

Dan Kane, Boone County Conservation District: Part 1

SUMMARY KEYWORDS

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Haley: Hello, and welcome to another episode of the Green Exploration: Rockford podcast! My name is Haley Dahl and today I will be meeting with Dan Kane from the Boone County Conservation District to discuss Rockford's environmental issues, and specifically exploring how the implementation of inclusive green infrastructure can offer viable solutions to these problems while discussing overarching sustainability throughout the region. ***Intro Music*** It's really nice to meet you. And I just wanted to thank you for your time and sharing your insight about your years in the environmental sustainability field. I'm here today with Dan Kane.

Dan: My name is Dan Kane, I'm the executive director with the Boone County Conservation District, been with Boone County Conservation District as the executive director since April of 2000. Prior to that, I worked for the Boone County Soil and Water Conservation District for about 15 years, and did more of a technical work in terms of addressing erosion, sediment control type issues, stormwater management, that kind of thing. So that's my background. I'm a geologist, I'm a licensed professional geologist. That's, that's my background, pretty much the perspective that I take. I also have an agricultural background, I grew up on a farm in central Wisconsin, kind of looking at your list of questions, you had asked about what was the motivation to get involved in environmental challenges and you framed it with respect to Rockford, but obviously, I'm not working directly in Rockford, so I will just kind of be more general in my answers to your list of questions, so as I go through these, I'll be taking that little bit more broad approach my answers. What is the motivational aspect for my getting involved, and it's several fold. Several factors provided motivation, inspiration and determination for getting involved in the field of conservation and environmental issues that can be addressed. First influence was my agricultural background, I grew up on a farm. Being raised on a small farm, my parents and grandparents treated the land and the natural resources that were tied to that land in

certain ways. And that, of course, influenced my initial thinking. Additionally, I have a scientific background and training as a geologist, so that informs my thinking and my decision making processes. Additionally, one more point I think is important in that motivation aspect is that I make constant observations about anthropomorphic influences, and impacts on land and water and other natural resources. And those observations inform my thinking. I can't overstate that last point, because when you're trained as a geologist, you're trained to make really detailed observations about a wide range of things. When you factor in over time how things change, and you can make direct observational correlations, you may not have data in a spreadsheet to consider for a specific thing, but I can see what the cause and effect type of things that affected things like surface water, stormwater, movement management, that type of thing, groundwater recharge, those kinds of of aspects. Then the next part of that question, you asked to give some background on my involvement. I think I've provided a little bit of background, but what projects I'm currently working on, I'll list two of the key things I'm currently involved with. One is a kind of a landscape scale land acquisition project, that involves not only the acquisition, but the restoration of the land back to native habitats. When you, when you do that, you're putting the land and you're preserving it long term for the natural functions, and what we term in the environmental slash conservation field to be ecosystem services or benefits. And they're many fold. And they're overlapping and complex. And so as we acquire property, and we change the land use from say, agricultural production, back to natural habitat, a lot of things change, and they're not directly observable to the person who may not have the scientific background or perspective. So when you're looking at those things, you're... and maybe I'm being too detailed here, but you're getting things that affect hydrology. And i.e. when we restore native plant materials, we do commonly put in about 140 different species of native plants per site. And that's expensive to do, but what you end up with is a mosaic of plants that create a habitat that fits the landscape setting or the geomorphology of the site. So you're working with nature, as opposed to trying to show some kind of engineered or designed element to fix a specific aspect of an issue. And you're addressing multiple issues at once. And those plant materials, provide a bio technical solution to increasing hydrology, groundwater infiltration, removing and filtering out nutrients that might be in flood waters, if you're working in a floodplain, a whole list of ecosystem services and benefits, it's important to understand how those things interrelate, and that landscapes are not simple, that there's a lot of complexity out there to factor in. And you'll never factor all of it in because it is way more complex than...

Haley: Yeah.

Dan: ...than we can ever imagine, really, to be honest. So now I'm ready to move on to your second question. And you asked about how I would define environmental challenges and what the parameters would be in Rockford. I'm going to speak to this again a little more broadly.

Haley: Yeah.

Dan: And the first point I'll make, I always approach things or frame things from the scientific perspective, so when I talk about something that would be considered to be an environmental challenge, I usually don't utilize the word environmental in my discussion or my writing, or, I mean, occasionally I will, depending on the audience, but the term environmental, everybody's perception of

that word, it's skewed, and we've gotten away from the true meaning of the word. It's used as a label. And so, I hope I'm not offending your question process here, but from my perspective, I frame environmental challenges, basically from an evidence based, peer reviewed scientific technical perspective. And I tend to avoid the label and focus on framing a specific issue or challenge in terms of what it is in a more specific step. And that way I can, I can hone in on what is the actual problem, and what are the potential solutions that could address that problem or group of problems, because often in the natural landscape out in the environment, there's more than one element affecting the issue. Could be any number of reasons why there's a certain challenge. Could be flooding, and flooding is often a combination of well, we put infrastructure in a location where it was already prone to flooding and now that we've developed the area around it, it's receiving more water more quickly, and basically created a flashy flooding circumstance where water comes in, comes up quickly, could affect infrastructure like homes, or roads, or bridges, or perhaps a wastewater treatment plant or something. And, and that's happening more and more often. Well why is that happening more and more often, there could be climatic influences, there could be changes to the way the landscape upstream is being managed. And when I talk about upstream, I'm talking about from a watershed perspective, you know, all areas are points where water might land is precipitation or snow melt and then eventually run past a particular point in, on the landscape. So, you know, you have to be able to factor all that into the decision making process.

Haley: One thing I want to add in regards to where you're coming from in Boone County, for those of you who are unfamiliar, Boone County is next to Winnebago County. I feel like it's pretty safe to say that it's pretty much like the same ecosystem type area. It's all pretty close together. They're like Sister Cities.

Dan: Yeah, Belvidere and Rockford are close. And Belvidere, the Boone County area is a little more rural in character.

Haley: Definitely.

Dan: At least, we don't have the urban center like Rockford, but if you go west of Rockford we have a, you know, the landscape is more rural in character and more similar to Boone County in terms of population and agricultural influence.

Haley: Yeah, 'cause...

Dan: Landscape may be a little different than in terms of geologic setting, but yeah, we have a lot of commonality between the different community areas and geopolitical boundaries like county lines obviously don't affect, you know, whether nature decides to rain or have precipitation in a certain area or, you know, where the stream goes or whatever like that. So...

Haley: Yeah, because I stay in, like, the Poplar Grove area. So I live about 10 minutes from Rockford and 10 minutes from Belvidere. So I went to school and grew up technically in Belvidere, but, you know, living in the area, we spent a lot of time in Rockford as well. So I feel like I've definitely been influenced

by both communities. So I just kind of wanted to tie that together for all the listeners. Well, I want to go back to the flooding that you were talking about. Because all my interviews, people have been talking about flooding and water resource issues, and, you know, me, I'm very interested in hydrology, and I could definitely see myself getting into water resource engineering, something along those lines. You know, that being said, it makes me think of the area off of Riverside by the highway that is currently getting built up with, like, the Costco and they just put that Burger King and the Casey's and all that, and the new hospital even. Because I wrote a paper about sponge cities and how rapid urbanization has caused a lot of issues for urban water resources. And that obviously, still affects the rural areas as well. Especially like in this area where we get our water predominantly from, I can't remember the name of it, I need to jot this down because I can never remember the name. It's like the Cambrian...

Dan: Yeah, Cambrian Ordovician aquifers.

Haley: Yeah, you know, I was reading about that for my research paper. And we're in the prime area to essentially not have water resource issues, considering right by the Great Lakes. It's just, it's, I feel like it's a pretty wet area, but we're still taking more water out of the aquifer than is being regenerated. And that comes down to, at least what I found in my research paper, was on things like what's happening on Riverside, just continual urban sprawl, where we are putting these non permeable surfaces and not allowing the water to sink back into the earth. So...

Dan: Right.

Haley: So yeah, I'm glad you brought that up.

Dan: Right.

Haley: Because that's something I'm very interested in.

Dan: Actually with your interest in the hydrology aspect, and you mentioned the flooding and the opportunity for groundwater recharge. Actually, with my background, that is an aspect that I am currently working on with the Illinois State Geological Survey, and U of I's Prairie Research Center. They have some folks that are going to be doing, over the next three years, a three dimensional geologic mapping and three dimensional groundwater modeling project for Boone County. And what that will actually encompass is studying improving the knowledge that they have about the local aquifers. And you mentioned the, the Cambrian Ordovician aquifers, which are the deeper sandstone aquifers that largely are used by municipalities. The municipalities that draw from those deeper aquifers because they provide, have traditionally provided, a plentiful supply of water at the demand rate that they can use to serve their communities. And, you know, one of the things that we're learning is that those deeper sandstone aquifers in a regional basis, the Illinois State Geological Survey and the the Illinois prairie Research Center, they have put together essentially a map showing a cone of depression, that centers around the City of Joliet and expands outward, and it actually, the edges of the cone of depression actually reach out and encompass Belvidere, parts of Boone County, and the southeast edges of Rockford and the Winnebago County. And that's part of the motivation for doing the

three dimensional geologic mapping and groundwater study, that I talked about here just a minute ago, is this large cone of depression showing this influence, and what it's demonstrating is that the area to the south and east of Belvidere has additional geologic layers of the Maquoketa shale, for one, that overlies these other aquifers. A shale is an aquatard and restricts the movement of water from the surface down to the deeper aquifers and thereby impedes groundwater recharge, which would, as you noted earlier, talking about the area where you have impermeable surfaces, essentially this aquatard is, in effect an impermeable surface, albeit natural, but out here in Belvidere and Boone County and in Winnebago County, the Maquoketa shale is not present. And so there that limiting layer, or aquatard is not present. Therefore, water is recharging those deeper sandstone aquifers in this area, but we have a more complex terrain than just simply the bedrock aquifers. We also have glacial materials that sit over the top of that. And we have some remnant geologic features like the buried Troy Bedrock Valley. I'm not sure if you're familiar with that structure, but essentially, if you've been over by Galena, and you've been around the Mississippi River, you know that that area between Galena and kind of the western part of Winnebago County has, it's a more what people describe as a hilly terrain. But it's actually Valley-ey, it's in the area where glaciers didn't go. And so the bedrock valleys that are exposed, and you can drive up and down them and see them. They're similar topography here, but you can't see it. Because it's filled in with glacial materials. And part of what the motivation for doing the three dimensional geologic mapping and three dimensional groundwater modeling is to observe exactly how if raindrops fall here in Belvedere, if they soak into the ground, where do they go? What are the influences? And what's the rate of movement of that water and all that. It's a very interesting...

Haley: For sure.

Dan: ...bit of information. And, and we know some, but we don't know at all. And this study will really give us a much better handle on how we could more sustainably allow growth for the community. You talked about, you know, the area, Riverside, and how there's a lot of rapid growth occurring. And you know, I'll tell you that there is nobody factoring in how those development projects, especially large developments that have big parking areas and large impervious surfaces created by rooftop and the parking, you know, certainly they're addressing stormwater runoff, but they're not really addressing the three dimensional aspect of, okay, what happens to the part of the area where groundwater got recharged, you know, now you're diverting that portion of the water as part of the runoff, and you're not getting that amount of water to infiltrate and become part of the groundwater recharge. So you're cutting off that recharge supply. And, you know, there are ways that you can mitigate that. Water off a rooftop is fairly clean and could be directed to become infiltrated. If, you know, where stormwater runoff off of a parking area where you have, you know, any number of vehicles, some which are maintained, well, some of which are not, and you may be getting hydrocarbons and other products leaking off of those vehicles and getting mixed in with water. And they're typically carried off in what's called first flush contaminants. And so that, you know, there's another way for solar and biobased remediation of that, through swales that have native plants put in them that can tolerate the salt and the other stuff, and they can actually absorb some of those components, break them down and mitigate the impacts of that. But otherwise, those elements are going directly into our streams and the water quality of streams are certainly affected by that, by that runoff. If there's no biological treatment prior to entering that, you know, the river system or the water body that's receiving that runoff.

Haley: What environmental challenges has the area struggled with most in the past, but it sounds like we're agreeing that this is water resource issues.

Dan: Yeah, I think water, water quality, water quality issues are always, are going to be ongoing issues of concern and they have been issues of concern for a long time. You know, whether you look at it from a perspective of when the community was largely agricultural, and previously practices of tillage and livestock management and other things, kind of lead to impacts with water quality with respect to bacterial contamination of surface water sediment runoff that causes degradation of the water quality itself, plus all the nutrients and other elements that may be carried along with the soil particles with respect to erosion and sediment control. So, these issues are kind of broadly applied anywhere where you have a rural environment and you have agricultural activity. And, and then, of course, as you change that landscape to more urban settings, or suburban settings, you have other sets of issues that still kind of fall in the same category with respect to erosion and sedimentation of water and things moving off landscape during construction periods. And, you know, I don't know if you recall, but prior to 2007, our community was one of the fastest growing communities in the country, through the 1990s and early 2000s. With all that developmental growth, there was a need to address construction site issues, erosion, sediment control, and, you know, to maintain water quality. We have some streams in our area, and you're probably familiar with these Kishwaukee River, and the Piskasaw Creek and Beaver Creek, and in Winnebago County District or Pecatonica. And in northern Boone County, you have the Kinnikinnick Creek. So you have all these stream systems, and most of those are still fairly high quality in terms of both water quality and also in terms of biological diversity, and supporting the species that are in what we call greatest need of conservation. Another document you might want to kind of reflect on is the Illinois State Wildlife Action Plan, which was developed a number of years ago, and it was updated, I think about five years ago, to include more information about urban components of that. But basically, those are studies that were done, to assess the condition of wildlife on the landscape. You know, we can talk about how things impact us as people, but we can treat our water before we drink it. Wild animals and things out in the natural world don't have that opportunity, they are going to have their water source, it's going to be whatever condition that we leave it in right now. I imagine you've heard the term anthropomorphic?

Haley: Yes.

Dan: Other than my, just, you know, using it earlier. And basically, in terms of geologic time, we've actually labeled this the Anthropocene, which means it's the time of human influence having as great an impact on the landscape of our planet as natural forces do. Certainly, we still can't help due Mother Nature. I mean...

Haley: Yeah.

Dan: You know, a hurricane is still a hurricane. We have the constant, persistent influence of our vehicles. We have diesel powered caterpillars and bulldozers and things that can move the Earth's surface around readily. And we do it, and so our impact is communitive. You know, what we did

yesterday also affects what we do today and we add to it. And, you know, those cumulative effects also can create things and, you know, in the scheme of our life period, you know, change can happen, what we perceived to be slow, because, well, maybe it wasn't there when I was a kid, but now it is and I'm 60 years old. We think of that as a long time. But in geologic time, that's...

Haley: Not.

Dan: Yeah, that's just nothing. And so keeping that in mind, and again, that that's where my thinking is, is that long, geologic perspective. It's a challenge for me, you know, when you ask about environmental challenges, it's difficult for me to express things to a lay person, because I've had the advantage of, you know, the study the research in the understanding of the science, and most people look at you like you're talking complete gibberish.

Haley: Another language.

Dan: Yeah, it's a foreign language. And you have, you have to deal with that on a day-to-day basis and not offend people in the process. So you always have to keep that in mind, that who you're talking to and what they what their level of understanding is, and how best to convey that information. Which is again why the label, we first label things as, you know, they're the environmental, it's an environmental problem, well, then we shift and we could say, well, it's a green issue, green infrastructure, you know, we're trying to shift the label and move away from one label and you create a new one, as opposed to just simply defining what the issue is, and addressing it. And part of the problem is that they're complex that there's more than one variable. In...

Haley: Very interconnected.

Dan: Exactly.

Haley: When you were talking about the Illinois State Wildlife Action Plan, and you mentioned that more urban components were added. I think that's really key because the way that our urban environments have been constructed, is it really detaches people from nature. It's like a sphere of just human environment and we don't really try to figure out ways to integrate nature into that, but there is so many issues that come along with severing ourselves from the ecosystem like that, because I think it's very important to stress the fact that humans are a part of nature, and we're not separate from it. And we shouldn't shy away from that aspect because to me, I feel like if we try to live without a relationship with nature, we're almost living without a relationship with ourselves, because we're just harming ourselves in the process.

Dan: Right.

Haley: And I feel like Rockford and Belvidere are actually a very great example of urban and rural interaction, would you agree?

Dan: I do. You know, we have a lot more here than people realize. And, you know, I'm from Central Wisconsin, and my family largely still lives in that area, so I do travel back and forth. And I'm just going to take the Northern Illinois as a region. And, you know, what do you see every weekend, you know, if you're traveling north the highway is packed, with vehicles driving up to escape what we have here. You know, go camping, or fishing or whatever. People are craving that outdoor experience and they take with them all their stuff from here, *laughs* you can see how packed their vehicles are and everything. But anyway, the point being, there are experiences you can have here...

Haley: Definitely.

Dan: ...that are equal, if not better than, and you don't have to do the drive, and you can stay home and go out and have a hike. The Winnebago Forest Preserve District, which is a little bit different. I work for a conservation district. And we're not funded the same way, we're not. I mean, when I say that, I mean the amount. We're charged, our mission and purpose is a little bit different than a forest preserve, but we provide a lot of the similar functions. And so people often equate what we do with what the Forest Preserve does, and that's a fair perspective to have I think, but at the same time, you know, they're providing and we're providing opportunities for people to do a lot of the same kinds of experiences that people will drive two to six hours from this area to get somewhere else. And while they're doing it, they're putting all the, you know, all the fuel and all the expense, and that's where I think our communities in this area really need to kind of get better informed about how to develop and take advantage of what's here and incorporate it just as you suggest, as part of their design of growth. And unfortunately, you know, and I have to state that, unfortunately, Poplar Grove is one of the communities that was growing so fast they had, they still have I think, about 3000 unbuilt lots.

Haley: Oh, wow.

Dan: In that village, that could be built tomorrow. And we're still looking to allow more subdivisions to be approved. Now since 2007, that largely slowed down and has been kind of grown to a halt, but prior to that, you know, that growth in that community alone was very rapid. And one of the things you're probably familiar with, since you grew up in Poplar Grove, or that area, is the Long Prairie Trail.

Haley: Yeah, yeah. We used to run there for school.

Dan: Yeah, run or bike or whatever. And all the development in Poplar Grove, the areas around that bike path, none of those developments included internal path systems that would connect from one to the next to the next, and eventually connect to the Long Prairie Trail, so that people could, from their driveway, get on a bike and as a family, go for a bike ride that would be safe, or for a run, and access that that trail system without having to drive to a trailhead, and physically have to load everything into a car, take into a— The Conservation District owns the Long Prairie Trail, that's why I'm bringing that up.

Haley: Okay, yeah. I definitely loaded up the truck and take the bikes down there. I definitely did that.

Dan: We cannot compete with development industry in terms of acquiring property along the trail to create new trailheads. So we have a few small trailhead areas, one in Caledonia. Candlewood Lake is the only community itself that has direct access to a trail, they have a connection to the trail from the whole development area. So they, the people there can access it, but unless you live in Caledonia, or Poplar Grove, or Capron, you don't have a direct way to connect.

Haley: Yeah.

Dan: From your house, on to the path system. And they missed the opportunity to create that infrastructure that would then allow anybody who bought— and that would add value to the property that you buy or your home.

Haley: Definitely.

Dan: To do that. And they ignored it. In fact, we weren't even notified until they had to do a road crossing. And at that point, the village made an attempt to work with our agency to create the crossing and all of that. And it was a— that was a real challenge to make that work because now you're putting all the entire burden of the crossing and maybe having some kind of a path system in one development that connects to all these others, but doesn't really have the path connection for everybody else.

Haley: Yeah.

Dan: Because they didn't plan for it, and yet, they had done planning ahead of time for all that development, because the city or village of Poplar Grove had a map, showing what they wanted, how they wanted things to develop, what the roads and streets would look like, but they did not incorporate any kind of non-motorized path system other than maybe a sidewalk, which, really, that that's not, doesn't meet the standards for bike, bike path, or bicycle use.

Haley: Tying that back into things with the water resource issues and all that. I feel like if we, you know, communities were to push more with integrating the communities with paths and stuff that connect to the populace with nature, I feel like that would help solve, you know how you were talking about, it's hard to sometimes discuss these kinds of things with lay people. Well, I feel like if they were more exposed to the natural environments, they'd be able to understand more. And, especially, I feel like a lot of this comes down to education. I'm a firm believer that ecology should be a required course in high school. I mean, they have biology and chemistry and stuff required. I feel like we also should be required to know what it means to live on this floating rock in the middle of the universe. Like...

Dan: *laughs* I couldn't agree with you more, but unless more and more people actually voice that, you know, the curriculum is set by state or federal standards, and, you know, the voice for that, you know, you're competing with other interests. That...

Haley: Definitely.

Dan: You know, and that's...

Haley: That's where it's hard.

Dan: You know, when you talk about challenges, things happen where money speaks. You know, that is, that is the way life is. And so, if you're going to influence things, you have to be involved in the process, and speak out actively. You know, that's the thing. A lot of people may think the way you do, but they don't voice it, or...

Haley: Yeah.

Dan: ...share that thought. But I think the best thing you can do is get yourself educated so that you know the facts and you're on your way to doing that. *laughs* That's great.

Haley: I think now would be a good time to wrap up part one of this episode. ***Outro Music*** As always, I would love to thank Dan Kane for sharing his valuable insight during part one of this discussion. I also would like to thank anyone listening in on this podcast. I always appreciate your continual support of *Green Exploration: Rockford*. Just remember to take whatever you learn from this series and consider how you, as an individual, can be a contributor to a sustainable future in your day to day life. And don't forget to not only show Mother Earth some love, but your fellow humans as well, each and every one of them because all humans deserve to live in a quality environment. My name is Haley Dahl, and I am signing off. Stay green and stay exploring, Rockford.