

# Invasive Species

Tue, Dec 20, 2022 4:51PM 21:28

## SUMMARY KEYWORDS

invasive species, forest, iowa, exotic, honeysuckle, bush honeysuckle, bats, species, plant, acreage, invasive plants, eastern red cedar, grazing, control, adam, exotic species, called, invasive, native species, native plants

## SPEAKERS

Iowa State University Extension and Outreach, Christa Hartsook, Adam Janke

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### **C** Christa Hartsook 00:15

Hello, and welcome to the small farms podcast, a production of the small farms program at Iowa State University Extension and Outreach. Our podcast covers the opportunities and challenges associated with rural life. In this episode I visit with Adam Janke extension wildlife specialists for Iowa State University Extension and Outreach. Today we are talking about invasive species. I'm Christa Hartsook, small farms program coordinator, and we hope you enjoy the show. Adam, welcome back. It's always great to have you.

### **A** Adam Janke 00:46

Yeah, thanks for having me.

### **C** Christa Hartsook 00:48

Alright, so when we talk about invasive species, what does that label really mean?

### **A** Adam Janke 00:53

Yeah, so invasive species is sort of a subjective term, but it's a species and this can be a plant, an animal, a fungal pathogen can be a lot of different things that is having sort of disproportionate negative impact on a community like a forest community or an aquatic ecosystem or something like that. So they essentially are things that are getting overly abundant and mainly because of conditions that humans tend to create. So, the most common invasive species, we tend to think of invasive species as exotic species as well. And that's certainly true, though, it's important to note that not all exotic species are invasive, and not all invasive species are exotic species.

C

Christa Hartsook 01:39

Sure. So if we really talk in generalities, then Adam and we're talking about some very common invasive species to Iowa, what would we be looking at?

A

Adam Janke 01:49

Yeah, so for me, I tend to think of the most conspicuous invasive species tend to be plants. And I can give two examples of common invasive species. One's a native and one's an exotic, the exotic one is my number one most wanted plant in Iowa, and that's bush honeysuckle. Which is an exotic species of woody shrub that's found in Iowa's woodlands it actually the unfortunate story about bush honeysuckle is that well intended wildlife biologists like me one day thought that if our native shrubs like dogwoods and coral berry and elderberry and all the others, produce a few berries and wildlife like them, then I bet an exotic shrub that produces a ton of berries would be better for wildlife. Well, the wildlife did eat them. And then the wildlife bred them all across our countryside through their poop. And now we have exotic honeysuckles all over the place. What makes exotic honeysuckle a problem is really on display this time of year in the spring. If you look in the forest right now, and for a few weeks, in April and early May, you'll see that exotic honeysuckles leaf out before almost anything else, particularly any of the woody plants. And then I always say if your forest understory is still green in November, it's because the exotic honeysuckle is there and has invaded your forests. And it's still photosynthesizing way later than any of our other plants. And so it creates a shading effect and it just take over in forest communities. The other challenges with exotic invasive species is nothing wants to eat them really I mentioned the birds like the fruits but birds aren't particularly discriminating with fruit consumption. But no insects want to eat exotic honeysuckle, deer don't even want to eat exotic honeysuckle. And so nothing really controls it very well. And so this species that evolved in a similar environment to Iowa just in Asia, has been taken a world away from where it evolved in it doesn't have any of its natural predators, and it just thrives in our environment and can out compete all of our native species. And so then we have a forest that just gets overrun. And that's why exotic bush honeysuckle is invasive exotic species. A native invasive species is something like Eastern Red Cedar. So eastern red cedar as a wildlife biologist is a great tree one it's beautiful, the bright blue berries in the right place. I think eastern red cedars is a really pretty tree wildlife of course love the berries, a few eastern red cedars in a grassland or in a forest can provide some really nice winter cover and some nesting places and things like that. But all things in moderation. Eastern Red Cedar is really good at invading areas, particularly like grassland environments, so like pastures and CRP fields, and so we can see eastern red cedar then although is a native species can become invasive because it just takes over it gets too aggressive. And all of a sudden you can have what was once a pasture can just be completely overrun by a carpet of of eastern red cedar. And here we have a native species that's completely changed the structure and function of an ecosystem and therefore become an invasive species.

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Christa Hartsook 05:09

Sure, that makes total sense. And we talked a little bit about this with the honeysuckle in particular and this time of year really being able to see that leafing out already is spring, generally a good time to kind of do some ID out there of what we have.

A

Adam Janke 05:23

Yeah, it's a pretty good time to do some surveillance on invasive species. You'll see many invasive species do the same thing that honeysuckle does they leaf out early, or they can be really aggressive garlic mustard is another good example, garlic mustard here will shoot up really quickly in the spring, put a flower on and produce a seed before a lot of other species do. Now, of course, we have plants that evolved to take advantage of this early sunlight, the sunlight that occurs in a forest before all that canopy trees, grow their own leaves and shade out the forest floor. And so lots of native species, of course bloom at the same time. But honeysuckle and European buckthorn and some others garlic mustard. Springtime is a real good time to spot it.

C

Christa Hartsook 06:11

So let's say Adam, we wanted to do a little bit of scouting and kind of some surveillance of what we might potentially have out there. Is there some kind of app or something that I could put on my phone that could let me know what exactly I'm looking at?

A

Adam Janke 06:23

Yeah, that's a great question, you definitely want to train your eye to invasive species, especially if you're managing an acreage or a forest. If you can train your eye to these a couple of problematic invasive species, then you can know where you need to take action to try to prevent their spread and from taking over. And so the best app for plant identification is Inaturalist, okay, that's the letter I like iPhone in the naturalist. And this is a really neat application that you can put on your phone. And you can take a picture of leaves or of flowers, and it will use your location, and then some fancy computer algorithms to say based on your location, and what this is a picture of, it's most likely to be these couple of species and colleagues here at Iowa State that I know have tested this out for a lot of applications, annual weeds and crop fields or native prairie plants and pollinator plantings and forest trees and shrubs as well. And we find it's pretty accurate. So that's a pretty good thing to use. If you're just starting from scratch, on our website, the natural resources Extension website, we also have a tree key. And that can help identify some of the woody, particularly bigger woody plants in Iowa, but it doesn't necessarily get you a lot of the herbaceous plants. And then yeah, there's some good field guides, there's one called invasive plants of the Upper Midwest, there's a lot of different field guides, you can use many of them, though not all, will feature exotic and invasive species.

C

Christa Hartsook 07:57

Good to know, Adam, you talked a little bit about you know how this could be spread of animals are consuming berries, and then obviously walking around and spreading their own manure. But how else could these invasive species really be spreading?

A

Adam Janke 08:11

That's a great question. There's a couple of things I'd like to touch on there. Invasive species move a lot of ways. And remember, invasive species can be more than just plants. I've had a very plant bias so far. So now I'm going to try to shed that bias and talk about some other examples about why things move. So of course, birds move things birds move, particularly but there's an invasive species of fungus called Well, I'm not even going to try to say the scientific name. We abbreviate it PD in this fungus causes white nose syndrome in bats. And this fungus was native to Eurasia, and then somehow got to the United States, what we actually think is a bat probably spread in a bag got stuck in a shipping container, somewhere in Eurasia, and probably in Europe, shipped over to the United States flew out of that shipping container when they got released here on accident, and were carrying this fungus, and then the bats themselves actually spread it to one another. And it's caused major declines in bat populations over 90% declines in some species of hibernating bats right here in the Midwest in just the matter of a decade or less. Yeah, so one, just, you know, organisms can move stuff. The other thing humans move a lot of things intentionally or otherwise. So I imagine you're familiar with the emerald ash borer.

C

Christa Hartsook 09:31

Yes.

A

Adam Janke 09:32

This is a exotic invasive beetle, that the primary way that we think it moved was with firewood people, you know, of course, were well intending and wanted to save money or time when they got to a campsite. And so they would just bring firewood with them not knowing that, in that firewood were the larvae of this really lethal beetle that could completely change the complexion of Midwestern forests and forests across the United States by killing all the mature ash trees. So people accidentally can move things around as well. And then a lot of other ways that people move things. If you ever hear about things in the Great Lakes, ballast water is a real problem. So again ships well intending enough, pick up a bunch of water out in some different ecosystem and then dump it in the next ecosystem when they load up. On a smaller scale here in Iowa, we have issues with aquatic invasive species that move not in ballast water, but they move in water in boats like that isn't drained or maybe attached to a boat trailer or a boat propeller. It can be moved between lakes in between river systems, and then people could introduce them. So the last way would be some examples of invasive plants actually originated in landscapes. So Japanese barbarian is an example of that Japanese Barbary is really easy to grow, it grows everywhere, in terms of in landscapes, and it's very common, and that's fine. But of course, the birds ignore landscape boundaries and take those seeds and can deposit them in natural areas. And so by choosing to plant exotic species, we increase the risk of the next introduction of an invasive species that can hurt our forest and grassland and aquatic environments.

C

Christa Hartsook 11:16

Yep. Adam, you just talked a little bit about what happens or what the potential could be. But I'm assuming really just the overall impact could really be astronomical in terms of the spread of invasive species.

A

Adam Janke 11:29

Yeah, it sure could be. And we've seen that and actually, we've seen that in multiple ways. One, like the white nose example. Yeah, those are really abundant species of bats, little brown bats, northern long eared bats that have seen these massive population declines in just a period of just a few years. In fact, the northern longear bat was, by all accounts, a really healthy population in 2000. While 2006 was when white nose syndrome was discovered in New York last year that was doing just fine. Today, it's on the endangered species list, the U.S. Fish and Wildlife Service. I mean, it's a remarkable change that, can happen. Many people will remember the play of Elm disease, maybe some of the older listeners will remember that there was a period where Elms define our Midwestern neighborhoods, big, beautiful elm trees. And those were, of course wiped out by an invasive species fungus that caused dutch elm disease, the Eastern American chestnut was wiped out by chestnut blight. I mean, these invasive species can really drastically transform communities and have and so there's a lot of work put into anticipating and addressing the issues and the conditions that create ideal conditions for an invasive species to take off, things like not moving nursery stock on a large scale, or not moving animals on a large scale and choosing native plants over exotic plants. And then of course, just sanitation. So if you move your boat from one water body to the next, it's really important to let it dry out and to clean it as much as you can. If you are into spelunking, and you go into caves, then to protect the bats, it's really important to make sure that you use a bleach solution to clean your boots and to clean any of the gear that you use when you're inside of a cave to try to minimize the role that people are playing and moving these things around. And get your firewood locally. That's a big one.

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Christa Hartsook 13:24

There you go. Adam, talk to me a little bit about control methods. And we already ID this plant we know we have it, what do we need to do to control

A

Adam Janke 13:32

Once we've established that there's an infestation first, we want to try to avoid any introductions onto our land. So firewood and all you know, buy native plants, local plants, all that stuff. If we have it established on our property, then how we can go about controlling every invasive species is going to be different for each species. And I can just offer two contrasting examples, the one bush honeysuckle that I mentioned, it's pretty effective to control that by cutting it and then treating the stumps later in the year when nutrients are going back down into the roots. So you can cut them and then use that herbicide on the surface of the cut stump. And then make sure to follow up in future years and make sure you got them all but that can be a pretty effective strategy for controlling honeysuckle there's another invasive species called Tree of Heaven or the scientific name that I use for it is ailanthus. And the best way to control ailanthus is to never cut it. What we say about ailanthus is if you cut one down 1000 come to its funeral. They all come back and that's called route suckering. It's an adaptation to response to any disturbances above the ground. It's pretty good strategy if ya got me down. I'm just going to come back with vengeance. And so we never want to cut ailanthus we don't want to burn it. We don't want to cut it we we never want on what we call Top killer. And so the way the best way to control ailanthus is what we call a basal bark application. So when nutrient

hands are moving back down in the tree into the ground during the late summer like August and later, we want to hit it with a herbicide that can penetrate the bark and move down into the root system with all the nutrients that the trees transporting down and then that can kill it and the tree never knew it was not taught to so won't have that suckering behavior. So you do want to sort of exercise care and each the control of each one of these invasive species, because they all can be a little bit different. And district foresters with the Iowa Department of Natural Resources or private lands, wildlife biologists can be really good resources to help you with that.

C

Christa Hartsook 15:37

So that makes sense, then that there would be different control measures, obviously for different species. Talk to me a little bit, I'm sure there are things like manual control. You talked a little bit about some chemical type control measures, are there things that we could control manually or that we can do manually?

A

Adam Janke 15:54

Yeah, there are some species particularly that respond well to pulling, you know, small infestations of garlic mustard with some persistence, you can pull those early in the year in the springtime when they're bolting before they put a seed on, put them in a trash bag and put them in a landfill or burn them in a big pile. That's a good strategy for pulling actually, honeysuckle has a really shallow root system. And so young stems of honeysuckle, it's much better to pull those than it is to cut and treat them. Another strategy is grazing. And I know many of your listeners probably have a diversity of grazing animals, goats are increasingly being used to control invasive woody plants like European buckthorn and bush honeysuckle. And that's an exciting development that we think you know, you can get some forage and get some invasive species control. And then for invasive species, herbaceous species, like exotic cool season grasses and reed canary grass, cattle and sheep have both been effective, if you time your grazing to when those problematic species are growing, so that the animals will eat them, and then also give the native plants a chance to rebound after the grazing.

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Christa Hartsook 17:03

That makes sense, Adam, I've also heard of people utilizing prescribed fire burns, and things like that, is that also an effective measure?

A

Adam Janke 17:12

Yep. And again, it just depends on the species that you're trying to control. In a lot of these you bring up a good point is multiple methods work and often times multiple methods need to be used in concert to get the most control. So for example, I know that the strategy many people are using with woody plants like European buckthorn are hit it with goat grazing, we know that all the stumps will re sprout after the goats have grazed them down, and then come in there

after the goat grazing in use of prescribed fire to try to kill off whatever energy that plant had left after being grazed down combined goat grazing and prescribed fire. And you can see the best control in a forest or oak savanna.

**C** Christa Hartsook 17:55

Sure, but what I'm really hearing from you is we need to kind of utilize that ID pretty early on to determine what we have. And then that in fact determines our control measures.

**A** Adam Janke 18:05

Exactly. You want to determine the extent of the infestation and what options are available. And then there is it's also probably worth mentioning, there's oftentimes cost share available to help land and acreage owners do these kinds of things with, for example, the Environmental Quality Incentives Program through NRCS, or technical service available available through NRCS or the Iowa Department of Natural Resources.

**C** Christa Hartsook 18:30

Okay, Adam are there other places where we should go for more information, we talked a little bit about our partners the DNR

**A** Adam Janke 18:36

the DNR has some great resources on invasive species, and a quick Google search would turn those up. There's also a nice group, even with their own phone app called the Midwest invasive plant network. They have a phone app that will show you problematic invasive species and then give you alternatives native species you could use in your landscaping. So Midwest invasive plant network is a good resource. And then I'll plug our website and at [naturalresources.extension.iastate.edu](http://naturalresources.extension.iastate.edu). And we actually have a whole new page, I think if you type that web address, and then put slash invasives. We have a whole new web resource there with a bunch of information about individual invasive species, best control practices, where to learn more, and things like that. So you could start there. Also, while you're on that website, you could find contact information for district foresters, and private lands, wildlife biologist and others to help you get started on your acre.

**C** Christa Hartsook 19:34

And I was thinking if I remember right, you have some videos on that page too.

**A** Adam Janke 19:37

Yeah, so many of these invasive plants we created a print summary of their identification and control and then for a bunch of the most problematic or most common ones in Iowa. We also

have YouTube videos that just go through the basics that sort of the bullet points about how to identify them, what impact they have on plant communities and how to control them and those are like one minute or two minute videos just real short sort of overviews with lots of nice pictures know what we're talking about

**C** Christa Hartsook 20:04

perfect. Adam, what else do we need to cover to talk about invasive species?

**A** Adam Janke 20:08

I would say there's a risk and getting sort of overwhelmed and this kind of stuff. I think there's lots of exotic species out there. And there's lots of advice in terms of best practices and things. I would say, just start to learn some of these things, learn what's going on in your forest, or in your prairie or anywhere around your home or acreage start to identify some of these areas and particularly address maybe the hotspots like where invasions are just starting, and maybe you get control over it. So if you learn how to identify garlic mustard, and then you see the first couple of stems on your acreage, prioritize that before you try to rid the whole forest of exotic honeysuckle, but it's doable and I have been on a lot of acreage is in Iowa and elsewhere in the Midwest that just commit to trying to address issues of invasive species and the native plants and wildlife really respond well and that can be kind of an enriching experience to have all that native biological diversity on your land.

**C** Christa Hartsook 21:07

Awesome. Adam, thanks so much for being on.

**A** Adam Janke 21:09

Yeah, thanks for having me.

**I** Iowa State University Extension and Outreach 21:11

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