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SARAH BECK

You're listening to Garden Futurist. I'm Sarah Beck. I'm here with one of the producers of this show, Adriana López-Villalobos. Hi, Adriana.

ADRIANA L ÓPEZ-VILLALOBOS

Hi, Sarah.

SARAH BECK

In the last few years, there has been an amazing amount of public interest in pollinators for good reason. There is compelling evidence dramatic declines in insect diversity and biomass. But it's funny, I was thinking about how these were not common terms until recently.

I almost feel like if we were able to be at a cocktail party right now, you might actually hear some of these terms: insect diversity, abundance, biomass, ranges. But I will say that we're in an amazing time for interpreting science for all of the engaged public that are interested.

ADRIANA L ÓPEZ-VILLALOBOS

I think everything started with a very specific study published in 2014 that sparked the interest of the scientific community and actually worried scientists about the decline in insect diversity. It's an interesting thing because when we think about conservation, we usually think about rare or very charismatic species.

SARAH BECK

Like monarch butterflies, things like that?

ADRIANA L ÓPEZ-VILLALOBOS

Exactly. But one thing that distinguishes the conservation issues in insects from other animals is that here, we are worried about species that are common: those that represent the nodes of food webs.

SARAH BECK



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So when you say species that are common or they represent the nodes of food webs, you're talking about critical functions, like pollination for food plants, or insect predation—like nature's pest control—or decomposition to build soil, that sort of thing?

ADRIANA L ÓPEZ-VILLALOBOS

Exactly. Also, those insects that are perhaps not as pretty as butterflies or bees but are really relevant in making our ecosystems function. There's another relevant question, and it is: what is causing this decline?

SARAH BECK

It's clearly a complex problem with many stressors at play.

ADRIANA L ÓPEZ-VILLALOBOS

Yes, and along with changes in land-use—especially deforestation, agriculture, the introduction of new species—climate change is one of the most important ones.

SARAH BECK

And today's guest is taking a very particular approach to the problem of insect decline to mobilize people and take action.

My guest today is Winnie Hwo. She is Senior Public Engagement Specialist and one of the David Suzuki Foundation staff responsible for the Butterflyway initiative. She is the project lead for British Columbia.

SARAH BECK

You're listening to Garden Futurist. My guest today is Winnie Hwo. Welcome, Winnie. Thanks so much for being with us.

WINNIE HWO

Thank you for having me, Sarah.

SARAH BECK



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It's been quite a summer for us to wake up in the morning, and for so many years we have talked about climate change that these really, really visible impacts are coming. Now we're really seeing it. We're really feeling it. It's somewhat shocking, I think.

#### WINNIE HWO

Yeah, the amazing thing is that we're still talking about targets cutting emission targets for 2030, 2050. So, we have a very outspoken co-founder called Dr. David Suzuki. And he always reminds us that a target like 2050, how many of us will still be alive? So these are not realistic targets.

And so we are now in many cities in BC—in Canada, actually—we've declared climate emergency because we recognize that the problem is imminent. That right now, we know it's here. So these long-term targets really doesn't work for a lot of citizens here. We need action now. And we are willing to give what is necessary.

And so that is something that we'll all looking at because, for humans, it's just not our survival, but then we will not be able to even help our beloved pollinators, if we are in this kind of situation.

#### SARAH BECK

It is extreme. This project, though, this is very exciting. The project addresses a big problem in a very particular way. Can you explain what is the Butterflyway Project, its scope? How did it come about?

#### WINNIE HWO

So let me start with the beginning, that was in 2017. So the idea really came from our Toronto office and it is called the Homegrown National Park. So it started with getting citizens together and let's make things work because we can be solutions to nature. And we're quite confident we can do that, only if we try.

So it became a very successful project in Ontario. And so a team of our nature-loving staff at the foundation, we decided that, hey, let's turn this into



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a more focused project and let's turn this national. So off the bat, while we were just adding one community or two community per year, we suddenly found ourselves have 250 Rangers across the country.

So in 2021, the online program continues. And guess how many we had, we had 1,300 Rangers who signed on. And we did a preliminary selection. and we have about 1,280 new rangers, only for 2021, so including the previous ones, and they don't leave us. Instead, they keep expanding.

But the whole idea of the Butterfly Ranger is that we know, just like us humans, pollinators—like bees, butterflies—they need home and shelter. They don't have addresses. They will not stop at someone else's house and then don't go to another house. So we wanted to create a highway of butterflyways.

So across the country, we have individuals, volunteer citizens or residents. They plant for the butterflies. Some people live in apartment buildings, and we recommend that you go to your community garden, and you also go and join the starter council and make sure that your starter pollinator plants. That has been happening throughout these years and rangers just exceed our expectation. We had no idea that they're so industrious.

So we said, okay, so why don't you get your community together and we'll call your friends and your community the recruits, Butterflyway Ranger Recruits. And now we have more recruits than rangers. So we now have to come up with another name. And so it really is something that gets people very excited.

I think as humans, we talked about climate change, for example, earlier, we know because of our actions, we create a lot of problems—in terms of water, air, and soil—for nature. But at the same time, the Butterflyway Rangers project, actually enables rangers as strangers. They get together through the Butterflyway Rangers community. And they actually become the solution for the pollinators and they become the champions for



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them. That has to make people not just feel good, but they are now so busy conversing with each other, making new friends, and we do field trips as well.

So COVID became in our way. And we're now planning like with the double jabs and everybody feeling healthy, when we open up more, we're going to do butterfly counts. We're going to go to different parts of the province and maybe to cross provinces as well. So that gets people like very excited. They feel that they're not alone anymore, but it's also added value for knowledge.

So we'll also talk about the citizen science part of this, because rangers are actually learning and being an active part of this learning. And as a project lead for BC and also working with my national team, these are all the things that give us a smile before we go to bed.

SARAH BECK

Oh my gosh. What an amazing outpouring of volunteerism you've experienced. Clearly this is a program that is very much built on so many of these Butterfly Ranger volunteers. It's just an enormous force.

I definitely am curious to hear more about the rangers, but I'm curious also how you made some decisions. You focused in on butterflies and are there just a few particular species that you're especially concerned about? Are you focusing on the charismatic monarch or are you also talking about other species and how much does that play into the conversation?

WINNIE HWO

That is such a wonderful question, especially for BC rangers, because when we started the project, a monarch was the main focus. But then we also know that monarch is mostly Eastern Canada species. It's very iconic. Everybody loves it and we all want to save monarch because they were in trouble. In Western Canada, we have sightings of Western monarch, but we cannot rely on the actual number. We know that in the Fraser Valley, they show up, in interior, and also Victoria, they would show up.



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But in the last two years, when California is not doing well with all the forest fire and hot weather, we're not seeing a lot of monarchs. In fact, we actually did not see any last year or the year before. I took a family trip, two years ago in the summer, when the wildfire was all happening, and went to Yosemite—supposedly that is where all the monarchs would be resting and that's their place—and to look at how the habitat was destroyed. And it really is an emergency situation.

So monarch became not the main focus for BC rangers, but then in BC, in fact, we have 187 species of very colorful butterflies. And even when I talk about the white butterflies, there are a variety of white butterflies. So, I learned this from E-Fauna, which is a group from the UBC geography department. So they have experts that rely on this information and all the information was updated in 2020. So we do have those 187 different varieties of native BC butterflies. And on top, we still have the migrant butterflies from California.

So one of the very loved ones are the painted ladies and the West Coast ladies. And again, with the California fire, we maybe saw one last year and it was in such horrible shape as well. Like the color of the wings, they were all tainted. Very tired-looking butterfly.

So this year, we seem to have turned the corner a little. We have rangers who are now helping us as walker rangers to go and look at butterflies and take photos and submit these photos. And they are now starting to see more colorful varieties and painted ladies have shown up this year.

Now we also know that, because it's a national online program now, that we also have rangers in Manitoba, in Winnipeg, in Saskatchewan, in Alberta. So Western Canada, we have more variety of different species. We know that in BC, we have the most variety with 187. So we have rangers now very excited to try to find out what kind of butterflies do we have?



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So in BC, we are now trying to find our iconic native butterfly and the most show up is the cabbage white. But then that is also the least loved, because they could make a mess of your yard. But then the most loved one is the Western tiger swallowtail. They are just wonderful and they are huge.

SARAH BECK

They are magnificent.

WINNIE HWO

So we see a lot of them recently and that makes people very excited.

[Break for Underwriting]

SARAH BECK

So I'm really curious now about how the rangers are doing their work, and maybe this is a good moment for you to talk a little bit about the citizen science component, because I'm assuming the rangers have multiple duties and they're also helping to integrate this process of getting baseline data as well, correct?

WINNIE HWO

We have 158 Rangers who are inputting butterflies and their photos in iNaturalist. But then none of that is useful if we do not have a research-grade finding. So we have these high quality researchers and observers. And we have star people, like Crispin Guppy and so we know that there are about five of these extremely amazing people and they would guide us.

So we would have rangers submitting their photos and they would give us the research grade. They will verify. And sometimes you think, "It's a white butterfly. So obviously it's a cabbage white." No, not necessarily. There are a lot of white butterflies and now I can actually confidently say that my favorite white butterfly is the *Clodius Parnassian*, which is so elegant, beautiful. And we found them in our field trip, pre-COVID, we went to the Fraser Valley.



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So we're now hoping that, with the real science working and we're working with UBC's science faculty that we can actually get that all together and to have at least a few years or maybe a five-year project to let's get down to the basics to find out exactly what kind of butterflies prevail in the province? What have we lost in terms of the local butterflies and what is actually doing well and why?

And because we asked Rangers to plant native plants, so there's also a correlation of, if we bring back the native species, we help them to find food and shelter, will we be able to bring them back to the varieties that we have and what kind of new varieties are we also welcoming?

So it's a very exciting time for BC Butterfly Rangers, and we had a national Zoom meeting with our other rangers as well across the country and we're getting the other rangers very excited, including rangers in Quebec because part of it is also to bring in the school age students. So teachers are working with us. We had a BioBlitz this season and about 700 students joined to find out what kind of species are out there.

SARAH BECK

There's also something that I would really like to ask you about: the Indigenous Pollinator Plant Map. Is this the first of its kind, for this type of partnership with an Indigenous group or a tribe?

WINNIE HWO

Yeah. So here in the Lower Mainland, every time we start a meeting in person or Zoom, we always do land acknowledgement. So, where I am, I would always say that I host this event on the unceded territory of the Coast Salish people. And that includes the xʷməθkʷəy̓əm (Musqueam), the Skwxwú7mesh (Squamish) and the səliilwətaʔɪ (Tseil-Waututh).

So basically, the Musqueam and the Tseil-Waututh, they speak hənqəminəm and in fact they call it the Halq'eməyem (Halkomelem) and the Musqueam speak the dialect called the Hun'qumyi'num.





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So we know that, we wanted to do this, to respect our nation. We don't want to lump all the nations together because each nation is unique.

And we are asking rangers to plant native plants. So a lot of them are in the Lower Mainland that falls into the Musqueam territory. So we were able to enter a formal agreement with the Musqueam Nation about a year ago. They have a language and culture department and the head of that department is this wonderful woman called Jill Campbell.

So we told her that we have been asking rangers to plant these eight plants. So things like, the kinnikinnick, common camas, hardhack. And so could you give us the story behind how the Musqueam people use these plants and what is the relationship with these plants?

Because we know that these plants are nectar plants and host plants for butterflies, but they also have a human value, either for nutritious value or medicinal value. And that is knowledge only the Indigenous people would know. And so, Jill also gave us the Hun'qumyi'num names and she pronounced all eight of them when we had a Zoom training. And she's the only one so far who could pronounce all of them. So we're going to ask her to do a videotape for us so that we can learn how to pronounce all these names.

So that's one component and the bigger other component is to commission a Musqueam artist to turn our 167 plantings across the Lower Mainland. So we're going to add more, because of the additional planting this year, for this Musqueam artist to put this together into a Musqueam-interpreted artistic rendition.

So after a long process and we worked and got a ton of help from every single person from the Musqueam Nation. So we just had our last meeting with the protocol office, Mack Paul, who helped us out tremendously.

And so we now have found our artist.

So, Gracielene Ulu is our Musqueam artist and she's going to do this artwork



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for us, and hopefully we can have a formal announcement and showcase everything to the public and also to your audience end of October.

So we're now in talks. Grace is actually working on fine-tuning the ideas. And so we will have a lot to share. This gets us so excited because, it's about what us finding the roots through our Butterflyway Project, but the human touch, the human story is equally important.

And so through this project, we now will be able to know how our Indigenous people use these plants. What is their connection with the pollinators? What kind of butterflies visit them and what is the interconnectedness between the species and the humans, and also the plants and the butterflies? So we are so looking forward to this, so stay tuned. October is going to be a big month. There will be so much information coming out.

#### SARAH BECK

This project has so many dimensions to it and the core of that is the health of pollinators, but this community building is very central to the story. If you had to pick one thing, what outcome from this project would you most be excited to see achieved?

#### WINNIE HWO

I need all humans to feel good about our ability to do good things to nature. And I see that happening every day through this project. So I think that that is something that keeps me alive, happy, smiling, and even growing old, sometimes it comes with like hip pain, joint pain. None of that stops.

And I look at the Rangers and I think it is the empowering of all human beings to know that not only do we want to do good things, but we can actually do it and let's lean on each other's shoulders. We cannot do any of this alone, but we are not alone. And so I think that humanity of this program, it is what is so precious, and to see how our rangers thrive and feel happy.



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So we have regional meetups in Zoom and I invited rangers who had not so positive stories to tell, because we have one ranger who joined this year, and the city that she had about three to four projects that she has going on. And none of it is actually working out.

And that is the story we want to share because being a Butterfly Ranger is not, like you joined the first year and things happen. It's not about miracle, but it is about hard work. And we got to trust ourselves and that we have rangers to lean on each other.

So that is what is the important thing: that community strength and the trust of that we can actually do good things and we are. So I think that is that humanity piece, that really makes it work and that makes it true as well.

SARAH BECK

It's amazing. Pollinators are bringing people together.

WINNIE HWO

Yeah, definitely. There's no question about it.

SARAH BECK

What an incredible effort to mobilize people. I'm convinced now that charismatic butterflies are the glue that bring people together.

ADRIANA L ÓPEZ-VILLALOBOS

Totally. And we probably shouldn't leave out also the fact that it is also involving a citizen science component, right? Because it is contributing baseline data, good-quality baseline data, that actually supports these species recoveries and documents the trends.

SARAH BECK

So in terms of our favorite Garden Futurist question, how is this going to change the way we garden in the future? What would you say about this pollinator support in terms of individual gardeners?



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ADRIANA L ÓPEZ-VILLALOBOS

You know, Sarah, I think it's going to be participatory. It's going to be more collaborative in their community and it's going to engage.

I think the program we just heard about is getting people excited about plant species that support pollinators. It's really hard for someone that has no experience whatsoever in gardening to start a pollinator garden. And the program that she's running, it's providing them with those tools. So that is, on its own, making a change.

SARAH BECK

There's a community connectivity point here, too.

ADRIANA L ÓPEZ-VILLALOBOS

Yeah. This is a fun activity. This is something that you can get together with friends, make new friends, and build a community. And that makes it more sustainable in the long term. And in this way, we are all being part of the solution.