Episode 6: Riparian Forests and Bird Population

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SPEAKERS

Liz Woodhull, Alison Adams, Margaret Fowle, Allan Strong

A **Alison Adams** 00:06

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

L **Liz Woodhull** 00:24

And I'm Liz Woodhull, a junior at UVM's Rubenstein School of the Environment and Natural Resources studying environmental studies and minoring in geography and English.

A **Alison Adams** 00:43

In addition to helping to improve water quality restored riparian areas or areas adjacent to streams and rivers can provide important habitat for a wide variety of birds. Today we discussed the intersections between bird populations and riparian restoration with Margaret Fowle and Alan strong. Margaret is a senior conservation biologist with Audubon Vermont. She works on a variety of bird conservation projects that range from single species recovery and monitoring projects to habitat restoration on public and private lands. Alan is a professor in the Wildlife Biology Program in the Rubenstein School of Environment and Natural Resources at UVM and his research focuses on bird conservation. He currently serves as the chair of Vermont's endangered species committee. Welcome to the podcast, Margaret and Alan.

M **Margaret Fowle** 01:24

Thanks, Allison. Thanks for having us.

A Allan Strong 01:26

Thanks, Alison.

A Alison Adams 01:27

So just to start, we'd love to hear a little about how each of you became interested in birds.

M Margaret Fowle 01:32

Go ahead Al.

A Allan Strong 01:33

Yeah, thanks. It's kind of funny, I come from a birding family. My grandmother was really interested in birds. And so were my parents. Although sometimes, when your parents are really interested in something, it's not necessarily the direction you want to go. So actually, for me, it was Boy Scouts when I really got interested in birds and a Scoutmaster and his son were really close friends of mine and having someone my own age to go birding with really, really made a difference for me.

02:00

Well, so I didn't have quite a direct line to birds that Allan had. I grew up in New York City, and I really cared about wildlife. And so I would do things like call the ASPCA when I saw an injured pigeon, or in the summertime, I was with my grandparents I saw an injured gull, one year, I collected it and tried to save it. So as I was trying to save things that were hurt, and that kind of led me after a long and winding road to an internship with the Vermont Institute of Natural Science where I took care of injured raptors. And that really got me into the bird world, which then sent me on my way to graduate research at UVM and a couple of other jobs post graduate school to where I am now working with birds.

A Alison Adams 02:41

Great, thanks.

L Liz Woodhull 02:42

What are some of the birds found in riparian areas in this region? And Do either of you guys have a favorite?

M Margaret Fowle 02:48

I'll go for sure. I mean, there's a long list. It really depends on where the riparian area is - next

to upland forest or next to an open field. A lot of variety of birds that use riparian zones. So you know, a bald eagle using the trees in a forested riparian zone right next to a river to maybe a smaller bird like Louisiana waterthrush, using the banks of a river for its Nests, so there's quite a bit of variety. I think one of my favorite birds that uses riparian areas, but there's actually a lot of them out there, is the American Woodcock, and that riparian area is just sort of part of what it uses in its lifecycle. It uses open habitats, uses young forest, but also uses riparian areas. And I just, I like them because they're kind of fun to watch. And I love being surprised by them when I flushed them walking in the woods.

A Alison Adams 03:39

Can you say a little more about that? Like, is there a particular part of their lifecycle or activities that they do in riparian areas? And also can you tell our listeners who might not be as familiar with birds a little bit about Woodcocks like what is flushing them mean? Tell us more about that?

M Margaret Fowle 03:52

Sure. So American Woodcock is a type of Sandpiper. So they're in the Sandpiper family, even though typically sandpipers are birds that you would see in coastal areas where you see them feeding on a shoreline, say, at the beach on Massachusetts or something like that. But American Woodcock is kind of more of an interior Sandpiper and they feed mostly on worms. So they have this long bill that's got a soft tip to the end so they can dig into the dirt and get their food. And they are also a game species, so people actually hunt, their populations are on the decline. And they're pretty specific in their habitat needs. So they need open areas for displaying or in the springtime, the males do these cool displays where they'll do this little peeting sound from the ground and then they'll do these flight and aerial displays to attract a female, so they need open habitats for that. They need kind of wet habitats for finding their food, they nest on the ground and so they need the young forest for building the nest on the ground and they're very well camouflaged. And they tend to just sort of sit on the ground and hide unless you walk up too close to them. So flashing them means just poof, they fly out in the air. And they surprise you, because they've been hunkering down to the very last minute hoping that you won't see them.

A Alison Adams 05:05

That sounds like a fun display if you don't expect that they're there and then suddenly you walk through and then they come out. Yeah, that sounds fun.

A Allan Strong 05:12

I was gonna add, you know, there's a number of species that have kind of, you know, different relationships. Margaret hinted at this with riparian areas. So, there's a lot of songbirds that will use those kind of wet forests, Yellow-throated vireo, Veerys, Blue-gray gnatcatchers, Red shouldered hawks, but you've got a lot of species that actually kind of need these combination. Bank Swallows, and belted kingfishers will make their nest on the edge of the soft banks, but

then will use the rivers themselves or the lakes or the streams to actually do their foraging and some of the species like wood ducks, you know, will need cavities in the forested area, but then will actually do their feeding in the aquatic zone. So lots of interesting relationships in terms of the diversity of habitats these species need

L Liz Woodhull 05:57

And are any of these species that are found in riparian areas endangered?

M Margaret Fowle 06:02

Well, so yes. Bald eagle is still listed as endangered in Vermont. They are proposed to be taken off the state endangered list. They're no longer a federally endangered species, but they build their nests in riparian forests in the trees along rivers and the edges of lakes. So that's one, there are a couple of others. And Al you can add to it that use forage mostly either near or next to riparian areas. I'm thinking of common Nighthawk and Whip-poor-will, they're both insect eaters, and they tend to eat things, flying insects, obviously, a lot of insects hatch in the waterways. And so when they're hatched, and they're above the water, a lot of the birds will fly over and forage for those insects. So those are two listed species that we have in the state. There's lots of species that we're kind of keeping an eye on, and maybe Al you want to add to that.

A Allan Strong 06:51

Yeah, so Vermont has a what's called a wildlife action plan. And through that wildlife action plan, we have a number of what we call species of greatest conservation needs. So the Great blue heron, American Black Duck and Red-shouldered hawk are three species that are listed by the state as species of greatest conservation need. And then, as Margaret mentioned, we've got other species whose populations are on the decline, but they're not necessarily listed. So Bank Swallow and Veery would be two species that are showing, you know, continental population declines, and although they're not listed here, are really dependent on those riparian forests and riparian habitats.

A Alison Adams 07:28

And I'm sure it varies from species to species. But can you describe some of the reasons that those species, you know why their populations are declining? Or why they're of conservation concern?

A Allan Strong 07:39

Yeah, it really does vary. So Bank Swallow, and a couple others that Margaret listed earlier common Nighthawk and EasternWhip-poor-will, those are species that we call aerial insectivores. So they are actually getting all of their food on the wing catching insects out of the air. And, you know, as best we can tell, there's probably a lot of reasons for the decline. But

insect populations have declined really dramatically continent wide. There's been some suggestions, there's been like a 75% decline in insect abundance with some research that's been done on historical databases. But other ones, you know, just generally, wetland loss has been problematic for some species, like the bald eagle, pesticides, definitely a problem and others, you know, potentially more specific American black duck has been affected by Mallard populations and interbreeding with Mallards. And that's been one of the causes of decline for that particular species.

M Margaret Fowle 08:33

And I'll just add that, you know, one thing we don't know quite yet the impacts of climate change and climate change may be contributing to the declines of a lot of these species. Especially as sort of the hatching of insects gets out of sync with maybe the migration patterns of some of these birds. And so that could be a factor for a lot of them. And also a lot of them spend the winter in Central and South America and the habitat issues down there may also be affecting their populations, as well as maybe their stopover or their you know, places they go through on their way to and from their wintering breeding grounds.

L Liz Woodhull 09:08

How can restoration practitioners design riparian areas to best support bird communities?

A Allan Strong 09:14

I mean, that's a really great question. And I think that some of the best ways to support bird populations are really just kind of to some degree understanding exactly what your goals are in terms of restoration. So you know, some of the issues that often come up in restoration are what are going to be the effects of some of the herbivores. So what are the effects of beavers? What are the effects of Whitetail Deer and how might those affect some of your restoration strategies? And you know, kind of knowing is, you know, what's more important, are you really trying to manage for affecting hydrology? Or affecting nutrient runoff, thinking about, you know, issues with respect to phosphorus in the Champlain Valley and so thinking through some of those strategies, larger picture. But I think for birds really thinking about diversity in terms of the particular trees, you might be favoring, thinking about ways that you can be resilient for climate change, not just temperature, but also the effect of more extreme flooding events. And so thinking through which species may do better when you have some of these extreme weather events, and how they can also at the same time provide structure for cover or food production for birds.

M Margaret Fowle 10:27

A lot of times, like Al said, diversity is key and thinking about how the plants or if you're going to do a planting project or something like that, thinking about diversity in a lot of different ways is important. So structural diversity you want like different trees and shrubs and things mixed in. So you've got all different levels of the forest, providing cover and food resources. You might want to think about bloom times of some of the trees or shrubs so that you've got insects being

supported throughout the year, especially for a lot of these birds that eat insects, it's really important that there are insects from the earliest part of the season through the latest part of the growing season in Vermont, which is not very long. So it's pretty key to have things hatching throughout the season. And then like Al said, just being resilient to flooding and choosing species that tolerate flooding, as well as you know, just being wet, having the roots wet for periods of time. All of that can be a component and also just thinking about what is adjacent to your area of riparian restoration. So is it upland forest? Is it an open field? You know, taking into consideration kind of the transition between the riparian zone and the habitats next to it are also things to think about, especially from the bird perspective, just because there's so many birds and there's so many specializing different habitat types.

A **Alison Adams** 11:48

Can you elaborate a little on why thinking about what's adjacent to the riparian area is important? Like maybe specifically, how would you do something different if it was adjacent to a wooded area versus an open field or something like that?

M **Margaret Fowle** 12:00

Yeah, sure. So say we're adjacent to an open area, if I were planting a riparian zone and thinking about the birds that might be using the area next to that I might not focus so much on creating riparian forest, might create more of a riparian shrubland, just to kind of not have it be this hard transition between open and forest to have some kind of soft transition like birds that are in open areas might use a shrubland more readily than, say, just a forested area, vice versa, if there's forested area nearby, then I'd want my riparian zone to really mimic the forest next to it so that it's a continuation of the habitat rather than like a transition zone.

A **Allan Strong** 12:43

I would also say, you know, beaver are really important consideration as well. So oftentimes, especially riparian forests are going to be near emergent wetlands and areas that are going to be providing beaver habitat. So really thinking, you know, as Margaret said earlier, thinking about those tree and shrub species that are really tolerant to flooding for at least a particular length of time is really important, especially if there's significant viewer activity.

L **Liz Woodhull** 13:09

And how do these design strategies vary between different bird species?

M **Margaret Fowle** 13:13

We're kind of in the process of determining sort of the best strategy for different species. There's not a ton of information on which strategies will benefit which species, so we're kind of using what we know about each species to design the project. So it really depends on what

species we might be focusing on. For in the Champlain Valley, we might focus on a different suite of species, then we might say if we were up in the foothills of the Green Mountains, so a lot of it depends on what those species habitat needs are and what part of the state we're in.

A Alison Adams 13:47

So if riparian forest restoration practitioners, if they were restoring riparian area, but were really thinking about bird diversity on top of that, and wanted to consider that, what would you recommend they they do?

A Allan Strong 14:00

Well, I think it does, in a lot of ways get back to some of the things that we mentioned earlier. So tree species diversity, horizontal and, you know, kind of vertical diversity in the forest. You know, one of the things we haven't really talked that much about, but I think is important characteristic of riparian forests across Vermont is we have a pretty fragmented landscape. And so these riparian forests, oftentimes are really important corridors for wildlife. And so thinking about connectivity as one really important piece of the puzzle, thinking about how you can use those riparian areas to connect different patches of forest and you know again, although some of these species aren't necessarily ones that are endangered or threatened. A lot of these species are somewhat specialists, the the Vireo's and the G natcatchers and Veery's are species that really are pretty much found in these, you know, these wetter lowland forests. And so thinking about some of the, you know, habitat structure that might support them, I think would be important in planning a restoration project.

M Margaret Fowle 15:10

Yeah, Al just mentioned some species that are specialists. They're also relatively common. But not only are we focusing our efforts on species that might be endangered or considered special concern, we also want to do work that ensures that these species stay common. So there's sort of the two sides to what we're trying to do, ensure we've got habitat for the species that are doing well in Vermont, but also provide habitat for the species that need extra help.

L Liz Woodhull 15:41

Two recent episodes on the podcast covered Emerald Ash Borer and Dutch elm disease. We were wondering how has the loss of important tree species from riparian areas affected bird species?

A Allan Strong 15:54

I mean, you can think about the direct and indirect effects on birds. And so I think in terms of the direct effects, most folks have really been focusing on the species that actually eat either the insect or their larvae. And so those, you know, those bark cleaners, like the White-breasted Nuthatch or some of the Woodpeckers that are actually drilling into the trees themselves.

There's been some reasonably good evidence that their populations have either moved into areas or they've changed their foraging to feed on Emerald Ash Borer larvae. I think probably, more importantly, what we're going to see longer term is indirect effects by the loss of the canopy, setting back succession. Again we, you know, as we mentioned earlier, corridors breaking up corridors. And so I think those indirect effects are probably going to be more severe over the long term, because we're just gonna, we're gonna see the canopy broken up, we're gonna see the structure of the habitat and structure, the forest change pretty dramatically. And so I think the indirect effects are going to be probably much greater than the direct effects for a lot of these bird species.

A Alison Adams 17:07

And Are either of you working on either research or projects that address intersections between riparian areas, or riparian restoration in bird populations? And if so, can you tell us a little bit about that work?

M Margaret Fowle 17:20

Not doing research, but Audubon Vermont has a number of projects where we're trying to both address riparian restoration and improving water quality. So you know, where, where there's the opportunity to restore riparian area, we're thinking about ways to design projects that benefits birds, and then hoping that as we do more and more projects, we'll be able to test and determine whether that type of design actually benefits water quality, because typically, we know that riparian restoration benefits water quality, but we don't really know if riparian restoration designed when thinking about birds directly affects water quality. So that's one thing Audubon is focusing on. And we're working with mostly private but some public landowners to do a lot of that restoration work. And you know, takes a while for a riparian zone to be restored. If you're going to do a planting especially it takes a number of years. So it takes a while to determine whether the plantings actually have an impact on the birds. And then again, whether those plantings have an impact on the water quality. So we're kind of in the process of watching this sort of new intersection at Audubon, between riparian restoration and water quality benefits as well as other benefits like carbon sequestration. So it's all somewhat new for Audubon. And I would just say stay tuned.

A Alison Adams 18:44

And I should say that question was a little bit planted because I've been involved in the thinking about some of that work, but for the benefit of our listeners to know what Audubon is up to and you guys have joint conservation fellow with Audubon, Vermont and Lake Champlain Sea Grant, which is the program that this podcast is housed under. Cassie Wolfanger, and she's working on a lot of those intersections directly, which is really cool. So as Margaret said, more to come in that area, I think soon.

M Margaret Fowle 19:08

Yeah.

L Liz Woodhull 19:09

And are there any incentives for farmers or landowners to restore bird habitat, whether riparian or otherwise, and if so, what are they?

M Margaret Fowle 19:18

Yeah, there are. There are a number of federal assistance programs to pay landowners to do some of this work, Natural Resources Conservation Service, which we also call NRCS has a number of programs their Environmental Quality Incentives Program as well as Wetland Reserve Program and landowners can apply for funding to help defray the costs of some of these restoration projects. There's also the US Fish and Wildlife Service Partners Program which pays for a lot of riparian restoration projects and that we've been pretty successful at Audubon using some of their funding to do a lot of plantings along riparian zones but also some other types of plantings like shrubland habitat restoration projects, or even not even plantings more like just enhancement projects.

A Allan Strong 20:05

I think those are really the key ones for riparian restoration.

A Alison Adams 20:10

And outside of direct habitat restoration, what are things that folks who care about birds, maybe aren't involved in it professionally, can do to help support bird populations, whether riparian bird populations or just bird populations in general in the area?

A Allan Strong 20:24

So, for a lot of folks who are just general birders are interested in birders, one of the tools that has really united birders and scientists has been eBird. And that's a way for citizen scientists or birders in general just to enter their bird sightings into a database to enable folks to really kind of keep track of bird populations. And it's, you know, I think a lot of people do go to a well known places to bird, Creek Wildlife Management Area, or Missisquoi, National Wildlife Refuge. But there's really an opportunity for you know, birders or folks who are just interested in birds to enter sightings from anywhere, and it'd be a great way to, you know, if you're doing a paddle down otter creek or something like that, to let people know what sort of birds you're seeing whether some of those riparian species. I think the other one is just, you know, also just general stewardship. You know, what do you do on your, you know, in your own property? Are you using pesticides or inorganic fertilizers and just think about the way that you treat your own land, I think can also be a really important way to support birds locally.

M Margaret Fowle 21:40

Yeah, I'll just add to some of what else Al said the backyard idea. There are a lot of resources out there to learn about how to plant native plants and supporting pollinators, as well as birds. And really think about ways that you can kind of minimize the amount of lawn you have and increase the amount of vegetation that you have that can support wildlife. Lots of resources out there. There are also a lot of sort of citizen science projects. There's the Great Backyard Bird Count that's coming up mid-February, there's a Climate Watch program, Christmas bird count that's already passed. But usually December, early January, people get out and count all the birds and a lot of these kind of long term monitoring projects, including eBird are giving scientists a lot of data in terms of trends and population trends. I know that Al and I are both on the scientific advisory group for birds, and we've been using eBird data to look at some of the population trends to determine whether or not a bird should be listed. So that's been really helpful to have people enter their sightings for some of the species like I'm thinking of recently listed, like the Eastern whip-poor-will, and Common Nighthawk, a lot of eBird data was helpful in determining whether or not those birds should be listed.

A Alison Adams 22:59

Great. Well, I think that's a good place to sort of close things for today. I did also want to mention, folks who listen to this podcast will know that we open every episode with a different bird sound, and neither one of us are birders. And so we actually sourced that list of birds that you can find in riparian areas in this region with the help from Allan and also Mark LaBarr, who's another Audubon Vermont employee. So, just wanting to say folks who appreciate that aspect of the podcast have these folks to thank and thank you guys for contributing to this episode. And in that way to all the other episodes as well, I really appreciate it. It adds a fun dimension to the podcast.

L Liz Woodhull 23:36

And I did have one last question for Allan. My best friend is a wildlife bio major and has taken a couple ornithology classes with you and said you do a pretty impeccable turkey call. That's quite funny. And I was wondering if you could show that for us on the Zoom. She said she did it with you on the team's meetings in the morning. Curious what it looked like?

A Allan Strong 24:02

Are we still live? Well, it's best with a little bit of audience participation. The first step is really, you want to kind of just loosen up your jaw a little bit, you know, just want to make sure you know, just kind of move your lower jaw back and forth. Just get it nice and loose. And then what's what's helpful then is just kind of relax your jaw muscles, hold your head down a little bit and then just kind of let your jaw almost just like kind of flap in the wind. And then if you and then just make a sound so this like a humming sound like almost watch your cheeks just kind of feel like they're flapping in the wind. And then you can sort of go right into the turkey gobble after that. Just raise the octave up quite a bit so like alright, on three everyone together. One, two, three

L Liz Woodhull 25:15

Thanks so much.

A Allan Strong 25:16

Any time.

A Alison Adams 25:18

All right. Well, if that's not the perfect place to end this today, I don't know. Thank you both so much for being with us.

A Allan Strong 25:25

Yeah, you're welcome.

A Alison Adams 25:37

Today's episode featured the call of the yellow throated Vireo. It was recorded by Martin St. Michelle on May 18 2014. In George Montgomery sanctuary in Quebec. We downloaded the song from Xenocanto.org. For more information on the topics covered in this episode, including links, images and more, visit the restoration roundup podcast tab of Lake Champlain sea grants watershed forestry Partnership website. This project has been funded wholly or in part by the United States Environmental Protection Agency, under an assistance agreement to nei WPCC in partnership with the Lake Champlain Basin program.