WEEK 5 ECOSYSTEM PRESSURES: INTERVIEW WITH A CONSERVATION BIOLOGIST

ACT – Anusuya Chinsamy-Turan

LG – Lindsey Gilson

ACT It's a real pleasure for me to have Lindsey Gilson here with me today. And Lindsey is Associate Professor at the University of Cape Town where she's based at the plant conservation unit. Her key research interests are in long-term conservation of ecosystems. And I think when we talk long-term, for me, Lindsey, it's like, you know, really deep time long-term. And one of the things I've really been interested in is how extinctions have caused changes in both plants and in animals. And basically ecosystems. And what I'm wondering about is that today we're facing the sixth extinction. And in your opinion, what is the biggest drivers that is causing this extinction?

LG Okay. Well, I think the biggest drivers are things like habitat loss, fragmentation and degradation which all put stress on populations and species. Added to this are pollution and, of course, climate change. And what's particularly worrying at the moment is how these factors interact. So for example, an ecosystem that's stressed by pollution or invasive species, will be a lot more vulnerable to climate change. So we get these interacting effects. And the other thing that can happen is a trophic cascade. So, if we lose one species, it might have knock-on effects for other parts of the ecosystem. For example, a pollinator might be lost. Or, you know, predators might lose their prey and so on.

ACT And have we seen these kinds of incidences already?

LG Yes, they're definitely starting to happen. For example, there's a very famous picture that you might have seen of a red fox that's killed an arctic fox. And this is showing the red fox moving into the habitat, moving northwards, into previously colder areas and actually out-competing the existing species. So these things are starting to happen. Yes. That's really quite sad to see populations change in our own time. I think that that's a most difficult thing is to know also, that we, as humans, are driving a lot of this as well. So, you know, we say, habitat fragmentation, deforestation, but it's all being driven by humans.

ACT Yes. So, in one way it's sad, but in another way it's quite empowering because we are the drivers and therefore we have the choice to change things as well.

LG Exactly. I'm so glad you said that, because at least that means there is a way that we can make a difference.

ACT Yes. And it's not just beyond our own help, in a way.

LG Exactly. Yes.

ACT That's fantastic. And can you help me understand how can we actually better conserve environments today if we look at long-term changes? I mean, is that a reasonable question?

LG Yes, that is a good question. And I think there's three main ways. So the first is, we can look back at past warmer climates. So, for example, a thousand years ago in the Medieval Warm Period. And about six thousand years ago, in the mid-Holocene multi-thermal, we had warmer climates. So we can use a paleo record and see how eco systems responded to that. Obviously it's imperfect because things aren't exactly the same as in the past, but it does give us an idea. So that's one thing. And we can use those paleo records to test how well our models do. So, if models can predict really well, what happened in the past, we more confident about the future, their future predictions. So that's one thing. Another thing is that ecosystems are always changing. So the landscapes and ecosystems that we see today, are actually snapshots. They're a product of their history. So all sorts of things might be causing ecosystem

change, not just climate change. They might be recovering from a past disturbance event, like a fire. We may be seeing an impact of human management, or a stoppage of human management. So what we're seeing when we look at dynamic landscapes is a whole lot of interacting drivers. So, to me, we can't interpret changes that are going on now, unless we see where ecosystems have come from. And that can really help us develop a kind of past, present, future perspective, that I think's essential. And then the third main way, to my mind, is restoration.

ACT So, as we talked about, I'm optimistic that humans can reverse some of the damage that we've done. But what do we restore ecosystems to? So, we need to look back to the past to choose ecological states that we're happy with and give good benefits to biodiversity and society in the future.

LG Well, that's really fascinating actually. And so, I guess these are the ways in which we can mitigate these sixth extinction.

ACT Is there anything that the ordinary person on the street can do? I mean, you know, for every single one of us, we all that feel passionate about our planet, is there things that we can do?

LG Yes, everyone can help, I feel. So we can be careful about the choices we make, as consumers. We can reduce, reuse and recycle. So that all helps reduce stress on the environment. We can make choices about the transport that we use, for example. And we can tell people. So, we can communicate with our friends. We can try and inspire children. We can inspire our students. And I think all that helps.

ACT Exactly, I think that's what everybody would like to know, is that they themselves can do something. One of the things that I've learned is that, you know, we protect, certain areas to try and protect certain species within those areas, but it's not enough. So what can people actually do to better conserve ecosystems?

LG Yes, this is a very good point. So protected areas are a vital part of conservation. But they only cover about 10 to 12% of the land surface. Where we have about 30 to 40% under food production. So, I think, what we need to do is start

embedding our protected area network system, into a broader landscape approach to conservation and wildlife management. So for example, we might have buffer areas around protected areas that are used for things like wild-life friendly farming. So they're providing ecosystem services, like food production. But they're also providing habitat, directly, and also connectivity between protected areas. So I do think we need a much more integrated approach, where we look at landscapes as multi-functional. Without such a boundary division between wildlife areas and non-wildlife areas.

ACT Exactly. That's an interesting point, actually. So I hope the people that manage parks listen to what you have to say. I mean, is there any way that one can actually talk to the policy makers, and the people that do the land reforms?

LG Well, it's already happening, quite nicely.

ACT Is it. Wonderful

LG So, for example, the biosphere reserve model is exactly this. Multi-functional approach. Where you have a core area that's strictly protected. And then buffer areas that allow various gradations of use for things like ecotourism, for example, or grazing, or harvesting non-timber forest products. So these kind of models are happening, and I think there's an increasing realisation that societies care about the landscapes they live in. and the more benefits they get from them, the more they look after them.

ACT That's wonderful. Lindsey thank you so much for coming to talk to us. It's been a real pleasure chatting with you. And I think that people will be delighted to know that each and every one of us can do something to help save our planet. So, thank you very much.

LG Pleasure. Thanks Anusuya.