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Sarah McConnell: From Virginia Humanities, this is With Good Reason. I'm Sarah McConnell. Today, on the show, we bring a special presentation of Broken Ground. Broken Ground is a new podcast from the Southern Environmental Law Center. I spoke with the producer, Claudine Ebeid McElwain in the studio.

Sarah McConnell: Claudine, this is the first episode of your series on environmental issues in the South. Tell me about it.

Claudine M.: This is a podcast that was born out of the fact that I work with these amazing attorneys who are some of the best environmental lawyers we have in the South and when they were starting to put their cases together and I had the opportunity to watch them do this, I could just see all of this information, witness testimony, expert affidavits. That's how they see it. For me, I just saw stories all around me. So, we decided to tell these stories and this first episode is our first opportunity to kind of focus in on an issue that's very important to our organization, coal ash and the cleanup of coal ash in the South, and why it does need to be cleaned up.

Sarah McConnell: You say in the episode that, like me, you had never really thought about or known much about coal ash. What do you understand now?

Claudine M.: What I know now is that it's a toxic substance that leaks arsenic and all kinds of other heavy metals into our waters. The reason for that is that it's stored in pits near our waterways mostly. Those pits are often unlined and so leaking and seeping into our water.

Sarah McConnell: This stuff is so toxic that the workers have had incredible, sometimes fatal, consequences from all the toxins.

Claudine M.: And, that is what this episode is about. It's mainly about what the fallout was of that Kingston spills so that we see what the real effects are, the people who actually have to bear the brunt of these environmental disasters. Who are they and what happens? I think it's equal parts about them and about the reporter, Jamie Satterfield, who worked so tirelessly to bring this story out into the light.

Sarah McConnell: She's a remarkable woman and captivating investigative journalist.

Claudine M.: Yeah, and since we recorded this interview, she has received a Scripps Award for her work on this story in particular.

Sarah McConnell: What do I think Broken Ground can do as a podcast series on the environment?

Claudine M.: I think that we're seeing local news diminish across the country and, in terms of environmental news coverage, local news is where the stories are told. By the time an environmental story in a small town reaches a national level, at that point, we're at disaster stage. We're at catastrophe and that stage is too late.

Claudine M.: So, what I'm hoping is that I think we have great environmental reporters around this country digging into issues particularly right now. And, I think that this podcast can also help to fill that area of much needed storytelling of what's happening so that people are getting this information, but also hearing the stories of the real people who are on the frontlines who are bearing the brunt of some of these environmental problems but also picking up the baton and running with it, some unexpected environmentalists I would say.

Sarah McConnell: That was what was so moving to me about your first episode. It felt like a story that was about how real people are navigating environmental disaster.

Claudine M.: I think that's one amazing thing about the people that we've talked to in this season. They are southerners who love their land, care about where they live, but maybe we're not environmentalists until something reached their doorstep. I don't even think I need to call them environmentalists. I think they're just citizens who saw a problem and want to do the right thing or were touched by an issue and it changed their mind or made them stand up and go and fight to make sure that their water is clean, that their air is healthy.

Sarah McConnell: We're really excited to share this with listeners on With Good Reason. Where can people find the series after this episode?

Claudine M.: So, you can find the series Broken Ground on all of the regular podcast listening platforms that you prefer. We'll have four episodes this season and next season we'll see where we go.

Sarah McConnell: Can you share what's in the works?

Claudine M.: You know what I can say is that this season really focuses on energy issues. It's taken this Charles Dickens approach of the ghosts of the past, present, and future. So, I hope in this season you'll see we start with some dirty legacy past issues and ghosts that we have to deal with, some present-day issues where we can be making the right decisions now, and what does our future look like and what are the good decisions that we make for our future. People in the South are waking up to this problem and hopefully, dealing with it head-on.

Sarah McConnell: Without further ado, here's Broken Ground.

Chris Copeland: I woke up to the awfulest noise and sound that I can imagine.

Speaker 5: Millions of tons of ash and sludge came pouring out.

Lesley Stahl: The spill was 100 times larger than the Exxon Valdez.

Eric Schaeffer: The prevailing myth is that it's fake.

Robert Siegel: Arsenic levels, more than 100 times the acceptable amount ...

Renee Montagne: In Kingston, Tennessee efforts to clean up a giant spill of coal ash are going day and night.

Jamie S.: There's nothing to warn these workers. There's not signs. There's not pamphlets. There's nothing.

Jeff Brewer: The eyes was burning, the headaches, the coughing up of that jelly junk.

Jamie S.: Now, they're sick and dying and no one will take responsibility for it.

Claudine M.: This is Broken Ground, a podcast about environmental stories in the South and the people unearthing them. I'm Claudine Ebeid McElwain and before I jumped head first into environmental issues, I was a producer and editor for more than a decade at NPR. I worked on really tight deadlines, but the kind of information I dig into now can take months and sometimes years to unravel.

Claudine M.: In this episode, we go digging for the story of coal ash. That's the toxic substance left over when coal is burned to make electricity. In America, we make about 130 million tons of it a year. It's enough to fill a million train cars. If you've never thought about coal ash or where it ends up, you're not alone. I never had and I don't think that the Copeland family ever thought about it either and they lived right across the water from a coal-fired power plant in Kingston, Tennessee. That plant was run by the Tennessee Valley Authority. They're better known as TVA and it was making tons of coal ash every day.

Chris Copeland: You think that they know what they're doing and that everything's safe, that they're keeping an eye on it.

Claudine M.: That's Chris Copeland in a 2008 interview. He grew up fishing, swimming, playing on the Swan Pond, right there next to the coal-fired power plant. He planned on living there the rest of his life raising his two daughters there, growing old there. And, then everything changed three days before Christmas in 2008.

Chris Copeland: I woke up to the awfulest sound that I can imagine. I could hear crashing and popping, the noise, the wind was incredible. It seemed like it generated its own wind.

Claudine M.: I mean, imagine that. It's the middle of the night, the power's out, so Chris Copeland throws on his clothes and he scrambles outside.

- Chris Copeland: Didn't have any lights back there so I got in the car and drove in the backyard and shined the headlights in the backyard and it was just unbelievable. Clumps of earth as big as our house were in the cove behind us.
- Claudine M.: Those clumps of earth that he's describing are actually huge mounds of coal ash. They'd come to be known as ashbergs, but he calls 911 and says there's a mudslide.
- Speaker 11: Roane County 911.
- Chris Copeland: Yes, I'm over at Swan Pond, and there's a heck of a mudslide or something that came through our backyard. There is ... I believe it's a [inaudible 00:09:19]. We live on a cove back here and it is full of mud.
- Claudine M.: Other neighbors start calling. They're confused. They don't know what's going on. Finally, emergency responders head to the scene.
- Speaker 12: All units responding to Swan Pond Circle. Kingston PD Officer advising the dikes have fallen, the dikes have fallen and [inaudible 00:09:36] the river.
- Claudine M.: She's saying the dikes have fallen. What she means is that a six-story dirt wall that's meant to keep the coal ash sludge on the power plant property and out of the river has given way. I want to stop here for a minute and ask an obvious question that I asked when I first learned about coal ash ponds. Why would utility companies tempt fate by putting coal ash on the edge of a river? It seems like a pretty dangerous thing to do, but when I learned more about power plants, I understood why.
- Claudine M.: Power plants are built near water because they need lots of it to operate. River water is often key to keeping a power plant cool. Coal ash, a byproduct of burning coal, accumulates quickly and shipping it to a landfill costs more than keeping it on site. So, most power plant operators choose to leave it where it is and instead store the coal ash in open-air, water-filled dirt pits. It's called wet storage and, to this day, hundreds of power plants across the country do this. That was the same method used at the Kingston Fossil Plant.
- Claudine M.: Though the ash pond at Kingston has passed a TVA inspection seven months earlier, the 60-foot dirt wall gave way overnight. It released nearly 50 years' worth of coal ash into the Emory and Clinch Rivers. The next day, everyone would see just how epic of a disaster it was and the news coverage would demonstrate that.
- Speaker 5: Millions of tons of ash and sludge came pouring out when a dike at a coal plant gave way this week.
- Robert Siegel: An unnatural disaster along the Clinch River, a spill of sludge.

- Speaker 13: Releasing a tidal wave of coal sludge into the area.
- Speaker 14: The ash coats a half-mile square sometimes as deep as 10 or 12 feet.
- Lesley Stahl: The spill was 100 times larger than the Exxon Valdez and it was all coal ash.
- Claudine M.: Relatively speaking, the homeowners were lucky. A dozen homes were swamped by ash and three were destroyed but no one was injured or killed. They were lucky that it was the middle of the night and winter. Had it been summer, a nice day when people might have been playing in the pond, things could have gone so differently.
- Claudine M.: As this disaster unfolds, people across the country like the people in Kingston are learning what coal ash is. They're learning that EPA didn't regulate this hazardous waste even though as far back as 1980, Congress was asking the agency if it should. NPR reporter Elizabeth Shogren interviewed Matt Hale, the head of the EPA's Solid Waste Office about this lack of oversight.
- Elizabeth S.: Basically, EPA has been studying this problem for 28 years. Is that right?
- Matt Hale: That's right. Yeah.
- Elizabeth S.: Why has it taken so long?
- Matt Hale: There's been a considerable amount of technical work, simply the processes require this amount of time.
- Claudine M.: Environmentalists like Eric Schaeffer, head of the Environmental Integrity Project called BS on all of this.
- Eric Schaeffer: The prevailing myth is that it's fake. We have EPA sort of buying into that for many years and really refusing to regulate this material for what it is which is highly toxic ash that leaches metals like arsenic and cadmium and mercury into drinking water and into rivers and creeks.
- Claudine M.: And, so now as homeowners in Kingston are actually learning what's in the coal ash, they are understandably starting to freak out. They're hearing that it has things in it like mercury, cadmium, chromium, selenium, aluminum, antimony, barium, boron, chlorine, cobalt, manganese, nickel, thallium, and vanadium. Heavy metals like these, even trace amounts lead to health problems, which is why it's shocking when TVA's Anda Ray who was their environmental executive at the time, goes on to 60 Minutes and basically equates coal ash to dirt.
- Anda Ray: I'd say that the constituents, the things that are in the coal ash, are the same things that are naturally occurring in soil and rock.

Lesley Stahl: So, is it like dirt? Would you say that? Would you say that sentence? That stuff is like dirt?

Anda Ray: That ash material is higher than dirt in two areas and that is arsenic and thallium.

Claudine M.: Let's talk about arsenic and thallium. Arsenic causes skin lesions and cancer. It's linked to heart disease and diabetes. Thallium can cause problems with the nervous system, headaches, fatigue, sleep disorders. People in Kingston are starting to talk. What would happen if this stuff got into their drinking water? So, four days after the spill, with the Tennessee Valley Authority's PR machine up and running, spokesman John Moulton assures residents.

John Moulton: Our sampling has determined that there's been no indication that the water would not meet drinking water standards.

Claudine M.: I'm not sure what he meant by no indication, but soon, officials were flip-flopping from day to day as to whether the local water was safe to drink. Understandably, Kingston residents were becoming skeptical. Then, the mayor of Kingston, Troy Beets, decides he's going to set his community's mind at ease during a press conference by pulling a little stunt.

Troy Beets: This is a cup of Kingston city water, the kind from my house and out of my tap and I just want to drink it for you right here. I'm going to be fine.

Claudine M.: Mayor Beets hoped his city would bounce back quickly and TVA implied it would.

Speaker 5: Any estimate as to how long it would take to clean all this up?

Speaker 20: They are being fairly optimistic at this point. They're hoping to have the entire area cleaned up within six weeks. They have-

Claudine M.: If you look at the photos from the time of the spill, six weeks is insane. Six weeks was never going to happen. It doesn't matter how many dump trucks they had working around the clock, the stuff was deep and it was everywhere.

Claudine M.: In the end, it didn't take weeks or even months. It took years. Six years before the EPA declared that the job was good enough. And, though much of the coal ash was shipped to landfills in Alabama and Georgia, TVA said 500,000 tons was too hard to remove from the river and so it's still there today. As for the cost of the six years of cleanup, \$1.7 billion, which utility customers in Tennessee are still paying for.

Claudine M.: But there are people who had to pay a much higher price. Earlier we said that people in Kingston were so lucky no one died because of this coal ash spill. Well, that's no longer true.

Jamie S.: There's going to be a lot of widows. A lot of widowers. It didn't matter what I report and it doesn't matter what happens in this case, there's going to be a lot of people whose families are just going to suffer.

Claudine M.: That's Jamie Satterfield. She's an award-winning investigative reporter for the Knoxville News Sentinel and she's been covering the story of the workers who cleaned up the Kingston coal ash spill.

Jamie S.: When the spill first happened, there was a crush of media. There was a crush of environmental groups. All of the focus was on the community, the impact on the community. No one, including my own news organization, cast a glance over at the workers. So, we're writing stories that this stuff might be terribly dangerous, it might be ... But, nobody is going, "Why aren't those workers in suits? Why is the EPA guys all Tyveked out and the workers aren't?" Nobody questioned that.

Claudine M.: They didn't have any protective gear when they were working out there?

Jamie S.: No, none at all. Your basic hardhat, your shiny vest, and blue jeans and t-shirt. That's what they were working in.

Claudine M.: Directly after the December spill, EPA workers show up in their Tyvek hazmat suits to assess the damage. They do some testing, and they become concerned for the safety of workers who are going to be knee deep in coal ash day after day. But by February, the EPA turns the cleanup job over to TVA. And, TVA brings on a contractor called Jacob's Engineering to help.

Claudine M.: Now that Jacob's was managing the coal ash removal, the workers' safety was in their hands. But Jamie says the workers were kept in the dark.

Jamie S.: They were never told that it was dangerous. They were told that there was nothing wrong with this stuff, that they could eat a pound of it a day and still be safe. Well, that, just on its face, didn't make sense, right? Because what I had discovered is the American Coal Ash Association doesn't make that kind of claim. I thought surely to goodness a responsible government contractor is not going to lie in that fashion.

Claudine M.: When you first started looking into the cases of these workers, were you skeptical?

Jamie S.: Yes, I was skeptical. And, of course, as an investigative reporter, I always go into an investigation with this idea that this is probably not true. It just makes me look a little harder at things. So, I was skeptical. I needed proof.

Jamie S.: So, by the third interview, I got it. A worker had secretly videoed conversations with supervisors out on that site in which the supervisors could be heard very clearly telling them that their breathing problems were pollen, not the ash, that this stuff was safe.

Speaker 21: I don't think it's the ash because I've got the same allergy problems that I've never had before and I talked to my doctor and it's not the ash. It's the pollen. This year is horrible. It's the pollen.

Speaker 22: Okay.

Speaker 21: Give it a couple more weeks. Take an Allegra or two-

Jamie S.: There were secret recordings about them being told that if they pressed this issue, if they demanded protective gear, they would lose their jobs.

Speaker 21: You think I'd hang myself?

Speaker 22: Yeah.

Jamie S.: Bear in mind, this is good money for these people. These are working people and this is good money. TVA pays well.

Speaker 21: Don't.

Speaker 22: Don't what?

Speaker 21: Don't hang yourself with your own (beep).

Jamie S.: Once I got those videos, I was off to the races.

Claudine M.: Okay, let's pause for a second here. Maybe at this point, you're thinking like I am. Why wouldn't a company do something? Even something minimal like a face mask to keep workers safe and to keep the company from getting sued? Here's what Jamie thinks is going on.

Jamie S.: It was a PR nightmare. So, the last thing you want is for your community out there and you're telling them, "Everything's safe. We're keeping you safe. We're checking your water. We're doing all these things. Don't worry." How worrisome it would have been for the community if they look over at the side and they see hundreds of workers outfitted in Tyvek suits, right? And, respirators and this scary looking gear. It would look as if the stuff is really dangerous, so they did not want to scare the community. As a result, they knowingly threatened the lives of these workers.

Claudine M.: Later, investigations would show that in a meeting with the EPA five months after the cleanup started, Jacob's Engineering insisted that their testing showed hazmat gear was not necessary to do this work.

Jamie S.: EPA did two things at that meeting. One, they made no requirement whatsoever for protective gear for these workers. So, they laid down on that issue. They gave up on that issue. The other thing that they did, that the EPA did, was to cave to TVA and they actually removed wording from signs around the site meant to warn the public. They actually had them remove the words hazardous waste.

Jamie S.: By May 2009, there is nothing to warn these workers. There's not signs, there's not pamphlets, there's nothing.

Claudine M.: Jamie began investigating all this in 2016, two years after the cleanup ended. She started finding one worker after another who was suffering from a variety of health problems. Workers like Jeff Brewer, who was perfectly healthy when he started working on site. Here he is in a deposition describing the symptoms he says he began experiencing from the coal ash.

Jeff Brewer: The eyes was burning, the headaches, the coughing up of that jelly junk. The swelling in my legs, the rashes of that stuff on my body, the breathing.

Claudine M.: Jamie says there are hundreds of cleanup workers who are having the same symptoms. Jon Cox developed a debilitating cough that he couldn't shake and after months and months and rounds of antibiotics, his doctor finally sent him to a specialist.

John Cox: His first question was, "Well, you wear a respirator, don't you?" And, I looked at him and said, "No, they say we don't need one, that this won't hurt us." He's like, "All this will kill you."

Claudine M.: Eventually, John Cox quit, but hundreds of his coworkers stayed on, working 12 to 15 hours a day, six to seven days week until the end of the cleanup.

Jamie S.: So, since then, we now have over 200 workers who were sick with either chronic or fatal conditions and I have over 30 who are dead.

Claudine M.: Just now you said, "I have over 30 who are dead," and I've heard you in the past refer in other interviews to workers you've reported on as my coal ash workers. Has this story become personal for you?

Jamie S.: Oh, absolutely. Give me just a second.

Jamie S.: Every time I sit down with these people, it is so wrong what happened to them. They showed up for work and they trusted their employers and now, they're

sick and dying and no one will take responsibility for it. They were expendable. Nobody really paid attention or cared about them.

Claudine M.: But, as you can hear Jamie cared about them and she told me this story. She had just finished interviewing a man whose wife has developed brain cancer and actually died while working as a flagger at the cleanup site. Jamie left that interview to meet a new couple who had just learned about the lawsuit from one of her articles. The husband had worked on the cleanup site too.

Jamie S.: And, he had been having some symptoms, but they didn't connect it to the work, right? So, I go out there and I'm in their living room and he was telling me about some of the symptoms he was having and it was exactly like the lady who died. I've never done this in my career. I looked over. I had a photographer with me and I had ... I said, "I'm going to let him video you so keep talking." And, I pulled his wife aside and I said, "Has he been tested for neurological conditions," and she said, "No." You could see this fright on her face. And, I said, "Get him tested. Get him tested."

Jamie S.: I cried all the way home and he has been. He's been tested. He's now part of this lawsuit and he is now officially dying.

Claudine M.: The lawsuit was brought against Jacob's Engineering by the workers, many of whom are sick with chronic illnesses like cancer, congestive heart failure, and pulmonary disease, all of which are consistent with heavy metal poisoning. In November of 2018, a jury ruled in favor of the workers who can now seek damages from the firm.

Claudine M.: What did you know of coal ash before you started looking into these cases?

Jamie S.: I knew absolutely nothing about coal ash. My daddy was a coal miner, but the danger of the ash itself, what was in the ash, I had no idea when I started this project.

Claudine M.: Had you thought about environmental issues before you started working on this particular case?

Jamie S.: I have to confess, I'm pretty much a red meat Republican. It's just the truth, and environmental stuff was just not something I paid a great deal of attention to. That's as honest as I can be about it, but I would like people who are like me, that are just average working people and you think, "The environment, they're just tree huggers," that kind of thing, it really is incumbent upon us to make sure that coal ash I regulated for what it is which is a hazardous waste in which no worker ought to be toiling without protective gear. It should not be stored in a haphazard manner. It should be treated as the dangerous, toxic substance that it is.

- Claudine M.: While the 2008 spill at TVA's Kingston, Tennessee Plant became a sort of poster child for the havoc wreaked by coal ash, it still wasn't enough to prompt the EPA to change its storage rules or even to officially declare coal ash a hazardous substance. In fact, six years later, when another spill occurred, this time in North Carolina, the regulations were still only in development. Federal rules were finally official in 2015, but are now being rolled back by the Trump Administration.
- Sarah McConnell: Broken Ground is supported by the Southern Environmental Law Center. The show is produced by Emily Richardson-Lorente, Nina Earnest, Jennie Daley, and the host, Claudine Ebeid McElwain. The theme music was written by Eric Knudsen and the archival sound used in the episode was found at the Knoxville News Sentinel and NPR.
- Sarah McConnell: This is With Good Reason. We'll be right back.
- Jason Sawyer: It was three months after I got there and I got a call from an advocate from outside the community who said, "Do you know what's going on in your backyard in your neighborhood?"
- Sarah McConnell: Welcome back to With Good Reason from Virginia Humanities. I'm Sarah McConnell. The voice you just heard was Jason Sawyer. He's a professor of social work at Norfolk State University.
- Jason Sawyer: She said that one of the landfills in the neighborhood had been depositing coal ash into one of the landfills there.
- Sarah McConnell: When he moved to a new neighborhood outside of Richmond, Virginia in 2010, Jason found himself in the middle of a dumping ground. Since that time, he's been reflecting on his community's struggle against the dumping of coal ash and how the fight to remove the coal ash pile reflects larger issues of environmental injustice.
- Jason Sawyer: This was a neighborhood where there were four landfills within a two-mile radius. This particular landfill was about a half a mile from the community center itself.
- Sarah McConnell: Just dumping a little coal ash here and there.
- Jason Sawyer: No, this was 85,000 cubic yards of coal ash, and they were storing it on the site at the time. What it looked like was a huge mound of black ash and soot that was higher than the landfill itself.
- Sarah McConnell: How were they going to use it? They were going to layer it with debris?

Jason Sawyer: Yes, so there's two different types of landfills. One is a municipal solid waste landfill like the trash that you have in your house goes in that type of landfill. The particular type of landfill that this landfill was was a construction and demolition debris landfill, which was demolition debris from construction sites. And, it doesn't have a smell. What they were doing is they were putting the waste into the landfill and then they were layering it with the coal ash mixed with soil. So, when they were approached about what they were doing, they said, "Were not depositing it in the landfill as waste, were using it as structural fill."

Sarah McConnell: Where does coal ash come from?

Jason Sawyer: Coal ash is the waste that's created from coal after it's been burned in power plants.

Sarah McConnell: Is it hard to get rid of?

Jason Sawyer: Yes, because what we're seeing right now is policy really hasn't caught up to what really needs to happen with this. There's issues all over the country with this kind of waste seeping into their water systems and into their soil.

Sarah McConnell: How toxic is it? What's in it?

Jason Sawyer: It's very toxic. It's got lead. It's got cadmium. It's got chromium. It's got arsenic. It's known to cause neurological diseases. It's known to cause cancer. It's known to cause heart disease, developmental disabilities. It's really bad stuff, particularly when it starts seeping into the water system.

Sarah McConnell: And, this was just a couple years after there had been a national story about a huge break in a pond that was holding coal ash sludge in Tennessee.

Jason Sawyer: Yes, yes.

Sarah McConnell: I read that a billion gallons spilled all over everywhere.

Jason Sawyer: Absolutely, and it contaminated both of the rivers that were there and it affected 300 acres. People lost their homes. This is not something that's regularly talked about in the media.

Sarah McConnell: The Tennessee problem was coal ash mixed with water and held in a pond to contain it. This was just a big pile of dusty coal ash residue, right?

Jason Sawyer: Right. Yes.

Sarah McConnell: Is that just as bad?

Jason Sawyer: It can be because what it does is it gets into the air and the communities that are generally affected by this are low-income communities, often communities of color or rural white communities. The first thing that we were actually concerned about was the air quality. So, we originally called the department of environmental quality to talk about the air quality piece of it and then realized that it could actually seep into the water system.

Sarah McConnell: Is that a typical big problem, coal ash on the ground seeping into the water supply?

Jason Sawyer: Well, localities are also able to get water permits to deposit the wastewater into rivers. Virginia legislator allowed one of the large power companies here in Virginia to do that in the James River.

Sarah McConnell: What does that mean? You can just dump coal-ash laden water into the river?

Jason Sawyer: It is treated. It's treated coal-ash laden water into the river, but advocates don't necessarily trust the fact that they're able to treat their water in a way that makes it environmentally sound because it's known to kill fish and wildlife.

Sarah McConnell: Did the residents of Fulton when you told them about the coal ash pile, were they alarmed?

Jason Sawyer: Folks were very alarmed and they responded in a way with lots of questions. One woman, in particular, I remember, talked about her child had started having issues with skin rashes and asthma. There was also a woman who ended up getting tested for having lead in her system. She does a lot of gardening and she also had been drinking tap water, so she was very concerned about the quality of the water and got a treatment through her doctor to get some of those toxins flushed out of her system. Because she had high levels of lead in her body and high levels of some other chemicals too that she believed were caused from the coal ash.

Sarah McConnell: But, there were also factories that were now long dormant that had been smelting factories and others that may have left contaminants in the ground.

Jason Sawyer: Absolutely, yes. That's true. So, these community problems aren't isolated. The community has a history already. This was one of the urban centers ... Well, just outside the urban centers of Richmond during the Industrial Revolution, so there were smelting factories there. The ground is contaminated. When we do community gardens, we had to have raised beds because of how contaminated the ground is there. So, we don't want to leave out the fact that this part of the city was one that has struggled with environmental justice issues before.

Sarah McConnell: If I can scoot ahead to what became of the mountain of coal ash, were you successful? Was the community successful in getting it removed?

Jason Sawyer: Yes. We were able to negotiate with the landfill to get the coal ash taken off the site. The community was with us every step of the way, so that was a huge success for us. The downside of it was actually that this coal ash went to another landfill 25 miles away in a community that was not as engaged. 25 miles south of the city of Richmond in a little place called Chester, Virginia.

Sarah McConnell: When the Flint lead in the water problem happened, did it immediately make you think about your experience with Fulton?

Jason Sawyer: It did. It was very familiar to me.

Sarah McConnell: Of course, Flint wasn't a coal ash problem. It was lead in the pipes leeching into the drinking water.

Jason Sawyer: Right, but it also had to do with commodities and money and trying to save money. The reason why they switched their water source is because they wanted to save money and the reason why the East End Landfill Company was willing to put this toxic substance in their landfill is because they got money for it. These companies need a way to dispose of these chemicals, right? Garbage is a commodity. Waste is a commodity.

Sarah McConnell: What was the lesson you drew from this? Was it poor communities are often the path of least resistance?

Jason Sawyer: It was a little bit different than that. I think that my main lessons were that when community people are able to build long-term relationships with each other and take care of those relationships, they can begin to mobilize the gifts and talents that they have to be able to say, "Not in my community. That's not going to happen." That's what happened in Fulton.

Jason Sawyer: One of the things that I learned was that everything that a community really needs to survive and to thrive, they generally already have. There are people who have real talents and gifts in those communities. There are associations of people and social networks of people in those communities who can build power. The relationship piece is really where it starts.

Sarah McConnell: Jason Sawyer, thank you for talking with me today on With Good Reason.

Jason Sawyer: Thank you so much, Sarah. So very grateful for this opportunity.

Sarah McConnell: Jason Sawyer is a professor of social work at Norfolk State University. Coming up next, historians and biologists working together to preserve a vanishing tree.

Sarah McConnell: This is the sound of biologists drilling into a tree core. The samples allow them to study the rings of living trees. Some contain hundreds of years of history. For

Rob Atkinson, professor of biology at Christopher Newport University, that history is key to saving this threatened species, the Atlantic White Cedar.

Sarah McConnell: The Atlantic White Cedar is important to John Holman too. John works as a cooper, or barrel maker at Colonial Williamsburg. During the 17th and 18th centuries, wood from the Atlantic White Cedar was used in homes from New England to North Carolina. Now, there are very few Atlantic White Cedars left. Rob describes some of what the early settlers had noticed about the Atlantic White Cedars.

Rob Atkinson: Well, actually when the very first colonists arrived in April of 1607, they encountered cedar at the mouth of Chesapeake Bay. It's not clear whether that was the northern edge of the Great Dismal Swamp, which is in Southeastern Virginia or maybe it was the much more common Eastern Red Cedar that we find on well-drained sites everywhere.

Sarah McConnell: What did they describe seeing? How large were these trees?

Rob Atkinson: Well, the description was rather brief because they were pretty quickly fired upon with arrows, but they did describe cedar along with pine and maybe one or two other species just very briefly.

Sarah McConnell: John, you are a cooper making the wooden casks and barrels for Colonial Williamsburg. Does Colonial Williamsburg use this Atlantic White Cedar for shingles?

John Holman: They do. Partly because it's so lightweight so it doesn't impose a whole lot of structural burden on the building when you're putting it up on the roof.

Sarah McConnell: How widespread and vast were these stands of Atlantic White Cedars when the colonists first arrived and what remains today?

Rob Atkinson: We have an actual photograph of a gentleman with an ax on his shoulder and he's clearly a big fellow, but the trees beside him make him look like a child. It is the densest growing forest in North America. The distance from one tree to its neighbor is the shortest distance for all of our native forest types. So, you just have to imagine you're walking into a dense, woody cathedral.

Sarah McConnell: So, are there still stands of Atlantic White Cedars?

Rob Atkinson: There are very small stands, not much larger than a house. Of course, it hardly mimics the original because they were just thousands of acres of just Atlantic White Cedar shoulder to shoulder that would have taken you days to walk through.

Sarah McConnell: How old can an Atlantic White Cedar grow to be?

Rob Atkinson: We thought that Atlantic White Cedar did not live to be very old because it was such a popular tree to harvest and the people who used to harvest it are all aged out because this harvesting began in the 1600s. So, there was an assumption that cedar was not a long-lived species. Then, a Stockton University professor was called into a site where there was excavation in New Jersey, and Doctor Zimmerman, is a professor, and he actually found 600 years of recognizable tree rings in one Atlantic White Cedar stump. Many years were missing due to damage. So, it was more than 600 years old.

Rob Atkinson: Our oldest trees that we've sampled in our dendroecology work only date back 80 years. Clearly, they were much longer lived in the past when we left them alone.

Sarah McConnell: A lot of us see scrub cedars here and there on various tracts of land. How do we know when we have an Atlantic White Cedar? What's the difference?

Rob Atkinson: Well, our common native Eastern Red Cedar, which is found in most states in the country, has very prickly branches, and the branches of Atlantic White Cedar are quite soft. Also, the needles are sort of rounded on Eastern Red Cedar and flattened on Atlantic White Cedar. Once you get up close, it's not hard to tell at all.

Sarah McConnell: George Washington and others from the founding era apparently already could see the destruction of some of these stand of White Cedars. Is that true?

Rob Atkinson: Peter Kalm was a Swedish botanist who was traveling in the northeast in the mid-1700s and his concern was Atlantic White Cedar was being harvested without replacement and that there was no suitable substitute for the lightweight, long-lasting Atlantic White Cedar shingles. He wrote, in fact, in his diary that every home in New England would have to be torn down and rebuilt so the walls would be thick enough to support whatever sort of roofing material replaced Atlantic White Cedar.

Rob Atkinson: There really aren't many recorded concerns for endangered species in that era and his motivation was, of course, economics for fear of a housing crisis with everyone rebuilding their home. Apparently, though I can't point to a document, it appears that George Washington and his investors were able to meet that demand. So, what would happen was his enslaved troops of shingle getters living somewhat autonomously in the Great Dismal Swamp, were able to float the shingles out to the western edge of the Great Dismal Swamp and use horses and mules and wagons to cart the shingles to Suffolk, Virginia, which is on James River near Chesapeake Bay in the Atlantic Ocean. So, that was well-suited for shipping and it would go mostly north because much of the South still had dense stands.

- Sarah McConnell: John, you use very little of the White Cedar, but some of it now. Did Colonial Williamsburg residents of Washington's era use more White Cedar in various building projects?
- John Holman: I think that goes back to the discussion about concerns about shortage of material or not. As Rob mentioned, in New England, where there wasn't as much of the White Cedar to begin with, it could quickly be seen as a diminishing resource, so I can see the concern there about running out of it for making shingles. Whereas with it being more readily available in the bigger stands here in the South, it became possible to export it.
- John Holman: But, as we move through the 18th century, as more and more land is cleared, not just from the standpoint of cutting down cedar to make shingles to ship up to New England or for local use, but also just clearing land for agricultural products, the landscape changed dramatically in a lot of places. I think one of the reasons that the stand of cedar in the Great Dismal Swamp held on for so long is because of the landscape of the swamp itself, the difficulty of moving into it and just clearcutting, which is what happened to the landscape more broadly.
- John Holman: By the time with got to say the 1760s or the 1770s, a lot of the timber that's being used for all sort of woodworking in the eastern part of Virginia is actually coming from areas further west because much of the landscape had been cleared, but there are certainly exceptions. Timber coming out of the Great Dismal Swamp would have been one of those exceptions.
- Sarah McConnell: Rob, you said the peat could be 30-feet deep at some places and apparently served a remarkable environmental function.
- Rob Atkinson: Absolutely, peat serves as a real water-holding function in gardening. Its ability to hold water helps explain how the Dismal Swamp formed. It's tempting to think that the swamp just filled in, but a more accurate picture we now know with a variety of science disciplines studying the problem of the situation, is that the peat started in low-lying drainages, basically streams that ran through the mostly dry Great Dismal Swamp. Then, over time, those drainages filled with peat and it crept up the sides of hills until all the streams sort of merged under a blanket of peat, which, by about three to 5,000 years ago covered the entire half-million acres.
- Rob Atkinson: It's that environment that Atlantic White Cedar is a uniquely tolerant tree species and does so well and helps explain the dense monotypic stands we find of it.
- Sarah McConnell: How does peat and these stands affect the environment around them?
- Rob Atkinson: It helps us avoid climate change because the peat is, of course, made of carbon. 50% of its dry weight is carbon. Any carbon in the peat is carbon that's not in

our atmosphere. Couple that with the fact that the trees that fall, had they fallen in most forests, they would just decompose and their carbon would go back to the atmosphere, but that's not what happens in places like the Great Dismal Swamp. When an Atlantic White Cedar would have fallen there, it would have lasted in the peat for centuries.

Sarah McConnell: You've lamented that there are scientists who are deeply devoted to the survival of the Atlantic White Cedar and who know so much about its history and its scientific properties, but that a lot of this is sort of gone as these scientists retire.

Rob Atkinson: That's right, Sarah. In the Great Dismal Swamp, the refuge founding documents required Atlantic White Cedar and other native habitats to be maintained. Now that order control structures seem to be helping the refuge raise water levels, it appears that the chance to reestablish Atlantic White Cedar is going to be back with us. So, we wanted to start the awcnw.org website to help keep those communication lines open among researchers and those with experience with the ecosystem and also have a repository for the old documents that used to track things like if you wanted to plant Atlantic White Cedar, how would you do that. That information will be lost unless there's a lot of effort put into having a place for it to reside.

Sarah McConnell: Remind me of how many acres there had been estimated and how many acres remain.

Rob Atkinson: Well, the Great Dismal Swamp is currently half a million acres and there's a wide range of estimates for the original extent, but it could have been more than two million acres, most of which would have been Atlantic White Cedar growing three or four feet apart and three or four feet across, possibly 100 feet tall.

Sarah McConnell: What's the extent of the White Cedar population there now would you say?

Rob Atkinson: Well, there are half a dozen places where stands, not much bigger than your yard at home, are still standing. That's down from 3,000 acres was a good estimate we had about 2003 when a hurricane blew those down.

Sarah McConnell: That's awful. Is the Atlantic White Cedar a protected species? Do we do that?

Rob Atkinson: In the United States, we have an Endangered Species Act that's federally managed and that was an encouraging factor. There's the Hessel's Hairstreak butterfly that requires Atlantic White Cedar, but the main reason why the refuge is formed to protect the Atlantic White Cedar is because it's a whole type of ecosystem that we lost.

Sarah McConnell: Well, Rob and John, thank you for sharing your insights on With Good Reason.

Rob Atkinson: Happy to be here.

This transcript was exported on Apr 29, 2019 - view latest version [here](#).

John Holman: Thank you for having us.

Sarah McConnell: Rob Atkinson is a professor of biology at Christopher Newport University. John Holman is a master cooper at the Colonial Williamsburg Foundation.

Sarah McConnell: Major support for With Good Reason is provided by the Law Firm of McGuireWoods and by the University of Virginia Health System, using advanced cardiac imaging to better diagnose conditions before they become serious health issues, uvahealth.com.

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