

Just Footwear Forensics to Further Investigations

Introduction [00:00:01] RTI International's justice practice area presents Justice Science.

Introduction [00:00:10] Welcome to Just Science, a podcast for justice professionals and anyone interested in learning more about forensic science, innovative technology, current research and actionable strategies to improve the criminal justice system. In episode three of our case study season Just Science sat down with Laura Matson an advanced latent print and footwear examiner in the Wisconsin State Crime Laboratories to discuss the value of providing footwear investigative leads. Footwear impressions are commonly found in crime scenes. However, these impressions can be difficult to detect and collect, which leads to the under-utilization of footwear evidence. While traditional footwear analysis compares unknown impressions to a known shoe, footwear investigative leads provide the makes and models of shoes that may have created the unknown impression. Listen along as Laura describes using footwear investigative leads to accelerate an investigation, how her team is developing an internal footwear database, and advice for other agencies that want to further utilize footwear evidence. This episode is funded by the National Institute of Justice's Forensic Technology Center of Excellence. Some content in this podcast may be considered sensitive and may evoke emotional responses or may not be appropriate for younger audiences. Here's your host, Jaclynn McKay.

Jaclynn McKay [00:01:23] Hello and welcome to Just Science. I'm your host, Jaclynn McKay with the Forensic Technology Center of Excellence, a program of the National Institute of Justice. On today's episode, we will discuss the creation of a footwear database at Wisconsin State Crime Laboratories and the value of footwear investigative leads here to guide us in this discussion is advanced latent print and Footwear Examiner Laura Matson. Welcome, Laura. Thank you for talking with us today.

Laura Matson [00:01:51] Thank you for having me.

Jaclynn McKay [00:01:52] Listeners, it's a great day for presentations at the IAI conference, so there's going to be a lot of excitement and probably additional background noise. So bear with us. Laura Footwear evidence is commonly found on crime scenes. However, it can often be overlooked and takes a good chunk of time to collect appropriately. Can you speak to how often footwear is encountered and why it is often underutilized?

Laura Matson [00:02:17] One research study that I read that was published back in 2011 stated that approximately 30 to 35% of crime scenes actually have footwear evidence at them. However, it's one of the most underutilized types of evidence in the United States. We get a lot of evidence for latent prints and DNA. But over the years, we have seen a decline in footwear collection and evidence being submitted to the crime labs. I think one of the reasons for that could be just because it's not always visible at crime scenes. So unless you have a case where potentially you have a homicide and it's a bloody scene and a footwear impression is left in that blood, and it's not very obvious right when you walk in that there is a footwear impression that could be collected. I think that's one of the reasons why we're not seeing it, because there is a possibility that there could be latent footwear impressions, and that's not something that's often talk about and is something that a lot of agencies aren't aware of, that they could submit something to the crime labs and we could process and try to develop and or enhance footwear impressions from crime scenes. One other reason could be that the collection of footwear is a bit cumbersome. So for comparison cases, So when we do comparisons of footwear, we are looking for some

really fine detail like those little cuts which we call RACs or randomly acquired characteristics. Those can be pretty tiny in a outsole design of the bottom of your shoe. So when we asked for the collection of footwear impressions, we're asking for images to be taken and we're asking for images to be taken with a high quality camera, which can be expensive for some agencies. And we also asked that they use a tripod and they light the impression from four different angles. Then on top of all of that, we also ask them to collect the evidence, so it'd be a lift or a cast. So this is time consuming at a crime scene, and especially in comparison to just being able to swab for DNA. So that could be a deterrent to why some agencies are not collecting footwear impressions at scenes.

Jaclynn McKay [00:04:29] Laura, could you explain the concept of footwear investigative leads?

Laura Matson [00:04:34] Sure. A footwear investigative lead is when you have a question footwear impression from the crime scene, but you don't have a suspect or their shoe standard to do a comparison. So you would take that question impression, submit it to the crime lab, and we would do a search to see if we could determine the make and model of the shoe that did produce that question impression and then provide that to the agency.

Jaclynn McKay [00:04:57] Okay. And how is this different than traditional footwear analysis?

Laura Matson [00:05:02] A traditional footwear analysis case is when you would actually have a shoe that is submitted for comparison. So we would have the question impression from the crime scene as well as a shoe standard to do a comparison between the two. But the investigative lead there is just the question and impression.

Jaclynn McKay [00:05:20] So for the lead, you're taking the question impression, you're searching it in a database to try to find make a model of shoe. With the traditional analysis, you're actually comparing the question impression to either a known footwear exemplar or an elimination standard, correct?

Laura Matson [00:05:36] That's correct.

Jaclynn McKay [00:05:37] Does traditional footwear analysis ever come into play during the process of providing leads?

Laura Matson [00:05:43] Yes, it can. So if we're able to provide an agency with the make and model of the type of shoe that could have made it the impression the agency can go out and potentially find that shoe. And if they find that shoe, they can then submit it to the crime lab and we can do an analysis and comparison and do the comparison between the question impression and that shoe.

Jaclynn McKay [00:06:02] Laura, can you discuss what the benefits of a footwear investigative lead are to an investigation?

Laura Matson [00:06:09] Like I mentioned, it could help narrow down the types of shoes so it could potentially speed up the process in their investigation. And if they do find a shoe, like they could be submitted and analyzed for DNA. And trace. But in addition to that, when we do do a comparison, the comparison could potentially give inculpatory or exculpatory evidence that can be provided and used in court.

Jaclynn McKay [00:06:33] Can every footwear impression that's found at a scene be searched?

Laura Matson [00:06:38] Unfortunately, no. So a footwear impression is what is left when the bottom of your shoe makes contact with the surface. So the bottom of your shoe. Most shoes have some type of patterned design on them. The bottom of the shoe is what we call outsole design. So there's a pattern with that that has design elements. And every time the bottom of your shoe makes contact with the surface, there is a chance that you're going to leave an impression of that pattern. On the surface, it makes contact with. It could be a full impression, it could be a partial impression. It could be very little partial impression. So if we have a very little partial impression with little information, for example, say there's just two small circles in this impression, there wouldn't be much value in searching that because there's a lot of outsole designs that have two small circles. So even if we did search that, we're going to have a large population of shoes that could have made that impression. However, if your impression has those two small circles and then it below it, it has a herringbone pattern and then below that it has circles and maybe an X pattern. That's more information that we can use to narrow down the search. And so now we're taking that bigger population and making that smaller and then that that's more a value for an investigative lead.

Jaclynn McKay [00:08:02] Laura, you've talked about how footwear impressions are searched. Can you explain how this is done?

Laura Matson [00:08:09] Sure. So the Wisconsin State Crime Laboratories, we have several options to do searching. So we have created our own internal reference collection. And we also have an external reference collection that was created by Foster and Freeman called Soulmate FPX. We also currently are collaborating with other agencies and a collaboration group called Footwear Reference Collaboration Group, or the FRCG. And then we also have several online resources that we have use and become familiar with and have been a great value for us in searching. So if we get an impression, we will begin by searching all of those databases and then go from there.

Jaclynn McKay [00:08:52] Can you describe what led to the decision to create your own internal database?

Laura Matson [00:08:57] Like I had mentioned earlier, there's been a decrease in the number of cases that have been submitted to the crime lab. So between that and also every once in a while, we would actually get a request from an agency asking if we could help provide this information. And we really didn't have the resources or the time to do it because they submitted it. All we had was basically doing a Google image search or just seeing if we recognized it, which was really no different than what the agency themselves could do. And then, like I had mentioned earlier, we had noticed that there had been a decrease in the number of cases for footwear analysis and comparison being submitted to the lab. So we spent some time trying to figure out why, what was the cause of this. And one of the reasons is we were just wondering in general is there's just a lack of information, a lack of training. So we did start providing training. But then one of the other things we noticed is that when we were issuing reports, a lot of our reports actually were exclusions. So we would have a question of impression from the scene and the agency would submit a nonstandard. The outsole design of the shoe was different than the pattern from the impression, and we would just say, sorry, this isn't the shoe exclusion. And that was it. End of story. The way the Wisconsin State crime lab is set up is everybody who does footwear analysis and comparison also is a latent print examiner. And if you're

familiar with any of the other disciplines, Latent Prints has a database for fingerprints and palm prints, and DNA has CODIS. There's also facial recognition now. So in latent prints, if we had a case and we excluded somebody, we still had the ability to then take that prints and throw it into the database and potentially provide the agency with useful information on who may have left that prints. So we were wondering, could we do something like that for footwear? So could we, instead of just saying, nope, this shoe didn't make it, could we actually say no, The shoe didn't make it, but this is the type of shoe you should be looking for. So that's one of the main reasons that we started looking into this.

Jaclynn McKay [00:11:12] Sounds like there's a lot of benefits to this program.

Laura Matson [00:11:14] Yes, I believe so.

Jaclynn McKay [00:11:15] You mentioned that for this internal database you're searching these impressions in. Kind of three different cohorts of databases. You had the Foster and Freeman, one that your own internal one that you're building, and then other resources that you have. Can you explain how you actually built your internal database?

Laura Matson [00:11:37] Our internal database actually began as an internship project, so we had an intern that came in and utilized all of our work product to start building the database. So when I talk about work product, what that means is every case over the years that we have worked, when there was a comparison case that came in, we typically take that shoe that is submitted for comparison with powder, the bottom of the shoe, and we create an overlay. And that overlay was then used for comparison. That overlay is considered work product and has always been retained at the lab and that information concluded the make and model of the shoe. So the intern would take those overlays and then begin with the project that way. From there we started to build and we started to continue to do that with every new case that came in. So every time a new case came in, we would make one extra overlay and then that would be added to the database. And then finally, what we do now is we bribe and harass our coworkers. And so now we have donation boxes at our labs. And one way that we have been doing it is we've asked them if you were planning on getting rid of your shoes, please donate them to us. And then we go about adding those shoes into our internal database, and then we do the donations for them. And a lot of other times, even if somebody gets a brand new shoe at the lab, they know what we're doing and they'll come down and actually add it to our database for us. So there's a lot of collaboration, even amongst the crime lab, not just within the group, but just amongst our coworkers as well.

Jaclynn McKay [00:13:18] That's really exciting for those who may not know, can you describe what an overlay is?

Laura Matson [00:13:23] So an overlay is like I mentioned that. So what we'll do is we will take powder just basically like the fingerprint powder you see on all the crime shows, and we'll apply a thin layer of that to the bottom of the outsole, the bottom of the shoe. And then there is an adhesive, like a large piece of tape that covers the entire bottom of the shoe. And we make an impression. So we'll actually like press that adhesive to the bottom of the shoe so that we are lifting off that powder. And then we cover that with a large piece of clear acetate so that basically you can see through it. And then you could use that to overlay over an image of the actual question impression.

Jaclynn McKay [00:14:05] Laura, you talked about creating the overlays from the outsole of this shoe. Are there any other types of information that is stored in the database?

Laura Matson [00:14:14] Yes. So we make sure that with every impression that is added to the database, we actually have images of what the uppers look like as well as obviously the make and model of the shoe that made it. We also include an image of what the bottom of the shoe looks like, but the main thing is to actually have that impression image in the database, because even if you have that image of the shoe, that image may actually look different than what the actual impression looks like. So you actually want to have what the impression looks like in the database because that's what you're actually going to be looking for when you're searching at the Wisconsin State Crime Laboratory is that we also have decided to make sure that we include the size, whether we know if the shoe is a men's women's or youth size. And then we also include the tag information, because the tag information can potentially provide valuable information later on.

Jaclynn McKay [00:15:10] Do you ever offer an estimated size when you do the leads, or is it just make a model?

Laura Matson [00:15:16] Just make a model. Okay. So we even just comparison like they say, we talk physical size. When we say physical size, we don't mean size nine or size seven just because, like, there's such a range that same outsole design could actually be used for like two different sizes. So we can't really say this is a size nine or a size seven. When we say physical size in our comparisons, we're actually talking about the design element size.

Jaclynn McKay [00:15:42] Laura, can you talk a little bit about what you can glean from that tag information?

Laura Matson [00:15:46] Sure. So the tag information can have some valuable information. For one, if we're unsure what the make and model is like, we may have an Adidas shoe, for instance, but there's no information on it to let us know what the actual like model of that is. The tag information will have some numbers on it that we can then research and try to limit or determine what the model is from that. The other thing that it can be helpful is that this internal database, even though it's used for investigative leads, if we do have a comparison case later on. And we're comparing and submitted shoe standard for that case. We do have the resources of the overlays from the internal footwear database. So if we're struggling in a comparison, trying to decide or determine if something is potentially a manufacturing defect or there are certain mold characteristics that tag information that tells us what mold that potentially came from, and then we can use those overlays during the comparison and see if those are unique features or maybe they are part of a mold characteristic.

Jaclynn McKay [00:16:58] So I asked you about whether or not traditional footwear analysis can come into play when it comes to that, providing the investigative leads. But when you're doing traditional footwear analysis, is searching those databases automatically a part of your workflow?

Laura Matson [00:17:16] No, not always. We do have it there if need be. The only other time that it could be useful would be in those situations if we needed to do a comparison and we weren't sure if this was unique, if this is a randomly acquired characteristic or if it was potentially a part of the mold. So in those situations, if what we have in our internal database came from that same mold of the shoe that was submitted for comparison, we could use that information to help us determine that towards our conclusions.

Jaclynn McKay [00:17:47] Okay, that makes a lot of sense. So what laboratory employees use the database.

Laura Matson [00:17:54] So there are three of us that currently use the database at the Wisconsin State Crime Laboratories, and we're all footwear examiners at the lab.

Jaclynn McKay [00:18:01] Can local agencies within Wisconsin submit footwear impressions to your state lab for assistance? And can non-Wisconsin agencies get assistance?

Laura Matson [00:18:11] Any agency in the state of Wisconsin can submit a question Footwear impression to the Wisconsin State Crime Laboratories for Footwear Investigative Lead. Unfortunately, right now, the Wisconsin crime lab is just take cases from local agencies within the state of Wisconsin. So if you are an agency outside of Wisconsin and this is something that you would want to do, I would suggest beginning with your local agency crime lab and going from there.

Jaclynn McKay [00:18:38] For agencies that want to start their own internal database. Do you have any advice you can offer them, like what they need to consider or any lessons you've learned along the way that you can provide?

Laura Matson [00:18:50] It does take time to do, but I would recommend doing it. I think it's been a very valuable tool for the agencies that have used it in the state of Wisconsin. They're the things that we've learned is, one, it does take time. So I would suggest that if you have an intern or you have some type of internship project, this is a great way of going about it and having the database built. And then I would recommend also before getting started, figure out exactly what you want to do with the database, like what are your goals? So not every agency is going to want or need the sizing like Wisconsin has chosen to do. But what is it you're going to document? Are you going to just want the make and model? The tag information? How are you going to go about obtaining the impressions and taking the images? And then most importantly, how are you going to store all of this? Like, how are you going to make it into a database that is searchable that you can easily use?

Jaclynn McKay [00:19:48] I think that's a lot of really great advice. You mentioned the Footwear Reference Collaboration Group or FRCG. Can you talk a little bit about how that was established.

Laura Matson [00:19:59] That Footwear Reference Collaboration group was created when Foster and Freeman, who were the manufacturers of our external database soulmate FPX, decided that they were no longer going to update the system. So when we purchased the database, we received quarterly updates from Foster and Freeman, and when they decided that they were no longer going to update that, we lost a big resource in providing our footwear investigative leads. So once we started realizing that, we're like, What are we going to do? And from there we started talking to other agencies and that's when the group was formed.

Jaclynn McKay [00:20:36] So it sounds like updating your internal database kind of came out of a necessity because the external one was no longer being updated.

Laura Matson [00:20:44] To a degree, yes. But we were doing the internal database at the same time, but not to the degree that we were doing it after Foster Freeman stopped updating.

Jaclynn McKay [00:20:54] That makes sense. Can you talk a little bit about how the collaborating laboratories were chosen and what this collaboration entails?

Laura Matson [00:21:02] When Foster Freeman stopped updating the database, we figured we couldn't be the only ones in this predicament. I had a friend that I had met who also did footwear analysis, Amy BLOCK from the Minnesota BCA. She no longer works there, but at that time they also had the same database. They also had soulmate FPX. So her lab and my lab started talking and started figuring out if there is a way that maybe just the two agencies could work together. And if, you know, Wisconsin State Crime Laboratories got a case and we didn't have this issue in our database, could we potentially contact the BCA and they could check their database? There was a way we could make that work. From there, my coworker Vanessa Sykes, took over the collaboration and she started working with Amy and they started working with Foster and Freeman at the same time and learned that if you had this database, the FPX specific database, you were able to upload your own internal reference collection into their database. And they sort of wondering if there was a way that we could then share. And from there, the two of them working with Foster and Freeman, determined other labs who also had FPX. And we started the collaboration group with all of the agencies that currently have that.

Jaclynn McKay [00:22:23] So can every agency who's updating their internal database share that with other agencies, or would you just contact another agency that has built up their internal database and asked them to search impressions for you?

Laura Matson [00:22:39] So what the way that the collaboration group is set up is that bi annually, so twice a year, every lab that is participating in this needs to create at least 40 new outsole designs or impressions to add into their internal database. Once they uploaded into their internal database, they can then share it with the other labs. So once it's uploaded into theirs, they can then take that information and then share it with the other labs that are participating so that when I go in search, their database is also on my computer.

Jaclynn McKay [00:23:15] That's really exciting.

Laura Matson [00:23:16] Yeah, that's pretty cool.

Jaclynn McKay [00:23:17] How many agencies do you have participating now?

Laura Matson [00:23:20] We currently have 24 total labs from 16 states in the U.S. and it also includes the Royal Canadian Police.

Jaclynn McKay [00:23:29] Wow. So if other laboratories wanted to get in on this collaboration, could they get involved and what would be the next steps?

Laura Matson [00:23:37] Unfortunately, unless you specifically have the soulmate FPX system, you are not able to share your internal database. So you don't have those sharing capabilities. And that is what we are requiring in order to be part of the collaboration.

Jaclynn McKay [00:23:53] That makes a lot of sense. So if any agencies out there have the FPX soulmate and want to get involved, should they contact you? Yes.

Laura Matson [00:24:01] They can contact me and I can definitely get them involved into the collaboration group.

Jaclynn McKay [00:24:06] Perfect. So for the agencies that don't have the FPX soulmate, what could they do?

Laura Matson [00:24:11] They still have several options. They can begin their own internal database, and that actually starts growing quite a bit too pretty, especially if you make this into an internship project. Somebody spends a lot of time doing that. That's going to build fairly quickly. You can also collaborate not necessarily with this group, but you can start a collaboration with other crime labs in your area and start working with them. If they're starting a collaboration, maybe you work together. We do a lot of crowdsourcing as well when we do our searches. So even if we're not able to find it in our database, we have the ability to like, reach out and be like, Hey, we take out all the case information that's involved, but we can send it out to other footwear examiners and be like, Does anybody recognize this pattern? And we see so many shoes. A lot of the time somebody does recognize the pattern and is able to provide us the information that way. Or they may even be like, I don't know that exactly, but that looks like this type of shoe and that can help lead you down that path of finding the correct shoe. I should also mention that not only they can start their own internal database, but there are other external databases out there that are available now or are in production.

Jaclynn McKay [00:25:29] So for the agencies that don't have the software that will allow them to share what they're uploading to the databases, theoretically, I know this might be a little bit more work. Could they share their reference collection and share their overlays? And then other agencies could import that information into their own databases?

Laura Matson [00:25:50] Yes, depending on like how they are storing their images, they could potentially share with each other as well.

Jaclynn McKay [00:25:57] What about other online resources?

Laura Matson [00:26:00] So when I talk about online resources, I'm talking about like being able to take a shoe and narrow it down a little bit more. So if we find something that looks similar to what we're looking for and we know that looks like a Nike zoom or a Nike Zoom five, if that even exists, I'm not sure. But we could potentially go online and be like. Okay, Well, let's see if there's a Nike zoom four or a Nike Zoom three and then potentially use resources online that way to kind of narrow down and see if we can find something that does match.

Jaclynn McKay [00:26:32] Can you talk about some cases that you've provided footwear, investigative leads on that have had a successful outcome?

Laura Matson [00:26:39] Yes, There's two that come to mind right away. And the first one, we did have physical evidence that was actually submitted to the crime lab. They didn't know if there was any footwear impressions on the item at all. So we did do some processing and we did develop footwear impressions. From there, we took those footwear impressions because there was no suspects at that time. We took the footwear impressions and we utilize the database to see if we could find something that matched. And from there we were able to provide the agency with an investigative lead. In the meantime, the agency did develop a suspect. They were able to take the information from the investigative lead and put that into the search warrants. So when they did the search of

the suspect's house and they opened up the closets of the suspect, the suspect had a lot of shoes. So in particular, the shoe that left the impression was a running shoe. And this individual was I believe they were a runner, but they had a lot of running shoes that kept all of their shoes. But because of the reports, they were able to limit the shoes that were actually submitted to the crime lab. So if this had been their suspect initially and they knew that there was a footwear impression, they may have potentially have had to submit all of those shoes for us to do comparisons on. But because of the investigative lead, they were able to narrow it down to, I think, maybe one or two that had the same outsole design. And then we were able to do the comparison to just those two shoes instead of potentially 25 shoes. One other case that we had was also an unsolved homicide, and it was it had gone cold for several, several months, I believe. But the crime scene unit had submitted images and I believe a cast of the of a footwear impression from the crime scene. And another analyst was able to locate the type of shoe that they believed made that impression. And like I said, it went cold for a while. But when they eventually did find the suspects and they brought the suspect in for questioning during the interview of the suspect, they happened to look down. And the suspect is actually wearing the shoes that were provided in the footwear investigative lead reports. So they were able to actually collect the shoes right then and there from the suspects and then submit those to the crime lab for comparison.

Jaclynn McKay [00:29:04] I think those are two really great examples of how these leads are very beneficial to investigations. I mean, if nothing else, it's creating a more efficient workflow for forensic footwear examiners. And then it's also helping narrow down what evidence do we actually collect.

Laura Matson [00:29:21] Exactly.

Jaclynn McKay [00:29:22] Can you talk about how often the database has been used and how often it's providing viable leads?

Laura Matson [00:29:29] We actually use the databases quite often, if not for our own cases, but to assist with other agencies. In the Footwear Collaboration group. In Wisconsin, we have received 75 cases in the last five years, and out of those 75 cases, 66 of them, we have been able to provide a footwear investigative lead on.

Jaclynn McKay [00:29:51] Wow.

Laura Matson [00:29:52] So it's been a very successful tool.

Jaclynn McKay [00:29:54] Yes, very, very high success rate. For our listeners, if anyone's interested in the Webster Groves High School database, will be sure to link that on the FTCOE landing page for this episode. You mentioned that your agency has gotten 75 cases in the last five years, specifically for footwear investigative leads, and you've also previously talked about how footwear evidence is often underutilized. What can agencies do to try to get more buy in with regards to submitting footwear evidence?

Laura Matson [00:30:27] I think training is going to be a big part and informing agencies. And the best way, the easiest way to properly collect the evidence so it doesn't take as much time. They're more familiar with it, the more comfortable with it, so they're more likely to do it. But I think that instead of just realizing that this is just for footwear evidence, I think that being able to connect it and show how these can also be used to connect the shoes to the scene of the crime with DNA, with trace evidence, that it's not just for footwear evidence itself, but it can help in other areas.

Jaclynn McKay [00:31:02] In thinking about the future of footwear investigative leads and footwear databases. What direction would you like to see the field take and what gaps currently exists that you would like to see filled?

Laura Matson [00:31:14] Again, training I think, is a big one as far as the gaps. Just making sure people are learning that just because you don't see it doesn't mean it's not there. There are latent footwear impressions as well that we can utilize enhancement techniques, whether that's with processing or imaging enhancements. And then it would be fantastic if we could look at the future and maybe see if we could create some type of national footwear database. We have that for latent prints. We have, you know, we have the fingerprint and palm print databases. DNA has the CODIS databases. We have facial recognition now. So if we could maybe look into finding a way to work with manufacturers and get their outsole designs into a national database, I think it would become a huge success.

Jaclynn McKay [00:32:02] I think the future looks very bright for this field and I hope for the same thing. Do you have any other final thoughts for our audience?

Laura Matson [00:32:10] So if I'm going to say anything, I guess I would say even though it takes time, just go for it, do it. We've had a lot of success in our cases and working with others. Be creative. The ways that I've mentioned here, those are what we've come up with. You may come up with better ideas. Even if you have limited funds, be creative. You can find ways that you can make this work, taking donations from coworkers and building the database that way, collaborating with coworkers, collaborating with other units and agencies. And then I think a big one is because we do have casework and the people who are using this are analysts and we have casework to get out the door, utilize interns there they are out there. They want to get involved. They they want this experience and they would be a huge resource to you and us.

Jaclynn McKay [00:33:02] And I know a limitation on internships is they can't actually work on active cases. But helping build a reference collection is easily in their wheelhouse. Laura, thank you so much for your time today. It has truly been a pleasure speaking with you.

Laura Matson [00:33:17] Thank you. And I just want to give a quick shout out to some of my coworkers, Carly Hewlett, our supervisor, Maria Gibbs, and then Vanessa Sykes, who has been played a huge role in this collaboration, as well as Amy BLOCK, who used to work with the Minnesota BCA, who helped Vanessa with FRCGr.

Jaclynn McKay [00:33:37] If you enjoyed today's episode, be sure to like and follow just science on your platform of choice. For more information on today's topic and resources in the forensics field, visit Forensics COE dot org. I'm Jaclynn Mckay, and this has been another episode of Just Science.

Laura Matson [00:33:58] Next week, Just Science sits down with Josh Yanowitz to discuss the evolution of forensic voice identification. Opinions or points of views expressed in this podcast represent a consensus of the authors and do not necessarily represent the official position or policies of its funding.