



## Episode 109: How Rewilding Anywhere At Any Scale Relies Heavily On How We Restore And Reimagine Our Urban Environments

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[Rewilding Earth Podcast](#)

### Chris Streb, Biohabitats

**Jack:** [00:00:00] Chris, thanks so much for being on the Rewilding Earth Podcast. Hey, thanks for having me. You're in the east and and rewilding or restoring a place in the east is a far different thing from what what people in the west may be experiencing. Can you talk about that a little bit?

**Chris:** Yeah. So I'm located here in, in Baltimore and really that's, in the heart of the megas of the mid-Atlantic up to the northern

states here. So we have so much development and that development is, a lot of infrastructure which really can't go anywhere, so those are either bridge crossings that are impacting flood plains and straddling confining rivers into very narrow spaces.

Or you've got cities that are, all built at the head of ti tied from, that transition point between, the steeper Piedmont out into the coastal plains city after city are dotted along that [00:01:00] line. And, those cities were built there for a reason. And that reason was you could generate water power for doing your milling back in the, those colonial days.

But you also had a nice sea port. And with those seaports, they needed to bring ships in and with those ships they needed deeper water. So there's a lot of dredged channels, a lot of vertical edges in our tidal planes. And so the examples just can go on and on with how constrained we are working in highly urban environments.

All the way from our tidal basins and then even working up into our watersheds.

**Jack:** As important as I think our listeners, they understand, big, vast. Protection wilderness areas and big restorations like dam removals and stuff. But on the finer stuff that you're talking about I see it as incredibly important just because of everything that you said, that we still have to find a way to sew in [00:02:00] sew back into these kinds of places, nature in whatever possible way we can.

Yeah. It, it is incredibly important.

Particularly because, we still have wildlife that's migrating through. We still have resident wildlife that needs connected corridors and viable habitat space. Just an example of that is, is Baltimore is Harbor. I'm involved in a project now which has it, it's called the Middle Branch Resiliency Initiative.

And it's so far there's been 55 million of money that's been raised from the federal state and local levels. To do, vast nature-based design resiliency projects with, and living shorelines. And that's really multifaceted in the sense of what the outcome is supposed to be.

The middle branch is so often considered this forgotten area in Baltimore City because it's just been overlooked. It's got [00:03:00] the Interstate 95 that runs right over top of it. The neighborhoods that surround this tidal basin of Baltimore Harbor they're typically lower income black communities.

There's been historic industry along those waterfronts. And so this, this overlooked basin and this overlooked population it's finally getting some attention. There's, the industry is gone. There's this opportunity to create this really connected park system along the waterfront.

And that can give the neighborhoods access to this resource. And in doing so, we can also provide some flood protection as well as build habitat. And so this is this is one of these rare opportunities and I think it is starting to happen more and, throughout cities, Where you have this kind of turnover and decay of the industrial land use becoming this opportunity for nature-based [00:04:00] practices and resiliency that can also begin to rectify some of the environmental justice wrongs that had, occurred on this landscape over the last century or more.

**Jack:** How much community involvement do you have in these kinds of projects?

So that the stewardship. Methodology is set for the community and people know how to take care of the area or fight for the area in case another encroachment comes along or another bad idea comes along.

And you've left a community of people behind who know what you've done and know how to go forward.

**Chris:** That is a it's an incredible question, and I would say that, It really varies project to project, I think we're, I wanna say as a practice and I don't mean just our firm, but I think other firms I think as a practice, we're all beginning to figure out how to do this better.

How do you engage a community? How, not [00:05:00] only are their voices heard and we can translate those into something meaningful. But how can that engagement continue on after after our project's implemented And, so how do we build stewardship is really ultimately what we're getting at here.

And that's, that's challenging as a consultant because you're not necessarily. That doesn't pay the bills if there's no kind of contract mechanism to carry you through time to, to, help a community figure out how to

steward. And the, a very important issue though, and something that I think if we could learn how to do better more than just by inspiration, but actually give resources to these communities.

Then all of a sudden you could have some entrepreneurs that are taking that local stewardship initiative themselves. Yeah. And so we're starting to see that. Certainly in this Middle Branch project, I think there's a couple little, seeds that are beginning to sprout. And there's a, a [00:06:00] great organization, the South Baltimore Gateway Partnership, who is really helping fund.

Some of this opportunity for for the neighborhoods and entrepreneurs there.

So maybe sometimes you feel like you're you're, you've get this sense of being a part of something bigger. There are other moving parts rather than what you guys are specifically contracted to do that you rub elbows with other people, project leaders sometimes.

Oh yeah, like a multifaceted project like that is, there are, there are just dozens of organizations that are involved all playing really important parts. So yeah, definitely it's a it's, what's really cool is when you have this grander vision that every, that so many people are on board with, and that really helps Define how to work together.

And but yeah, it's a, it's, that's a process and that's a very unique, a unique example of what I'm talking about [00:07:00] with urban areas. I'm sure there are, other examples really throughout the East coast.

**Jack:** Before you get started, are you ever surprised at how the wildlife that will benefit from your project have survived? Or adapted in some ways to a strongly urban situation, either underwater or birds. Cuz they're there. And then I know you guys do work and you get to come back later and enjoy, species using habitat that use what you pictured, but I'm sure that until you actually see it, it doesn't really come completely full circle.

What are they doing out there? What are some examples of where you were surprised by how wildlife is hanging on before, during, and after a project?

**Chris:** I'd say one of the, one of the most surprising was we had about 10 years ago, we had built these floating wetlands that were, and this was really a, this [00:08:00] is really one of these kind of ecological prosthetics that I talk about a lot.

It's, it's not a, it's not a real ecosystem. It's this ecologically engineered ecosystem, but it's providing some. Some kind of ecosystem service. And so we had built these floating wetlands taking the plastic bottle flow coming out of the river and actually working with city kids to build these mats that we planted emergent plants onto.

And then we built this array of them is a, just a couple thousand square feet. But man, after about a year or so, those floating wetlands were growing a lot of biomass both underwater and above water. And we started to see wildlife come in. And this is like right in the heart of downtown Baltimore, right in the inner harbor.

And one of the coolest sightings was river otters. Like I don't think anybody really even knew that we had river otters still still in the system. And I've, there's only been a couple of sightings [00:09:00] that have been documented of them. Sure enough, they're there.

And when you when you provide the habitat, a lot of times you can draw that wildlife out. So that was an a a strange and fun, fun outcome for that ecosystem prosthetic.

**Jack:** Do you think very much about 40, 50 years from now when

projects like you've done continue and grow in number. Do you ever picture what these environments, or maybe somebody already has drawn out what this would look like if we were more in tune in these urban in an industrial settings with nature?

**Chris:** Yeah I think so many of our urban settings are gonna have, really have to figure out how to live with water. That's, that, that's probably the thing that you see most easily projected is, what will the impacts of sea level rise be to all of these, coastal urban environments.

**Chris:** And so then yeah how do we not only adapt to it but may [00:10:00] maybe make that an asset somehow. But yeah, you're asking an important question because in, in 50 years as well as we are gonna have, are we gonna have. The energy that it, that it takes to build some of the restoration projects.

**Chris:** And what I mean by that is like just the ability to, to invest heavy equipment, diesel or, some other kind of power source to actually move materials around. Where is it gonna have to be really more of a distributed human capital arranged. Practice where we're, being true stewards to the environment.

**Chris:** If you can't have that heavy machinery, at least in the way that we're used to doing it with fossil power maybe it's people.

**Chris:** It's people. Yeah. And and maybe people are gonna have more time to, to actually engage, as now that we've got the AI breathing down our necks, right? Where, can the AI actually be executing the work that we need to maintain our biosphere here.

**Chris:** And I think maybe there, [00:11:00] maybe the AI can help us, but we're gonna need to be the doers. I expect.

**Chris:** And that's really cool because that brings people back to thinking about things on a daily basis that we largely, I believe don't, and at large, I think people are so removed from nature.

**Chris:** And like when you guys come in and look at an area like in Baltimore or wherever and you're probably the most giving it, the most thought that anybody has in a long time. Like you said, one of the areas is just a forgotten area and if you enlarge that picture, a lot of nature is just forgotten by humanity.

**Chris:** That's why I asked about community involvement because I think when anybody's ever putting that much focus on nature and remediation and recovery efforts. Everybody learns a lot more.

**Chris:** Every time I talk to one of you guys, you're always talking about how much you learn all the time. You're just always learning. Starting with Keith all the way back to our first interview just marveling at how nature has to take over at some point you guys could put the [00:12:00] Artificial reef stuff in, but nature those otters had to come back on their own, and nature starts to add the biomass to it, and that's not something we even sometimes even know how to do.

**Chris:** No it's it's really just trying to understand what kind of forces and processes are present and leveraging those. So we know we have we know the tide's gonna keep on moving up and down. We know we're gonna get wave energy. We know we're gonna get, storm surges and river currents.

**Chris:** Can we put together a kind of land form with the right, material substrate to actually support plants and the benthic invertebrates that, once, once we get that established, then you know, all of a sudden, more complex organisms begin to start utilizing it. Whether, whether that's your fish, reptiles, and your water waiting birds, that are coming in and using that space. Yeah, what I think that is what restoration is and is ultimately, we're looking [00:13:00] at creating a kind of a catalytic moment. A, a shift in trajectory, where you've had this kind of, either degrading or declining productivity, not supporting life to where all of a sudden the system can actually.

**Chris:** Hold up to its current condition and the trajectory can change where, and the outcome is growing by diversity and ecosystem service benefit. Yeah that's the goal.

**Chris:** It's like somebody took a big old thousand piece puzzle and threw it all over the place and you guys have to come in and start to realize, I think, How much we didn't know when we started dismantling nature, like when we started just wholesale, taking stuff out of nature and not making any accounting or even drawing a map to what it looked like or felt like, or what was holding things up.

**Chris:** None of that was taken into an account. And then you guys are just left there trying to figure out what, where all these pieces go and. [00:14:00] And it seems like you guys learn a lot more about what we've taken apart and how com how much more complex it was and is when it's intact than we ever knew.

**Chris:** Yeah, that's I think all of the Woody Debris Jam research that, the only reason that we know that Log Jams and Woody Debris Jams and Beaver Jams were so beneficial to the landscape is because we observed what happened when we took him away. And so I think that, it definitely it's, it is putting, trying to put Humpty dumpy dumpty back together again here.

**Chris:** It's, we're reverse engineering and, a lot, almost every project that we start with, we really try to do a deep dive into the ecological history. So what were really, the land use changes and management changes. That precipitated the current cons, current condition.

**Chris:** And then what of those changes can we begin to undo? So like dams are, dams are very clear. It's a very [00:15:00] discreet structure. What happens when, when, like the whole legacy sediment question or, issue on the East Coast is we had all this water power. There were mill dams, by the thousands by the, probably the tens of thousands, all up and down the northeast corridor here.

**Chris:** Because that's what was, grinding grain and turn and saw blades. And all those dams, many of them were just forgotten. And, that coincided with this denuded landscape of, growing agriculture. The top soil washed down, filled our floodplains, this shifting baseline question too we're only all born for this these few decades.

**Chris:** Things are the way that they were in our eyes, but, how do we penetrate and get deeper back in time to have a vision of what that landscape really looked like and how it really performed and how do we get back there again? To the extent possible. So that's like the coolest part of what we do.

**Chris:** I love that, [00:16:00] that that dig into the history and just imagining the landscape.

**Chris:** Sometimes it feels like maybe nature has to show us what was. Just by how it comes back, if we're successful in at least attracting species that we know should be there and including, plants and everything, we start to maybe see stuff we didn't even intend to see or thought was possible in some of these projects.

**Chris:** Yeah, I, I think that there's I mean there's been some really cool work just on, say that this legacy sediment question of, when you remove the post-colonial top soil that has deposited into the floodplain just the seed bank you might not even need to, you might not even need to bring seed out.

**Chris:** You just. You have, you've just exposed something that's been buried for 200 years and all of a sudden the historic seed bank comes back with the full native flora. So you know, that's that I think is one of those [00:17:00] reveals that, it would be, it's a very pleasant surprise when you can get that that kind of outcome.

**Chris:** I didn't know that was even possible. That's cool. Oh yeah. I know that is that's a cool one. The downside with the, like this whole legacy sediment question is it's a restoration strategy. Yeah. You could maybe excavate out a floodplain But you're also maybe taking out the, a forest that's 125 years old to do it.

**Chris:** So it is a big trade off. And, one we don't take lightly because we, we think that our, our forested habitat is quite precious. You've gotta, you've gotta, we've got a couple tools and, a couple strategies to deliver outcomes and. We just need to weigh those carefully.

**Chris:** Can you describe your experience with Something I think that's fairly easy for everyone to understand would be like migratory birds and how much we need to help them. Especially in urban environments with the glass and the light pollution and and the [00:18:00] very, very few places to stop and rest that species that are going thousands of miles.

**Chris:** There's a lot of obstacles in the very urban environments.

**Chris:** One of the challenges with say, urban or mi migratory birds whether it be in urban environments or not, is the timing right now of our seasons are really changing.

**Chris:** With the climate. We've had, I think we're, we've seen like all of our flowering trees come out here in the mid-Atlantic about 25 days earlier than the average this year, 20 to 25 days. And what does that mean? Like when you, you think about the incredible timing of these migratory species historically they could rely on arriving in a space.

**Chris:** And there would be the right types of insects available to them, with a higher protein and higher density. And so now when the timing shifts, how do, how are we gonna deal with that? And the main tool I think [00:19:00] that we have at our disposal is just trying to get as much floral diversity, native floral diversity that will support that insect community.

**Chris:** And, we just need to try to build that insect biomass up through our plant composition. And that's probably the best we can do with the migratory birds in terms of having them have restful and, be able to refuel to carry on with their journey.

**Chris:** Aside from, the urban the glass and the light issue that, that really gets into like guidelines and I, I think any project that we've worked on that has, some sort of built landscape, a vertical tower or. That's, that is definitely consideration.

**Chris:** Hey, we're gonna build this really cool outdoor, native garden right outside of a glass tower. Maybe we ought to think about tell the, telling the architects to, can we have a light program where, the lights dim down at a certain time of day and so the birds [00:20:00] aren't flying into the glass in the evening or getting their circadian rhythms messed up.

**Chris:** And how do we prevent the birds from actually thinking they can fly into the building to begin with? So yeah, these are guidelines that we'll, try to emphasize and. That's, it's definitely a challenge. And but the more people get, become aware of it, the, hopefully the better our application and implementation of strategies will become.

**Chris:** If we knew and cared when we were building what we have built.

**Chris:** What would we have done differently?

**Chris:** So what would we do? How, like, how could we imagine. Our whole built landscape buildings included actually being a contributor to habitat to ecosystem services et cetera.

**Chris:** And might that mean less glass? I, possibly or is there just a smarter way of, shielding the glass from, or creating this illusion of an open corridor? That birds can fly into, but [00:21:00] you know what, the lattice of a building, if the lattice of a building were something that you could have, a variety of birds living in and maybe even finding the food that they need to support themselves.

**Chris:** We do have some examples of like peregrine falcons, nesting up in in towers and whatnot in, in the built environment. But Yeah this notion of a truly like living city in an ecological city that's not just green infrastructure for people, but is itself a habitat and a city for wildlife.

**Chris:** That's really the dream, isn't it?

**Chris:** Yeah. Okay. Say. Money was no object. And everybody had a really good attitude about nature and restoration. And you got the opportunity to get the funding for your dream project, something that's really big that you hope maybe will happen in your lifetime, but it's so big that you're worried it might [00:22:00] not.

**Chris:** What's that dream? Thing, that dream project that you would love to work on someday ?

**Chris:** Oh man. I so I have my, this is a more of a local issue, but I could apply this to probably, every city in America, but I would love to see some of the highways that have cut through the middle of our cities and oftentimes right down, River Valleys just to, we talk about dam removal, I wanna start seeing highway removal.

**Chris:** And so in Baltimore I would love to see the main kind of corridor is called I 83. The Jones Falls Expressway and it's built right over top of the Jones Falls Valley. And I would just love to see that highway go away and us to. Re-export the glory of our little valley.

**Chris:** That, that is, right down the heart of Baltimore. Yeah, I think that would probably be one of my, one of my dream projects and. I'm sure I could come up with take me to any city and I bet you I can find [00:23:00] that same example.

**Chris:** So the highway's gone. What are we replacing it with? I think that's where, that's where you, we, you do need to start.

**Chris:** Putting that picture out in everybody's minds, right? What does this look like? How, how do we actually get people in and out of the city? And, and I, and this is again maybe a too local of an example, but the, that highway has facilitated really emptying of the city, people have.

**Chris:** So what it did is people just kept on moving out to the burbs. Cause it was easy to get there. Yeah, it is like principally well to do white people just keep kept on moving out to the burbs and and taken up nature that way, or taken up at least like the most arable farmland is consumed with kind of vi, vinyl sided houses now.

**Chris:** And yeah, if you were to here's this is like the long term. Process of this dream is if you take that highway away, does that mean people come back into the city or does that not even [00:24:00] matter anymore because, so many people go to work right in their office?

**Chris:** Before I, I would say 10 years ago, I definitely would've thought that cities would be repopulated. Now I'm not so sure, now that we're living in our, post Covid world and everybody's gotten so familiar with. With the virtual workplace. It's a, it's an interesting exploration.

**Chris:** But yeah, I think the main thing is we need to, you need to put that vision out there and hopefully and acknowledge the fact that like many of these highways are, as you say, built in the fifties or sixties. They were not using Roman concrete, these, there's, there, there's a lifespan.

**Chris:** And so how do you, how do we look toward that end of life moment as an opportunity to reimagine what it could be again?

**Chris:** Do you ever think about like when, replicating yourself a hundred times over across the country and everybody else who does different jobs, but important jobs that make your job possible within that whole [00:25:00] framework of restoration that bio habitats has.

**Chris:** Yeah, I think hopefully, there are little, springs of of bio habitats, whether it's us or whether it's firms that are, wanna emulate us.

**Chris:** We're we need all the help we can get to. To, I think really, create these, this knowledge base and these ideas and, that local energy and presence that, can become informed about an ecosystem, about a place's history and about the possibilities of a trajectory into like this, a society a world that is more ecological while, still supporting.

**Chris:** The folks and benefiting the folks that live in these communities. And I think you, you're seeing this really with the engineering with nature work that the Army Corps has done and the nature-based design discussions that, this is getting out into, not only the mainstream, but you're starting to see big federal [00:26:00] dollars.

**Chris:** Getting behind a lot of these initiatives and that might apply to the Gulf Coast. Hopefully it works its way up the Mississippi River. I think it probably is. And, we start to just see it outward. But you think of, I don't know, you think about just all the different climate challenges that we've had, whether it's, how many feet of snow has a Sierra gotten?

**Chris:** It's what, 30 or 40 feet of snow this year or something like that. It's crazy. And I think some more packing on before it's done. Yeah. And then hopefully the that isn't just completely like wiping out, all the basins down below, in the next two months or something like that.

**Chris:** If we got a rain on snow and, but you've got that, you've got fires, you've got. So many different kind of challenges that have just accelerated and been amplified by climate that people are, I think people are just, unfortunately, it's taking that to, for them to become aware. And now we just need to develop the practices and the wisdom [00:27:00] to figure out how to either live with it or, or live in environments that aren't.



**Chris:** As exposed to those forces. It's gonna take one or the other, right? What's interesting is it is growing at a scale. But I would love, you would love to see the scale also being really small, so like little organizations that are, super, super attuned to their local environment and are the eyes and ears of a place, because even if we were, even if our firm or another firm were replicated a thousand times over, it's still no match really for the people who live there in a place, you guys rely on locals quite a bit, I would imagine in some instances for at least recent history or water flow information, anecdotal stuff, I would imagine. Yeah. You've gotta rely on them cuz you're coming into an area usually that you don't have any experience with or very little.

**Chris:** Yeah, no, absolutely. And [00:28:00] it's the, I think it's those stakeholders and. You can learn a ton by just talking with people see what they experience. And, you've gotta, you've gotta say, you gotta recognize some of it's anecdotal. There might not be data to support it, but people experience what, they're not usually lying about their experience.

**Chris:** I guess it's a question of really the frequency with which they might experience some, some aspect of the ecosystem, but, Yeah, it's, it, that's pretty fun to think about the idea of wow, what would it, what could the world be like if we had more of a, if everyone had this kind of ecological perspective, because cuz ultimately if you have an ecological perspective, I think you have a human health perspective and you have something that it, at least in my mind, it seems like something that is just, I don't know kinder, more spiritual, connected.

**Chris:** It just is more about [00:29:00] having relationship both with place and, the life around you. And, I don't know, it's a how do we get out of this? Just go. Extract, transform every natural material into some, long lasting piece of something that'll just go into a landfill or the incinerator.

**Chris:** Yeah, it's a different view I think of what the world. The world could become or should, needs to become and will become if we're regardless, it'll become. Yep. It just, it's whether we want be a part of it or not.

**Chris:** You draw a wonderful picture of what possible in the future.

**Chris:** What do you say to people about the kind of work that you do and the importance of it, how much you love it, and how much you would recommend other people consider your kind of career? Oh, man I'd say all the time how fortunate, I feel.

**Chris:** For, having gone the direction that I've gone and stumbled, stumbling into [00:30:00] to bio habitats just by the fact that I grew up near, near the home office. But yeah, it's a I think doing ecology work, it's this kind of blend of. You, it's purpose driven. You can really feel good that you're contributing, you can there's just like an endless amount of stuff that you can keep on feeding your brain with to build your knowledge up.

**Chris:** There's lots of opportunity to go. Out to different places, so much of my work is in disturbed ecosystems, but, there's needs to be a tension into ecosystems that appear to be intact, but might be might be starting to suffer a little bit right now.

**Chris:** So we need eyes out there too. And yeah, I think it's imperative that. We build more interest and more capability with our younger generation because we, we can envision, I think an outcome that is positive given our climate crisis. Or we could like just throw [00:31:00] our same hands up and give up and expect the worst.

**Chris:** And. If that's the latter choice, then that's what would pr that's what will probably happen. So it's really important, I think, for us to paint that picture of what we, what we think could be the best outcome because without that picture, we've got nothing to work toward. Anyway, I, that's what keeps me coming back day after day.

**Chris:** I think this just notion of having a transdisciplinary mindset is is key. But yeah you're right. It's you still learn the fundamentals. You're gonna learn a lot when you get out into the workplace.

**Chris:** Just because there's the other shops just like ours.

**Chris:** I, I think coming out of school, I remember just being, mesmerized by like, How do you even win a project? How do you get a, how do you get the next job and Yeah. And so there's the whole like proposal thing and.

**Chris:** Shaping your idea and like selling the idea of like why you're able to execute it better than anyone else. Yeah, there's, so there's a lot of pieces to it and you definitely [00:32:00] won't know everything coming out of undergrad and, or even a master's degree but once you're thrown into the pot you'll learn.

**Chris:** Chris, thank you so much for making the time to be on the Rewilding Earth Podcast today. Yeah, thanks for having me.