BONUS EPISODE ▹▹ Should We Put Polar Bears In Antarctica? ▹▹ July 10th, 2020

Hello! Welcome to the Patreon Bonus Podcast. Which really needs a better name, honestly. In the newsletter this week I proposed a couple of options. What do you think we should call the show? A few I came up with:

- The Parallel World
- The Alternate Timeline
- Wharfs of Lard (Flash Forward scrambled)
- Octopus Bands (Bonus Podcast scrambled)
- The Protean (Patreon scrambled)
- The Protean Octopus Bands! (Patreon Bonus Podcast scrambled)

Anyway, today we're talking about the Flash Forward episode SHOULD WE PUT POLAR BEARS IN ANTARCTICA? Like I said on the episode, there were so many things that didn't make the final cut. The first cut of this episode was verging on two hours long, which is way too long. And we're going to get into those bits in a second, but before we get into that, i just wanted to tell you that i'm conducting a little experiment, non you, right now, that you didn't know about until now, because I'm telling you.

I'm testing out something for an upcoming episode of the Advice show -- Advice For And From The Future. On an upcoming episode of that show, I'm going to be talking about a couple of images. Obviously, talking about pictures on a podcast is a challenge, since… it's a podcast and it's just audio. But there are a few ways to do it, and I'm testing out a couple of them, and I'm testing out one way on you, right now. Sp, this is a method that I heard about from my friend, Ponders, who runs a really cool podcast called Accession, that's all about art and art history. So you should go check out their podcast, it's really cool. They told me about this way of embedding images into the file for an RSS feed. So, in theory, if you pull up your podcasting app right now, you should be able to see a picture. There should be a picture accessible to you. You might have to swipe to see it, depending on what podcasting app you're looking at, but there should, in your podcasting app, be a picture of my dog. Her name is Moro. She's a black and white dog. Hopefully you can see that.

[Alt text: A black and white dog with her eyes half open, sleeping on a bed that has black and white zig zag sheets. The dog looks very sleepy and her pink tongue is poking out the front of her mouth by a few inches.]

I know that this won't work on all apps, soyou might not be able to, but if you do, let me know if you can or can't see it, either way, and which app you're using. I'm trying to gather information about who can see it and who can't. So, if you have a second to email me, and tell me if you can see these images. Throughout the episode, I will note when the image should change. So, sort of keep an ear open for that. And, if you can, if you have your podcast app handy, if you're not driving, or doing something with your hands right now, and you can check and see, let me know. Because I want to make sure that it's working the way that I think it's going to work. Okay, now on to the stuff I cut. Then some behind the scenes editorial things that are happening here in Flash Forward Presents-land, and as always we'll end with the four big things.

So, the first big thing I cut from the episode was this conversation I had with Jason McLaughlin about what makes an ecosystem. Like, why is there forest here, and a prairie over there? What are the things that ctually make that happen? It's a simple question, but the answer is really complicated, and has sort of changed recently.

Jason McLaughlin: And, this is actually a really, pretty fundamental question that has people feel strongly on both sides of it. And, I've switched from one side to the other over my career. I used to be a person who believed that you could say a lot about the climate by understanding where a species lives. And now, I think you can't. I think those other factors influence a lot. And I

think that communities create their own stability. So, if we have a small ecosystem, with Woollystars and some little, you know, desert rabbit that eats that, and some desert fox that eats the rabbit, that they sort of promote stability in their own system. And so, if you look at all three of them, they're gonna have a distribution that might be constrained by climate, but it's not climate that's determining that. So, if you talk to ten ecologists, you'll get, you know, twelve opinions on this.

Rose [on the phone]: Was there something in particular that changed your mind, in regards to climate and the groups of species -- you mentioned you went from one side to the other -- was there something particular that changed your mind about that?

Jason: Yeah, a graduate student. Kelly Heilman, who's now a postdoc at University of Arizona, did a dissertation in my lab. And we were looking at the distribution of species in the Midwest -- of tree species in the Midwest -- not in the last Ice Age, only two hundred years ago. So, we have very good information about the distribution of species just before land clearance, and agriculture started. We were testing an idea that our friend Carla Staver put out in the tropics -- especially in Africa and South America, especially -- that there is that big communities of organisms have these self reinforcing tendencies that stabilize themselves. And that those are fragile, and can collapse. So everybody might have -- many of your listeners might have heard this -- last summer when the Amazon fires were raging, and people were worried that the Amazon might actually collapse; that it was near a tipping point and could turn over into something like a savanna that would never come back into rainforest.

And so we were testing this idea in the Midwest, because the Midwest back in 1820, there were closed old growth forests, like rainforests, and there were open savannas. And we were saying, well, “what was the climate that determined that boundary?” And Kelly discovered that there was no climate that determined that boundary, that that boundary was determined by the species themselves. The forest reinforced themselves. The prairies reinforced themselves. And in the very same climate, you can either have forests or prairies, but not in between. They have to be one or the other; very different systems.

And when Kelly was analyzing these data, I was convinced that she had made a mistake. And so, we kept going back to it and saying, “well, what about this? What about this?” We came up with all sorts of very imaginative ways that climate could determine vegetation. And it's just not there.

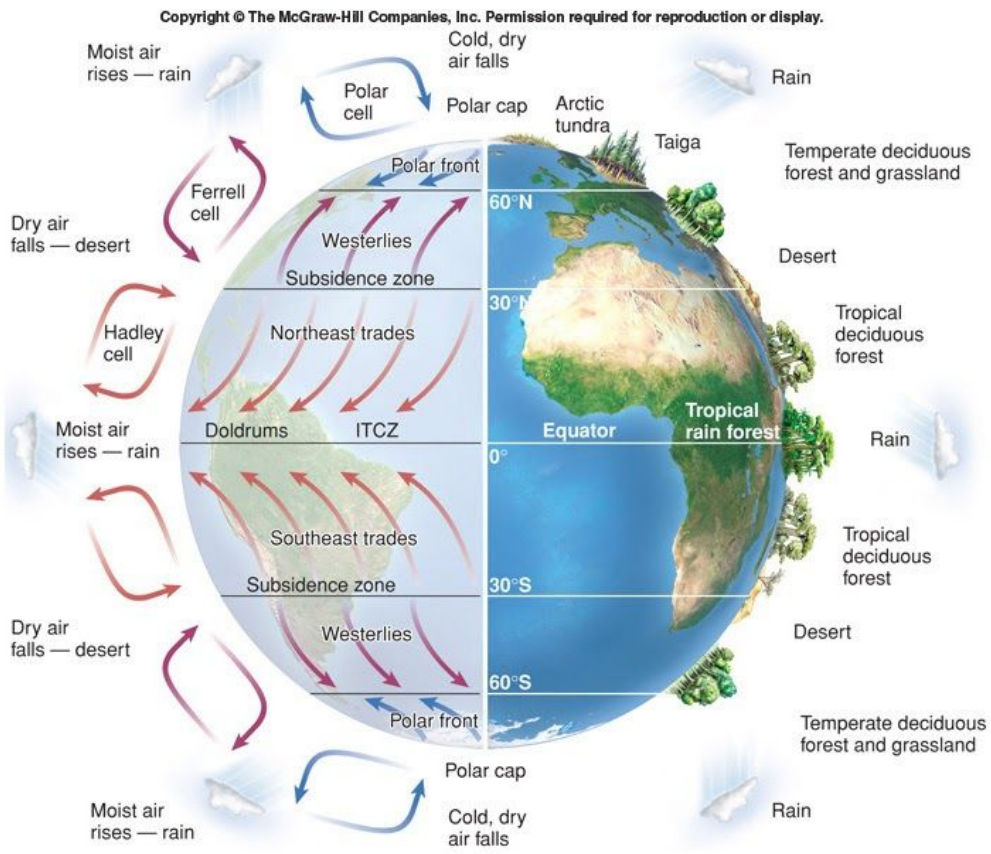
And I was really like -- my training, you know, for 30 years was: there might be a noisy relationship between climate and vegetation, but vegetation predicted by climate. It goes back to Alexander von Humboldt. Like, if you look in your biology book, there's a picture of the biomes of the world, and where they occur in climate space. Turns out that for a lot of those biomes -- and we're not the only ones who are finding this. So, on the modern landscape, all over, people are finding that there can be alternatives assemblies of species in the same climate. And it does make you worry about human impacts, because when that's the case, you can switch from one

community to another, and it's very hard to go back. You can't just say, oops, we should go back. Once you switch over that tipping point, you can't get back. And so, it does raise the idea that communities reinforce themselves, and that you can break that relationship, and you can't put the pieces back together. So that. Yeah. I learned that from Kelly.

Rose [on the phone]: That's so interesting. It's funny, there's a Flash Forward book club for listeners who want to read books together, and a couple of months ago now, we read a biography of Alexander Von Humbolt, which was very interesting. And I had memorized the biomes of the world map in high school biology. You know, I did well on that quiz. And reading about him and his travels -- and I actually really didn't know very much about him and he's obviously a very fascinating and weird person -- but reading about him was really interesting. But yeah that's why I was like: I need to learn more about that, because I had always learned that if you have this climate you get this, and if you have that climate you get that.

Jason: I mean, it's certainly true to a certain extent, like the Sahara Desert. Why does that have... it's because it's too hot and dry, right? And that's true. I could predict that. I could make a model; I could make a computer model that predicts the Sahara Desert and predicts the vegetation of the Sahara Desert exactly right. But I cannot do that for the Midwest of the US. And that's a big question, which biomes are stable, and which aren't? There's quite a few, all over the world. You know, the boreal forest, the tropical rainforest, tropical savannas, people argue about temperate forests and by now you're talking about most of the world's land surface. Not to mention aquatic marine systems as well, you know. So, I think that I think that there is a trend in this direction in the literature. And my thinking has switched. I think a bunch of us are starting to realize that this is an added risk of climate change, and not just climate change, but land use and other ways we're affecting ecosystems.

Rose: I think this is so interesting, because yeah, it totally upends what I feel like I learned about types of ecosystems, or biomes. I distinctly remember having to memorize which climates created which types of forests, or conditions, in high school biology. If you check your podcasting app, you should now see an image of the diagram that I'm talking about …. If my whole little setup is working properly. That whole image of: here's where the rainforests are, and here's why there are deserts here.



[Alt text: an image of the globe, with a line down the middle vertically. On the right side, the globe shows water and the land as blue and green/tan and the biomes that correspond to each latitude. On the left side, the globe shows the air patterns that flow North and South and explain the air movement that creates those biomes.]

That isn't as true as I thought it was when I memorized those things in high school. I'm sure lots of stuff I had to memorize in high school science classes are no longer true, but it's always kind of surreal to actually encounter those things in the wild, and have them updated. And I think what Jason's talking about is a new-ish way of understanding these things. It's cool to see how a field can change over time, and the understanding of ecosystems can change over time. So, that was super fascinating, to have that conversation with him, but it was also kind of complicated, and didn't quite fit into the big picture questions we were asking, so it did not make the final cut.

Another really interesting, and thorny, thing I cut out was something I talked to Emma Marris about genetics and conservation. So you heard Emma talk about the barred owl and the spotted owls, and she mentioned that they're also breeding, and creating these hybrid owls. And that breeding, those hybrid owls, presents a really interesting challenge for conservationists.

Emma Marris: That in the case of the Owls, for example, I think the instinct is, "well, maybe the barred owls are coming because of humans. So we need to undo that. So we're going to go

shoot these owls.” Or maybe we're just shooting the animals because we think that the spotted owl is a distinct species, and we've kind of been trained that biodiversity means species, even though diversity, on many other levels, is also part of the concept. But here's the thing that the barred owls are better at living in the current Pacific Northwest. That is why they are displacing the spotted owls. They eat more stuff You can pack more of them in the same amount of forest. They have more owlets in any given clutch. They're a little more aggressive, and less wedded to old growth. They can live in more habitats. So, if they interbreed with the spotted owls, and then some hybrid owls exist -- they are called sparred owls -- that still have spotted owl genes in there, but are actually better adapted to live in a 21st century Pacific Northwest, maybe that is actually the best chance of keeping spotted owl genes going into the future, many centuries from now Rather than trying to stop all of this change. We're basically trying to shoot the more fit genes, before they get into the population.

Rose: And this isn’t the only case in conservation where this struggle is happening. Probably the most famous example are the so-called “grolar bears” -- there’s a lot of names for them. Pizzy bears is another one. I think grolar bears is a way better name -- which are grizzly, polar bear hybrids. There should be an image of one of those in your podcast app now! I hope! Fingers crossed, if this is working.

[Alt text: a photograph of a grolar bear that has a white-ish head and a more light brown body standing among some leaves.]

Emma: I think it's going to be interesting to see what happens with the grizzly bears coming up, because grizzly bears are starting to move north, and running into polar bears more often. You're probably going to cover this in the episode; the hybridization events, the grolar bears and the whole thing. And, you know, as a thought experiment, what if some geneticist came and said, “OK, so we've we've taken a look at this grolar bear genome, and we think that this hybrid will be better adapted to the climate, in 100 or 200 years from now, than then, the polar bear. So we recommend that you let these species interbreed, so that these grizzly bear genes can get into the polar bear population, so that they can persist.” Like, I think that would be a really hard pill for people to swallow, because they wouldn't look right. They wouldn't look like the Coca-Cola ad or like, the fairy tale East of the Sun and West of the Moon. And, honestly, I'm really sympathetic to that. But at the same time, it's kind of mean to the bears for us to be like, “oh, you might be getting some valuable gene flow from your extremely close cousins, the grizzly bears, that you only differentiated from a couple of tens of thousands of years ago. But we're not gonna let you do it because we'd like you to look pretty.”

Rose [on the phone]: It’s also maybe hypocritical, because didn’t humans breed with their close relatives, and wound up taking over the world, basically?

Emma: Yeah,

Rose [on the phone]: We did it!

Emma: I am proudly two percent Neanderthal. And, you know, I'm proud of my hybrid heritage. This is how nature solves problems, is that it just moves around. Like, ultimately, the reason that nature is awesome is that it's dynamic, in time and space, and it's really complicated. So, by us trying to freeze it in time and space, and sort of act as if we can manage it, as if it's just a food web that we can sketch out. I think we're denying the kind of thing that makes it so magical. And, you know, a time may come when our descendants look back at us now, and say “they were so in love with the world that they didn't want it to change. But it was trying to change all around them to cope with what they had done to it. And they were just resisting that because they just loved it.” It's like we can't sacrifice other species on the altar of our love for the ecosystems of the past.

Rose: So, if the polar bear might go extinct because of us, because of climate change, should we stop it from breeding with the grizzlies who are moving further north, also because of us, because of climate change? Or should we let them breed, to at least keep some polar bear genes in the gene pool, even if we can’t save the bears themselves? This is a big question, I don’t think there’s a clear, easy, answer. If you want to read more about the weird value we’ve put in polar bears, I’d recommend Jon Mooallem’s book Wild Ones. It starts with a chapter about polar bears, and it is incredibly funny and interesting. And Jon is such a good writer, and that first chapter is just amazing. You should definitely read it.

And polar bears are actually connected to the last thing that I didn't include in the episode, that I want to talk about here. So , when Emma and I got on the phone, before we started recording, we started talking about the kinds of things I wanted to ask. And she offhandedly mentioned to me this paper she had recently read about whether or not we should feed polar bears. The philosophical question around feeding polar bears. Which I thought was… super interesting, and kind of related to the stuff we were talking about on the episode. But also slightly different. It's a similar question around how much help should we be offering, and in what forms, for these species? So at the end of our call I did ask her to say more about that, which did not make the final cut. But here's what she said about feeding polar bears:

Emma: Clare Palmer, who is a philosopher at Texas A&M, has written about this. She's working on this right now. And she's got a really interesting paper she's working on about sort of going through the ethical case for and against it. So, if climate change is melting, the sea ice, and the sea ice is the primary hunting ground of the polar bear, If there are longer and longer periods in the summer where the polar bear cannot hunt seals because there is no sea ice, do we have a collective obligation to then feed those polar bears through that period, so they won't die? And it's a complex problem, because there's the -- first of all, it's important for your listeners to know that, as of right now, the polar bear is not on the brink of extinction. That there's nineteen different populations of polar bear that the IUCN keeps an eye on. And some of them are having these problems with the sea ice, but some of them are not. Some of them are even increasing in number because of changes in hunting regulations and stuff. So, if we were to swoop in and feed them, it would either be in the future when they were in a more dire place as a species. Or we'd be doing it now, out of almost obligations to the individual polar bears in those populations that are suffering, like an animal welfare kind of intervention. Like, these bears are individually starving because of climate change, so we're gonna go feed them. Which takes you into a whole other world. Now, you're not thinking about species as the units of value. You're thinking about individual, sentient, bears as the units of value. So it kind of opens another box of problems and complexities.

Rose [on the phone]: And what are people talking about feeding these bears? Does this mean that we are killing seels to feed them? Where does the food come from?

Emma: Right. So, Clare Palmer kind of walks through the options. You know, she'd be a great person to interview, if you have time. But, you know, one option is that we would hunt seals, and then present these seals to the polar bears. Seals are an extremely fatty food source. You know, polar bears thrive off seals. But if you're feeding the polar bears because of your duties to their individual welfare, because you have harmed them with climate change, then it doesn't seem really cool to go and kill seals, individually. You'd have to kill multiple seals for each bear. So you'd be killing more sentient animals than you would be saving. So the kind of animal welfare math doesn't seem to add up very well there. Another option would be to feed them with byproducts from the slaughterhouse industry, like bones and fat from animals like pigs that are slaughtered for human consumption. And the sort of ethical concept there is, "well, these pigs are going to die anyway to feed humans. So, if we use their bones and their fat to feed the polar

bears, there's no additional harms there. We're just kind of creaming off the fat, and giving it to the polar bears instead of burying it, or whatever.

Rose [on the phone]: I feel like that image is such a good encapsulation of humans, on earth, in 2020. This idea that we're going to go to these pork processing plants, where workers are constantly being injured, and infected by coronavirus. We're going to pull this pig byproduct, and we're going to helicopter it to the polar bears, and drop it because they're dying because of climate change. It just feels like the most perfect encapsulation of everything that is wrong with the world.

Emma: Yeah. It definitely feels like sticking your finger in a leak in the boat instead of, you know, fixing the boat. Right? And, you know, so Palmer talks about the pros and the cons of it. But ultimately, one of the biggest arguments against it is that you would be setting up a system you could never undo. That the bears would become completely dependent on this feeding, and you'd end up with these sort of semi-wild, semi-not wild bears that would show up every year looking for their free lunch. And we would be on the hook for this forever, which in some ways is a kind of an interesting metaphor about our relationship to all of the non-human world. If we are going to try to take care of it, are we setting up this, sort of, system of dependency that would last in perpetuity? Or would there be some sort of exit ramp? When we finally got climate change under control, and the sea ice froze up again, could we then, at that point, wean the bears off of this pork stuff, and get them back onto the seals? I keep imagining this ceremony, like, four hundred years from now, where the last polar bear gets the last pork sandwich, and we say goodbye to them and everybody cries, and claps.

Rose: Like I said, there's something… so incredibly weird to me about this idea. Which is obviously why I like thinking about it, because it kind of breaks my brain. The idea of dropping pork byproducts out of helicopters, to save the polar bears, is just… it's an image that you couldn't write into a TV show, because it would feel too absurd, right? People would just like, "that's so ridiculous. That would never happen." It just feels, like, too out there. And yet, it's a real proposal that people are talking about. In fact, the polar bear expert who I mentioned at the very end -- who I had emailed, whose email I quoted at the end of the episode -- he has written about whether to feed polars bears as well, as a conservation tactic. So this is not an out there, totally bizarre, proposal. This is something people are genuinely talking about.

Okay, those are all the segments I cut from the episode! There's so much to say about all of this. About climate change, and migration, and help, and care, and the way we think about the earth. And I'm genuinely very curious about the way you folks think about this, about moving species or not. Should we? Shouldn't we? I would love to know what you think. So, if you want to send me an email, and let me know what you think, I would love to know.

I will say that I went into reporting this episode being pretty firmly against assisted migration. I thought that it was foolish, and honestly egotistical, to think that we could do this in a way that makes sense. But, as I talked to people like Cuauthemoc, and Jason, and even Emma, I

realized that I could actually see situations where we would want to try doing this. It didn't seem like always a bad idea. Although, I think even the people in favor of it would all admit that it's not going to save every species. It's just in these particular places or particular examples where it might make sense. It's definitely not the right choice for a lot of problems, but I will say I'm a lot more open to it now than I was before I started reporting the episode, which doesn't always happen. A lot of the time I go in thinking what I think, and I come out thinking, "yup, that's what I thought." I do enjoy the ones where I, sort of, change my mind about things.

I also don't think that Tero's rewilding, and Cuauthemoc's assisted migration ideas, are mutually exclusive, necessarily. Both can be a piece of this future. And I think that's an interesting conversation to have, too.

Okay, that's all for this week! I hope you enjoyed the episode and these bonus things! I'll leave you now with a little secret.

This week's secret is: I'm not a Harry Potter person. Don't hate me, I could just never get into the book, fore reasons we won't get into, here. So it's very easy for me to cut everything JK Rowling out of my life, given her consistent, and really damaging,transphobia. That has not been a challenfe for me. I know, for some people it's hard. The one thing I had to figure is out how to replace the concept of being a Slytherin. So, even though I'm not a Harry Potter peron, I have a running joke among my friends that I am the Slytherin on Call. When someone needs advice for how to get what they want, or negotiate a deal, or just be a little bit less… nice. Less of a pushover! I'm using my powers for good, okay. Anyway, I'm the Slytherin on call. So now I have to replace Slytherin with something, and what we've landed on, so far, is "Sneklady." As in, snek, lady, which is an old internet meme For some of you that is going to make no sense. For those of you who weren't not raised working in the meme mines, as I was. But I think it's funny. So you can now call me the Sneklady from here on out.

Okay, talk to you next week. Bye!!