This conversation mentions ways to get involved in The UN Decade on Ecological Restoration from 2021 to 2030. The next Make a Difference Week is June 4–11, 2022. There are several initiatives across the West Coast this year, which the Society for Ecological Restoration International adds to its event map as they are announced.

Sarah Beck: You're listening to Garden Futurist. I'm Sarah Beck, here with Adrienne St. Clair. Hi, Adrienne.

Adrienne St. Clair: Hi, Sarah.

Sarah Beck: Adrienne, somewhere around the end of last year, you reached out to me about this story. Can you tell me exactly what the origin is?

Adrienne St. Clair: Yeah, so I had been walking around our neighborhood and saw one of the backyard habitat certification program signs from our local Audubon and local land trust. And I was thinking about those programs across the West and how they might be increasing biodiversity in our urban areas.

So I did a little literature review, and I came up with this paper by Dr. Valentin Schaefer, who is professor emeritus at University of Victoria, and the paper looked at and supported this idea that backyard habitat can be an important part of biodiversity conservation in urban greenspaces.

Sarah Beck: I'm really glad you found this, and this one of these things that we talk about all the time that all of our backyards and all of our individual gardens together form this patchwork, and we're really excited by the idea that urban biodiversity can be supported by individuals. But have we really found the empirical evidence for that?

And so I reached out to Dr. Schaefer and he was willing to write an article that we recently published on pacifichorticulture.org, which is called "Your Urban Backyard Habitat Can Support Biodiversity," and it

really shares a lot of his lifetime of research and his conclusions about the fact that we as gardeners may be able to have a real impact.

One of the really exciting things about talking to Val Schaefer was that he recommended that we talk to his successor at University of Victoria, someone who really represents the next generation of this work. That is actually who we talked to for the podcast today.

Dr. Nancy Shackelford, who is at University of Victoria, is really continuing a lot of this work on the impact of backyard habitat and ecological restoration in a number of spaces around Victoria.

Adrienne St. Clair: Great, let's listen to it.

Sarah Beck: I'm so glad to welcome Dr. Nancy Shackelford, Restoration Futures Lab director, and assistant professor of environmental studies at the University of Victoria British Columbia.

Hi Nancy. So glad you could be with us.

Nancy Shackelford: Hi, thanks so much for having me. I wanted to start the conversation if that's okay with a land acknowledgement.

Where I am situated is in the lək̓ʷəŋən (Lekwungen) and W̱SÁNEĆ territory. So the University of Victoria is actually on Songhees- and Esquimalt- the lək̓ʷəŋən-speaking peoples' territory, and they have traditional relationships and very deep histories with the lands that continue to this day. And I personally live on W̱JOŁEŁP (Tsartlip) territory, one of the W̱SÁNEĆ First Nations and they also have ongoing relationships that are really important to the landscapes here.

Sarah Beck: Wonderful. You have some wonderful case studies that you're going to share with us today. I really wanted to ask you about this because there is a title on your recent case studies that you've published:

"Nature-based solutions for climate mitigation and engaging Canadians with nature."
And I love the scope of that. It's really cool community work. You aren't necessarily talking about landscapes that are far from civilization, is that right?

Nancy Shackelford: That's right. So I work primarily in restoration and where restoration happens is pretty much everywhere. A lot of the work I do is focused on, I live on Saanich Peninsula, and it's this really complex landscape of city and rural and less rural. We have a lot of parks and green spaces here. In each of those settings, there are different restoration challenges. And so restoration is happening in all of those spaces with all these different community actors. So it really happens all over the place, and it can even happen in your backyard.

I have a little pocket meadow that I just put into my townhouse backyard. I had to pull up concrete for it, but yeah, it can happen at any scale.

Sarah Beck: Fantastic. So restoration can be for everyone. These projects that you're working on take place in Garry oak ecosystems, which in Canada are found in southeastern Vancouver Island.

And I looked at the range map and Garry oak ecosystems can be found in a lot of places, including California, Oregon, and Washington. So chances are that a lot of our Pacific region listeners may not be far from a Garry oak ecosystem. You've said that your focus is not on the oak trees themselves. I know we talked to a lot of oak-tree-focused scientists.

Can you describe some of the special characteristics of the ecosystem?

Nancy Shackelford: Sure. I'll say I'm a little biased. So I come from a background of grasslands. I'm very much "focused on the understory" kind of scientist. And actually that is really the most appropriate for these ecosystems in some ways.

So, as you mentioned, we're at the northern tip of the range. And so the ecosystem itself changes quite a bit as you go south into California, but the fundamental characteristic is really this beautiful complex understory of flowers and the grasses. So we have a lot of annual and perennial forbs that are really important here. They create this beautiful purple and yellow flowering understory through all of April.

And it's one of the most biodiverse regions in Canada, in particular. It houses something like 10 percent of the species at risk and the plants are in these ecosystems, and they are that herbaceous understory. And it's really important locations for lots of different like food production sites for First Nations and the idea of these trees as big, iconic overstory species as the home for this much broader meadow community is really important.

Sarah Beck: Let's jump into this conversation about ecological restoration and really what that means in this context. Why is restoration of these ecosystems so important? What's going on there?

Nancy Shackelford: The importance of restoration really depends on—it's always important, but the exact context depends on where you are and what ecosystem you're working in.

So if we're talking specifically about oak meadows, the importance of restoration is really complex because these ecosystems evolved with people. They were created by the stewardship of the First Nations communities that lived here, and they really require that relationship with people, for them to be healthy and maintain some of the species that we're really interested in seeing kept here. They were burned really regularly. They were harvested every year and that kept that overstory from closing in. So it kept it from converting into forested sites.

And so in this context, restoration has a lot of meanings. One of those meanings is yes, trying to support the plant species, but it's also trying to rebuild and support those relationships with people and the practices and the traditions and the histories and the cultures that really existed with

those ecosystems. And so in this context, restoration really has a very strong human-nature combination and combined values.

In other places, restoration might be different. In national parks, where there are these really remote areas that haven't had that strong relationship between potentially human and nature, then those might have different levels of importance and it's more about, say, wildlife habitat and restoring to make sure that the grizzly bears have places to move through to get to different habitat types.

So I think it's very context dependent and that's just a product of restoration happening everywhere and being important in pretty much every degraded landscape, which is most landscapes on the planet.

Sarah Beck: You just mentioned the First Nations stewardship component of these projects. And I'm curious about some of the fire reintroduction work that that has been done on the Garry oak ecosystem. Can you describe a little bit of that?

Nancy Shackelford: So there's been a couple of trials here locally. In particular, the Gulf Islands National Park Reserve, which is this really cool, really amazing park, if you haven't been, that is centered just off the coast of Vancouver Island and the Gulf Islands, and they have Tumbo Island, which is a place that they've burned once, and they've been studying how the ecosystem responds.

I think they're planning another burn in the next few years, and they've been doing it in close partnership with Indigenous leaders, trying to figure out how to connect that traditional knowledge with the modern conditions and how to do it in a good way. And I think they're talking a little bit about whether or not they can expand that into some of the other kind of remote islands where that complexity of being in an urban landscape is a little lower.

And there's a couple of other instances of, for example, the local steward who has a tiny little blowtorch who goes out and finds that tiny little

patch of invasive species that are really prone to dying because of fire and just having a little focused burn right there. I've seen that a few times, but for the most part, it is these more remote sites where the conversation is a little more active.

There are Indigenous leaders locally who are working on their own reserve lands and trying to come up with fire plans and work with the local municipalities, but it's a long and slow process.

Sarah Beck: In terms of the impacts of fire in some of these specific ecosystems you're working in, are there some interesting plant opportunists that benefit from fire that you're looking forward to seeing this happen?

Nancy Shackelford: You know, that to me is an interesting question, because I did my master's degree in Western Australia, where there was so much information about which species needed fire. So there are many plants whose seeds won't germinate without that cue of heat or that cue of the chemicals that are in the actual smoke.

And there's not as much known about the species around here, whether or not they have that dependence. I think the narrative here and the broader understanding is that fire keeps that overstory open. And so it makes space for all of those forbs and graminoids, and that's an important part of just the structure of the ecosystem.

And that's really key here, particularly now, because without that fire, we're seeing closures. So we're seeing native and exotic shrubs come in and take over and push out the *Camas* and the other really important keystone plants. Or we're seeing coastal Doug-fir forests come in, like in those deeper soiled sites, if they're not managed, then you do start to see that loss to forest communities.

So the fire played a very foundational role at the structural level, and we know very little around what exactly it did to which native species, whether or not there are cues that species might be waiting for.

We all know that fire enriches the soil. It opens up and allows a lot of light in. It does provide that heat cue. And so the appropriate fire probably was really important to all of the food plants that they were growing, but we just don't actually know a ton about it.

Sarah Beck: Oh, wow. So the shrubs need to move out from the fire and then it sounds like the Doug-fir is not appropriate in that ecosystem?

Nancy Shackelford: Oh, that's a very complicated question. It depends on how you define what's an appropriate ecosystem. As I said, these evolved with human relationships, and they depend on the human relationships. And I think that's one of the interesting things about restoration is we have very philosophical discussions about, "What are we restoring to?"

And when restoration was first being conceived, it was really much this idea of the same sort of conservation idea of wilderness, the landscape without people. We're learning that most of the ecosystems that we're trying to restore to probably are there because of people. And so trying to figure out how to define what you're restoring to and how we understand that in the context of communities and human interactions has been an ongoing conversation in restoration.

Sarah Beck: Is there a restoration group that wants the Doug-fir forest instead?

Nancy Shackelford: There is not a restoration group, there is definitely a conservation group around Doug-fir forest. It's interesting because British Columbia is divided into these big zones of ecosystems. They're called biogeoclimactic zones. And the coastal Doug-fir forest is the one that is just here on Southern Vancouver Island and a little bit across the Gulf Islands. And it's the one that's been almost completely lost because of urbanization, really. It's covered by Vancouver and Victoria.

And so there's a lot of conservation concerns around that, but embedded in that larger ecosystem are these patches of oak meadows. So these are

sort of a subset of that entire landscape because it is where they were managed, it is where they were burned. It might be where the soils were more shallow.

And so it's not that there's a conflict between wanting the forest there, but there are conservation concerns on both of those ecosystem types and the communication between those two groups maybe isn't so great.

It's interesting, I was talking to one of the Indigenous Knowledge keepers here and her question is always, why do we think about the oak meadows but we don't think about what's the separation with the Doug-fir forest? It is transient and it's not a hard line between the two ecosystems, but there is that need to recognize that open structure and to recognize how it's distinct from that forest and figure out how to manage according to that.

Sarah Beck: I also want to ask you about some of the rare species protection that is being done. And there was a butterfly reintroduction, I think, as well, can you talk about just a couple of examples of these projects? Because it sounds like you've got folks doing a lot of different things when they're working on restoration.

Nancy Shackelford: I think for oak meadows in particular, it's often about protection rather than reintroduction. The Taylor's checkerspot (*Euphydryas editha taylori*) is the butterfly that has received the most attention and around here. And there's a really, really amazing steward on Denman Island, I think he's 80, and he's been breeding Taylor's checkerspots for decades.

Sarah Beck: Oh, wow.

Nancy Shackelford: I've had students that have gone to work with him and learned from him and just had the best experiences working with the animals themselves before they get reintroduced. And part of that reintroduction is understanding habitat needs and caretaking for those needs.

So that's a really cool but quite localized reintroduction process. I think for oak meadows at large, as I said, there's a ton of plants that are at risk.

Sarah Beck: This is a good segue to talk about the humans involved in this, because you've said that the Garry oak ecosystem restoration in Canada has a very strong community of people, dedicated volunteers. This sounds like some hard work is involved as well. If you could describe some of the common challenges that the volunteers are addressing and what types of techniques are they using?

Nancy Shackelford: What I have always found to be just incredible about this ecosystem and its location in these urban areas—yes, we have potential concerns around trampling and dog walkers, and yes, we have potential concerns around harvesting of species at risk—but all of that is contrasted with the fact that these sites are often stewarded and taken care of by people that live near them.

The main method, the predominant and I think easy to engage with method is invasive species removal. So as a PhD student, I worked here and I worked in a little park called Gore Park, and the neighbor came in at one point when I was doing my surveys and just started pulling weeds, bur chervil (*Anthriscus caucalis*) was the one that they were pulling at that point.

And I wandered up and was talking to them and it turns out that every single day they brought their adorable little white dog in and pulled weeds. And so that was one of the ways that this particular park had been kept broom (*Cytisus scoparius*) free for decades. And broom is a really big concern here.

And so it's this leadership from the neighbors, from the people that recognize and utilize those spaces that is really important in a lot of ways. It's also fascinating because Victoria has a lot of retirees and often those retirees are biologists or they're experts in their field. They're botanists, they're naturalists. And so they bring a lot of that into these parks and use that to the park's advantage. And so I feel like that engagement with the

communities is one of the most important components of the way that restoration is conducted in these ecosystems.

Sarah Beck: Wow. That's incredible. And it sounds like while someone's there with their dog, they could be pulling some weeds, making good use of time.

Nancy Shackelford: It is completely true. That's what happens.

Sarah Beck: That's fantastic. In addition to the examples that you've shared. There are gardeners, landscapers, native plant nurseries in British Columbia that are promoting gardening and landscaping with the plant species from these ecosystems. Can you speak a little bit to the value of just contributing in all these different scales? And is it possible that an individual who is interested in growing some of the species that you want to protect, can they make a difference?

Nancy Shackelford: A hundred percent. So there's two ways to think about it. The fact is that we're in an urban landscape and that urban landscape is a mosaic and every tiny little patch of land that you can make into something that has those native components. It's got the plant species that you want. It's offering the flowers that the native pollinators need. It's just that little offering on that space enhances the whole city in that whole landscape, because it is that matrix.

A lot of the oak meadows that we're working in, that oak meadow distribution, much of it is on private land now. And so we have a nonprofit here called Habitat Acquisition Trust, and we have a restoration group called the Garry Oak Ecosystem Recovery Team. And between the two of them, they work with so many different landowners to just help inform them on how they can change what is now turf grass into a meadow community.

Creation of that mosaic is just incredibly important to maintaining the connections between these patches so that plants and animals can move from one oak meadow to another oak meadow that's 10 kilometers away.

They do that by bouncing through these little patches in the landscape. And so the private land is a pivotal consideration when we think about conservation and restoration in these ecosystems.

Sarah Beck: Wow. So at Pacific Horticulture we like to call that "Life Not Lawn." Is it possible for a homeowner to grow this? Is there a mix of plants that you could grow that would support this ecosystem in place of a lawn?

Nancy Shackelford: Absolutely. So that's what I've tried to do in my little townhome. As I mentioned before, I pulled up a bunch of my concrete and have now seeded in a mix of forbs and sedges and grasses.

We are really lucky here with the amount of knowledge that we've got on the island. One in particular is Satinflower Nurseries, which is led by James and Kristen Miskelly, and they are experts who give their time and their knowledge freely into the community. And they have developed different seed mixes for different conditions. They have created all this documentation on where to put which species, what the preferences are for each of the plants. They do consultations on someone's backyard to discuss with them the process of what that potential transition can look like.

The work that they do, I think has really made a difference. They are not only work with private landowners, but they also work in rights-of-way. So BC Hydro will talk to them if they have a right-of-way that they want to try and bring back to meadow instead of having as an invaded, grassy, shrubby area.

So I do think that those resources exist, I'm just biased for Satinflower. I'm sure every region has their experts and their native plant nurseries and leveraging that kind of expertise to really enhance your backyard can be so important.

Sarah Beck: Let's jump to another topic because this is really exciting. I want to make sure we mention that 2021 to 2030 is the UN Decade on Ecosystem Restoration.

Hey, you have a decade right now. I guess all of us do. This is really exciting.

"The UN Decade on Ecosystem Restoration," I'm taking this from the UN website, "aims to prevent, halt, and reverse the degradation of ecosystems on every continent, in every ocean. It can help to end poverty, combat climate change and prevent a mass extinction. It will only succeed if everyone plays a part."

This is like the really large-scale version of what you were just saying about everyone having a role to play. I'm curious, you and your students have already started to play a role in this global effort. Can you tell me how the students are getting involved and how you're taking part in the initiative?

Nancy Shackelford: Sure. So the decade started last June, and it was launched by the global community, largely through the Society of Ecological Restoration International. So SER or SERI because they have the I on the end.

So SERI put together the Make a Difference Week, which was the idea that as a global community, we could go out and do a restoration within this one week and tell each other about it so that we can all celebrate kind of our global movement, and really acknowledge and encourage each other in this effort to do restoration.

And so the Make a Difference Week last year was from World Environment Day and it was a week long and it was that first kind of, "The decade is here," moment. My students were involved regionally. They worked with different restoration groups. COVID was in full swing, so it was complicated, but they spent a lot of time reaching out.

They developed swag. So they created stickers and celebration T-shirts and they went to local green businesses and tried to collect little prizes and little things that they could distribute to the people doing the actual work. And then they went to every single event, and they passed out the swag, and they took photos, and they did social media promotions.

And our region was the largest global hub of restoration events, which is wonderful and totally due to my students. 100%. At the time it was thought it was only going to be just that first year to launch the decade. But SERI has decided that it's going to be annual, which is wonderful.

So every June for the next nine years, now, there's an entire week where it's really encouraged that people go out, do a little bit of restoration, and register whatever the event is. SERI has a website.

Sarah Beck: What's the week this year?

Nancy Shackelford: It's June 4th through 11.

I think it's going to be increasingly prominent. I know that SERI is organizing regional committees now, and I think it's going to really become a way of operating.

It's just this beautiful moment of action together. I think it's one of the things that I love most about restoration is that it's a process of doing. I am much better at doing things than planning things. And so the act of going out and actually accomplishing something on the land, and then knowing that around the world other people are doing the same thing is just, to me, one of the reasons to do what I do.

Sarah Beck: Yeah. Let's talk about that, because I think this idea of participating in a global effort, there is something special about that, right? Do you think that is what inspired your students, just this idea that by everyone doing something collectively, you're able to feel that the power of impact? What do you think is really the draw of being part of this global movement?

Nancy Shackelford: I think it's important to situate yourself in this global feeling of optimism in that if you're going into your backyard, or if you're going into a local park and pulling weeds or planting native plants, it can feel like one tiny drop in an ocean of need. But if you know that there are so many other people all doing the same thing—and restoration to me really comes out of love and a feeling of responsibility for the environment—and knowing that is just a prevalent feeling across the planet, I think is really something that gives people momentum and reassures them that they are part of something that's larger than themselves. And it's not just their tiny park or their backyard, it's a whole planet full of parks and backyards.

I think also for my students here, it goes a little beyond that and into wanting to recognize the work that these organizations and people do, wanting to make sure that they feel connected to each other, but also that they feel that the work that they're doing is being acknowledged by the world, by SERI, by the region, by my students, by each other.

There's this sense of these people should be proud of what they do. They're spending their time and their energy and effort. And so figuring out how to honor that is really an important part of what my students try and do.

Sarah Beck: Oh, that's really great. The acknowledgement piece is really important.

Are there ways that an individual who hasn't participated before in restoration can participate in these efforts? Should they be looking during that particular week, will there be more opportunities?

Nancy Shackelford: I don't know, actually, because it was the first year last year, I don't know that it's something that's necessarily to the scale that it's inspiring activities per se, but that's kind of one of the nice things that, since restoration is so volunteer-driven, anyone can find probably a restoration project near them.

I also want to make sure that all of your listeners know if they ever want to reach out with questions or stories or pictures, I love to hear about restoration. The fuel for my work engine is definitely hearing from community and from understanding what people are doing and the energy that they're bringing into this space. So I welcome any amount of communication.

Sarah Beck: Very cool stuff. Well, thank you so much for talking to me today. And this has been a great conversation.

Adrienne, I am so excited about the UN Decade on Ecosystem Restoration, 2021 to 2030. When you think about the UN statement about ending poverty and combating climate change and preventing mass extinction, that doesn't really feel like something we can do in a year.

Adrienne St. Clair: No, no it doesn't. It's exciting that we're at the beginning of it and there's a lot of work to do. I like that Society for Ecological Restoration had this one-time event that they were going to do, and then decided that it was such a success and should happen every year, and created this yearly event.

Sarah Beck: That's right, the Make A Difference Week is actually coming up soon, June 4 through 11 this year, in 2022, and hopefully we'll be able to keep sharing when the next ones happen.

Adrienne St. Clair: Yeah, so people should keep an eye out for their local chapter of the Society for Ecological Restoration, they should be telling you about events in your area.

Sarah Beck: The idea of doing something when you know that many, many other people are taking a similar action, it really increases that feeling of having an impact and making a difference.

Adrienne St. Clair: Yeah, being able to see that your work is part of a bigger whole that's happening around the world is a pretty moving event to be a part of.

You can participate in this yearly week in your neighborhood greenspace, but really, as Nancy talks about in this podcast, you can participate daily in your own backyard in increasing that biodiversity within your area.

Sarah Beck: We all know that this isn't instantaneous, and to take each step toward plant selection and improving soil, there are so many pieces of the work that we can do to build urban biodiversity.

Adrienne St. Clair: Maybe in 10 years, you'll see a really different array of plants and animals that are taking up that space and enjoying the neighborhood around you.

My hope would be that within this decade, it becomes some of the thought process of our daily lives, and something that we don't just think about once a year, but instead becomes something that we do consistently. Maybe it's the first decade of the next 100 years.

Resources

For more information on Nancy Shackelford and her work, check out the Restoration Futures Lab. Her predecessor Valentin Shaefer also recently wrote an article for Pacific Horticulture, "Your Urban Backyard Habitat Can Support Biodiversity."

Remember to check the Society for Ecological Restoration's Make a Difference Week map for events in your area.