Intro (00:01):

Welcome to Earthly, a Clemson University podcast discussing issues of agriculture, horticulture, nature, and design impacting the world nation, state of South Carolina and even your home. Here's your host, Jonathan Veit.

Jonathan (00:16):

Retirees and warm weather seekers aren't the only ones clamoring to move to the state of South Carolina. The Palmetto state is also under extreme pressure from invasive insects and plants that could devastate its agriculture industry and forests. In fact, a recent global report estimates that invasive species cause countries $423 billion a year in damage to crops, water, forests, wildlife, and more. Today on Earthly, I talk to Steven Long about South Carolina's fight against invasives. Long is assistant director of a state program that works with Clemson Cooperative Extension agents, researchers, and other state and federal agencies to battle insects, plants, and plant diseases that are currently here or are trying their best to get here. He's going to update us on some notorious invaders we're currently battling and others that we're trying to keep out.

Jonathan (01:09):

Steven, thanks for joining me on Earthly. I would imagine that South Carolina is particularly susceptible to threats from invasive species because of its tourism economy and its ports. We have people and goods coming into the state from all over the world, but just how big a role do those factors play in the threat from invasives?

Steven Long (01:30):

I would say that the entire United States is at a heightened risk to dealing with invasive species, and that's just because of the way that global trade has been changing and it's changed dramatically in the past 20 or 30 years. And it's not a bad thing, you know, but we have reached a point in our society where people and goods are moving at a rate that they've never moved all over the world. And with that comes the heightened risk of pests moving. And that's what we're here for. We're here to allow those, those things and people to keep moving, but also make sure that we're not moving pests along with that. So here in South Carolina, you mentioned too, and those are actually two of the biggest things that, that we are concerned about, and that is tourism in our port.

Steven Long (02:13):

So I'll talk about tourism first. And of course, that's just the movement of people, and we know for sure that people move pests. It's been documented, and it's not always intentional. Sometimes it is but a lot of times it's accidental. And the thing about South Carolina is we have a lot of people that are coming here even more than perhaps we've ever had, and, and we also have a great climate. So, those two things combine for a great opportunity for people and pests to come into our state. And then, of course you mentioned the ports you know are, are really where you have that global movement concern. And of course, ports aren't bad. You know, a lot of the products that, that we send around the world ourselvescreate business and economic opportunities for South Carolinians here every single day.

Steven Long (03:03):

So it's not something that we wanna stop just because there's a risk, but certainly we acknowledge that there's a risk as we send things out for those same ships to come back and, and bring pests in. And you know, pests move as actual shipments. Sometimes they're illegally concealed things that, that our

listeners might have heard of. We have you know, risk like invasive snails, giant African land snail is one that's illegal here in the United States, but people bring it in as a, as a pet, an exotic pet. And we've had some infestations in Florida actually. And we also have pests that move accidentally through the movement of solid wood packaging materials. So I think of wooden pallets, but also in, in, just in container ships. They, they use blocks of wood just to make sure that things aren't moving around in containers.

Steven Long (03:49):

And a lot of times what accidentally happens is there's, there's wood boxes, there's pests that are inside of that wood that are just kind of gone unseen, unnoticed, and then it gets here in the United States. And it, it could be discarded if it wasn't treated right or wasn't caught by an agency doing an inspection. And then that pest can escape. And we've, we've definitely have documented situations with that. And then pests can move on the outside of ships and containers coming in through our ports. So, you know, there are invasive hornets, mussels, a lot of folks have heard about the zebra mussel issues up in the Great Lakes. A lot of times those are attached on the outsides of ships or on the outsides of containers, or even used as ballast material, where the ships need to be weighted down when they don't have heavy cargo. And a lot of times that's done with water or soil. And then when those are discarded in a new place, they, they bring in new pest along with 'them. And it takes years sometimes for that pest to to be detected at and realize that's a problem.

Jonathan (04:48):

And I will tell our listeners, if you have not seen a picture of a giant African Land Snail, I encourage you to take a look. They are big. So there are several plants and insects that have been with us for so long. People don't even really realize that they're invasive and they are invasives that were introduced to areas intentionally in an attempt to solve a problem. Common one is kudzu. What are some others?

Steven Long (05:16):

That's right, Jonathan. Kudzu is a great one. And it's been here with us for a long time. You know, it was introduced well-intentioned to be a ground cover. And sometimes these pests, we just don't realize that they're bad. And and sometimes plants a lot of times fit that category. We think that there are good things about them, and then they become bad later. so speaking of plants, one, the primary one that comes to mind for me is cogongrass. Cogongrass is a fast growing invasive grass that was introduced with good intentions as a forage crop into Mississippi in the early 1900. Later on, they decided to, to try it as a an erosion control. They tried it in, in Florida and along the Gulf Coast areas. Now, since it's been realized to be a huge displacer of native plants becomes a big issue for folks trying to establish pastures.

Steven Long (06:08):

It just out-competes. And that's kind of that's the main M.O. of many invasive plant or even invasive insect disease. It out-competes what was already there. And when it's outcompeting, outgrowing, outpacing what's there is a big problem. So particular again, to cogongrass becomes a problem in pastures, but also becomes a big problem in forestry. It out-competes all of the understory growth and actually creates a monoculture. So again, a monoculture is something that can be very bad when we're dealing with invasive plants. And in forestry, you end up with this uncontrollable fuel load that all becomes dry at the same time, and then either through wildfires or even controlled burns that fire burns faster and hotter than we're able to control or able to deal with.

Steven Long (07:00):

A lot of times, those fires even kill the trees, whereas when you have native understory growth, the fires just don't get that hot. Wildfires are actually part of the ecosystems normally with a lot of these trees that we forest. But in this situation, the fires get too hot, can kill the trees. It could even become a threat to humans with wildfires as those fires burn more rapidly than we're able to control. There's also many examples in our ornamental industry where plants were introduced because they had you know, really great ornamental characteristics, but we just didn't realize how they could be invasive. One of those is also cogongrass. Even though we knew cogongrass was invasive, a variety was was created called Red Barron. And it was later realized that, that even though that Red Barron and variety of cogongrass not invasive itself, it didn't have the same qualities and characteristics as your, your normal cogongrass, it would revert back.

Steven Long (07:58):

So just over time, it would change, it would change back to the other grass. And when it did, it became invasive and it would spread and create all these issues that I, that I laid out. Other ornamental plants that have, have been introduced and realized to be invasive, Chinese Privette, Callary Pear, Eliagnes. There are a lot of those to our, our forestry industries that, you know, you could even walk through a lot of our, our forests here in South Carolina, a lot of our parks, national parks and management lands. And you can see just these huge stands of these invasive plants where a bird ate a seed in a landscape and then moved it out into th the wild, and then it just takes over. So we, we do actually have a lot of those that have become invasive. So we always just encourage folks you know, the safe bet is to go with native plants because we know those aren't gonna be invasive.

Jonathan (08:49):

What are some ways that invasive plants can have a negative impact on our food supply and on our environment?

Jonathan (08:55):

Oh, yeah, we've got some really great historical examples of that. And a lot of folks may remember from history class, the Irish potato famine that occurred in Ireland in the mid 1800s. And I don't know if folks quickly associate that with that being a plant pest. But potato blight, we believe was originally moved from North America in soil. So soil put inthe ballast of ships again, to weigh those ships down so they could cross the Atlantic and go back to England to get more stuff to bring back to the United States. We believe potato blight moved in that soil as a fungus was offloaded into to England there to allow room for that cargo. But then it blew the blight that was present there, that fungus, those spores blew from, from those England countries over to Ireland.

Steven Long (09:45):

And then it established, and of course, we know Ireland was a a huge monoculture of potatoes. And potatoes were essentially their entire economy, their primary food source. But what happened is a pest not native to there found its way onto the potatoes and completely wiped out the potato crop, the food source that those residents there were depending upon. Data shows that about 1 million people died directly related to the starvation over a six year period specific to potato blight. And then another 1 million people immigrated away from Ireland so they wouldn't starve to death. And many of those people landed here in the United States. So a lot of us that have Irish heritage or know about our Irish-

centric places here in the United States, they can be directly tied to the Irish potato famine of the mid 18 hundreds.

Steven Long (10:38):

So that's a, a very interesting story. Now to kind of tie back and see that a plant pest may the reason, may even be the reason that I'm sitting here today. Our descendants moving here in the, the mid 1800s to get away from a problem. There's actually one going on here in the United States right now that we certainly hope won't become that big of a problem, but could have an impact on our food supply certainly our economy. And that's fruit flies. Now, there are many different species of fruit flies, and, and they're present all over the world but we have a lot of invasive ones that are not present here in the United States, not native to the U.S. And in 2023, there was a major outbreak in California that they believe are directly tied to passengers, citizens, tourists coming into California, not declaring things the right way, bringing in infested fruit, either intentionally or unintentionally, probably unintentionally.

Steven Long (11:34):

And those fruit flies escaping. And if you have that happen in enough numbers they can get out into the landscaping, begin breeding, and create major problems. These particular fruit flies impact up to 175 different fruits, vegetables, and other plant commodities. Some of the primary ones of concern in California include grapes, apricots, strawberries, peaches, tomatoes, and that, that's only a handful. They, of course, they impact a lot more than that. And interestingly, I would say to to our listeners, you know, if you're traveling into, through or from California in the near future, you're probably gonna see impacts. You're probably gonna see heightened inspections from TSA, that's our Transportation and Security Administration. You may see heightened inspections from CBP, that's our Customs and Border Protection. And, and the whole point of all, all of those heightened inspections, of course, is to make sure that folks aren't bringing in fruit flies or other pests into that state or into the United States. And then, of course, making sure that we're not bringing those out. I actually have a tripplan to Los Angeles, a work trip here in a couple weeks myself, and I have to be sure that when I leave Los Angeles, that I'm not bringing back infested fruits or anything back to South Carolina so I can make sure I'm doing my part to protect our state.

Jonathan (12:50):

It's incredible to think that invasives can have such an impact on human migration and human travel. I know we're battling some invasive plants and insects that are currently here in South Carolina. Tell us about those, let's talk about those for a minute.

Steven Long (13:05):

So, I, I'm actually reminded of a quote when you say that. It's from one of my favorite sci-fi flicks. It's really a great literary piece. I invite all of our folks to watch this, if you haven't. It's called "Men in Black," <laugh> featuring Will Smith and Tommy Lee Jones. But the Tommy Lee Jones character, they're you know, they're basically a police force that are fighting aliens, but his character says that there's always an intergalactic plague or something that's about to wipe out all life on the planet. Of course, he's talking about aliens in this situation, and he says that the way that people can get on with their lives is that they don't know about it. But what I really like about that quote is, is there really is, there's always something going on.

Steven Long (13:49):

There's always a pest that we're either really concerned about not getting, or that we have, that we're really trying hard to get rid of, or make sure that it's not moving. And a lot of times folks don't know about it. Now, the difference we have with this quote is that we really do want people to know about it. We do our best to make sure everyone knows, Hey, this, this particular pest is here. We don't want you to contribute to moving it. You need to know that it's there. You know, you need to know that fruit flies, for instance, are in fruit. And if you move fruit, you could be aiding in the movement in an eva of an invasive pest. And most folks don't wanna be a part of moving an invasive pest. So it's important that we do let folks know about it.

Steven Long (14:29):

And also the citizens are very important to helping us detect pests for the first time. So it's important that, that they know, you know, for instance, that there's a pest in the Northeast United States that's not here yet, and we need their help looking out for it because the sooner we find it, the sooner that we can be successful with eradication here. But yes we're fighting a few here in the state right now and trying to keep a few others out. One of the ones, the major ones, that we're fighting is Asian Longhorn Beetle. That one's located in Charleston County. And just the, the southern southeastern tip of Dorchester County. And that's one that we detected in in 2020. So right at the height of Covid, we found out that that one was there. It's primarily a pest of red maples, although it does attack 10 or 11 other hosts, willows cottonwoods perhaps Sycamore.

Steven Long (15:22):

The Beatle's preference for those materials goes down dramatically as you go down that list. But Red Maples, a native plant here to South Carolina, very prominent in your, your swampier lands landscapes. But it's found all over the state of South Carolina, regardless ofswamps being nearby. And itdevours those plants. And we have about a 76 square mile quarantined area there in Charleston now where we're eradicating, and it'll probably be another 10 to 20 years and millions and millions of dollars before we eradicate that pest. , But the eradication is important. You know, we're trying to save other maples in South Carolina. We're also trying to keep industries alive so we can continue to move wood products, maple wood products, but also other wood products nationally and internationally. And when you have a pest like that the recipients of those products don't necessarily want your products if they think there's a chance that you could be sending them Asian Longhorn Beetle along with them.

Steven Long (16:20):

So it's important that we're sending a message to them that we're doing everything we can to eradicate this pest, and we're inspecting everything that goes out to make sure it doesn't have those. We have a few others. A disease of citrus called Citrus Greening. That one's all also located in Charleston and a few other coastal counties. A lot of folks don't think of citrus as being widespread in South Carolina. And it's really not an industry, but there are, there's a lot of backyard citrus in our coastal counties that that deserve protection. And not only that we believe here in South Carolina that there's a future for citrus production. And, and we've seen in Florida that that Florida citrus is riddled with various diseases. And we've seen the citrus industry move into Southern Georgia.

Steven Long (17:07):

And I believe just as the climate does naturally change and shift that we're going to see temperatures rise here in South Carolina, making citrus a more viable commodity to be grown here in South Carolina. And then we have others sweet potato weevil. We have a sweet potato weevil quarantine where we're

trying to keep sweet potato weevils relegated to the eastern part of South Carolina, and keep some of our weevil free counties weevil free so we can keep growing sweet potatoes. We can keep having our sweet potato pies around Thanksgiving. And and our industries can continue to sell those and, and our farmers can continue to be successful with that. So there's absolutely a lot that fit that category.

Jonathan (17:47):

Steven, do we know where the Asian Longhorn Beetle was first found in the United States?

Speaker 3 (17:52):

So, the Asian Longhorn Beetle is currently present in New York, Ohio, and Massachusetts. The first detection in the United States was found in New York. We've had a few successful eradications. It's been successfully eradicated from New Jersey and Illinois, and even Boston, Massachusetts. But all of those were independent infestations, you know, it was introduced probably on solid wood packaging material that we don't know that for sure. What I find to be most interesting about the South Carolina detection, you know, we're pretty advanced in science now. We can actually do genetic testing on all of these beetles and, and see if they're the same. So of course, just looking at them, they all look the same. They're a black beetle with white spots, and there's not much else in South Carolina or the United States that looks like that. But when you get down to the genetics, what we found, what our partners with USDA found was that every one of these United States detections were different.

Steven Long (18:48):

So we know that the New York detection wasn't moved to Ohio. The genetics were completely different and all the other states, with the exception of South Carolina. For the first time in 2020, the South Carolina detection was linked to at least genetically being the same as one of our other state detections. And it was found to be the same as the one in Ohio. Now that doesn't necessarily mean that ours came from Ohio. It could have come from the same place in China that the Ohio infestation came from on solid wood packaging material. That is absolutely an option. But what it does open the door for is the possibility that our detection moved on firewood for instance, from Ohio. And we do have a lot of folks that vacation from Ohio into South Carolina. A lot of RVs come into South Carolina. A lot of folks move in. They're on firewood. So here's an opportunity for a plug. Don't move firewood. You know, we have lots of national campaigns about that, but that's why. We're not trying to help sell firewood at your destination. We're really trying to save millions of dollars from accidental pest movement through firewood. So we really ask folks not to do that, because that could be the way South Carolina got that Asian longhorn beetle detection.

Jonathan (19:57):

We sometimes talk about invasives that aren't yet in South Carolina or the United States, but that are, for lack of a better term, barreling towards us. Talk about some of those invasives and what we're looking out for.

Steven Long (20:10):

Well, I mentioned earlier that having the public's help indetecting invasives early is incredibly important. Early detection really helps us keep the cost of eradication low and, and their impacts reduced. One of the main pests that we're looking out for right now, and we really ask the public's help is Spotted Lantern Fly. And so Spotted Lantern Fly is a leaf hopper that feeds on a lot of different plants and trees, et cetera. It's a very opportunistic feeder. But it received fame in 20, probably 2020, 2021, 2022 for its

presence in downtown New York. Now it's been in the United States. It was, it was first detected in Pennsylvania in 2014. So it's been here for a little while. And it took a while to be spread into New York City. But it got a lot of press and headlines by being a skit on Saturday Night Live.

Speaker 3 (21:02):

It was on the Today Show. There for a few weeks it was in the news almost every day. So your listeners may be familiar with it that way. Our concern with Spotted Lantern Fly is that it could be detrimental to grapes. In the Northeast, they have seen it wipe out entire grape orchards. What we don't know yet is whether other agricultural practices played a role in that they do apply, or they did apply chemical treatments to try to kill the spotted lantern fly before it could kill the grapes. One speculation is that those chemical treatments killed all the native insects that might have fed on spotted lantern fly, and at least kept it at bay enough to not kill grapes. We don't know that for sure but that is a speculation.

Steven Long (21:48):

But at any rate, Spotted Lantern Fly feeds on a lot of different plants, and we're concerned about grapes certainly here in South Carolina. Although we don't have thriving grape industries a lot of folks still love their wine. And there are wine producers here in our state. And of course, we have a lot of native wild grapes that we are very concerned about. We don't wanna see those removed from the landscape. And then, of course, our our friends out on the West Coast, California and our other West coast states, they grow a lot of grapes, and they are extremely concerned about this pest. And so even the movement of spotted lanter fly from the Northeast, 'cause it's in about 14 states in, in the northeast United States that movement into any new state or location, including South Carolina not only puts our own grapes at at risk, but even further increases the risk to California and, and our wines and grape other uses for grapes here in the United States puts them at at risk in the West.

Steven Long (22:43):

Another pest we're really monitoring and being on the lookout for is Boxtree Moth. It's not here yet, although we did have a regulatory interception a few years ago in a, a prominent online sales nursery here in South Carolina. And that nursery worked very well with us to help us eradicate that infestation in their nursery. But it moved on infested nursery stock from Canada, and Canada helped us out with that. Canada was actually the ones that let us know, Hey, some, some shipments of plants boxwoods, because box stream moth only affects boxwood plants. So that's how we found it. But anyway, going back to the, the bit of the biology about box tree moth. It only affects boxwoods. And many folks might know boxwoods are not a native plant to the United States, and then of course, there's no, no food value for us.

Steven Long (23:34):

But that doesn't take away the concern that we have as US citizens for protecting boxwoods. Of course, we brought boxwoods here. Our ancestors brought boxwoods here when when we moved to the Americas back in the 17 and 18 hundreds. And now we have very prominent boxwood gardens. And, and it's used as an ornamental plant nationally, everywhere, right? So that's, that is something to protect.Cause it would cost a lot of money to replace all those plants in the landscape. So we are looking to protect those. We do care about our boxwood here in South Carolina. So we ask people too be on the lookout for that moth. It is a voracious feeder. It can kill box woods from the time the first moth lands to death of the boxwood in just a matter of weeks.

Steven Long (24:18):

It really reproduces that quickly or has the capacity to reproduce that quickly and just completely defoliate the plant. And then of course, plants without leaves can't, photosynthesize, can't create food for themselves and they die. So certainly thoseare the, the two big ones that we're looking out for, Jonathan. And there, there are always more. There are other ones that are on the horizon thatwe're keeping an eye out for things that we're hearing about that are problems internationally. So anytime folks see something strange, report it, and we'll take a look at it. Maybe it's something that's not even on our horizons yet.

Jonathan (24:53):

So if you enjoy the occasional glass of wine be on the lookout for the Spotted Lantern Fly, and I encourage our listeners, don't be fooled by its beauty. It is a beautiful looking insect, but a lot of negative impacts. So once we detect an invasive plant or insect, what happens next?

Steven Long (25:12):

So that's actually where my agency comes in, and that's actually why I have a job, Jonathan. Once you know, I guess dating back to the detection itself, we confirm in our lab up at Clemson that the pests we're looking at is indeed an invasive pest. And one that that we know could be a problem here in our landscape. Then we respond. So every every state has a plant pest regulatory agency, as I noted, mine is the one for South Carolina. But every state has one. And we tend to look at ourselves as the first responders for protecting plants in each of our states. So the first thing we'll all do is is go out and try to determine the size and impact of the infestation, so we can develop a response plan.

Speaker 3 (25:56):

Now, what we always want is to discover that we have found it so soon that eradication is a possibility, and we will immediately pursue eradication efforts. It's not always the case. Sometimes we find that, that a pest has gone undetected for a long time, and eradication is too far gone. Or maybe we determine that the impacts for instance of a pest, although maybe they're invasive, that they don't warrant the millions and millions of dollars that an eradication effort might take if something is just a casual pest of a plant. However, those are all things that we have to determine in our process,the impact that it's gonna have, the cost of eradication operation. And then a lot of times we move to a quarantine, not always, but sometimes we include quarantines.

Steven Long (26:44):

Now we've all lived through a quarantine. Everyone's lived through the covid quarantine. So folks are much more aware of it. But quarantines are something that, that plant pests, regulatory agencies, and others have used to protect people and the environment for hundreds of years. And it's something that, that our agency uses to assist with eradication efforts. So it helps us slow down the movement of a pest. That is the entire point of a quarantine is to make sure it doesn't move. So not to talk about the volatile topic of COVID, but that was the original idea, right? Whether it worked or not, the point of those quarantines was to make sure that a pest or virus doesn't move long distances, while we try to figure something out. So it works the same way with plant pests.

Steven Long (27:33):

We want to do everything we can to make sure this pest stays right where it is now, and that hopefully we can begin eradication efforts. So that's, that's what we do. And then hopefully we're successful and

we do have lots of success stories in our history. One of the most successful for South Carolina is the Boll Weevil quarantine and eradication program. You know, folks that were around in the sixties, seventies and eighties in South Carolina would know that Boll Weevil is a major pest of cotton, absolutely destroys cotton crops and was costing billions of dollars in damage and lost crops to our farmers. And cotton still remains one of our top commodities produced in the United States , one of our top exports as well. So very economically important crop to the U.S.. And again, the boll weevil was causing billions of dollars of damage annually.

Steven Long (28:26):

And it was one that through an eradication program, we were able to beat back and eradicate from South Carolina. And we've actually been able to declare eradication in all states but one. So this was once a pest that was prevalent throughout the southeast United States, essentially everywhere cotton was grown. And we've able to beat it back to the southern tip of Texas. And I would say the only reason Texas hasn't been successful in eradicating it from there is that Mexico has quite an infestation still of Boll Weevil, and they continue to have incursions across the border there. Now we do work with our counterparts in Mexico. I say we, that's primarily USDA, United States Department of Agriculture, to assist with eradication efforts there in Mexico. But it's one that we can say, at least for South Carolina, we were successful, we got out of here. So quarantines work eradication programs work, and, and we're proud of that.

Jonathan (29:18):

So you mentioned before some partnerships. What are some state and federal agencies that we work with in this fight? I know it's not us alone, and it's a huge fight, so we have to collaborate.

Steven Long (29:30):

That's a great question. And yeah, I just wanna reemphasize, as great as I think the Clemson regulatory agency is in our department of plant industry. We don't do it alone. We absolutely have help from a lot of agencies here in South Carolina,and folks that I consider friends and great partners. You know, I'll list a few of those that I specifically work very closely within a lot of these situations. And that's our South Carolina Department of Agriculture, South Carolina's Department of Natural Resources, the South Carolina Forestry Commission, Clemson Extension. A lot of folks think of all of Clemson as being the same, but we're not. We have Clemson Regulatory and Clemson Extension. So the help we get from Clemson Extension is very important to the work that we do. And there are other state agencies that we work with, you know,D epartment of Transportation, there's several others.

Steven Long (30:15):

And then of course, there's numerous industry and crop-based organizations that aren't agencies themselves, but, you know, a lot of times the industries that are affected are willing to come to the table and be the first folks to ask, how can we help? And what can we do to help make sure a pest, that it's impact is limited here in our state or eradicated, You know, having their buy-in a lot of times is the most prominent reason that we're able to be successful in our eradication or quarantine operations. And then, you know, going beyond that, looking beyond just the state level, one of our primary partners is USDA. So again, United States Department of Agriculture, but they have, they have various programs. Two of the, the ones we work closely with are Plant Protection and Quarantine, and Customs and Border Protection, Plant Protection and Quarantine fund a lot of our survey programs.

Steven Long (31:05):

So while we have staff that are out there looking for pests every day certainly the work that they do wouldn't be possible without the funding that USDA's Plant Protection and Quarantine Agency provides. But that's not where we get all of our funding from. Of course, we get the great majority of our funding from our State Legislature and through South Carolinians tax dollars that support all state agencies, but certainly ours is no exception. I mentioned CBP, that's our Customs and Border Protection. They're protecting our ports. So there, again, they're making sure that things that are coming in ships and the containers on those ships that they're being inspected targeted appropriately. They do some really interesting operations there. They invite us along a lot of times to inspect cargo to see how they do it, to even go on the ships. The amount of detail that those folks use in their inspections is incredible, and they really are protecting our ports. And it's surprising that anything ever gets through. Occasionally it does, but it's not through lack of effort and the work that they do. So they're great partners as well.

Jonathan (32:06):

As you mentioned, state and federal agencies are fighting hard, but they can't be everywhere at once. What can citizens do to help in the fight against invasive plants and insects?

Steven Long (32:18):

Stay vigilant. Be curious. Don't be afraid to make a report. You know,I've mentioned throughout the day today how important all of our collaborators and cooperators are. We don't find all these things on our own. You know, our agency is great, but we're small. You know, we're a small state. We actually have a lot of staff for the size of our state compared toother states. But still, it's not enough. You know, we would need thousands, and we don't have anywhere near that to adequately protect our state with no help from the public. So we do ask the public to stay vigilant, be curious, make reports. Don't be afraid of being wrong. You know, I mentioned Asian Longhorn Beetle today being discovered in Charleston. That was reported by a concerned citizen. If that lady had not made the report that she made in May of 2020 where she saw a black bug with white spots that she thought she had never seen before, then that pest may still be down in Charleston, spreading uncontrolled unbeknownst to our program and causing millions of dollars in damage and then exponential dollars, because the longer a detection goes unknown, of course, the, the more expensive the eradication becomes.

Steven Long (33:29):

So, yeah, she saw it. She actually showed the picture of the insect to her son when she had caught one. And lucky for us, her son had gone to school at Cornell, and he was taught in school about Asian Longhorn Beetle. And he remembered it, and he advised her something that he had been taught was to notify your state plant regulatory agency. And they immediately knew in South Carolina that that was Clemson. So they called us up, and then of course, we rolled out and we found that infestation to be accurate. But, you know, if she had thought for a moment that, well, it's probably just a regular bug, maybe it's just a Pine Sawyer because that is a native lookalike that we have, or maybe it's a cottonwood boar. If she had had that thought and overrun that idea of being wrong, overrun her, her curiousness then we might not know.

Steven Long (34:19):

We can be contacted easily. You know, our emails can be found all over the web. We actually also have various reporting tools that are specific to some of those pests that we've talked about today. We have a Spotted Lantern fFy reporting tool. We have a Cogongrass reporting tool and several others where

folks can specifically upload photos or leave details about something that they think looks odd. But we just beg people don't worry about being wrong. We're happy to look at it, because the amount of time and money that can be saved, if you're right, is worth the amount of time we spend vetting something that if you, if you did happen to be wrong.

Jonathan (34:53):

Steven, this has been a great conversation. I've learned so much about invasives. I thank you very much for coming on today and talking to us.

Steven Long (35:02):

Absolutely, Jonathan. I really appreciate the time. I hope our, your folks have learned something today about the work that we do. And then of course, more importantly, that the message they walk away with is they can help. Andplease be on the lookout, be vigilant, see what's out there. And if you see something that looks odd, be curious and let us know about it.

Outro (35:26):

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