Handpicked Presents: Voicing Change

Season 4, Episode 2: Forests, Food, and People – Part 1

Featuring Dr. Eve Nimmo, Dr. Jennifer Baltzer, Dr. Zach Ngalo, Dr. Andre Lacerda

# **Transcript**

**Speakers**

Eve Nimmo (EN)

Jennifer Baltzer (JB)

Andre Lacerda (AL)

Charlie Spring (CS)

Zach Ngalo (ZG)

{[intro music]}

**LY**: Welcome back to Handpicked: Stories from the field. This season we’re showcasing episodes produced by the Voicing Change project, a collaborative effort to share transformative food system knowledge between Canada, Kenya and Brazil. Charlie is going to introduce this episode for us.

**CS**: Welcome back to the Voicing Change podcast. In our pilot episode, we shared the story of how the VC project was born in a forest, when Lloyd Chicot, chief of the Ka’a’gee Tu First Nation in northern Canada, visited a faxinal in southern Brazil, which is a kind of commonly-owned space where traditional food crops are produced alongside management of ancient forest ecologies.

Forests are very special to the Voicing Change team. Today is the first of a two part episode where our guests will tell us about relationships between forests, food and people in different places. Voicing Change team member Eve Nimmo interviews three forest researchers in Southern Brazil, Migori County, Kenya, and Northern Canada.

Before we hear their introductions, we want to introduce a key concept that will be useful in understanding some of the conversation to follow. This is agroforestry, which is the intentional integration of trees and shrubs into crop and livestock farming systems. It is being touted as a climate solution around the world, but it has a long and complicated history.

While Indigenous hunter-gatherers, pastoralists and peasant farmers have procured and produced food in forests for millenia, agroforestry has also been used as a tool of colonial management, such as the shamba system that was used in Kenya by British colonists as a way to produce woodfuel to power imperial infrastructure. In this episode then, our guests describe the unique forest ecologies in their different regions, but also explore some of the tensions and contradictions in the way that forests have, and continue to be managed. Let’s hear from our first guest.

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**JB:** Hi, everyone. I'm Jen Baltzer. I'm a professor in biology at Wilfrid Laurier University and a Canada Research Chair in Forests and Global Change. I'm a forest ecologist and my research has focussed on climate change impacts on forests and I've worked in various systems, including tropical forests. But my program now is really focussed on subarctic forests and impacts of climate warming, direct impacts of climate warming and then the indirect impacts of wildfire and permafrost thaw on these northern forests.

**ZG**: Thank you. Z. Ngalo Otieno-Ayayo Associate Professor of Biological sciences.

I do research mainly on my initial research was on the bio pesticides which are applied in various areas in crop protection and forest protection and we can also apply them in public health. I walked on bacterium that is used for controlling pests and vectors of disease. My current research in addition to that is on apiculture. Most of the flowering plants depend on honey bees for pollination. And that helps us also in conservation. So we make sure that in this small hill and this small forest, we conserve as much as possible to have the indigenous plants. But also we add some exotic or ornamentals and whatever crops that the bees will forage on. So that's basically what I'm doing.

**EN**: Thank you very much, Zach … I’m mixing Portuguese with English! So Andre can you please give us a brief introduction?

**AL**: Sure. My name is Andre Lacerda. I work with the Brazilian Agriculture Research Corporation, which is a federal agency that focuses research on all types of agriculture in general. And I'm working currently in southern Brazil in all aspects of forest management, but mainly in community-based research in which we try to develop solutions for forest management and silvicultural practice considering our very restrictive law environment.

**EN**: So today with us we have three researchers who work in very different kinds of forest, on forest systems and with communities. And so I think it's helpful for the audience if each of you could describe a little bit about the forest where you work. So, Jen, let's start with you. Can you tell us a little bit about the forest biome in the Northwest Territories?

**JB:** So, it's a fairly open canopy system that is dominated by needle leaf conifers. It's a cold climate. So, winter dominates the year. Much of the forest in this system is underlain by permafrost, and this is perennially frozen ground. So, the top layer of the soil thaws out annually, but there's frozen soil beneath that. And so, the soils are cold, decomposition is slow, and a lot of carbon builds up in the soil in the form of peat.

About 80 to 90% of the carbon in the system is in the soil as opposed to in the trees as it would be in other in in the systems that that Andre and Zach are working in. This system is dominated by in terms of disturbance dominated by wildfire. And this is a really important component of the forest cycle. So, fire moves through and helps to open up the canopy, helps to renew the forest and creates a mosaic of stand ages and helps to support biodiversity in the system.

**EN**: Andre. Can you give us a brief description of the forest that you work in?

**AL**: The forest that we’ve been working in here in Brazil is what we call subtropical ombrophilous forest. So, it's not the typical Brazilian image of a tropical forest or rainforest in the Amazon. Here in southern Brazil, we have colder winters. So that's why it is subtropical and ombrophilous means that it's quite wet. So, we originally called this forest here as Aracauria forest because of its main species, the Aracauria Angustifolia, basically this kind of forest can be found in the mountains, in plateaus in the south of Brazil, in altitudes of more than 700m above sea level, sometimes reaching 1000m or even higher. We have precipitation levels reaching up to 3000mm a year without obvious drought seasons.

It’s interesting to understand as well that since colonisation in the 19th century, we used to have forest that was basically continuous throughout the region. And since then we have mostly fragments of this forest. We used to have more than 200,000km² of forest and now what we see as a primary forest is less than 1%. However, nowadays, because of environmental laws that we are going to discuss after, we have up to 25% of the younger secondary forest in the region.

**EN:** Thank you, Andre. Now, I'll pass it over to you. Zach, if you could describe a little bit about the forest in Kenya where you work.

**ZG**: Our little forest is, it's its indigenous forests but due to agricultural activities, as I had said earlier, we have a bit of exotic trees being planted around because of the land tenure system. You find that if it falls on somebody else's land then they can do whatever they feel like if they don't value the conservation aspect of it. So, you will find that in addition to the indigenous trees that we have, we also have some exotic trees like eucalyptus being planted for commercial purposes.

**EN:** Okay. Thank you. So, I think it's important for our work that we're doing with the Voicing Change, but also in each of these places to think about how the forests and the community interact. Right. And so it'd be great if you could you all could tell us a little bit about why the forest environment is important to the communities that you work with. And so, Jen we'll start with you.

**JB**: So, in the Northwest Territories, the forests are really, you know, central to people's livelihoods. People spend a lot of time on the land, in the forest for a variety of activities, from recreational to livelihood activities to to cultural activities.

You know, the Indigenous communities in the Northwest Territories rely very heavily on the forests in the Northwest Territories for various subsistence food resources, both harvested wildlife as well as fruits and berries harvested from from the land and various medicinal plants. So there’s a lot of kind of subsistence livelihood that is associated with the forests in the Northwest Territories.

**ZG:** I wanted to add that one of the most important aspects in this forest is medicinal plants. Quite a while ago before the invasion of the forest a lot of people would get medicinal plants from this forest and they would use them. Some of them would use them. And they have their medical problems solved before they think of going to the hospital. There are many herbs that are used from the forest, and they use them for natural remedies. For ... For treating various ailments. So, I think this is one of the important things, apart from the activities of beekeeping. And then you find that sometimes people just come to have a quiet time on the forest for meditation on the top of the hill.

**EN**: Thanks, Zach. That's really interesting that people still see the forest as a space where they can recuperate. Andre, can you tell us a little bit about how people here in southern Brazil use the forest?

**AL**: Yes. Here in southern Brazil, the forests are used for many purposes. Apart from the most common and obvious uses such as for firewood. They, we have about 300 tree species, apart from another hundreds of shrubs and herbs. So we have a great variety of species that people consume directly or as food sources, but also as medicinal.

But people have been using these forest resources for the longest time. It is interesting that even the Araucaria forest as we call here, the original forest, the Araucaria tree itself produces a nut-like fruit that is a food staple in the region, and it's also essential for wildlife during the following winter seasons. But we also have many other plants that produce fruits, especially from the botanical family Myrtaceae. We have a few dozens of those species. They are very appreciated for human consumption. And of course, they are very important for wildlife.

Something very important as well in the region is another species called Ilex paraguariensis which is basically the scientific name of what we call regionally here erva mate, or yerba mate, in Spanish, which is a tree that has been harvested and consumed by Indigenous communities and adopted by the colonisers here in 17, 18, 19 centuries and currently very widespread use in the region. So, leaves of these trees are harvested, dried and grinded and consumed in an infusion for hot or cold drink. It is very popular here in southern Brazil, Argentina, Paraguay and Chile.

Also, we need to understand, this forest is more than just the direct resources that it provides to humans and you know, fauna or wildlife, but also because of the Araucaria tree unique candelabra shape. So, this is very big 40 meters high breed that has this unique shape, it really defines the landscape and it gives people a sense of identity. So, people, when they come here, they immediately identify the forest in this tree species as something that is unique and only found here. So, I think it is a very unique biodiversity in the world here.

**EN**: We, you all have touched a little bit on how the forest provides some food and other resources for the communities. But I'm wondering if you could tell us a little bit about how the forest is managed specifically, like how whether there is management that happens in the forest and how that benefits the community? Jen, did you want to start?

**JB**: I think the main type of management that has happened in forests in the Northwest Territories in the last several decades would be attempts to suppress fire in the landscape.

Canada has a pretty strong history of fire suppression in its forests. And this alters, you know, this alters the way the forest functions. And so there was a period of fire suppression. The government has now moved toward the practice of, you know, a let it burn policy. Unless there is, you know, unless the fires are approaching places of value on the land or threatening, threatening people.

And so, there still is some fire suppression activity. And that would be kind of I think probably the main management. There's a small amount of forest management that's very localised. You know, folks use the forest for gathering firewood and that sort of thing. But, you know, the management, you know, the management of the forest is fairly limited.

**EN**: Okay, Andre, I think the situation here in southern Brazil is quite different. Can you describe a little bit about how forests are managed here?

**AL**: Yes. Forest management in Brazil is a complicated topic, but we need to understand that we have had two, basically two phases in forest management in the country. Basically, in the 19th and 20th century, we have settlers arriving in the region and found an area completely covered by forest, and it was seen as a deterrent for settlement. So, people needed to open the land to start agriculture and live from the land. So, there was this phase of deforestation that was increased because of the plentiful quantity of forest wood products.

So at the time, in basically in 19th century, some companies from different parts of the world, especially the United States, they came here and started sending those wood because they were very desirable wood products. They start exporting and it became one of the main export products of Brazil. So, there was this combination of settlers trying to open areas to live, to conduct agriculture in them. And then there a lot of interest in exporting those products.

So, this process led to a vast deforestation process in the country. That led to more recently the enactment of very strict environmental laws that are aiming to protect the remaining forest fragments. So, what currently happens is that mostly forest management is forbidden by law, to a point in which a farmer can only cut a single tree if they have direct authorisation from the agency, environmental agencies. So, as you can see, forest management is basically nonexistent in terms of more direct use of the forest or wood products.

So, what happens now? People can collect firewood, fruits, the leaves--what is called “low impact”, which is a very broad concept. That's why the erva mate product, it's becoming so even more popular because it's a native tree that grows naturally in the forest. So, people are focusing on this product that can be conducted in the forest without much problems or mostly without problems with the environmental agencies.

**EN**: Thanks Andre. So, Zach, can you tell us a little bit about how forests are managed in Kenya? You had pointed out that there's been a movement towards eucalyptus farming or plantations. But do people still manage the native forest ecosystem other than to extract food and for the bees?

**ZG**: In our forest, there are a number of interest groups like, for example, you cannot, you are not allowed by the government to cut trees without having a permit from the government, even if they are trees that you planted yourself when you want to use them for timber, for anything, you have to get a permit from the government. And you find that in these forests you will also have wildlife.

For example, we have monkeys in this forest, although back in 20, 30 years ago, there were no monkeys here. And the people believe that these monkeys were brought in by the Kenya Wildlife Services. They would drop monkeys, male and female. Male and female in certain ecosystems. So, these monkeys have kind of colonised the forest and you find that with their increase, the increase in biodiversity of birds, for example, bird species is going down. We used to have a lot of guinea fowls and we believe that the monkeys are eating the eggs of the guinea fowls. And so, we don't have any more guinea wild guinea fowls in this forest. But the government still maintains you cannot kill animals without involving the Kenya Wildlife Services.

So, if you have wildlife-human conflicts, then you have to involve the wildlife services to come and sort it out. So occasionally when the monkeys are destroying crops around the area, the wildlife services officers come and shoot them and they disappear for a while and they come back.

So, the management is kind of not very clear cut because we have landowners who also have to protect their land and prevent people from coming in and using it as much as they want. But for wood, if somebody is collecting firewood, dry wood without cutting, then sometimes they are allowed by the land owners to get into their forests and pick them. But for Wildlife and Wildlife services to control trees, the fauna, tree species - we have the Forest Department that is controlling also that. So this is the way that the forests are managed around.

**EN**: That's really interesting that there's this similarity between how people can use the forest resources in terms of timber between between Kenya and and Brazil, because it's quite restricted here, as Andre said, in Brazil. And it's interesting that there's similar mechanisms to control how forests are used.

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**CS**: And thank you for listening to this episode of Voicing Change. In our next episode, our forest researchers discuss some of the major threats faced by forest regions, from climate change and wildfire to deforestation, but we will also hear about how people affected are resisting, to protect these vital ecosystems.

{[Outro music begins- low level]}

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Our music is composed by Ali Razmi.

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