

Episode 4: Agroforestry

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SPEAKERS

Liz Woodhull, Alison Adams, Brenda Sieglitz, Audrey Epp Schmidt

A Alison Adams 00:06

Welcome to restoration Roundup, a monthly podcast that explores recent research on, new and emerging best practices for, and stories about riparian forest restoration. I'm Alison Adams, I'm the watershed forestry coordinator with University of Vermont Extension and Lake Champlain Sea Grant and I run the watershed forestry partnership.

L Liz Woodhull 00:24

And I'm Liz Woodhall, a junior at UVM's Rubenstein School of the Environment and Natural Resources, studying Environmental Studies and Parks Recreation and Tourism.

A Alison Adams 00:46

Agroforestry is the strategic integration of fruit, nut, and timber crops into existing agricultural operations. Essentially bringing the forest to the field. Innovative agroforestry systems can measurably benefit ecological outcomes such as water quality and soil health, and incorporating these kinds of systems into riparian areas can achieve farmer goals for production and income, while improving water quality and other indicators of ecosystem health. Agroforestry has been practiced for a long time in tropical climates and by Indigenous people in North America, but it is considered a new and emerging practice for Western agriculture in this region. Today we're discussing the potential for agroforestry to be incorporated in riparian areas in the Northeast. We'll likely refer to buffers incorporating agroforestry as multifunctional buffers or extreme buffers throughout the episode. And for this conversation, we're joined by Brenda Lee Sieglitz and Audrey Epp Schmidt. Brenda is the Senior Manager of the Keystone 10 million trees partnership based in Harrisburg. She leads the collaborative effort coordinated by the Chesapeake Bay Foundation of 200 national, regional, state and local agencies as well as conservation organizations, watershed groups, conservancies, outdoor enthusiasts, businesses and individuals willing to plant trees. Audrey is the Director of Business Development at Propagate Ventures, a company that helps farmers implement agroforestry on their land. Audrey works directly with farmers and landowners to

identify the best fit agroforestry approaches for their operations and also leads the company's strategic partnerships with nonprofits, academia, and government. Brenda and Audrey, welcome to the podcast.

A Audrey Epp Schmidt 02:18

Yeah, thank you so much. Great to be here with you all.

A Alison Adams 02:20

So to get us started, can both of you share what brought you to agroforestry and or riparian buffer work?

B Brenda Sieglitz 02:27

Well, this role was my first nonprofit role. But previously to this, I had volunteered with Lancaster conservancy here in Pennsylvania, helping with trail maintenance. And I had done studies as a Pennsylvania Master Naturalist. So I had been involved in naturalist studies, but not so much focused around trees. So this job has really been my first foray into the tree world. And through it, I've been able to learn a lot about agroforestry, silvo, silvopasture, and just all types of practices related to trees and buffers. And so that's most of my background related to agroforestry.

A Audrey Epp Schmidt 03:03

Yeah, great. And for me, you know, I've been really fascinated by the role of agriculture since back in my undergrad, where I really could see the power that different agricultural systems could have both on the social systems that we all live within, as well as the ecological outcomes that happen from all these different agricultural systems. And so kind of the fact that you could work within one industry and impact both environment as well as our social systems was really intriguing to me. And so I've been able to work both within agriculture as well as through kind of the traditional conservation industry. And I feel very lucky to kind of get to marry the two nowadays, with my work promoting agroforestry of propagate ventures.

L Liz Woodhull 03:48

Can you guys describe what extreme buffers are and what they look like on the landscape?

A Audrey Epp Schmidt 03:55

Yeah, sure, I think it might be helpful if folks don't already know, kind of the traditional conservation buffer is typically, you know, maybe on the small end, just a narrow, 35 foot with a conservation species. Ideally, it goes up beyond that to maybe 150, or even 300 would be ideal. I can almost think of it as the ribbon of forest that follows along a river or any kind of

stream or other waterway. And basically, it acts as a sponge. So it's a variety of different, name your favorite conservation species, mine happened to be Redbuds and Sycamores. And so putting those in as a mix provides a lot of really good ecosystem services from things like habitat for wildlife or pollinator species. But it at the end of the day is a really great sponge to help with some of the land use challenges that we have around how nutrients flow from our agricultural land into waterways. So namely, right nitrogen and phosphorus are two that were quite worried about overloading in our waterways. And so a traditional buffer can really help with that. What we're excited to advance is this concept of an extreme buffer. And so an extreme buffer is putting in place that traditional ribbon, but then immediately adjacent to the traditional riparian buffer, putting in a for profit, perennial tree and shrub cropping system. And so the idea there is that we can have the win win of farm viability with the ecological protection that we'd like to see from those riparian buffers.

L

Liz Woodhull 05:30

What are the benefits of planting these kinds of buffers?

B

Brenda Sieglitz 05:33

The first that we always see is clean water. I mean, in our program, that's our number one focus is clean water. But there are tons of other benefits, you have clean air, you're also keeping the soil on the land. And for farmers and agriculture, that's going to be probably one of their biggest focus, is how can they retain the soil and the soil benefits on their land. So for example, I live in Lancaster County, Pennsylvania, we are known as having the best soil east of the Mississippi where you do not have to water it, it's wonderful. It's wonderfully filtered, it's filled with limestone, it's just great soil. But we also have huge issues of runoff and erosion. So farmers are constantly trying to figure out how to keep their soil where it is. And so trees can help keep it there. So while the traditional buffer, like Audrey mentioned, is a great way to do that; bringing a tree crop into that mix even stabilizes their property even further and helps them look at taking something like a traditional crop and moving it towards something that can be a little bit better for the environment and provide those ecological services, those ecosystem benefits. So other benefits that you have, especially if they're closer to more suburban or urban areas, you have heat island effect, where they're able to reduce those climate impacts. Keeping the farm and the air around the farm cooler, if you have any grazing animals around, you can help shade the animals around them. You're also looking at the leaf litter that comes out providing really beneficial advantages to the insects, the pollinators, all of those things. There's just a full circle of life benefit to bringing trees into the environment, and honestly bring them back into the environment in these places where many of them once heard that their grandfather said, hey, chop all the trees down so we can plant crops here. Now we want to introduce that back end because the soil needs those roots, the land needs it.

A

Audrey Epp Schmidt 07:28

So I think one of the other benefits of extreme buffers is there can be challenges with identifying farmers and other landowners who are interested in installing traditional riparian buffers on their landscape. That can be a real pain point for the programs that are looking to expand riparian plantings. And so there's an opportunity that exists by bringing in that kind of a

new stacked enterprise to speak to people's bottom lines. And that can really excite people. So as opposed to it, maybe the perception being, oh, we're putting in riparian buffers, we're taking the land out of production, I don't want to do that. This is an opportunity for them to add revenue for the long term. And that can also provide some really interesting legacy conversations within families, especially families that may be changing hands generationally.

B

Brenda Sieglitz 08:18

Audrey I love you mentioned that because, you know, a lot of times when people think about adding trees to their land, especially on farms, they're thinking mostly about 30 years from now and the timber harvest. They're not thinking about the current value that they can get from nuts and berries. And that could actually be a crop that they can use now or in 10 years. It doesn't just have to be a timber crop.

A

Alison Adams 08:38

Are there any drawbacks or challenges or even barriers to installing these kinds of sort of multifunctional buffers on people's lands? And if so, what are they?

A

Audrey Epp Schmidt 08:50

Sure, and I might really quickly like to differentiate between the term multifunctional buffer and extreme buffer. They're very closely related, at least the way that at propagate ventures, we use those two terms. Multifunctional buffer is really thinking about plantings that are in that sort of 35 foot 100 foot ribbon of land again along the stream and putting in edibles, say something like elderberries. But if you're only putting in say, a 35, or 50 foot width of any given crop, those are some really challenging areas, typically on farms where it's tough to get your equipment in. So typically, if you're putting in a multifunctional buffer, in that sense, that can be great for a family to plant some nut trees or put in some elderberries that they're really excited to handpick, but it's not great from a commercial for profit enterprise perspective. And so the differentiation there for how we at least talk about extreme buffers is that scale question. That in order to get the return on investment that a lot of people want to see if they're doing these types of enterprises, you have to have a particular scale and that's why you have to kind of go up into those uplands to get that scale, which typically we like to see between 10 and 20 acres of open land for different enterprises as a minimum.

B

Brenda Sieglitz 10:11

Yeah, we see a lot of challenges with install, and getting landowners to say, yes, you know, we have those early adopters. And, you know, the first our program runs from 2018, to 2025. So in these first few years in the program we've seen so many people who are excited about trees, you know, sign on and who may take over entire hillsides of their property, you know, far beyond that 30 to 50 foot buffer, because they're excited about what it can do for their property. Now, we're heading more into those, the slight laggards, you know, the people who are kind of the secondary adopters who may be solid happen or curious, they want to test the waters. And so for those people, they're going to need to see more scientific evidence they're

going to want to see and things like Audrey referenced, the return on investment. So those we really need to see the scalability, we need to see that they can actually derive an income from this, or that it can actually provide a true benefit to their farm. And, you know, a lot of what we talk about is anecdotal, but there are tons of studies out there that we can reference. But sometimes those studies aren't the things that are going to convince the farmer many times it's word of mouth. So for us, it's getting people who have already installed these buffers to go out and talk to other farmers, other landowners, and to get them to bring along their neighbors to talk to their neighbors and have them come along. And so we're actually doing a big marketing initiative right now, just to do that, to encourage other farmers to talk to their friends to talk to their landowners, their churches, have them come along and say, "Hey, we're doing this on our farm, you should repeat this". Because you can provide so much information, but ultimately, you know, that networking, that referral, that you know, someone that might help them get over that hump and feel comfortable doing it on their own farm.

A

Audrey Epp Schmidt 12:00

Yeah, Brenda, I couldn't agree more. And another really important thing that we see time and again, is there's no better salesperson for agroforestry, than a fellow farmer that can tell another farmer, the good, the bad, and the ugly. There are some real, you know, management nuances different things that you have to do differently than probably you were doing it previously, if you introduced tree crops to your farm. And so ultimately, having demonstration sites where we can bring other farmers to come and see an operating agroforestry system is gonna be one of our best tools to help accelerate the adoption of agroforestry. I'd like to say cracking the nut, pun intended, on processing and marketing of these of these crops is going to be incredibly important. And that's going to have to happen on a regional scale. And that work has been initiated in several different parts of the country. And we're really excited to continue that work.

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Liz Woodhull 12:56

In your experience, how do farmers who have planted extreme buffers feel about these kinds of plantings?

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Audrey Epp Schmidt 13:02

So I think one of the things that's really exciting is, especially for the ones that we've already worked with, they feel like they're pioneers, which is a great feeling, right? They're innovators. They're bringing something of value to their region of saying, hey, this can be done here, look at what it looks like. And so they really get an opportunity to be spokespeople, which is really exciting for them to be able to share their stories. And ultimately, you know, part of the work that we do at propagate is helping with that financial planning and understanding the forecasting of what the operating expenses are the capital expenses, what kind of labor you're gonna need. And so there's a certain security that these farmers understand what it's going to take to ensure success over the next few decades with these systems. And that really helps them

B**Brenda Sieglitz 13:47**

Pioneering is definitely the word of this. I sometimes hesitate hearing that though, because I don't want that to scare people away. But it is true. I mean, that is the excitement factor. Right Audrey, like people get excited thinking about being like the first but I don't necessarily think the first anymore, but they're excited about it. And we do have a couple partners, one who's doing really huge elderberry projects up entire hillsides for various products like kombucha and a variety of other things. And of course, you know, coming through the pandemic and COVID I mean, elderberry was running across everyone's mind. I think it was run out of all the CVS's that I've seen you know and every herbal market supplement you could see. And then we you know, we have partners that are doing silvo silvopasture you know, where we we are rarely seeing silvopasture grants out there or anyone really paying for that practice, but we're starting to see that, so our organization did get a SARE grant for that. So we do have a coworker of mine who's working on a SARE grant with silvopasture and kind of neat to see that developing and see the studies coming out of that but again, you're right pioneering the infancy of this, it's coming it's getting there landowners are excited to see it, but it's definitely in its beginning stages. It is still so innovative and people are just so they're not familiar with it. So it would be good for us to make it more familiar to people.

A**Alison Adams 15:10**

And in the vein that it's not very familiar to people, can you quickly define what silvopasture is?

B**Brenda Sieglitz 15:16**

A silvopasture is grazing animals around trees. So for us, we have farmers that will place trees in strategic areas, almost like a fence row. And they'll either put them in tubes, or you know, most likely the safest way is to fence them out, and then have them almost be like paddocks or pastures. So we have a farmer that does actually rotational grazing with his silvopasture. So he'll take his cattle through different pastures, and the trees actually act as the fence row. And then we also have some other farmers who have the trees more free standing within the pasture.

A**Audrey Epp Schmidt 15:53**

So one of the important things to consider with silvopasture and how to strategically integrate silvopasture for different operations, is to understand if somebody is either a dairy or grazer, their animal herd health is their number one priority, that's their mainstay crop. And so it's not necessarily likely that they're going to add in, say, a nutgrove, or whatever, right, because really, what they care about at the end of the day is their animals. And so it's instead a conversation to be had around. Here's how strategically introducing trees helps with cattle weight gain, helps reduce kind of the heat and the cold pressure across the year and providing them shelter, like a living barn is one of the ways that people talk about it. So it's really important to understand your audience and what, what makes different operators tick.

A**Alison Adams 16:44**

Yeah, I was gonna say that something that I heard a lot about silvopasture years ago, when I was doing my master's degree, I was taking a class about agroforestry, in Brazil, and we went to it, we visited a part of Brazil, where the primary commodity is dairy. And they had begun implementing silvopasture. To provide some of it was sort of multifunctional in the sense that there were like acai berries and things like that. But the main conversation with those farmers was around providing shade for the cows and improving the health of the grass that the cows were eating and those kinds of things. So it was really focused around dairy, which also could be really interesting for you know, dairy is there's a lot going on with dairy in Vermont, and we probably don't have time to go down that path right now. But as dairy farmers in Vermont are, you know, facing a lot of different challenges, like maybe that's something that's relevant to that conversation, as well. And I was wondering, both of you are based more in sort of the Mid Atlantic Chesapeake Bay kind of region, and we're up here in Vermont, and there are a lot of similarities. But in some ways, these practices are even newer, since you guys kind of been leading the charge down in the mid Atlantic. You know, they're even newer, in some cases to this part of the Northeast. And I'm wondering, do you know of anybody who's planting either extreme buffers are silvopasture buffers or any of these kinds of agroforestry type projects in the Lake Champlain Basin or nearby areas? And how has that been going with or where the where are those projects in development?

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Audrey Epp Schmidt 18:11

Yeah, so you know, I'd say that there are many farms in Lake Champlain that are, you know, practicing different agroforestry practices, like riparian buffers, windbreaks, food forests, and even silvopasture. And, you know, honestly, even all the maple syruping that happens can be considered agroforestry. And what we're really excited about is that there's an opportunity to really expand the adoption of commercial agroforestry in the Lake Champlain Basin and, and that's really to accelerate and professionalize the industry for perennial crops like chestnuts, elderberries, and more. And, you know, a few actors in the space and Lake Champlain region that come to mind are, you know, Megan Giroux of Interlace Commons as well as Juan Alvez at the University of Vermont. And those are great people, for folks to check out.

L

Liz Woodhull 19:02

Why has it taken so long to like, grow in popularity? And why is it not really branching out as much as it could or should here?

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Audrey Epp Schmidt 19:10

That's a good question. I mean, at the end of the day, it's the fact that this is, for a lot of folks who are already operating a farm, it can be a real stretch, you know, they've got full time jobs, they've got plenty on their plate. So to both invest the capital to start up a new enterprise, as well as the complexity of adding a new enterprise to your existing business. That's a large barrier to overcome. And so that's part of why we do the work that we do to help de-risk that process, help them understand what that adoption looks like, both in the near term for installation as well as the long term over 30 years because there is a lot of complexity and nuance in order to make sure that it's actually a successful system. And I think it goes back to what we were talking about previously, of the fact that we haven't quite made that gap from

the early innovators to mainstream adoption. We're at that point in that adoption curve graph of, we need to make that jump. And I think that's why we need more folks with really well working demonstration sites where we can bring people and get them excited about what it looks like in their region. Because if you tell a farmer from Vermont, hey, look at somebody's doing it in New Hampshire, that's New Hampshire, that's a whole different world, right? They want to see it right where they are.

B

Brenda Sieglitz 20:29

Yeah, when we talk about the issues in Pennsylvania, I know a lot of them could be replicated or familiar in Vermont, just because a lot of the dairy issues are very similar here. Dairy was very much king in south central Pennsylvania for a long time, it is definitely dropped down quite a bit. But we still do have quite a lot of large dairy farmers and producers. But at the end of the day, profit is still number one, many of them are still family run farms in Pennsylvania, you know, our average farm size is still less than 100 acres. So it's very small and parceled out lands. And when Audrey mentioned about, you know, not being able to understand what's happening between Vermont and New Hampshire and being like, "Oh, that's happening over there". That's exactly what we see, you know, between the Chesapeake Bay, so we're coordinated by the Chesapeake Bay Foundation, but our work is in Pennsylvania. So when we talk about our counterparts in the work they do in Maryland, it does not resonate in Pennsylvania, that's like, okay, that's what's happening down on the bay, that doesn't happen here in Pennsylvania, it's nowhere near the same thing. Even though they could be identical challenges that people are facing, it doesn't feel familiar to them. So even though we can look at case studies, we can look at examples of farms that might be nearly identical in their problems and challenges and outcomes, really, it has to be modeled. So any way that we can take the knowledge that we have, that we've already done, and bring it to Vermont, bring it to other areas and get those early adopters on as fast as possible to install some of these and show success stories in those regions, and then bring the neighbors and then bring the communities there to see those installations in those communities. I think that's how you'll start to see some of that success and that word of mouth getting around the community.

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Alison Adams 22:17

And I think what both of you are saying also sort of suggests that there's a pretty significant cultural component to the uptake of agroforestry buffers, or extreme buffers, silvopasture, all of those things. Brenda, you said early on, you know, this idea that if you're going to have a farm, like it needs to be cleared of all the trees, I've heard that multiple times from lots of different places about that being sort of a common cultural norm or expectation. And so even just that, it's just like getting, having a different idea about what a farm might look like. And then what both of you have said about it being people want to see what their neighbors are doing. They want to see what the people in their specific region are doing also suggests that there's a really big cultural component of this. So to some extent, you know, yeah, we can show that this works in other places for water quality, it works for economic benefits, but there's still this sort of like cultural tipping point thing that I think we're trying to push toward by having more and more people trying out these kinds of systems and showing that they can work for them, too. But I do think it's really interesting that these things have been practiced for millennia, buy lots of other cultures, and are really proven there and it still feels really cutting edge for Western agriculture. So that's a topic for a different podcast, probably.

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Audrey Epp Schmidt 23:30

Yeah, really, really important to note that, though, that this is both an old and a new industry. And many, like you're saying, this was practiced by many people before I'll say when my ancestors came to this continent, you know. And so for us to think through, think through what that legacy means what lessons can be learned from that, as well as connecting, I'll say, our clients to the latest genetics research and research coming from different academic partners is incredibly important as this is emerging. Going back to what you just said, though, yeah, that pattern matching and that cultural component is so critical. And I'll say another piece that we're working on that I think will really further help folks make it an easy yes, for adopting agroforestry is we're working with different corporate clients to do forward contracting on these different crops. So that's building that market to say, okay, there are large scale corporates that are interested in say forward contracting chestnuts, that way when you're planting the trees, you know that you have a contract to buy those chestnuts at a certain price point, X amount of years in the future.

L

Liz Woodhull 24:37

How do multifunctional buffers benefit farmers and communities from a social and or economic perspective?

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Brenda Sieglitz 24:45

When you're looking at communities, one of the things we've actually been talking about, it's not so much a buffer concept actually, it's taking fruit crops and bringing them into smaller areas of access. So again, while it's not necessarily a buffer, but looking at sites like abandon lots in communities, areas where there's really not a use in the community anymore. So this could be in an urban area and seeing where we can plant fruit and nuts trees. So those are one of the things we're looking at. In fact, the community, just south of me, is just adjacent to the Susquehanna River, which is our largest river running through Pennsylvania. And we're looking at where we can provide fruit and nut trees that the community can have access to. So while it's not your traditional buffer, it is still providing really great ecological service benefit, but also providing fruit and nuts to the community. So we're looking at unique ways to get these types of trees out in the community in a non traditional function. So it may not be that 100 to 300 foot extreme buffer that's on acres of land, it might be something that's more of a community access park, where people in the neighborhood will be able to utilize it. So a lot of what we do right now is a lot of education to Township, University, School maintenance crews on how to introduce trees to their landscape that can provide this type of multi use benefit to the community.

A

Audrey Epp Schmidt 26:09

Yeah, I'll say, you know, perennial food systems can really do wonders for creating more resiliency in our food system in general. And we work right now across 13 different states. And so we're helping to advance agroforestry in a wide variety of climates and having those perennial systems in that many different locations helps when there are, you know, we're, in a

weirding and wilding climate and so having a little bit more resiliency by having these perennial cropping systems can be a huge boon, as well as another kind of benefit for the community is our country unfortunately, has a long history of under resourcing certain populations in our farming communities. And so by introducing agroforestry, it can be an opportunity for folks to build equity on whatever land base they have. And that helps them with financial resilience for the long term.

A

Alison Adams 27:05

Speaking of climate change related issues, does different climate patterns or potential variations in climate due to climate change, does that affect buffer performance? And how is that part of sort of planning extreme buffers and agroforestry systems?

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Audrey Epp Schmidt 27:20

Yeah, no, it certainly does. I mean, something that comes to mind there is with riparian zones, they are areas that traditionally are frequently flooded. And, you know, so it's important to pick crops and species that are accustomed to those "wet feet" is kind of the term that's used a lot in the industry. So really, species selection is really important in those riparian areas, but we're anticipating, as you probably perfectly well know, certain areas to get an excess of rainfall, like I believe the Northeast is going to have an excess of rainfall. So increased flooding events, most likely versus other parts of the country, like say, Nebraska, likely will have even less water. And so understanding what that trajectory is over the next 30 plus years, when we're putting in species like chestnuts that hopefully will be around for over 300 years from now. So absolutely goes into our planning process.

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Brenda Sieglitz 28:13

Yeah, we have a couple of work groups, and one of them is a planting work group. So we work really closely with our Department of Conservation and Natural Resources. They have a riparian forest buffer advisory committee that we lean pretty closely on to get knowledge of the right species selection. And one of the topics that always comes up is selecting species for climate change. So in our forward contract of trees, that's one of the things that we really looked at was, you know, how are we selecting species for what landowners actually want, versus what's good for their soil, and then also incorporating how are these trees going to do over the next 50, 75, 100 years. So in our first two years in the program we saw significant flooding here. I mean, we had one rainfall in excess of 10 inches in a couple of hours, just completely decimate many of our riparian buffers in the area. And then the next summer after that, we saw significant drought all across the mid state of Pennsylvania. So when you're seeing those extreme conditions, we just really have to be cognizant that we have to continue to expand the biodiversity. So that's why we're offering over 60 different species of native trees and shrubs now, so you know, we do have a lot of fruit nut species, but we're offering tons of other species that are native to the region, reintroducing species that people just haven't seen on the market because the nurseries weren't producing them in the past. So trying to bring those back so that if we get another blight if we get other diseases, which are sure to come and are coming, that

our forests can be prepared for them and so that if landowners are impacted by a big species loss, hopefully they have enough biodiversity to combat that and don't experience a big crop loss with that.

L

Liz Woodhull 29:53

So given the what are some of the most promising plants for agroforestry in this region?

B

Brenda Sieglitz 29:59

Elderberry, okay, I'll start with that because everyone loves it. Okay, I'm just I get excited about this because I'm just going to talk about what flies off our shelves. And I say that because so we have kind of an interesting concept because we give away our trees for free. We have a free tree program in Pennsylvania, we give away bare root and containerized trees. Next year, we're going to be giving away 460,000 trees, which is still blowing my mind. Yay, terrifying and wonderful all at once. And so yeah, we have to figure out what trees most people are going to get excited about. Elderberry is always super popular. Pawpaw, is just growing in such great demand, we're seeing just a lot of effort, I actually just planted like 12 pawpaw trees in my backyard to very pawpaw shrubs in my backyard I'm very excited for them. You know, we're seeing a lot of like larger shrub species, you know, that were in the woody family, we're seeing Hazel not is always very popular. We also introduced a lot of berries like Nannyberry, and Serviceberry and Chokeberry. So looking at those types of things, they all tend to go pretty fast. And then looking at your net species. So we are trying to bring back some American Chestnut varieties, they are always the first to go and we're trying to work also on looking at the genetic varieties of those. Yeah, those tend to all be the most popular but I mean elderberries king for us. I don't know what it is but everyone just loves it and wants it and they're beautiful.

A

Alison Adams 31:30

I wonder if part of that is that there is an existing market for elderberry. I mean, something that really strikes me about the things you said is you don't hear a lot of people talking about like Serviceberry and Chokeberry, outside of sort of the realms where we're working. And it seems that part of this project, a lot of us are kind of working on the planting side and the implementation side, but that a part of this project is also developing the market demand for these products. And that's far outside my area of expertise. But something that strikes me as an important component of this.

B

Brenda Sieglitz 31:57

Absolutely. I'm sure Audrey's gonna touch on that more. But as much as we've developed in the nursery side of building up nurseries and their capacity, absolutely. We're working on increasing supply and demand of trees. But when you're looking at the agroforestry side, there's another component of increasing demand, not for landowners to buy trees, but for people to buy the landowners product. So when that comes from trees, I mean getting people

to understand what a pawpaw is and how to handle it, how to manage it. And that it is hard to take it from the tree to the market because of how fragile it is and so on. It's just takes a lot of knowledge and just making it sexy and exciting to people.

A Audrey Epp Schmidt 32:39

You shared the appropriate enthusiasm for elderberry. So I love that. Yeah, elderberry is definitely one that we see both a lot of existing market demand as well as the projection show that that's only going to increase. In terms of the nuts, you know, the ones that we really focus on are chestnuts, hazelnuts, pecans, there's a really promising. A couple of berries that are sort of more in the up and coming category I would say are aronia and black currants. blackcurrants aren't allowed in all states. So double check that depending on where you're listening from but black currants are a great opportunity for certain folks in certain states. We were working with a client who wanted to find a short term revenue, so right shrub fruit is one of the shortest term revenue crops that you can have for an agroforestry system. And we were able to connect him with a Cassis producers. So Cassis is a blackcurrant liqueur. And so we were able to kind of do that matchmaking to help him feel more security in planting a more up and coming species that he has an end user already identified for that. We also do timber, so just a couple that I want to mention are poplar and black locust are two short term rotation timber species that we really recommend that gives you a good price at market.

A Alison Adams 33:48

What do you mean black current isn't allowed in some places?

A Audrey Epp Schmidt 33:52

So for example, in my fine state of West Virginia, blackcurrant isn't an allowable crop per the West Virginia Department of Agriculture. And that's because there are concerns that there can be transfer of rust disease from black currant to certain pine species that are really important for the timber industry. And so they've decided to not allow black currants at all, there's some improvements that have happened on the genetic stock. So there's a variety called Titania that doesn't have that disease issue. And so that's increasingly certain states are re-allowing black currants. So New York's an example where black currants allowed again in New York state, where historically it wasn't because of that timber concern.

A Alison Adams 34:32

Thanks for clarifying that just piqued my interest. You know, thinking about getting more and more people adopting these kinds of agroforestry systems on their land. How can we leverage the upcoming farm bill to accelerate the adoption of these kinds of practices?

A Audrey Epp Schmidt 34:46

Yeah, so there's a lot of ways that the Farm Bill historically has helped integrate trees into our agricultural landscape. So things like CRP is a great example, different NRCS programs that

agricultural landscape. So things like CRP is a great example, different NRCS programs that exist to help support getting trees on to farm landscapes for conservation purposes and helping to pay farmers to put some of that land out of production to protect those areas. But my understanding is right now only 1% of the farm bill goes specifically to commercial agroforestry. So there is a national agroforestry center that the USDA has, and it's a great resource and I would argue that it is a underfunded resource. So that's a kind of low hanging fruit to help make sure that that center that is our federal resource for advancing this industry, gets the funding I would argue it deserves to have because agroforestry is such an important tool in our toolbox for agriculture to help mitigate the climate issues that we all are facing.

B

Brenda Sieglitz 35:44

One of the things that we've been challenged with in the first few years of our program is doing more precision based conservation targeted conservation. We've done that with some tools with our partners at Chesapeake Conservancy, working on something called the tiered buffer. And it's been really fascinating to see, we would love to see something like that adopted within the farm bill to take things like the traditional 30 to 50 foot riparian buffer, and to see it actually put into a more targeted system using GIS technology that is available to so many of us now. And actually putting that application to farmers properties and seeing how the water flow is impacting their properties, what is actually happening on the landscape so that the treaties and best management practices that are implemented on their properties are truly getting the best return on investment for the dollars that they're getting from the farm bill. Those are the things that we'd love to see happen. You know, scalability is always hard. Technology is always hard. I know a lot of the government programs have limited resources in terms of that. But those are things that we're working on in the nonprofit side and trying to share technology and resources. It's one of the reasons that you know, we have 200 plus partners, including NRCS, our conservation districts that we can share that technology and resource, we would just love to be able to see the federal and state funding get matched with those tools because they are so precision targeted to the actual nitrogen phosphorus reductions that are happening.

A

Audrey Epp Schmidt 37:13

And I also want to say that in the last farm bill, we really saw how important soil health became as part of the national conversation about how to ship agriculture and the investment that we all would like to see in terms of soil health. And I just want to put the plug in there that I love cover crops. Cover crops are great, but at the end of the day, if you want to talk about truly storing carbon in the soil, there's nothing better than perennials and a tree.

L

Liz Woodhull 37:38

What lessons can the Champlain basin learn from the work that's happening around agroforestry in the Chesapeake Bay region?

B

Brenda Sieglitz 37:41

One of the things that you brought up a while ago was culture. And you know, that has been the biggest learning curve for all of us. You know, I was born and raised here in Lancaster

County where I live today. I work all across the Commonwealth of Pennsylvania. And I think coming into this job my assumption was Lancaster County farmers are like every farmer in the state of Pennsylvania, that's not true. You know, there are cultural differences from township to township from county to county, you know, we have lots of Mennonites here, we have Amish, we have so many different faith based communities, we have dairy farmers, we have just so many different types of people. So when it comes to diversity in our best management practices, we have diversity in farming, we have diversity in so many different ways. So applying what I think is, you know, just a one line approach for what we think will work for everyone just doesn't work. So we've done ton of research and background on getting to know the people that we need to and want to serve and how best to serve them. So while we can gather background information on them, and try to get to know what their needs are getting out and having conversations with them going into the communities that they care about listening to their challenges, and trying to be in there to give them the tools, products and knowledge and help that they need to help leverage the resources. So that's one of the things I think I'm most proud of in my program is that we can bring stuff in to leverage the partners that are in that area. Rather than coming in and taking over, we can come in and lift a partner up to help those communities that they already understand and that they already serve. So you know, using those existing resources there and figuring out how you can bring funding there or how you can bring another tool or research or resource there without trying to instill a whole different tool or a whole different knowledge because every community is just so unique and that culture that community really will impact your success going forward.

L

Liz Woodhull 39:43

Personally, I grew up going to the Chesapeake, I ate crabs every week. And you know, speaking to like the significance of the community, the Chesapeake Bay is I think, the third largest estuary in the world. And I was wondering - and Lake Champlain is also very big - how did it being the third largest estuary sort of play into your community outreach aspect.

A

Alison Adams 40:04

In Pennsylvania, it's actually really unique because our state does not touch any of the Chesapeake Bay. However, half of the water that flows into the Chesapeake Bay comes from Pennsylvania. So it has been an extremely challenging conversation with landowners here to help them understand the challenges of the Chesapeake Bay resource to talk to them about why it's important that we clean up the Chesapeake Bay. Meanwhile, they're in your county, and they're dealing with, you know, losing soil after a flood. And they're being told that they need to install a manure pit or when on their farm and their local Creek flows into the Susquehanna, they've never been to the Chesapeake Bay. So there's a huge disconnect. So we actually don't really talk much about the Chesapeake Bay in Pennsylvania, we talk about our local rivers and streams and how that impacts them and their farm and their land to someone who's down in Maryland and their farm. We talk about the bay impacts, and sometimes on a larger scale to the partnership, we talk about how all of these things are connected, and then ultimately lead to the bay. But we bring up the bay conversation later, because when we start with the bay conversation, we usually get a complete shutdown. That's Pennsylvania. It's just much different. I'm gonna pass it over to Audrey, though, because she has some background in that as well.

A

Audrey Epp Schmidt 41:18

Yeah, I mean, I think the parallel there between Lake Champlain and the Chesapeake is that both are driven by an EPA mandated cleanup. And so in particular, it makes the Chesapeake an interesting place that has a lot of federal attention and focus, because it is a large multi state. It's a huge watershed, you know, encompassing six different states. So in Lake Champlain, you guys have New York, Vermont, a little bit of Canada, right. And so you guys actually have an international focus that you have to bring to the work that you do for the cleanup. I'm not too familiar with it, but I'm sure that's its own unique complication. So I think, you know, in terms of lessons that can be brought from the Chesapeake to help with the Lake Champlain is partnerships, like what Brenda leads the Keystone 10 million trees partnership, that's a really important collaboration of bringing together government entities, bringing together private entities, nonprofit entities, and doing that cross pollination of finding solutions that aren't going to work for every actor that's at the table, but finding ways to work together towards a shared common goal.

A

Alison Adams 42:25

Thanks both of you for that insight. Brenda, what you said about Pennsylvania and not really resonating with the Chesapeake Bay as a messaging point reminded me of some things I've heard about New York and that a lot of folks in New York don't necessarily identify with Lake Champlain the way a lot of Vermonters do, there are plenty of New Yorkers who do there are some who live right on the shore of Lake Champlain. But there are a lot who are in the watershed where that's maybe not their primary identity and maybe a stream or river in the Adirondacks would be a better way to sort of talk about these issues with them. So I really appreciated that point. So as we conclude this episode, I was just wondering if each of you could share sort of what the next frontiers of this work are for you, what're you sort of looking to next or excited about as this moves forward?

A

Audrey Epp Schmidt 43:03

Well, I'm excited that we're working with multiple partners across a bunch of different geographies, to try to, you know, leverage water quality funding to get more extreme buffers planted on real operating farms. And that can be a real help for those farmers because these are capital intensive systems to get these farm enterprises started. And so where there's opportunities to leverage non dilutive grant funding for their operations, that can be great as opposed to more traditional financing can make it more challenging for them. So we're excited to help support our clients with that, as well as working with other government and nonprofit groups in a variety of regions in the northeast, as well as the Mid Atlantic.

B

Brenda Sieglitz 43:46

I am excited and as I mentioned, terrified to embark on the year ahead with our 460,000 Trees arrived for 2022. This is our forward contract of trees that we launched in the middle of 2020. And so these trees are all getting delivered next year. And my hope is that this will be the first year that we do not run out of trees. So for example, that the partners get predominantly the trees that they are requesting and the priority regions that we have set up. The only other

season that we didn't run out was in spring of 2020. And that was just because the pandemic came out right when ordering season came out. So that was just a bit of a ripple effect. But this season heading into spring, I'm really excited to see what this amount of trees will do for our 200 partners. And I think because there is an ample supply of trees and so much diversity, I am hoping and believing the partners will be able to use them for a lot of innovative and interesting projects like agroforestry and silvopasture and using them in ways that before maybe they would have hesitated or saved them for different projects that this will open doors for them.

A

Audrey Epp Schmidt 44:55

And just one final thing I'm really excited for agroforestry to get in normalized for it to not be seen any longer as this innovative on the cusp industry, that it's just, it's what all farmers are doing. They're integrating tree crops as a strategic revenue for their operation.

A

Alison Adams 45:13

Yeah, I think it's safe to say we are all excited for that to happen. Well, I think that's a really good place to conclude our episode today. Audrey, Brenda, thank you so much for joining us by zoom and dealing with all the technical issues that that sometimes involves, we really appreciate it. This was really fun.

L

Liz Woodhull 45:27

Yeah, thanks so much. It was really great.

B

Brenda Sieglitz 45:30

Thanks for having us.

A

Audrey Epp Schmidt 45:31

Yeah, that was a real pleasure. Thank you guys.

A

Alison Adams 45:47

Today's episode feature the call of the Red Shouldered Hawk, a bird found in Vermont's riparian areas. It was recorded by Martin St. Michel at George Montgomery Sanctuary in Brome Missisquoi, Quebec, on May 15 2014. We downloaded the song from Xenocanto.org. For more information about the topics covered in this episode, visit the podcast tab of Lake Champlain secrets watershed forestry Partnership website. This project has been funded wholly or in part by the United States Environmental Protection Agency under an assistance agreement to NEIWPC in partnership with the Lake Champlain Basin Program.

