LINDSEY WHISSEL FENTON: Welcome to *12 Degrees*, the podcast that offers real life ways to nurture full spectrum wellness. On this episode, we're going to focus on the service degree of wellness. I'm Lindsey Whissel Fenton, and let's be real, even with the best intentions, it can be difficult to find time to nurture this particular degree. But what if I told you that there was an active service you could do from your own backyard that has the potential to change the world? You've probably heard that pollinators like bees and butterflies are in trouble. But what you might not know is just how much power we have to help. To find out exactly what we can do, I'm talking with Connie Schmotzer. She's the coordinator for the pollinator certification program at Penn State. And she's going to share how everyday people are being empowered to become environmental stewards. Connie, thanks for being here.

CONNIE SCHMOTZER: Oh, thank you for having me.

LINDSEY WHISSEL FENTON: It's a tough time to be a pollinator. What's happening with the bees and our other buzzy little friends?

CONNIE SCHMOTZER: Well, they're definitely in decline. And researchers have been working now for, gosh, almost two decades trying to figure out what it's all about. And it's really a multi-pronged problem. There is a problem with habitat because we are changing our landscapes. You know, we're building we're getting rid of a lot of natural areas. We're using pesticides, and we know there is an impact on that. We know that invasive plants are coming from our yards and just from other areas, escaping into our natural areas and making them kind of uninhabitable for pollinators. So there's a lot going on out there for these poor guys. Our native bees are having problems finding nesting sites because about 70% of our native bees nest in the ground. And when we have thick lawns and then we're pouring pesticides on those lawns or thick mulch beds, they can't find a place to go. The loss of habitat is causing a loss of nutrition. And as as you know, nutrition is important for every species and very important for pollinators. So we definitely need to be taking a look at at this situation and seeing how we can help out.

LINDSEY WHISSEL FENTON: How does this decline in pollinators or threat to pollinators affects things like our food supply or our ecosystem, everyday life? In other words, why should the average person care?

CONNIE SCHMOTZER: Why should we care? That's a good question. We should care. These are keystone species. That means, like, you know, like a keystone in a building. If you take it out, everything crumbles. And that's what happens with pollinators. They are responsible for pollinating our food. And that's a big thing. If we can't pollinate our food, we don't have a food supply. And then our entire ecosystem, the flowers, the trees, when, you know, we go on vacation, we love to go to parks. That's all dependent on pollinators. You know, pollinating plants and helping to create our wonderful ecosystem. And because of this important role that pollinators play, there are efforts being made to help support them and help them thrive.

LINDSEY WHISSEL FENTON: Can you give us a quick overview of what the Pollinator Habitat Certification Program is, and how it works?

CONNIE SCHMOTZER: Certainly, you know, we developed that back in 2011, and our goal was one to spread the word that pollinators were important and that we can help them. And then also to provide some guidelines for folks, because we know that many gardeners really aren't aware of how to go about

gardening for pollinators. So we wanted to make this program not only a certification program where they could certify and kind of advertising their yard, but also to guide folks along the way and help them develop these habitats.

LINDSEY WHISSEL FENTON: I feel like when I hear about danger to pollinators, it's often with an emphasis on, say, honeybees. But the Penn State program focuses on helping different pollinators. Which ones and why?

CONNIE SCHMOTZER: Oh, there's so many. Yeah. This particular certification program is focused on our native bees, of which there I think we're about 450 and counting, right now, different bees in Pennsylvania. And they are really are ground level pollinators, so to speak. Honey bees are important, but they're really more. They're a farmed bee. They came over probably with the Jamestown settlers back in, you know, around 1610, something like that. And they were brought over into to make honey and assist the colonists. And they're very important in large scale agriculture, where your smaller agricultural plots, such as we have here in Pennsylvania and our orchards and our home gardens and all of our natural areas. It's the native bees that we focus on. There are a lot of them. Everybody's probably familiar with bumble bees. My favorite, I think, the cutest little guys out there. But there are so many others. There are digger bees, mining bees, mason bees, leafcutter bees, sweat bees. And they range in size from maybe an eighth of an inch long to the big carpenter bee, which can actually, you know, be over an inch to an inch and a quarter. And that's flies, not just bees. Flies are our second most important pollinator, and I don't think too many people are aware of that because we think fly, we think housefly. But there are hundreds of species of flies. So many of these flower flies or syrphid flies, they are doing a tremendous amount of pollinating, as are wasps. So many, many insects out there that work to make this happen.

LINDSEY WHISSEL FENTON: And in terms of what we can do to support these little fellows. I'll go two different directions. One is if someone is interested in the full certification program and really delving into this, and then we'll talk about just some general strategies that anybody could do. So if somebody did want to become a certified pollinator habitat protector, what is that process look like? What kind of a commitment is it and how do they get started?

CONNIE SCHMOTZER: Well, there is a website for this. If you just type in pollinator friendly habitat, Penn State, it will come up. And there is a worksheet that can be downloaded. And we do walk them through exactly what they need. So for nesting sites, for instance, we may ask, could you have a little pile of rocks out there that a bumblebee could go into and make a nest in the ground? Leave some background so that the ground nesters have a place to go. We ask them to leave their gardens up over the winter, not clean up in the fall because there are many pollinators. There are nesting in pithy or even hollow stems. They're overwintering in there, and if you cut those down in September, you've actually thrown away a lot of your pollinators. So we ask them to wait until April to do that. Deadwood is always good. You know, do you have a snag or, you know, a dead limb or even facing some logs kind of artistically in your garden for the pollinators that like to nest in wood? We also ask them, please be careful with your mulch if you can use leaves for mulch instead of hardwood mulch. Much better, because pollinators that nest in the ground can't get through a couple inches of mulch. And most people have, you know, three, four, five inches of mulch down. So yeah, little things like that for nesting. We ask them to be very judicious in their use of pesticides if they can not use pesticides at all, that's great. We do realize that there may be a situation that something is needed. But to target, you know, that particular thing, we ask them to provide a water source. This is not quite as important for pollinators as for other wildlife, such as birds, because they do get a lot of their moisture from nectar. But, you know, you'll find little wasps

and beneficial insects kind of sitting in shallow water. So it could be a birdbath. It could be somebody lives near a stream. It could be a water feature. It can be vary from simple to very complex. Our main focus is on nutrition, and the certification is built on native plants because our pollinators, our native pollinators, have co-evolved with the plants in their area. And they have some of them have very special relationships. About 25 to 30% of our pollinators only collect pollen from certain species of plants, many of them from goldenrod. So we have a lot of bees that are goldenrod specialists. So, you know, we would love to have people, but goldenrod not aggressive goldenrod. And there are many, many different kinds of goldenrod. But to put some goldenrod back in their landscapes, we ask that they plant something blooming from March April through October, November. And that's because not all pollinators are out at the same time. Some of our early like plasterer bees come out very early in the season and they need spring bloomers. So some of our spring ephemeral is like, Virginia Bluebells. You know, our spring beauties are great for those early guys. And then as you get into summer, there's a whole other group of pollinators. Many more. You see many more of them in the summer months. And so we ask for plants to be in bloom in summer and then also in the fall, because in the fall, our bees particularly are bulking up to spend the winter. The queen bumblebee, for instance, is the only one that's going to survive that nest, but she's got to be able to have enough nutrition to get her through a very long period until spring, when those spring flowers will take over again. And so we have specific requirements. We try to think of what might be the minimum requirement for certification. So we're asking them to have three species of native plants perennials in bloom. Each season. And we ask them to plant them in clusters of five. And that's really to help out these pollinators that are working so very hard. If they only see one plant down there with a couple blooms on it, you know, is it worth their while to fly down there and just collect a little bit of pollen? Probably not. They're going to go to as they're flying over it. They're going to see a large group of blossoms, and they can spend many hours actually just going from one blossom to another of the same species of plant. It makes it more efficient for them, doesn't tire them out so much. It's like us trying to go to ten different grocery stores when we really just want to go to one, right? Just makes it easier. We also require trees and shrubs. We only ask for for trees and or shrubs, and that's to accommodate smaller properties. We would love for a two acre property, you know, to have 20 trees or shrubs, but the requirements are just for, for, we say, trees or shrubs, because we know there are some very small properties that we've certified that don't have room for a tree. And so they can substitute shrubs. Those are so important because think of how many blossoms the maple tree has on it in the spring. We probably don't notice it so much because it's not real showy. But if you look up there, you know, I mean, we're talking thousands of blossoms that are going to help out an early season bee or another pollinator. And the same with shrubs. They have so many more blossoms on them. And in addition, trees and shrubs are some of the main host plants for our butterflies. And that's the other part of our certification. Butterflies are not super pollinators like bees are, but they do some pollinating and they are food for birds. You know, as a hobby, food web. And people also like to see butterflies. So we require them to list at least three houseplants. Everybody's real familiar with the milkweed for the monarch, but a lot of our asters are host plants for a variety of moths and butterflies. Our oak trees support over 557 species of caterpillars, you know. So one oak tree. Wow. Because a really long way in helping to support that population. So that's kind of it in a nut--Oh, invasive plant is the other part of it. We don't not certify someone that has an invasive plant, but we want to create an awareness that these plants are a problem and help educate people about things that pollinators need and things that might be harmful to them.

LINDSEY WHISSEL FENTON: What about people who maybe don't feel they're up to getting a full certification, but want to do something to make their guard a little bit more friendly? What's something you would recommend? That's like an easy fix I could do tonight.

CONNIE SCHMOTZER: Get some plants to put in the yard. Remove some lawn, which you can easily do with sheep. Well, you wouldn't do that tonight. But if you want to create a small garden, you know, maybe you have a little bit of land that is just in turf. You're tired of mowing it. You're a little bit tired of dealing with it. Sheet mulch it. Which means mow it really short. Put down some cardboard over top of that area in a line out the little garden that you want and then put leaves or other mulch on the top and let it sit for the winter. And that would give you time this winter to decide, hey, what plants do I want to put in there? Is this in the sun? Is it in the shade? Research some native plants. Get those in the spring. Plant them straight through the cardboard because that will be deteriorated by spring. But make sure the plants going into the ground, you know, not into the march. And you will have created a food bar for some pollinators that will definitely come and visit in the spring. So any place that you can tuck native plants in, you know, in between your non-natives.

LINDSEY WHISSEL FENTON: I'm thinking about people who don't have property but still want to help out. So if you're a renter and maybe you don't have a yard, but you have a balcony, or maybe you have a yard, but you're not empowered to make alterations to it, are there still things you can do?

CONNIE SCHMOTZER: Yes, you can use containers for many of these native plants. You do need a larger container, you know, for some of these. But you can definitely. I've been growing some slender mountain mint for about three years now in a container because it doesn't like my clay and my container. I can kind of custom make it for a plant that needs good drainage. You can even try doing some butterfly milkweed in a container because it too likes a lot of really good drainage, which many of us don't have in our soils near here. So.

LINDSEY WHISSEL FENTON: Well, before we wrap up, I just have to say, talking with you, it's so clear how passionate you are about this. I'm just curious about what is it that that drives you to support this issue and help others support it as well?

CONNIE SCHMOTZER: Yeah, well, in my younger days, I worked as a park ranger naturalist for the National Park Service in the West and, you know, living in a natural area for a long time, I really realized what is possible. And coming back to my home territory here in Pennsylvania. I realized, you know, we have a lot of incredible potential here. We've turned a lot of it into landscapes that aren't really recognizable from a natural standpoint. But in order for us to survive, we need these spaces, and we need the pollinators. We need the insects and they are in very big trouble. We've had a 75% decline in insects in general, so I feel like it's important to educate folks that these pollinators and insects are our friends and our support system, and we need to look at them a little bit differently. And anything that I can do to help get that word out there, I think it's important.

LINDSEY WHISSEL FENTON: Connie, thank you so much for this conversation and for the work that you're doing.

CONNIE SCHMOTZER: Thank you for having me.

LINDSEY WHISSEL FENTON: That's it for this episode of *12 Degrees*. Our guest was Connie Schmotzer, coordinator for the pollinator certification program at Penn State. I hope this conversation left you feeling inspired that service doesn't have to be big or loud to be meaningful. Sometimes it's as simple as planting a milkweed, skipping the pesticide, or letting the dandelions bloom. I'm Lindsey Whissel Fenton. *12 Degrees* is produced by PSU in collaboration with the Penn State Russ and Carol Niece College of Nursing. This podcast is intended for informational purposes only and is not intended to be a substitute

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