The Missouri State Journal, a weekly program keeping you in touch with Missouri State University.

Emily Doll

What's the first thing you notice when you look into a stream? The light reflecting off the surface, the trees overhead. Maybe your own reflection?

From Missouri State biology professor and stream ecologist Dr. Debra Finn. It's the bottom.

She's watching for what most of us might miss. Whether the water is clear or muddy. How fast it's moving and what's actually in the stream bed.

We sit down with Dr. Finn to talk about two upcoming projects. How they help determine what makes a healthy stream and what streams can tell us.

Dr. Debra Finn

What they can tell us about how those that like the broader ecosystem functioning. So things like how healthy is the system, how resilient to disturbances, things like that. So that's been my fascination in streams. But I initially got into streams because they're so cool. The way they look on a map, they branch, they look like lines

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Finn and her students study Stream health through a process called bio monitoring, using organisms living in the water to tell us how the stream is functioning.

Her lab recently received a one year grant from the City of Springfield Stormwater Quality Division for a project called the City of Springfield Urban Bio Assessment two.

Dr. Finn

So there is a massive diversity. So like one of the new grants I got from the city of Springfield is on urban streams. And Springfield, which a lot of people have probably seen because we have a lot of like bike trails, greenway trails along these streams.

Those are heavily urbanized streams, which means they get like runoff from the city, maybe road salts in the winter, like all sorts of things that aren't really so considered so great for the organisms living in the streams. Nonetheless, there's a lot of diversity even in these urban streams. We started working with the city of Springfield five years ago and did a project then and documented 75 species of invertebrate animals, like in just a couple of little spots along Jordan Creek and Wilson's Creek.

It's actually the same project we did five years ago. So it's a monitoring of trends through time. And I think it's going to be really powerful because there's a lot of changes going on in, Springfield streams right now, a lot of work going to try to restore various aspects of functioning stream systems and we'll do it again in like 4 or 5 years and we'll just look for trends through time to ideally you would like a signal that conditions are improving with, you know, efforts that, that the city's putting in to, to improve the streams

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The second grant takes Finn's lab beyond Springfield into the white River basin to study a freshwater snail known as the Arkansas Medallia.

The Arkansas Game and Fish Commission listed the project through its State Wildlife Grants Program. Because the species is rare and is only known from a limited set of streams in the white River system, mapping where is and what habitat conditions it's tied to can help guide future conservation decisions.

Dr. Finn

And if you don't find them, you don't find them. That's information to. Right. So that's that's what they really want to know. Like the basic the basic information that the program wants to know the funders is

Where are they?

How rare are they?

How much concern should we be having for this species? Like, are they on the verge of extinction and so if we go out on this systematic sampling and we find them in practically none of the spots, then the answer might be Yes - We need to take some serious action here because there's only like two known populations. And those are the kind of things that help the U.S. Fish and Wildlife Service make decisions on whether a species should be listed, like on the endangered species list, for example.

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Dr. Finn's work focuses on the parts of freshwater ecosystems most people never see, but that can tell us the most about stream health, biodiversity, and how our waterways respond to change. These projects also support students as they learn to do fieldwork and continue their education.

Dr. Finn

And we've just have like, so many cool projects come out of those two kinds of places.

And there's like so many future directions for those. So yeah, I like these grants that are asking these sort of simple or scientific questions because like, it allows me to bring in students and get them super psyched about like the next level of like nerdy questions in, in these other kinds of habitats and things like that,

and we go on a lot of field trips and I always like on the first field trip, you know, we'll slow down on a bridge and like, if there's a bridge over a stream, you'll slow down and sort of like peek at it to see how it's looking. And like I tell the students, like, you're going to become a stream ecologist.

And that's what stream ecologists do. They might cause an accident, but they slow down on the bridges and they, they like, look at the stream and you might notice something you never saw before, like a really cool caddis fly.

Emily Doll

I'm Emily Doll and this has been the Missouri State Journal. Thanks for listening.

For more information, contact the Office of Strategic Communication at (417) 836-6397. The Missouri State Journal is available online at ksmu.org.