43:07] In the Brazilian Amazon, you're dealing with a completely different group. It's, you know, uh, pasture land and, you know, maintenance of all kinds of agroforestry systems that are not necessarily always favorable to, to, to forests. When we hit pantropical scales, we will really start to get about, to about one gigaton of carbon out of the air from wildfires and recovery of areas that have been, uh, damaged by wildfires.

[00:43:36] **Nate Hagens:** So there's many different layers here, but kind of at the core of it, um, you're trying to prevent fires or the existing fires, make them smaller and all of that. But really underpinning that is, we have to maintain and protect Earth's standing forest- Uh-huh ... uh, everywhere- Uh-huh, uh-huh ... because they play so m- many roles-

[00:43:57] **Iroro Tanshi:** Yeah, the lungs of the Earth, yeah.

[00:43:58] Yeah. Yeah, yeah. And you, and you're right. If you're protecting the habitat, then everything else is fine, you know. Orangutans are happy, uh, bonobos, monkeys, all kinds of species, birds, you know, frogs, the plants themselves, everyone's happy.

[00:44:15] **Nate Hagens:** We hear a lot about the importance of the Amazon, uh, and it's absolutely true, but we don't hear as much about the central rainforest in Africa, which is- The Congo Basin

[00:44:24] almost as, as big. Um, do you have anything to say about that?

[00:44:29] **Iroro Tanshi:** Yes. Now, let me, before I even delve into that, let me just quickly say that when you compare the Congo Basin and the Amazon forests, the Congo Basin appears to be much more resilient at being a carbon sink than the Amazon forest. That is to say, while the Congo Basin is facing the f- highest rate of deforestation, it's still sinking and pulling down a lot of carbon.

[00:44:59] **Nate Hagens:** And why is that?

[00:45:01] **Iroro Tanshi:** I'm not sure if it's the diversity, because the area of land between, uh, or forest covered in the Amazon, and it, it, it's quite close. I mean, the Amazon- Yeah ... is slightly higher, but, so I'm not sure that it's the diversity and, and, and, and people are still trying to understand why that is.

[00:45:17] In fact, I'm part of a group that's trying to sort of explore some of those questions. But what, what all that to say, that it's a real shame that in spite of being a, a solid system that's gonna probably take us into the future, the Congo Basin is not getting the attention. Because guess what happens- Yeah

[00:45:33] guess what happens to what looks stable? So, like, um, let's think of the, the passenger pigeon.

[00:45:38] **Nate Hagens:** Yeah.

[00:45:39] **Iroro Tanshi:** Very abundant. They were everywhere, and you could have guessed or thought that, oh, they're never gonna go extinct. Never.

[00:45:45] **Nate Hagens:** Billions of them.

[00:45:46] **Iroro Tanshi:** But the thing with systems like that is there is a really steep curve when they, you drop to a certain number.

[00:45:54] Yeah. So, the Congo Basin that appears stable now, in terms of being a carbon sink, in spite of disturbance, it will reach a critical point, without action, it will reach a cri- critical point where it no longer, you know, holds as much carbon as it's capable of doing.

[00:46:13] **Nate Hagens:** Are there as many people in Africa working to defend and maintain the, um, diversity and, and, uh, breadth of the Congo Forest as there are in the Amazon?

[00:46:26] **Iroro Tanshi:** I don't think so.

[00:46:27] **Nate Hagens:** Yeah.

[00:46:28] **Iroro Tanshi:** I think there's been a vastly different capacitation going on– Yeah ... uh, in the Amazon versus the Congo Basin. So this is why the Congo Basin Science Initiative is really doing, you know, bringing all these partners together to really drive capacity building in the, in the region, but also institutionalizing, at least through governments and through institutions, the idea of trying to protect the Congo Basin as much as possible.

[00:46:55] You know, also pulling in all the kind of finance mechanisms. And there's a whole lot of programs that are being set up now for the Congo Basin, but it's still, I don't know, I wanna say a fraction of what the Amazon gets. Everything from finance to people, you know, so local capacity to, uh, uh, institutional support, and we just need to do everything we can for the Congo Basin.

[00:47:17] **Nate Hagens:** So for the people, uh, listening to this who care about nature and ecosystems and might live in different countries around the world, like what advice do you have, uh, from the things that you've learned, um, that you could suggest?

[00:47:33] **Iroro Tanshi:** Well, I think one of the biggest things that I've learned over the past couple of almost two decades of doing this work is, um– You gotta start local, 'cause that's what you can see.

[00:47:48] How do you–– You're sitting here right now in New York. Do you know what's happening in Lagos? No. You know? The person in Lagos doesn't know what's happening in New York, but they know what's happening outside their, their, their window. They know what's happening beyond their doors, and they can say, "You know, I don't want that pipeline in front of my house," you know?

[00:48:05] "I don't want that forest taken down. I'm gonna go fight for that forest." So start local. It's, it's sort of given. In fact, I don't even know why I'm giving this as

an, as an advice. You know, it's kind of, uh, uh, Captain Obvious here. But i-in a real sense, that's how you make impact. Start local. Find the problem, look around, and say, ask yourself, if you haven't been taking action, ask yourself, "What can I do locally?"

[00:48:29] And then you find that you start to sort of, uh, amass a movement, either around you or you join a movement. Whatever you do, find your community. I think that's where it is. It's sometimes your community is a local group of people who love forests, or it's an international group of people who love bats. I didn't have a lot of people in Nigeria studying bats, and I fe-I felt very isolated, um, until I joined a, an international group of bat enthusiasts and scientists, and I thought, "Well, these are my people."

[00:49:04] Find your people. It makes a world of difference. And they have bolstered me. I started as a teeny-tiny, uh, you know, just a fresh graduate student, and I've become a respected scientist because of that international group of, of, of bat scientists, you know, the Global, um, Union of Bat, uh, Diversity Networks.

[00:49:24] It's a, it's a mouthful, but this is GBatNet, and they've really helped me to become this scientist. And that's what you need to do, is start local, find your community, and build it and be part of it and give to it and bring other people in. Build a movement. I think we can all have impact that way.

[00:49:44] **Nate Hagens:** A question I ask, uh, all my guests near the end of the interview is, if you could wave a magic wand and there was no personal recourse, what is one thing you would do to change the humanity a-and the biosphere's future in a positive way?

[00:50:00] **Iroro Tanshi:** Well, because humans have had the most impact on our local planet. Don't laugh, but what I would do with my magic wand is to wipe

every memory and every part of our brain cells that make us destroy the Earth. I just wanna wipe it clean, replace it with, "Oh, let's just keep building. Let's, let's, let's, uh, plant more trees.

[00:50:26] Let's plant more forests." I will wipe every memory and plan and, and potential, every neuron in the brain that allows us to destroy this Earth. That's my magic wand.

[00:50:37] **Nate Hagens:** And so we wake up and we see the beauty and the majesty- Oh my gosh ... of the web of life.

[00:50:41] **Iroro Tanshi:** Yes.

[00:50:42] **Nate Hagens:** Uh, and that biologists are more famous and popular than Hollywood stars-

[00:50:48] and nature protectors- One can hope. ... is one of the, the higher, uh, aspirations.

[00:50:54] **Iroro Tanshi:** Yes. You have to know, though, that, you know, biologists are not necessarily even looking for the spotlight. The spotlight's good for things, for, you know, campaigns and whatnot. I think people just wanna live in a, in a world that is unperturbed.

[00:51:15] And I say that with a bit of caution, because also as a biologist, I know that na- the way the natural world has come to be, there are natural disturbances, but we should not be accelerating those. It's, that's where you, you introduce problems. It's the idea that humans are driving the disturbance to levels previously unseen anywhere in the, uh, in the geological record.

[00:51:40] We have completely turned this planet. We're living in the upside down. It's what it is. Yeah. You know, we, we need to stop doing that. That would be my message any time, is we got to stop doing that, and we got to make nature happy.

[00:51:59] **Nate Hagens:** I am sorry we don't have more time, because I really wanna continue this conversation.

[00:52:04] So why don't we, in the next six months or so, we do a roundtable with some African-based ecologists and biologists- Mm-hmm ... and take a deeper dive on some of these questions. We'll do it online.

[00:52:16] **Iroro Tanshi:** I'd love that.

[00:52:17] **Nate Hagens:** Yeah.

[00:52:17] **Iroro Tanshi:** I think that'll be great. I think African biologists need a platform, and that would be great to, to, to give them that space.

[00:52:25] **Nate Hagens:** Thank you so much for your work- Thanks, Nate ... uh, in defense of nature and bats, and I understand that you also defend pangolins, which is one of my favorite species. Oh, good.

[00:52:35] **Iroro Tanshi:** That's great.

[00:52:35] **Nate Hagens:** Yeah. Yeah. Yeah. Awesome.

[00:52:37] **Iroro Tanshi:** Um, yes, uh, most trafficked mammal, but people don't realize that, at least in Africa, a lot of that, uh, starts with just a hunter who's trying to hunt for local consumption.

[00:52:52] So we always need to remind people that, uh, pangolins are a completely interesting and different case. And they're the cutest thing. When I go

trapping bats at night, you know, 'cause I'm studying bats, and you're walking down the trail, a pangolin's just like– You look and you're like, "Oh, my gosh, it's just there."

[00:53:10] You can, like, walk up to it and hold it by the tail. It's not gonna run. You know, th– I feel like pangolins are like the sloths of Africa, you know? It's like it, they're completely unreal, and of course they have scales. It's like, duh.

[00:53:23] **Nate Hagens:** On my bucket list.

[00:53:25] **Iroro Tanshi:** On my bucket list.

[00:53:25] **Nate Hagens:** Uh, hope to see one, one day.

[00:53:26] **Iroro Tanshi:** Yeah. Oh, nice.

[00:53:27] **Nate Hagens:** Yeah.

[00:53:28] **Iroro Tanshi:** Nice.

[00:53:28] **Nate Hagens:** Thank you so much for your time.

[00:53:30] **Iroro Tanshi:** A pleasure.

[00:53:30] **Nate Hagens:** To be continued.

[00:53:31] **Iroro Tanshi:** To be continued. Thank you so much, Nate.

[00:53:33] **Nate Hagens:** If you'd like to learn more about this episode, please visit thegreatsimplification.com for references and show notes. From there, you can also join our Hylo community and subscribe to our Substack newsletter.

[00:53:46] This show is hosted by me, Nate Hagens, edited by No Troublemakers Media, and produced by Misty Stinnett and Lizzy Sirianni. Our production team also includes Leslie Batt-Lutz, Brady Heyen, Julia Maxwell, Gabriella Sleiman, and Grace Brunfelt. Thank you for listening, and we'll see you on the next episode.