Patrick (00:06):

Welcome to the Forest Over Story podcast. This podcast explores forest stewardship in the Pacific Northwest, helping landowners and professionals gain new insights and information in the field of forest management. The Forest Overstory is a product of the Washington State University Extension Forestry Program, and it's supported by the Washington Department of Natural Resources and the Society of American Foresters.

Kevin Zobrist (00:30):

Hello and welcome everyone to the Forest Overstory podcast. We're very glad to have you with us for a brand new episode here. My name is Kevin Rist. I'm a professor and forester with Washington State University extension, serving some of the central Puget Sound area counties. With me today is my co-host, Sarah Stewart who works with me. Sarah, how are you doing today?

Skye Pelliccia (00:54):

I'm doing fabulous. Thank you for having me.

Kevin Zobrist (00:57):

Patrick is off for this episode. So Sarah and I will be your host today. And as always, we have a special guest with us. And today's special guest is Skye Pia with the King County Noxious Weed Control program. Skye, welcome.

Skye Pelliccia (01:14):

Hi. Thanks so much for having me.

Kevin Zobrist (01:15):

We're so happy you're here. To start with, tell us a little bit about yourself, your background, how did you end up with a weed career?

Skye Pelliccia (01:25):

Yeah, no, that's a good question. It's a really niche career for sure, but it was never part of my plan. Not surprisingly, perhaps I was born and raised in South Carolina and I have a geology degree because per South Carolina School things, there was no environmental studies of any sort. So I had got my first geology job and was immediately distracted by the plants around me and that is why I moved to Washington State. I started with AmeriCorps doing environmental restoration work and then eventually moved on to a private company and then I finally ended up working with the Noxious Weeds program as a field assistant in May of 2021. And then they just so happened to have a full-time educator position opened that November. So that is when I started in my current role.

Kevin Zobrist (02:19):

And tell us a little bit about your current position. What do you do? What all does it involve?

Skye Pelliccia (02:25):

Yeah, so I am still considered a noxious weed specialist professionally, but my job title is educator Consultant. What that really entails is that yes, I still thankfully get to do field work. I would go insane if not otherwise. I typically just end up teaching and doing outreach. I teach dozens of courses every year, both in person and online. I'll lead field trainings as well. And then now we have an education team of three, and between the three of us we have a newsletter, blog, obnoxious weeds program inbox, and then I

manage our social media. And then one last thing that is kind of adopted onto my job is that I'm the equity and social justice lead on my team as well.

Skye Pelliccia (03:13):

Skye, that's so awesome and I totally get what you were saying about needing to be in the field. I went from full field to full office and a position with both is very sought after because either way it's a little tough. A mix of both is perfect. Next, I'm hoping you can clarify some things for us. So what is obnoxious weed? What is an invasive weed? Why are these weeds such a problem for forests and why should small forest landowners care about weeds?

Skye Pelliccia (03:41):

I could talk about this all day, but I'll keep it short because I know weed law isn't really the most exciting topic, but noxious weeds, they are invasive weeds, but not all invasive weeds are noxious weeds. And what I mean by that is that noxious weed is a very specific thing. It's actually a legal definition. So to be considered a noxious weed, you have to qualify by proving that it was introduced to Washington. It's spread beyond where it's planted, it's difficult to control and it causes harm in whatever area it's introduced. And by meeting these qualifications, it doesn't automatically end up on the list. It actually has to go through this really political process that involves two boards, a committee, two public hearings, it's a whole thing, and then eventually with a number of votes it can end up on the weed list. Any of the weeds that are on this list are ones that you can comfortably assume that it makes sense for you to control them.

(04:39):

But the weed list itself is organized into three classifications. So the weeds that you're looking for that are most common are going to be those that are Class C weeds. Class A weeds are least common, B is in the middle. Class C is the most common. So class C weeds are a good place to start if you're getting into this because it's most likely that you're seeing them. And some examples would be things like Himalayan Blackberry, English ivy, not weed. We have almost 150 weeds that are listed on our county list right now. But there's also weeds that are problematic that aren't on the list for whatever reason. For example, common Holly formerly known as English Holly, that is a weed that it is technically just a weed of concern. So we have this sub-list on the county level that it is attached to our noxious weed list, but it's not a legally official weed. And that's either because we need more information on the plant, which is typically how it ends up there and we just want people to be aware of it or because it's gone through the voting process and didn't pass for whatever reason.

Kevin Zobrist (05:46):

And how does one know what is on the noxious weed list? Where can people find this information?

Skye Pelliccia (05:52):

We have a website. If you go to king county.gov/weeds, our webpage comes up and our weed list is there and that is where you can always find it most up to date.

Kevin Zobrist (06:03):

And do other counties have similar things?

Skye Pelliccia (06:05):

38 of 39 Washington counties have a weed board, thus they all have their own list. And mind you, a lot of these look like the state list because all county weed lists must adopt all of those rarer class A weeds, any of the selected Class B weeds for their region and then Class C weeds, it's up to the counties.

Skye Pelliccia (06:27):

Interesting. Thank you for clarifying that. Common weeds are questions that we get from small forest landowners quite a bit. They want to know how to manage the invasives on their property. So what are the most common weeds you'll see on forested properties and which ones are the highest priority to address versus the lowest priority?

Skye Pelliccia (06:48):

When it comes to weeds, it's really always going to be situational. I think one general strategy is to go section by section, especially if you have a larger property, know that starting by just prioritizing looking for a single weed, say English ivy for instance, the impact of English ivy is going to be different whenever it's climbing up in old growth native tree versus whenever it's climbing on a ditch roadside. So my preferred method is to go section by section of your property based on use. So that could look like focusing on an area that you're trying to completely reforest to a native dominant understory that could be focusing on the area closest to your house for access reasons, but whatever it is, I like to start by choosing sections and then within the sections you can start looking at what weeds you have there. In general, it's ideal if you could start from the least infested part and go towards the most infested part.

(07:52):

And the reason is that you could go ahead and get started on this dense patch, but depending on how dense the growth is or how intense the infestation is, it could take a lot of time and by the time you finish that really intense patch, those plants that were just a few small plants might now be their own patches. So by starting from the outside and moving inward, you can assure that the native understory will take care of the rest and it'll kind of work with you. When it comes to prioritizing weeds themselves on your property, again, it's going to be based on their impact. So for instance, we have weeds that really just show up in disturbed areas, maybe on forest edges. That's going to be things like stinky bob or creeping buttercup in these types of plants. While annoying, especially if you're trying to have grass or maybe a native ground cover plant, they're not going to be as intense as something like Himalayan Blackberry or not weed while you can go ahead and get at those plants.

(08:58):

For reference, whenever I used to lead restoration volunteer events, those are the patches that we would have our really young kids work on so that they could be doing something, but then it wouldn't be as intense of a process because it is helpful to get rid of any weeds, but it's not necessary to focus on it first. So starting off by looking at what's really having the biggest impact. So again, with the ivy, say you have an English or common Ivy that is climbing up these trees starting by prioritizing, protecting those trees and then working from the trees and getting the ground ivy afterwards. Or if you are by a river or riparian area and you have knotweed focusing on the knotweed because it grows really fast and it gets harder to control once it's really established. So there's a lot of ways that you can look into and prioritize your plants. But on the plus side, there's also a lot of different groups that you can consult with if you're not confident in making that decision on your own.

Kevin Zobrist (09:54):

Tell us a little bit about some of the things that you've encountered. I'm sure you've seen it all out there weed wise. What are some of the worst weed infestations that you've seen and had to deal with and how did you deal with it?

Skye Pelliccia (10:07):

I have so many examples that come to mind, but one of my favorite ones that also ends as a success story would have to be this site. When I was working for a private company, it was a 12 acre site that was right up to Mount Si and it was 12 acres of, there was a good mix of older growth, big leaf maple trees. It was really a beautiful area. There was a lot of salmon berries kind of scattered, but there was also 12 acres of straight Himalayan blackberry over the head high just dense thicket shrubs of blackberry. And we spent months, we had multiple brush hogs, which are essentially just glorified lawnmowers. They're huge and they kind of pull themselves. It was a really difficult site. There was also areas that it would be a three foot drop and you had to figure out how to get these super, super heavy machines up and down them.

(11:01):

So we had some of those. We had some brush cutters that just had normal metal tri blades at the end. We had some of the saw tooth brush cutters for getting in between vegetation and we spent months just mowing down the blackberry, which if you've worked with blackberry, I will note that mowing down or cutting down blackberry alone will never work to actually stop the plant from growing. Blackberry has really, really robust root systems. So when you cut the plant down, it's just really creating access for us, but it is not stopping these plants from coming back. So we did have to have a follow-up treatment of spraying the regrowth in order for it to be effective because otherwise if we would've just mowed it down, we could come back a year later and it could very well be exactly where it was before. But the fun success story of this one comes in to the fact that we mowed it and then we planted over 6,000 native plants into it.

(11:59):

And initially this was an area that it hadn't have been accessed for probably decades. It was really, really overgrown. We actually found an old homestead buried underneath it all. It was a wild experience, but you can imagine that there hadn't been access for any of the local animals or plants for that matter for quite some time. And within less than six months of us being on that project and opening up that access, we actually faced an issue we didn't expect, which was elk were coming through at such large numbers that they were pulling out almost all of our plants. They were really enjoying in particular our western red cedars and some of our shrubs. So we would come back to the site and they were just tossing these plants in the air, so they'd be like five to 10 feet from the site. We were thinking it was baby elk based on the tracks. We actually had to go back in, put some beaver cages up, which for elk are really just these huge metal cages around all of the conifers and then otherwise just call our losses with some of the shrubs. But point being is that it was a lot of work, but within less than six months we opened up an area that was not hospitable for these local elk populations up into where they were full-time, hanging around the area and able to reclaim some of it. So that was really cool.

Skye Pelliccia (13:21):

So that's an amazing success story and the homestead buried underneath of it all is quite a crazy fine. But I am interested to hear more about the crazy things you've encountered on the job. I am assuming that's one of your favorites, but do you have any others to share?

Skye Pelliccia (13:37):

Yeah, I mean there's so many crazy things happen because where obnoxious weeds really thrive and really need to be managed, it tends to be in areas that won't see the light of day for years. So there's a lot of crazy field finds called them field treasures, especially in and around urban areas. Last year one of my coworkers found an entire kayak. I found shopping carts, a lot of tires. There was one site that had two different hanging boxing heavy bags. But I think our biggest find that we tend to find in the summer is going to be yellow jackets. So as a crazy thing that I've encountered on the job, it's a bizarre story. It was my first year in this field. We were being trained on how to work with kids and volunteers. So I had along

with a few other specialists, we had a group of probably 205th graders and the site that we were at, we were going to weed wrench, this scotch broom, which weed wrench, it's a specific tool that was created to uproot woody plants that have a long taproot, specifically Scotch Broom.

(14:52):

Great tool for this. They're really fun. Kids love to use them. They work the same mechanism as a wrench except for they're probably 20 pounds, they're just heavy metal. And we would have at least three kids at a time carrying these. So you can just imagine 205th graders, I have three to five fifth graders to a weed wrench. We'd bring down at least 20 weed wrenches into this pit. It takes us like 10 minutes to get there. We get started and then within the first five minutes a kid uproot a yellow jacket nest, and you can imagine how that went. So kids are running and I had never actually hit a yellow jacket nest because I was new in the field. So I'm just wiping yellow jackets off of kids who are just getting covered by them. Then they all drop the weed wrenches. So now there's 20 weed wrenches down in this pit and we have to walk out.

(15:42):

Field trip is over. We still had 30 minutes before the bus could get back. So we ended up just forming a line of kids that were coming to us with our first aid station that we had to makeshift. And then after that we just got into a circle and had to, I found a way to make it into an educational opportunity to talk about the benefits of pollinators so that kids wouldn't hate bees forever because they're singing, they're yellow and it's really easy at that age to make an association that all singing yellow things are going to be dangerous. So we didn't want to form a hate at such a young age, but that was quite the day. And then at the very end, after all of that, the five of us had to carry back all 20 of the weed wrenches and that was part of a contract that was ending. So we actually had to finish out the work at that site that day. It was a rough one.

Kevin Zobrist (16:34):

Wow, what an experience. But hey, way to pivot from catastrophe to teachable moment there. Were there a lot of actual stings or just people getting menace by the yellow jackets?

Skye Pelliccia (16:45):

Yeah, no, there was a lot of actual stings. Kids were stung on the face all over their bodies. Kids were getting them stuck in their shirts and pants. They were everywhere still to this day, haven't seen anything like that, but I guess that's worked out well that I turned out to be an educator. I love a teachable moment.

Kevin Zobrist (17:04):

Yeah. Wow. I remember the last time I was stung by a yellow jacket. It's been over 20 years and I still remember that very vividly. I just can't imagine that many yellow jackets. I want to loop back to something you mentioned with clearing that big area of blackberries, which is that you went in and you planted numerous native plants and I think that is so important to touch on because nature doesn't tolerate a vacuum. Something's going to come back in there and ultimately you've got to outcompete the bad guys there with healthy site, appropriate native plants and forested setting. I think for most of our invasive weeds, shade from getting the trees up above the weeds and getting can closure is actually going to be the ultimate control and suppression of those weeds with a couple exceptions like Ivy and Holly, which are so shade tolerant. And I have a little expression I used which is never trust a weed you can't kill with shade. But along these lines, can you lead us into this concept of integrated pest management of which planting competing vegetation would of course be a part of. But there are lots of parts of integrated pest management or integrated weed management. Tell us about that. What is it and why is it so important when trying to deal with pests, whether it's invasive vegetation or invasive insects or pathogens?

Skye Pelliccia (18:34):

So weeds are really just great opportunists because weeds themselves, they're plants, they don't have any negative intentions. Ivy's not like I'm going to go take down this tree now it's just climbing to get more sunlight so that it can reproduce. But in doing that, it is having a major impact and weeds tend to fill these voids. So a big mistake that people make in the field is that they will spend so much time and resources clearing out weeds in an area and then just call the site good because right away, right after you dig out those weeds and right after you mow down those weeds, it looks great. It's instantly gratifying, it looks fantastic. So it's different for landowners because they're more likely to come back and see the site as it's growing back. But for a lot of professional situations there will be times that we'll clear the weeds and then we don't see that site again until we're brought back to it, which could be years, could be never.

(19:32):

And then unfortunately you go back to these sites that you remember spending so much time at and they're completely back to where they were. Or even worse because weeds thrive in disturbed soils. So integrated pest management, we also call it IPM, it's this concept that there are a bunch of different weed control methods, but we treat them as a toolbox instead of using each method as a multi-tool. So that's to say that, well, yes, you could just come and dig out your blackberry, but it's going to be more effective if you combine it with other methods. So maybe that's digging it out, spraying the regrowth, laying down a heavy layer of mulch and cardboard afterwards and then coming through and putting plantings in. So by integrating these methods, you're allowing these tools to work together versus just depending on this one, that might not get to literally the root of the issue.

(20:26):

So integrated pest management has five or some people say six different strategies. The first one is prevention. So that's going to be preventing plants from coming into these spaces. That could be by being very mindful of your plantings because just know that noxious weeds, just because they're listed noxious weed does not mean that they can't be sold in plant nurseries or online because that's actually a separate legal list from the noxious weed list, the prohibited plants list, it's a separate law, it's regulated by the WSDA, and while there is a lot of overlap, it doesn't perfectly match up. So one method of prevention is planting the right plants, going to nurseries, making sure you're planting native or at least not planting invasive. Next we have manual, and that's the most common weed control method. This is going to be anything that doesn't use a power tool but that you use your hands or another tool such as a shovel or pruners for we have mechanical that's going to be using any of those power tools, maybe mowing or brush cutting or fire, what is it?

(21:35):

Flame weeding. We have cultural, the word cultural is just trying to say you're changing the external environment of the plant so that the weed is not happy and the beneficial vegetation is. So that's going to be things such as sheet mulching because you're going to be suffocating those weeds and preventing them from coming back up or at least creating a barrier while also adding nutrients back to the soil for any native plants that you put in. And then the last most common one would be chemical and that's going to be herbicides specifically. And we can talk more on that maybe in a bit because a whole conversation. But just note that herbicide are any pesticides that are targeted at plants. So not all pesticides are herbicides, but all herbicides are a pesticide. And I guess the very last one that it's a little bit less common, but it is still a weed control method is biological. So that's going to be using things that we call biocon controls. And that could be, there are specific beetles for instance that target very specific weeds, but just know that you can't just introduce a bug. These have to go through years of studies to prove that they're only going to target the specific weed they have to be approved. And then you could use those legally and introduce them to control a more difficult to reach usually population.

Skye Pelliccia (22:59):

I definitely do want to circle back to chemical control because we get a lot of questions about herbicides. So let's go ahead and dig into that a little bit. People often ask us, is it okay to use herbicides on our weeds? How would you know or how would someone know what to use and how to use it safely for their environment?

Skye Pelliccia (23:17):

So I know that herbicides, it's a very nuanced topic and I understand there's a lot that gets put out there, especially in the media, but just know that herbicide is just a tool like any of these other methods I just mentioned, it's just one of those. So the same way you wouldn't want to exclusively dig out all of your weeds, you also don't want to exclusively spray all of your weeds because that's still not going to be the most effective way to use your time or resources or care for the environment because herbicides are a vital tool, but they're a very specific tool that you should be keeping for specific situations such as just really hard to control weeds. There are certain weeds that truly especially once established there is not another effective way to control them. And the number one thing when it comes to herbicide is just knowing that you always need to read the label.

(24:10):

I say this, I put it in caps on all of my slides, always read the label. It's really going to tell you everything that you want to know. Once you've decided that herbicide is the route that you want to take, you're going to need to figure out which herbicide you use. And there are wrong ways to use herbicides. Wrong ways could be, for instance, over application. A lot of times when you buy herbicides at the store, they're already diluted, but a good handful of them, whenever you see people spraying herbicides, know that everything in that pack, it's a really low concentration. It's usually mostly water with some blue dye in it and then anywhere from 0.5 up to 5% concentration of an actual chemical within the volume of the pack. So if you buy a herbicide that's not diluted and you just spray it into the environment, that can be incredibly harmful for you and the environment.

(25:01):

And sometimes it's so strong that it's just going to burn the plant leaves instead of actually working into the root system, which a lot of the herbicides that are going to be most effective for these weeds that have these really extensive root systems, they're going to be ones that we call systemic, meaning that they don't just kill the plants on contact. That's actually a contact herbicide. These systemic herbicides, they hit the leaves and then they take a little time depending on the chemical itself, but they absorb into the plant. So you don't need to be spraying into the soil. Again, this is all going to be on the label. It will tell you to spray just the leaves or the leaves in the stems, whatever else. It will soak into the system and then get the plant from the inside out. So another thing when it comes to using herbicide, especially in combination with other methods, make sure you're reading the label for so many reasons, but especially for efficiency because sometimes it'll tell you that it's going to take 14 days for this herbicide to work that way.

(25:59):

You don't come back the next day and think, oh my gosh, this stuff isn't working and apply more. You're just putting more chemicals into the environment than you need to. Also, sometimes people will spray them, think they've worked into the system, mow them down or cover them, but these plants usually need whatever amount of time it says on the label for the chemical to fully activate. So after you apply herbicide to your plants, you need to really just wait whatever that waiting period is before you take any further action or else you're going to risk stopping the herbicide from doing its job

Kevin Zobrist (26:33):

Sky. What happens to these herbicide chemicals once they're applied over time? Do they break down what's kind of the life of these chemicals?

Skye Pelliccia (26:44):

So that's going to vary completely biochemical. We have some herbicides that are really quick acting and these all have different purposes. So kind of stepping back, most all of our noxious weeds have a document on our website that are called best management practices, especially the more common ones. And within our best management practices, it will tell you what is the best way to control these weeds using integrated pest management. And in the chemical sections, oftentimes it'll have different chemicals that you'll use for different seasons or different points of growth in these plants. So the reason that it has these is because they have different modes of actions and different timings of how they work. So plant herbicides such as Tri LaPierre for instance, these are pretty fast acting herbicides. So the point of them will be if your plant is about to flower or it's about to seed and you don't want it to do that, these are times that we'll use trier.

(27:40):

It's going to be quick, but that means it also won't last in the soil as long. It won't be as much of a long-term situation for future growth. Whereas chemicals, zapu, these ones are ones that you apply earlier or even mid-season, and these have a really long life, which is why it's effective for certain weeds like not weed that have root systems that can go seven feet down and 25 feet outwards. It needs time to go from the leaves to soak through the plant all the way through these really extensive root systems. And things like Tri Lapper, for instance, are probably going to burn out their effectiveness before it has a chance to get to those roots. But that said things like zapu on the label, it'll tell you there's a certain window that you're not going to want to plant native plants or beneficial plants into these areas because the chemical is still going to be active. Whereas again, with that shorter lifestyle lifecycle chemical, you'll be able to plant into it much sooner.

Kevin Zobrist (28:39):

That's great information. Speaking of information, as an educator, I hear lots of misinformation and disinformation out there on herbicides, all sorts of crazy stuff from whether it's something like, I heard glyphosate make my acne worse, or if I pour bleach on a wheat under a full moon, that'll make it go away and so forth. Where do people get good information, actual science-based information?

Skye Pelliccia (29:06):

Yeah, so there's a lot of websites for one of course, like always reading into the label because know that the companies can't just put things on the label. It has to go through this really thorough approval process. But you could also look at websites like the EPA or if you're worried about cancer impact within the World Health Organization, there's this international agency for research on cancer or IARC. They tend to have things on a lot of the chemicals that we're most concerned about. And that's where you can see any papers that have been written because reading peer reviewed papers always going to be your best bet once you move on past those papers. It's always going to be secondary in somebody else's interpretation, and that can really just get withered from it saying, oh, there's a chance this causes cancer to if you touch it, it'll kill you.

(29:55):

So just making sure, always reading into things, especially when they have those really click beatty fear-mongering headlines no matter what. Even outside of herbicide, it's always a good practice to practice that media literacy and reading into things. But yeah, I typically will look at the IARC for documents if I'm curious about things because for instance, glyphosate is one that it definitely, it has any chemical and anything it's going to have an impact. But glyphosate is one that there was a lot of fear that came out around it and it actually resulted in the city of Seattle banning glyphosate from being used, which people who mostly actually use glyphosate in the city are going to be professionals. And now the one that's in its place is glufosinate, which has a different effectiveness and it really has the same issues as glyphosate

does. It's just a different name so people feel better about it, but it was a really impactful thing on the industry and makes planning pretty hard.

(30:59):

Whereas if you really look into it, I'm not glyphosate or anything, I'm very neutral about all of it, but on the IARC website, glyphosate is rated as a two a chemical, which means it's probably carcinogenic to humans in quotes. That's the same rating that red meat has and processed meat such as bacon is even worse. It has sufficient evidence of carcinogenic carcinogenicity in humans. So if you really read into it, all of these things can have impacts, but when it comes to using herbicide, as long as you are following the label, it's going to tell you exactly what to wear, the right protective gear, how to use it, don't use it when it's windy or don't use it if it's going to rain. Just there's so many ways that you can be very intentional about your use if you have to use it. But like anything, you don't want to abuse any tool. Did that answer that question?

Kevin Zobrist (31:54):

Yes. Thank you. And I imagine there are also cases where not using one chemical like glyphosate is actually driving people to use chemicals that have a higher toxicity. It's that fair to say,

Skye Pelliccia (32:09):

Don't even get me started on salt and vinegar, save it for the chips. I have in my presentation slides, especially when I speak with garden clubs, I now have an entire slide dedicated to salt and vinegar use for weed control because there is a misconception that just because it says natural or organic, it means that it is safe, especially when it comes to herbicides because herbicides are going to be anything that kills a pest specifically kills a plant. So technically horticultural strength vinegar is still an herbicide for one and two, it has not been well studied glyphosate because it has some nuance there in a lot of controversy. It has been extensively studied, horticultural vinegar has not, and the vinegar that you use in your house that you open a bottle, it kind of burns your eyes a little. That's usually five to 6% concentration.

(33:06):

Horticultural vinegar is 20% concentration on the glyphosate label, it says caution, whereas on the horticultural vinegar label it says danger and it says it could blind you. It does not say that on the glyphosate label, which I know the real issue is long-term effects, but there's again, not much that has been studied on that either. And then beyond human impact when it comes to actual weed control impact of these, so-called natural herbicides such as vinegar, we don't know how effective it is, but we do know that it is not good for the soil, it's not good for the microbiome in general. It's not good for mushrooms or for the worms. It will kill worms on contact. And really importantly, it's not effective for weed control because how I was talking about earlier how plants like not wheat plants need these chemicals that are going to take weeks to work through their system because they're so big horticultural vinegar, it really just burns the plants on site. So it's nice if you want that instant gratification, usually it will kill the top part of the plants and maybe the starts of the roots and maybe it would be effective on really shallow rooted easy weeds that you just pull out of gravel pits, but don't use horticultural vinegar on these bigger weeds please because it's just not going to be effective. And you could be endangering yourself and the environment that you're applying it in.

Kevin Zobrist (34:28):

Yeah, high strength acetic acid, that's a serious kind of industrial strength chemical and needs a lot of protective equipment if you're going to use that, you've got to cover your full face and wear heavy duty gloves and so forth. Also, I noticed that the label for horticultural vinegar says that it's very toxic to fish and very toxic to birds. So again, just because something's natural doesn't mean that it's better safer for the applicator or better for the environment. The chemicals a chemical. I want to switch gears a little bit and

kind of go back to some of these other tools in integrated pest management. What are some weeds that are really well controlled by nonchemical methods?

Skye Pelliccia (35:15):

Scotch Broom is one that I kind of briefed over when I was talking about the fifth grader yellow jacket debacle, but Scotch Broom is one that it is really effectively controlled by manual control methods. So particularly that weed wrench I was talking about, it comes up if you look up weed wrench, even though that was a brand, it's technically gone. Now. You can also look up weed up rooter. It is just a wrench that is anywhere from two to six feet tall. It's metal. And these plants, because they're root systems, they don't have rhizomes, they don't have these sideways spreading root networks that usually reproduce from fragments. They have a tap root, kind of like a carrot, and they're really woody. So these plants are nice because it's really satisfying when you use a weed wrench, right? You will completely be able to uproot this plant and get all, if not most of its root system out just by pulling it.

(36:09):

And then from there, you're just really pulling any regrowth as it comes up, which that is a thing that no matter what with scotch broom, you'll have to do because their seeds can live in the soil through fires and for at least 80 years you can also cut them down low for plants that aren't yet fully woody, like fully brown, yellow stem woody. For plants that still have green stems, we've actually found that cutting them down to ground level can be effective because again, their root system isn't robust. So as long as you do that during a hot and dry period, even that has been proven to be somewhat effective on controlling these plants, they often won't grow back from them as long as they're not super mature and able to reach the water table.

Skye Pelliccia (36:54):

Thank you for clarifying that. And in comparison, you've mentioned this briefly earlier, that there were some invasive species that need herbicide to be able to be controlled. Could you touch on what a few of those species are and even maybe what some of the tips are for when to apply herbicide in their lifecycle to make them go away?

Skye Pelliccia (37:15):

So the first one that always comes to mind for me is going to be knotweed. I've kind of mentioned it throughout, but it's a serious enough plant, especially along our riparian areas, salmon habitat, that we have an entire part of our program dedicated to its control, and that's because it's not controlled by conventional methods because unless it is a fully new plant, you'll never want to dig out this species because it can make these root systems that can go seven feet down, 25 feet out from each parent plant. Each cluster has hundreds of parent plants, and then from there, each of those root systems, any fragment of the root left in the soil, which fragments and where their reproductive nodes are, it's about every inch of root that is left in the soil. It can grow back from that. It has enough energy there that it can grow back from those parts.

(38:10):

And then additionally, even mowing it down and cutting it down, if you leave that on the soil, if you look closely at the knotweed plant, it has a stem that's kind of like bamboo. It has these darker colored nodes. It's kind of growing in a zigzag fashion. And each of those nodes can also root if left on moist soil. So point being digging out this plant, unless it is a very, very new patch or a small enough that you are willing to deep dig, it's not effective to dig it out. So these are the situations that herbicide is going to be the suggested method, but the caveat that comes with that is that it does typically grow in more aquatic areas. And if a plant is growing in a saturated area, you actually need a specific, you need a pesticide applicator's license and you need a permit from the Washington State Department of Ecology to control it.

(39:04):

And then if it is something that it is not in a saturated area and you can control it yourself one way that you could manage it, if it's a really tall patch, you could cut it down first manually. You'll want to make sure that none of the plant parts are able to touch the soil. This is only if it's already tall. And then you'll want to spray regrowth after. If it's grown at least two pairs of leaves, this will apply anytime you're cutting a area of weeds. And then want to spray regrowth, it needs at least two sets of leaves so that we know it's probably going to successfully bring in herbicide. And in those situations, glyphosate or amaz appear are fine. For knot weed, it's window is, again, anytime it has two sets of leaves because, oh, important thing to note, it dies back every single year. So every year you will have regrowth. On the plus side, its root system is still growing strong, but they will look young. So if you can get to them in the spring, that might be easiest. As they get taller, that's when the cutting down will want to occur. But note that by the time it hits first frost and it hits fall and the leaves start to yellow, these plants are no longer going to be effective at absorbing this chemical. So once the leaves yellow on knotweed, there's no point in spraying it at this point.

Skye Pelliccia (40:26):

With that, I know we can talk about best ways to manage specific weeds, especially the difficult ones forever, but I do want to wrap up and focus in on what advice you would have for landowners that are experiencing invasive weeds on their property. What resources do you think they should seek out? And basically how do they get started?

Skye Pelliccia (40:48):

Yes. Well, first things first, there's no time like the present. Sometimes it can be intimidating when you have these big infestations or even if you only have a few weeds, it could seem unimportant. But I think it's important to know that every single weed infestation started with a seed or started with just a cutting, just a single weed. All infestations started small. So even if you have small infestations, go ahead and get on that now. But if they're bigger, also, go ahead and get on that now because it's only going to grow from there. And that's not to scare you. It is completely manageable. It is possible, and it will work out just reemphasizing sooner than later. The next thing beyond getting your motivation going would be figuring out where you prioritize. Maybe choosing one section at a time. Again, that way you can have a feeling of success when you finish the section out, but also it helps you focus on less strategies.

(41:46):

Once you figure out your section, figure out which weeds you want to focus on. So again, if it's something impacting existing trees or beneficial vegetation, that's usually where I will start. And often with manual removal so that I can pull the weeds away from any of this beneficial vegetation so that if I use any other methods such as a brush cutter to mow things down or herbicide to spray, things that I have less of a chance of impacting this beneficial vegetation. You can also take an inventory of your plants. You can do this manually. But also there's a lot of incredible apps these days. One in particular that I've always used, not sponsored Seek, SEEK by iNaturalist. It's just a really helpful app to learn how to identify your plants by using your phone camera. You can also use existing photos. Caveat is that it's obviously going to do best as it has more plant parts.

(42:42):

So in the wintertime or even before plants don't have flowers, sometimes it won't be great, but it'll at least narrow it down a lot of times even to genus. So if the genus thistles come up, you can look up thistles in Washington State online and go from there. Other options is that I know for instance, the iPhone now has AI within its photos app that if you pull up your photo on your phone app, it will usually have a little leaf within a circle icon, and if you open it, it will give suggested plants. And once you have your plants going, I would recommend just going online and looking things up beyond our King County noxious

weeds website. There's also Washington State noxious weeds. Oregon State has some great resources, no matter what it is, you could look up blank weed best management practices and something will come up. I would just always look for a.gov or a.edu. If your county has a conservation district, those are typically really helpful with guidance garden hotline, with master gardeners, those are also really helpful. Internet's a great resource. You can always email us photos, just make sure they're clear photos and no matter what, you're not alone in this. And it is a very tangible, no matter how insane your weed infestation is, it's manageable. And starting now is always better than starting later.

Kevin Zobrist (44:06):

Well, thank you, Skye, for all those great resources. I'll also give a plug for education programs. I know a lot of the county noxious weed control programs do education, conservation districts do education, and of course, we here at WSU Extension Forestry offer a number of workshops on invasive weeds. And invasive weed talks are incorporated to a lot of our big events like coach planning or winter school or field days and so forth. So there's a lot of education options out there for you listeners as well. Well, Skye, thank you so much for joining us today. We sure enjoyed having you, Sarah. Thanks for co-hosting with me today and all you listeners out there, we do. Thank you for joining us. This is the Forest Overstory Podcast, and we'll see you next time.