Episode 173: Stephania Fragosi

**KL:** Katie Linder

**MEDS:** Mary Ellen Dello Stritto

**SF:** Stephania Fregosi

**KL:** You’re listening to “Research in Action”: episode one hundred and 173.

[intro music]

# Segment 1:

**KL:** You're listening to Research in Action episode 173. Welcome to Research in Action, a weekly podcast about topics and issues related to research in higher education featuring experts across a range of disciplines. I'm your host, Dr. Katie Linder, Research Director at Oregon State University Ecampus, a national leader in online education. Along with every episode, we post show notes with links to resources mentioned in the episode, a full transcript and an instructor guide for incorporating the episode into your courses. Visit our website at ecampus.oregonstate.edu/podcast to find all of these resources.

I’m your guest host, Dr. Mary Ellen Dello Stritto. I’m pleased to bring you another episode in our periodic series focusing on quantitative methodology and statistics. On this episode, I’m joined by Stephania Fregosi, Sustainability Analyst at Portland Community College. In her role, Stephania completes greenhouse gas inventories, the Sustainability, Tracking, and Rating system report, does research, and provides other support for the college. She earned her Master’s Degree in Environmental Law from the Vermont Law School and her Bachelor of Arts in Environmental Studies from Oberlin College. Stephania has worked in a variety of sustainability roles including sustainability coordination, project management, environmental assessment, community development, and environmental education. She has a passion for social justice, equity, and inclusion and recently served on the Diversity & Inclusion Committee as part of the advisory board of the Association for the Advancement of Sustainability in Higher Education.

Thank you for joining me today, Stephania.

**SF**: Hi. Thanks for having me. I'm really glad to be here.

**MEDS:** Fantastic. We're going to talk a little bit with you today about your position as the sustainability analyst at Portland Community College. I think for our listeners, we should start today by defining what's in your title, that term sustainability? Can you start by defining that, and then describe your role as a sustainability analyst?

**SF:** Sustainability is about meeting the needs of present generations without impairing the ability of future generations to meet their own needs. Sustainability issues, in general, aren't limited to natural resources, but we look at social issues and economic issues because without … We can't really meet sustainability conditions without looking at those other pieces. That's what we recognize.

**SF:** In higher education, it's a broad field and it covers all of our operations and our team makes recommendations to operation and to student government, and as a group, we create outreach programs for students, staff. As the analyst, I am responsible for tracking data related to all of our progress indicators and measures, which include resource consumption like energy consumed, water waste, emissions from commuting or generating waste again, resource production. We have some photovoltaic arrays at the campus.

**SF:** I also write some light predictive models sometimes when we're making environmental decisions, like where are we going to be in five years with respect to our environmental goals. I help write grants, review customer proposals, do research around a pretty large variety of topics, everything from equity and how it's incorporated into climate action planning to solar feasibility. It's a really broad job. I'm just working on drafting sustainability procurement guide right now. Sometimes it's very data-driven and it's not, but not every aspect of my job is.

**MEDS:** Yeah. That's interesting because I think like you say your position is pretty broad and the work you do is pretty broad. I think that's why it's kind of important to sort of define it because people hear that term sustainability in many contexts. Is that correct?

**SF:** Yeah, they do. I mean people hear sustainability in, especially in the foundation, in the grants field, like they talk about economic sustainability. I think that's a pretty common term, and so that's really about being able to meet your financial needs. We talked about environmental sustainability and social sustainability, but in my field, it's really about the intersection of all three. We're really managing for multiple outcomes, multiple positive outcomes in order to create an environment that will allow us, future generations of students and people to coexist harmoniously.

**MEDS:** Oh, that's great. Are positions like yours relatively rare across the country or are they more common these days?

It's grown a lot since 2006, 2007 which I think is when I first started to see them advertise at a much more free current rate. When I went to colleges this position did not exist. There were people working on college campuses to do environmental activism. Sorry. But those positions started, I think that's when I started seeing them in the mid-200s, and not long after that the association for advancement of sustainability in higher education was formed and that those … So, I mean that I want to say there's about 600, 700 people who are officially like a sustainability something rather in this country.

It could be as many as a thousand and I have that in their title within higher education. Then, it's also common in the corporate field. There are a lot of people in the private sector that handle sustainability work as well. Those can range from natural resource positions to corporate social responsibility measures.

**MEDS:** Okay. That's really interesting. One of the reasons that I'm excited to talk to you today is to talk about the kinds of data that you use in your position. Can you talk a little bit about that?

Right. I work with both quantitative and qualitative data, mostly related to the environmental impact of operating the college. As I mentioned before, we track how much energy we use in forms of natural gas, electricity, how much fuel we use in terms of running our fleet vehicles and the vehicles that we use for public safety. But we also look at much more detailed things that are a little harder to quantify, but we are still able to, and those include the impact of commuting every day for employees and for students and how much waste we produce as a college.

We do that for a couple of different kinds of reporting functions. One part is tracking information for what's called the STARS system. The STARS system is a sustainability, tracking and rating system and it's a program run by the Association for Advancement of Sustainability Higher Education that's really formed as a way for different schools to compete as green schools.

There used to be a green schools list and it was like Princeton's best of list, and then there was another list, and ultimately, what was formed with this tracking and ratings tool that colleges kind of self-rate and you go through and you report out what you're doing and it allows for points of comparison. It's mostly used by four-year colleges, but as a two-year school, we really find it useful to measure our own performance. We do it as a self-assessment every few years, and it's not, that's not the part … I will be responsible for doing that, I'm not doing it yet, but we've been doing it a long time at PCC and we're presently silver-rated. You earn a rating and PCC is presently rated as silver for community colleges.

**SF:** We'd be about number two in North America I think. I think that's about right.

**MEDS:** Wow.

**SF:** Yeah. It's really cool.

**MEDS:** That's exciting.

**SF:** Yeah. It's a way to wrap off all of these different pieces of what we do here. Some of which are much more easy … are more easily quantified like the energy consumption and the fuel use, and then the less quantifiable things like the classes that we offer and the outreach programs that we do with students so our learning garden activities, right? It's a way of gathering all of that and turning it into an actual rating tool.

**MEDS:** Interesting.

**SF:** Yeah. Okay. The other thing that we are really part of is something called Second Nature's Carbon Commitment and we've signed onto the climate commitment piece of that. We've pledged to reach climate neutrality by 2050 at this present time. We might move that up, but as part of that commitment, every year were report our greenhouse gas emissions and what that is, if you're not familiar with climate change, greenhouse gases, they act like a blanket on the planet. They absorb energy and they slow the rate at which the energy escapes to space.

Different gases have different kind of effects and global warming potential allows us to compare the environmental impacts of different gases. We use a measure of how much energy one kind of gas will absorb over a period of time compared to the emissions of one ton of carbon dioxide over one period of time. That's why you always hear about MTCO2E, which is metric tons of carbon dioxide equivalent. It's not actually a gas that we're trying to measure, we're trying to measure all of these impacts of all these different gases in an equivalency sense that we can again roll up our data and try to understand what our systemic impact is from all these different types of activities.

**MEDS:** Wow. You look at a lot of really different data, different types of data.

**SF:** Right.

**MEDS**: Yeah. That makes it challenging and probably exciting all at the same time.

**SF:** Definitely. It does. I think we get different access to different amounts of data and the quality of it changes all the time and sometimes new technology allows me a really granular look that I didn't have before, and so we might adjust methodologies. We use different methods for different kinds of estimates. Greenhouse gas emissions are divided into three scopes and as you go progressively higher, one, two, three that data becomes less accurate.

Scope one includes energy production on campus, like if you had a coal plant on campus or something like that, fuel consumption, refrigerants. I tend to be things that the college really had direct control over the kind of policies that would affect change. Scope two is where the electrical production happens, and so most people have a utility company that they might be purchasing from so we can still do things at the college level to make changes happen so that we use less electricity, but we have less control over what the actual sources are. But the accuracy of the data against is still pretty high.

There might be some human error in there, but what we get it's a what you see is what you get kind of situation. We get our bills, we input data in, it's very easy to track. Scope three though it gets into this whole messy world of commuting estimates and surveys and it gets into estimating solid waste outputs. It gets into estimating supply chain outputs and trying to figure out what the impact of all of our various purchasing decisions are. The data changes as we talk about what we're doing. I think that's helpful to know.

**MEDS:** That's really interesting, and I hear in that last category you were using the word estimate, right? You're not getting kind of that direct measurement in that case.

**SF:** Right.

**MEDS:** Interesting.

**SF:** Yeah. It really starts getting to be an estimate where somebody says, "This is the average fuel efficiency for cars driven in the United States" Then, we have maybe some kind of survey. Hopefully, it's accurate. Hopefully, it's statistically valid that says this is the behavior that our folks are doing and 10% of them don't drive alone to work. Right? We're going to measure that with a different kind of estimate than we would use for vehicles.

We try and find out how far do you drive to work? How many trips do you make in a week? How many days are we open and ask for those kinds of questions to estimate with the impacts of just being open are on terms of people getting here?

**MEDS:** Interesting. That kind of leads us into the next question, which is what do you do with all of this data? How do you manipulate it for example?

**SF:** I think there's a lot of raw data and that we get at the most detailed level, right? It comes in kilowatt-hours and therms and cubic feet, gallons, number of students, et cetera. There's a lot of converting and transforming of things into the appropriate equivalencies. Unfortunately, there is an international protocol for greenhouse gas accounting.

There's the intergovernmental panel on climate change, which is part of the UN that has a lot of the equivalency type information that we use in order to make those estimates. We're constantly trying to update what the emissions factors are of different gases. That's one thing that we have to do. Then, especially when it gets to things like estimating supply chain outputs, it gets a little bit more complicated.

We literally go through our general ledger and we categorize it into different activity types. Then, we look at the economic input, output lifecycle analysis calculator that University of Pittsburgh hosted a while back and that has some estimates for what kinds of environmental output and in terms of greenhouse gases, we would expect from that type of activity. We're multiplying things out many times.

You look at the different behavior types, and so these kinds of things are office supplies, and this is the admissions associated with office supplies. That's one way that we'd have to manipulate the data. The other one that's really complicated is business travel, where I might be looking at financial data, purchase card records, and seeing what trips people made and trying to get that converted into the actual number of miles that they traveled, and then converting that again into emissions. How many metric tons of carbon dioxide equivalent does that produce? That's where things get funky.

**MEDS:** Wow. That sounds complicated. Is there anything else you want to talk about in terms of what you do with the data?

**SF:** Oh, sure. I mean, obviously, we have to report to accreditation a little bit about what we do. I think the main thing though is when we're doing environmental planning and trying to reach something like carbon neutrality is trying to figure out whether or not our goals are reasonable goals and figuring out if the targets are things that we can meet and how fast are we meeting them. There are really evidence for policy decisions.

**MEDS:** We're going to take a brief break and when we come back, we will hear more from Stephania about her analysis and decision making.

**KL:** The Research in Action Podcast is brought to you by Oregon State University Ecampus, a top-ranked online education provider meeting the needs of military service members. Take the Diaz family, for example, while Albert Diaz, his military service required his family to move across the country. His wife, Samantha, earned her Oregon State psychology degree online despite the distance and multiple moves, and soon after, Albert followed in her footsteps earning his post-baccalaureate degree online in computer science.

Read more about how Oregon State Ecampus fit the Diaz's military lifestyle and help them achieve their dreams at ecampus.oregonstate.edu\albert.

# Segment 2:

**MEDS:** How do you use that data that you've been talking about and what kinds of analysis do you do with that data?

**SF:** One of the interesting things about the way that we use our climate data is it's really for reporting purposes and it's really because we're members of a climate commitment were over 400 … I think it's over 600 institutions that actually signed this commitment. It's about being accountable to one another and all of that data's available publicly so you can go to the Second Nature website and you can actually find out what different schools had, who have signed onto this commitment have reported whether or not they're making good faith efforts to get their greenhouse gas emissions down, and what kind of projects they've done to do this, and what kinds of levels of analysis they're using?

It's all about forwarding and advancing the kind of research that we do around making climate change and making things better. That's probably the best way to say it.

**MEDS:** Okay. Interesting. What kinds of analysis do you do? You talked a little bit about some of them.

**SF:** Yeah. One of the things I look at is net change over time. I'm really interested in annual changes. I'm looking for trends. There's energy consumption and there's certain things that track with our enrollment levels too that make it harder for us to say, "Oh, we're going to be absolutely neutral without some other kind of other spending intervention." Because how much energy we use is going to be very dependent on how big a school we are, right? Because we're not saying, "Hey, we're not going to grow anymore. We're not going to continue our mission of higher education."

Of course, not. What we're trying to do is do that as best we can of still trying to meet these other conditions. Sometimes I also look at what a different policy might provide in terms of remedies. If we go and we buy this photovoltaic array, how much environmental benefit are we going to get out of it? How much is that spending going to get for that dollar amount? How much are we … Is this a project that we're doing because it's got value-added intangible or tangible ways and we might make the decision for non-data-driven reasons, but it's important to know what the data-driven reasons are as well.

**MEDS:** Are you talking about kind of like a return on investment kind of analysis too?

**SF:** Yeah. I do look at return on investment. I do look at life cycle for materials management too. Like what's the best, highest, best and highest use of solid waste? I do less of the actual trying to figure out what the life cycle of the various material are, but more of the research on reporting what those have been and how that's done so that we can make comparisons and say, "Hey, in this case, it's better to use reusable items over disposables or if we're going to move to durable dishware over using disposable, are we really making an environmental difference?" We need to look at those too.

**MEDS:** How does this data inform your work?

**SF:** With climate change, it's really easy to tell how we use it, right? We set a goal and we want to be carbon neutral by 2050 and right now a lot of places are looking at science-based targets, which are saying that in order to de-carbonization and do it equitably, we need to keep global temperature increase below one and a half to two degrees Celsius. We'd looked at moving our target date up and what would that do? Are we able to do it? What are the reasons behind why we might do that? How much it will cost us?

The closer we get to our neutrality date, the more that kind of analysis plays a role where we're starting to look more and more at a detailed level of what's going to happen, and can we reach it? One of the things I looked at recently was the statewide renewable portfolio standard has changed. What the utilities are purchasing, they have different makeups of like natural gas, coal, and renewable sources for their energy, and their requirements are shifting where they have to purchase more and more renewable energy over time.

The question then becomes for us, is do we need to move up our goals because they've moved up their goals? Do we want to be a certain amount above the curve or is that just going to help us meet our goal earlier on what's the right thing to do? If that makes sense, and so I looked at that as part of what's solar? Well, it was part of a decision involving purchase of solar, and so really wanted to know how much more we could kind of hold.

I mean, can we hold pace? I guess, is that really [inaudible] these aggressive goals, they were aggressive, are they still aggressive? Are they not aggressive enough? There's all these questions around what level of, whether a goal is … there are all these questions about whether the goal is aspirational or whether a goal is something that you can meet within a certain time period?

It's really important to understand what kind of goal you've set for yourself so that when we go and report to our board or we're working with students, that we're able to convey the correct message, especially if we want to move those goals up further, which I think we do. We're thinking about maybe looking at a goal of 2040, right? We need to show that we can make that a plausible goal. Regardless of … but at the same time, we have to balance out with what the plan actually needs, which isn't necessarily the same. Right? Whether institutional ability, we can't necessarily take it on all ourselves.

**MEDS:** Right. It sounds like this data informs your decision making, is that correct?

**SF:** Yeah. The data definitely informs some of our decision making.

**MEDS:** Can you give an example of that?

**SF:** One of the things that's happened in higher education is that we've gotten a lot bigger. We use a lot more space per student, and so one of the things we need to explain to folks is about our energy consumption is, yeah, our buildings are a lot more efficient, but we're still using very similar amounts of energy or we've actually decreased the amount of energy that we consume or was it just a fuel shift going on? So looking at what's actually happened, right? Then, trying to figure out, "Well, how can we solve this and do a better job in our future projects?"

Recognizing that we're constantly growing institution. We live in Portland, Portland Bay School is a very fast-growing area, even though growth has slowed lately, and that means that we've had a lot more students and we just went through this huge cycle that was extremely large where we had a lot of students and now we have a lot fewer students per building.

One of the pieces of analysis that some folks are working on, I've worked on in the past too, has to do with how we use building space, and whether or not there might be a reason to close down a building for a certain period of time. Right. Looking at the financial impact of that, looking at how much, whether or not something's efficient, how it's scheduled so all of those things kind of come into play in that kind of decision.

**MEDS:** That's a really interesting example and to kind of think about how that might impact the strategic planning for a university is really interesting I think.

**SF:** Yeah. We have a strategic energy management intern who does a lot of that work and my role on that really has to do with being the gatekeeper of all, how that, the system that we use, which is called the Lucid BuildingOS system and it is a computerized system where software from Urjanet Company is actually taking the utility data right from our bills and putting it into something that can turn it into manageable dashboards.

**MEDS:** That's interesting. I think you mentioned a little bit about this, but the next question I want to ask is about the challenges in analyzing all of this data. What kind of challenges do you encounter?

**SF:** A lot of it is trying to aggregate it and trying to make sure that we have data at the right scale for what we do and for the right choices, right? Aggregate data is much better for tracking of school wide long-term trend and measuring impacts for human beings here, and this aggregated data is much better for looking at like a building [inaudible] problem where you're trying to see what's going on within a given building and why there's an energy spike and trying to solve a specific problem around heating and cooling systems. That's one area.

The worst data is the commuting data where there's a survey that goes out to students and we survey everyone who answers the survey, right? This is sample [inaudible] and we don't have any control over that process. A lot of secondhand information and we're trying to refine that process so that we can have better data. Honestly, if we were to ever try to make a claim of carbon neutrality, that is where having more accurate data has the most value in terms of our investment, right?

**MEDS:** Good point.

**SF:** What we're doing with this data right now is we are using it comparatively. We're operating in good faith in trying to share that information with other people who also have similar challenges. We're not going to spend all of our money necessarily on creating a valid sample size like every single year. But we do use a group that take surveys regularly. This information comes from transportation alliance up here in Portland and they do provide us statistically valid information for faculty and staff. It's really interesting, and I often wonder if I should just assume that the behaviors faculty and staff is very similar to students.

**MEDS:** Oh, that's a good point.

**SF:** I don’t really have a good reason for that.

**MEDS:** Yeah. That's interesting. Interesting. Yeah. This is important to pay attention to, the quality and the sampling and all of these factors that we deal with in all kinds of research setting so that's great.

**SF:** I think also people just make a lot of assumptions when they hand you data about what they think you want, and so I found over the years that I really need to ask the questions in very specific ways and not make assumptions about how they're gathering the information. I mean, it's one thing to ask your trash company, "Can you provide me with trashed figures from what you use?" Another thing to have a trash company that's either weighing the trash or taking samples or making estimates based on how full a container is, right?

Then, you have to look at that and say, "Hey, is there a way that I could maybe sample the trash and come up with a better conversion factor?" Maybe their conversion factor isn't one I would use. The amount of control that we have is really difficult, really variable.

So, with trash, for example, in the United States, there's great estimates for how dense residential trash is, how much commercial trash is, and how much industrial trash is. Then, higher education, it varies a lot because our occupancy is kind of different, right? We don't have students living in dorms, so we're not really residential, but I wouldn't really call us a manufacturing industrial but we do have manufacturing on campus, and then we have a commercial aspect to what we do.

Then, sometimes it's easier just to go weigh the trash and see whether it looks like it's closer to one type of figure or another, and then go with the worst possible scenario, right? There's a lot of saying, "Okay, this data is flawed, and so, therefore, we're going to offer either a range on an estimate or we're going to say that we're going to use the worst-case and say, 'It's no worse than this.'"

**MEDS:** Interesting. Very interesting. That's something to consider is that you're getting data from all these different sources and that's a challenge, right? Is not knowing how that data was measured and how it was defined. So, that's an interesting challenge for any researcher using data they didn't collect. Can you provide resources for our listeners who want to learn more about using data for sustainability?

**SF:** One of the things that I would look at, I think first is the economic input-output calculator at Carnegie Mellon. That's a tool that I use to help track supply chain data, and I would also look at the Oregon Department of Environmental Quality and they have some pieces on how they manage to do commercial impacts of estimating supply chains too. They look at it in a slightly different way than we look at it.

The EPA has a number of calculators. Sometimes you have to dig to figure out where they've gone off to. They're not always right on the EPA website anymore. There's been a lot of changes in how that information is shared with the public. There's also an EP calculator, which is out there that helps calculate savings from energy efficiency. If you were working on a project say to turn off all the laptops or all the desktop computers at your college campus at a certain time, right? There's this calculator that helps you put in a certain number of computers and their operating hours, and then say … what, and how much your utility rate is, and then figure it out how much you'd save by making a changed behavior so those are good tools to know about.

**MEDS:** That sound like a lot of fun. We'll put some links to those in the show notes.

**SF:** Okay. I'll send you some of those. EPA has a warm calculator. I'm not sure if I mentioned that one. It's really around trash and materials management and you can do things like figure out like if I send, if I use the commercial system for doing compost and not able to do it on campus for some reason and I am sending that 35 miles away and I'm [inaudible] for my alternate scenario like when I was at [inaudible] and I would send it to the [inaudible], which was only four miles away. What's environmentally the best thing solution?

**MEDS:** Interesting.

**SF:** Here's some things that you can use those kinds of calculators for to help you just make decisions around class, natural class … I'm sorry. Around using glass versus plastic, and when it's appropriate. I think there's some really interesting cases where sometimes the thing that looks like it's less, more disposable might have less of an environmental impact in terms of climate change, but more of an environmental impact when it comes to harming wildlife.

Plastics is one of those areas where it can be a real challenge to figure out whether or not a given lightweight plastic is a good idea or bad idea. Then, sometimes the obvious solution is that you want to bring a reusable bag to the grocery store and just use it a whole hell of a lot. But if you don't use it a certain amount of times and it tends to rip and you buy it from somebody who does a terrible job and it's made a million miles away, it's not going to have that same impact that you hoped it had when you went out and you bought your reusable shopping bag.

**MEDS:** Interesting. That's a good point about the shopping bags. Any other resources you want to share?

**SF:** I also want to share the second nature carbon or climate commitment for those of us who are in higher education. I think got a lot of really great resources and it will help you figure out what kinds of greenhouse gases, how schools measure greenhouse gas impacts, and then there's also the greenhouse gas protocol, which is a good resource for anybody working and trying to estimate greenhouse gases.

**SF:** Then, I think lastly, I should probably mention the Sustainable Purchasing Leadership Council, which also has a lot of resources around supply chain and measuring chain and trying to work with procurement to create, to make sure that the money that we spend is spent in ways that we would like people to operate in our own lives and our own schools.

**MEDS:** Excellent. Thanks for talking with me today, Stephania.

**SF:** Well, thanks for having me. I really enjoyed our conversation.

**MEDS:** Thanks also to our listeners for joining us for this week's episode of Research in Action. I am Mary Ellen Dello Stritto. Join us next week for another episode.

Show notes with links to resources mentioned in the episode, a full transcript, and an instructor guide for incorporating the episode into your courses, can be found at the show’s website at [ecampus.oregonstate.edu/podcast](http://www.ecampus.oregonstate.edu/podcast).

There are several ways to connect with the “Research in Action” podcast. Visit the website to post a comment about a specific episode, suggest a future guest, or ask a question that could be featured in a future episode. Email us at riapodcast@oregonstate.edu. You can also offer feedback about “Research in Action,” episodes or share research-related resources, by contacting the Research in Action podcast via Twitter @RIA\_podcast. Finally, you can call the Research in Action voicemail line at 541-737-1111 to ask a question or leave a comment. If you listen to the podcast via iTunes, please consider leaving us a review.

The “Research in Action” podcast is a resource funded by Oregon State University Ecampus, ranked one of the nation’s best providers of online education with more than fifty degree programs and over one thousand classes online. Learn more about Ecampus by visiting ecampus.oregonstate.edu. This podcast is produced by the phenomenal Ecampus Multimedia team.

“Research in Action” transcripts are sometimes created on a rush deadline and accuracy may vary. Please be aware that the authoritative record of the “Research in Action” podcast is the audio.

# Bonus Clip:

**KL:** In this bonus clip for episode 173 of the “Research in Action” podcast, Stephania Fregosi shares her educational background and professional pathway that led her to her current position. Take a listen.

**MEDS:** So one of the things that we ask a lot of our guests is to talk a little bit about their pathway to their current position. Would you be willing to do that for us?

**SF:** Sure. So I was really interested in environmental and social issues as a teenager, and when I went to college I decided to study environmental studies. So I have a bachelor of arts in environmental studies and in English from Oberlin College. And then I went on to graduate school in law, and I have a master's in environmental law from the Vermont Law School. So in between those two, I was a paralegal at an environmental litigation firm and one of the things I was responsible for was managing a lot of paper. The kind of environmental cases that we were working on, just, they were about underlying cases. So we worked for the insurance company, and they were trying to recoup expenses put out on behalf of defendants that were trying to defend themselves against environmental lawsuits. So there was a ton of paper, and I spent a lot of time learning how to track that paper and summarize that paper, and so that was kind of my beginning into using and tracking environmental information.

And after graduate school, I worked for the Vermont Land Trust for a while as the environmental stewardship's assistant, and we had a database that we were working on to track all of our different ... We had conservation easements and a lot of land holding agreements that we were trying to keep track of, and what those agreements meant, and what kind of land that was. And so we had a database for that. So I learned a little bit more there and I think I did some work around databases in graduate school, too. And eventually I wound up, I think at Fort Carson in Colorado Springs as a consultant, and I was doing National Environmental Policy Act work, and I did some data tracking there too, where we were just trying to figure out our turnaround time, how fast we were turning out our responses for what the environmental impacts of any federal actions that we were going to do were.

And I really wanted to be in higher education, but as we discussed, I think at the beginning of the podcast, there are a whole lot of jobs in there. So I did a lot of meandering. I, you know, anyway.

**MEDS:** All right. That sounds like an interesting pathway. Any other pieces you want to add to that?

**SF:** I think one of the things is it just, I picked up different job skills at different jobs, and every time I went to go get a new job, I looked towards some new skill that I would be able to acquire. So I've done everything from doing research for the Ohio Environmental Council, to being a zoo guide at the Ohio Zoo and Aquarium, to working at, you know what I mean, to working in now two community colleges. I mean, this was all before the community college work. I did rural development work for a while, and all of it's still related. It's all still part of the same story around planning, public policy, and data analysis. And so I think once you have a theme, it's easier to kind of go with it.

**MEDS:** Yeah, it's interesting to look back and see the threads that tie our past work together.

**SF:** Yeah, and I think that the field has changed so much, so that even though, I think when I was a college student, I really had an idea that I could go work on college campuses and help with the operational sustainability. But as a field, it didn't really exist yet. So I kept looking for things where I would build new skills so that I could go help run a nonprofit, or I could kind of get to that public work that I wanted to do. And eventually they came up. It just took a long time. And then, you know, I'm married, as you know, to a college professor, and there was a lot of meandering around the college, around the country, that comes with marrying an academic who's a visiting professor at many schools. So I took a lot of interesting jobs in the meantime.

**MEDS:** Great. Well, thank you for sharing that journey with us. We appreciate it.

**KL:** You just heard a bonus clip from episode 173 of the “Research in Action” podcast with Stephania Fregosi sharing her educational background and professional pathway that led her to her current position. Thanks for listening.