Just Forensic Archaeology and Body Dump Sites

Introduction [00:00:05] Now this is recording RTI International Center for Forensic Science Presents Just Science.

Voiceover [00:00:18] Welcome to Just Science, a podcast for justice professionals and anyone interested in learning more about forensic science, innovative technology, current research, and actual strategies to improve the criminal justice system. In episode three of our Case Studies Part one mini season, Just Science sat down with Dr. Sharon Moses, an Associate Professor of Anthropology at Northern Arizona University, to discuss forensic archeology and locating victims of no-body homicides. Forensic archeologists can play a critical role in body recovery and search strategies for locating human remains because homicide offender's choices and body disposal sites are influenced by various social and environmental factors. Forensic archeologists use their traditional skill set and understanding environmental factors and animal scavenging behaviors to help streamline resources, narrow search fields and calculate a point of origin after scattered remains are found. Listen along as Dr. Moses discusses the relationship between forensic anthropology and archeology, reconstructing human and animal behaviors and firsthand experiences recovering human remains. 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 [00:01:34] 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. Today, we will be discussing forensic archeology and body dump patterns. Here to guide us in our discussion is Dr. Sharon Moses. Welcome, Dr. Moses, thank you for being here with us today.

Dr. Sharon Moses [00:01:53] Oh, thank you for inviting me.

Jaclynn McKay [00:01:55] To kind of start out this conversation, would you mind providing the audience with a little information regarding your background?

Dr. Sharon Moses [00:02:02] I have received my doctorate in anthropology, emphasis in archeology from Cornell University. My research and dissertation work were based on actually a prehistoric site in Turkey called Çatalhöyük, which is a World Heritage site, but my interest has always gone off in the direction of forensics. I actually started out studying for forensic psychology and did an internship one summer with a psychiatrist who worked with the county I was in at the time, and they did court ordered therapy sessions for people who were convicted of violent crime and sexual assaults and things like that, and I was a group co-facilitator. But at the end of the day, I ended up switching my focus into anthropology for cultural things and then eventually into archeology, because that kind of circled back around to the human body as well as the mind and how people behave and do what they do. Which brings me into the subspecialty of forensic archeology, which is essentially helping to locate and excavate clandestine burials and or body dumps, documenting those for the case files, any kind of scientific evaluation of the site itself as well as the human remains. In actuality, I think that some people confuse archeology with anthropology in terms of physical anthropology or forensic anthropology and I would like to clarify that forensic archeology is basically using archeological principles that have been adapted in some respects to provide evidentiary preservation of evidence at the scene that can be then turned over to the lab personnel and other analysts, as well as documenting

scientifically for court. Whereas a forensic anthropologist is someone who specializes in human bones, the skeletal structures, and can offer biological profiles based on skeletal remains. Sometimes they work in concert with the medical examiner, but they're more in tune with the soft tissues of the body, whereas the forensic anthropologist is about the bones. So for me, I emphasize the forensic archeology end of it, but I'm also aware of what they call psychological anthropology, which is the cultural side that deals with how culture and historical period and social norms and peer pressures and identity, all those things come together to create personality. And then that comes into play when you understand a crime scene in terms of the kind of behavior evidence that's left behind and what your offender has done or not done.

Jaclynn McKay [00:04:55] Thank you so much for all that. You have quite a fascinating background. So I guess from there, would you mind giving our audience maybe a little bit more background on historically how forensic archeology has been used in search processes and mass casualty events?

Dr. Sharon Moses [00:05:14] A lot of times, unfortunately, the association with forensic archeology is that they're the person with the shovel and they're the person that's going to collect up the parts and assess the bones and what they have and what they don't have, etc., etc. But in actuality, forensic archeology was used in humanitarian efforts to help search for people as well missing persons when there was a suspicious disappearance where they thought that the body was put somewhere. And that has to do with geographic profiling, which is one area of research that I'm very interested that I've been working on, is the combination of assessing a landscape and using archeological understanding of a landscape and how human beings navigate landscapes depending on what their motivations are. All animals tend to go with what they call the path of least resistance. In other words, if you're going through the woods, it's a whole lot easier to follow the path that's already beaten down by someone else before your or an animal trail than to strike off and take a shortcut unless you're pretty sure where that that's going to lead you. A forensic archeologist is going to understand that someone trying to hide something has perhaps a different set of motivations and like profiling and psychological anthropology, pulls together what you know about the offender, and this is assuming that you know something about the offender, but you can't find the body, called a no-body case, which becomes very difficult to prosecute. Essentially, you're going to do a list of that individual's home area, work area, hobby area, because people tend to go with places they're familiar with dealing with risk factors of being discovered, getting rid of a body and so on and so forth. But human beings are also different from animals in that their motivations sometimes make not a whole lot of sense. And that's when you get into individuals like family annihilators or serial killers who actually sometimes want the body to be found as soon as possible. They'll display it or they'll put it in inconvenient places. Even if they are hiding a body, for instance, they will stake out an area that's almost like a monumental place because it gives them a thrill to later be able to drive past like a rocky outcrop or even an actual monument area and know in their heart of hearts, I have a body that's buried under that and nobody else knows it but me, and they can relive that each time they go through that area or past that marker. So there's that to consider. You have to combine all these aspects about profiling and knowing your offender and calculating, given their preferences, likely areas to search for that victim. Now, in geographic profiling, the way that works is normally you don't know who your offender is. All you have are groupings of crime scenes by the same person. But you glean information from each one of those sites in terms of where they're located, the kind of location it is, the kind of victim you have, victimology enters into it, and that gives you a profile, if you will, of the kind of individual and maybe some of their motivations for selecting those areas and using calculations to string those

locations together. The center point then is the geographic profiling in the area where that offender is likely to live or work or spend a great deal of time has some kind of meaning. And that's where you focus your resources of manpower and money into that calculated area to search for that offender. What I'm talking about in terms of geographic profiling, combined with forensic archeology for the no-body cases, is the exact opposite. What you're dealing with is you have the offender in mind already, but you have no body. So you're basically going in reverse by cataloging all of the parts of the offender's personality preferences and working outward to put together the likely areas where you're going to find the body.

Jaclynn McKay [00:09:35] That is very fascinating. I know in my experience as a crime scene investigator, I definitely understand, to your point, we have never contacted forensic archeologists to come out to a crime scene. So this whole concept is very new and fascinating to me.

Dr. Sharon Moses [00:09:53] And we do have some statistics. For instance, people who kill their own children or close family members, excluding a spouse in this case, but children particularly are often found between one and five miles from home where they were likely killed. You see that in the Charles Lindbergh case. His son was found within, I believe it is, a couple of miles of the house. There's the instance of the Casey Anthony situation in Florida, although she was acquitted, the child's body was found, I believe, within less than a mile from the house. Again, we have a case of an acquitted person, but there are other cases where individuals are found and again and within that one-to-five-mile radius, when it's a parent particularly, the statistics change when you're dealing with a significant other, an intimate partner, a spouse, a boyfriend, a girlfriend. In those cases, more often than not, the offender is going to remove the body further away. We're looking at a distance of usually 30 miles or more away from the home, if that's where they were killed. And last but not least, if you have someone who was once a friend or an acquaintance, friends are usually within a radius of ten miles from where they were killed. Usually the home area or your home area if they came to your house or whatever. In the case of a family annihilator, they have no intention of being captured. So what they do is they set out to start a new life after they've murdered their entire family, changing their identity. And sometimes the families left in the house where they were killed, sometimes they're removed, but the intent is always to continue on with their own lives. Turn a page, more or less without the family's bodies being connected to them and them being the offender. In the Drew Peterson case, for instance, where the body of Laci and his unborn son, Connor, were found in a bay area where he used to go fishing not very far and it's assumed that basically he took Laci, who was, I believe, eight and a half months pregnant, and dumped her off of his fishing boat in this bay area and eventually washed ashore. But this was an area he was very comfortable with. It was a good distance from home, but he was there long enough to dump the body and make an appearance as if he were fishing and then turn around and go home. But people's attitudes about distance is also a new area of research I'm looking into, because a lot of us, if we live in a metropolitan area, we have a different understanding of distance, especially commutes to and from work and time involved, as opposed to other people who live in rural areas who may travel great distances with not perhaps a lot of traffic, but still great distances to conduct business, go to work, go to school, and so their perception of distance is perhaps different than yours or mine. And those kinds of things have to be calculated into the geographic profiling of finding a body in terms of what they consider inconvenient or not.

Jaclynn McKay [00:13:16] So moving backwards a little bit, are there any statistics on if the offender and the victim are strangers and how that would affect body placement?

Dr. Sharon Moses [00:13:27] It seems that strangers sometimes get deposited, I believe, closer to the offender's area than some family members, like, for instance, the spouse or the intimate partner. So in actuality, the acquaintance might not be taken as far away, but by the same token, a lot of times the offender doesn't try to hide the body of someone who is a stranger, whereas with acquaintances and friends, they don't want there to be a connection made between them and so they do attempt to try to hide them. So that's been interesting. We know that most offenders that move bodies are roughly around 32 years old and some of these are FBI statistics and most offenders are white males and female victims account for about 77% of homicide victims. A lot of them are also moved. And the statistics change, obviously, with how close you are, how involved you are with the family of the person you have murdered, or if they're within your own family. So, yeah, there's been a few studies by the FBI. But it is strange that strangers are sometimes closer to an offender's stomping ground than an acquaintance is.

Jaclynn McKay [00:14:48] Those statistics are really interesting because as I think back through some of the cases that I previously worked on, they kind of fall right in line with what ended up happening in our scenes as well, so. Are there any factors that would determine whether an offender would dump a body as opposed to bury them?

Dr. Sharon Moses [00:15:06] Well, that's going to be based upon what the motivation was for the murder. Most people murder for specific reasons of greed. There's a monetary benefit involved or revenge because they feel they've been wronged, rightly or wrongly, that's their perception they've been wronged and they want revenge. And lastly, out of jealousy, when we're talking about passion killings, romantic triangles, things like that. But whenever you get involved with a situation where the body has actually been moved from the crime scene itself, where there has been the homicide committed, when the body is moved more often than not, this was something thought out, not a spur of the moment situation. A lot of spur of the moment type of homicides tend to leave the body where they are. Or there's kind of a haphazard attempt perhaps to move it but they run out of steam and they don't have the time or cover of night or whatever to bury it so they'll dump it out in a ditch, something that's easily removed, because the emphasis is not getting caught, not being seen. But that's not counting those cases where bodies are purposely put into places where they will be found. So again, to answer back to your question, it all depends on the individual's motivations. Serial killers do what they do based on fantasies. Probably fantasies that they've had for years before they actually killed anyone. And in that scenario, there's a certain desire they have to relive the fantasy, take a souvenir from the body, or continue the shock value of it by posing the body for someone else to find, you know, kind of celebrating their work. So you have all these different kinds of categories of killer, and it's determining which one you're dealing with that will kind of give you answers on how to process the scene or give an interpretation or try to find that individual if you haven't already got someone in mind.

Jaclynn McKay [00:17:07] You mentioned a little bit about no-body homicides and that so little of them are prosecuted. Can you expand on that?

Dr. Sharon Moses [00:17:16] When you have a situation where law enforcement is pretty confident that someone was murdered, but they don't have the body and they don't have obviously then the evidence to link who they think the perpetrator is with the body, I mean, that body is a big central foundation feature of a prosecutor's case for a homicide trial. You have to realize most homicide cases run into around the $50,000 range and that's just, I don't mean to sound flip, but that's just a quote unquote standard homicide. When you

start getting into more complex homicides, then you're getting into perhaps the million-dollar range, and then when you get into serial killer arenas, then you're talking triple digits. To prosecute Gary Ridgway, the Green River killer, I believe it encroached on close to 800 million. By the time you add up, all the years spent looking for him, all the time, processing information, all the time, analyzing whatever they got, and then the trial itself and so on and so on, we're talking 20 years plus here to catch up with Gary and get him through the justice system. So again, it was about 800 mil. And this is not unusual for a triple digit figures to come into play when you're dealing with those kinds of high profile but complicated cases like that. A prosecutor, again, depending on where they're located and in their particular county's resources, they're reluctant to prosecute a homicide case when they can't find a body, because obviously there's always the argument that the person is still alive somewhere and all it takes is reasonable doubt. So they're reluctant to commit time and money unless they have such overwhelming circumstantial evidence that they can still make a case for a homicide having been committed and linking the defendant to it. And so, you know, in the last 100 years or so, there's perhaps been about 500 no-body homicides that have been brought to trial. Nowadays, when we do get a no-body homicide that goes to court, again, it's because the prosecutor feels they have enough circumstantial evidence that they can still have a chance of winning it. Of those kinds of cases, you know, if you have brain matter that's been spattered on a wall with blood stain and whatnot, you can pretty much rest assured that the person who is on the receiving end of the attack died, even if you don't have a body available or the massive loss of blood at the scene is speaking to the fact that this person bled out, things like that. Plus, again, other evidence that ties the individual to the crime itself. When those actually make it to court, they have a higher conviction rate on average than the standard homicide trial or the average homicide trial and it's because they have such a preponderance of evidence to have brought it there in the first place, considering they knew they would have an uphill battle. That's kind of the strange dichotomy of the rare occasion when no-body homicides come to court and when they do, they normally win. 80% success rate of prosecution.

Jaclynn McKay [00:20:37] So if law enforcement thinks that they have a no-body homicide, as in they haven't been able to find a missing person and they believe it's possible that they're deceased, from that point forward, what would be the process to try to find the remains?

Dr. Sharon Moses [00:20:53] When you have a missing persons report, it's going to depend largely on the age of the missing person in terms of how much time and resource they're going to expend looking for that person if they think they might still be alive. And then, of course, that changes when they think they are now doing a body recovery rather than finding a missing person. If they think that there's a homicide involved, that kind of varies. Again, it's based upon how strong a case do you have, and the only puzzle piece that's missing is the body. As in the Drew Peterson case, he was convicted even though they never found his wife's body. To date, they've never found it. But there was evidence that he moved a body out of the house when she went missing. And then I believe they opened up a previous wife's demise, allegedly drowning in a bathtub, which is a whole nother can of worms. Again, it depends on all the factors involved with trying to find an individual normally of search and rescue. And a lot of police departments have their own search and rescue. There are also volunteer organizations who will get involved.

Jaclynn McKay [00:22:01] So with regards to forensic archeology, when there is a body dump site, our animal behavior is taken into consideration for possibly how far the remains have been scattered?

Dr. Sharon Moses [00:22:15] Oh, yeah. Assuming that you've been looking for this missing person or from the context of a no-body homicide, you've found the person. Depends on how long that person has been missing. And if it's a body dump, they've been on the surface of the ground, they've been available to all kinds of scavengers. And so in that case, you know, a forensic archeologist will have some understanding of the different kinds of scavengers that are in that region. For instance, in Arizona, we have a lot of coyotes. And, you know, if a body has been exposed in an area where there are coyotes, we know, for instance, that a coyote, when they scavenge body parts, strangely, coyotes like trails and roads and some people will beat the bushes and go back off into the woods if it's in a wooded area or out and about, when in actuality, if it's a coyote that scavenge something, look to the road, look to the trail, alongside the road or the trail that goes down to a water area or whatever. But coyotes tend to run along a trail. They'll snatch a part of the scavenged remains, and they normally don't go any further than about a quarter of a mile away from it, lay down and start gnawing on whatever they've taken away from the scene. Different animals respond in different ways. Other examples are distance from point of origin. Normally the vertebra, the cervical vertebra, and the head, they pop off easily. It's a thin area and the head rolls, of course. So you're going to look at the landscape where the head is actually found to determine if it was carried, if it rolled, if it moved with snow melt or rain wash. All of these factors come into play in terms of reading the landscape and understanding scavenger behavior and what scavenger you're dealing with. When you're talking about finger bones, toe bones, tiny bones, if you find several of them within a perimeter of an area, you're getting very close to your point of origin because moles, mice, those little animals, don't normally go more than ten feet of a radius from where they got them. And they don't take them again back into their little dug in hole dens, because that attracts snakes. They take cached pieces like that into a false area that's usually very shallow, not an actual den hole. They'll just dig a little ways in, deposit it and cover it. So it's just a matter of understanding your animals.

Jaclynn McKay [00:24:46] So is understanding the landscape and scavenger behavior part of the skill sets for archeologists?

Dr. Sharon Moses [00:24:53] A good forensic archeologist should know these things. A general archeologist, someone who's basically looking into past sites of human occupation or behaviors or what have you isn't so much in tune with scavenger behavior because there's no reason to be. They're looking into the past. They're looking into interpretation of a site of past occupation or behaviors. They're not looking at a crime scene. A forensic archeologist understands, for instance, in a clandestine burial, you're dealing with a disturbed area already. It's not pristine. Because somebody came in with a shovel or a backhoe and dug out a hole. And that means all the dirt that came out of that hole has been all mixed together, the body put in and the dirt shoved back in. So layers in terms of sediment and sediment reading isn't the same as regular archeology, and you have to be able to understand the difference between surface dirt that's been mixed with the other sedimentary levels. Also, there's what's in the dirt. You can have botanical or insect evidence that can tell you about times of the year when this was done, root systems of nearby shrubbery that invade a burial depending on how long somebody has been buried. Now, that doesn't mean a forensic archeologist is also a botanist, but it sure means they understand that it takes so many years for certain tree roots or shrub roots to grow. So there are there are adaptations, things that a forensic archeologist is taught or learns with preserving evidence that diverges from general archeology. A lot of crime scene investigation borrows from archeological techniques in terms of documenting crime scenes, particularly outdoor ones, where they are using the grids and digging.

Jaclynn McKay [00:26:45] So as you're digging out the clandestine graves and you're going by each level, how would you work in tandem with the forensic anthropologist as far as transferring over the bones and how should those be labeled and collected?

Dr. Sharon Moses [00:27:01] Well, a forensic archeologist is more concerned with documenting the scene in a scientific manner and preserving the evidence as it comes out of the ground, being able to reconstruct the scene itself, to see evidence of certain behaviors at the scene from the perpetrator or the victim, whereas a forensic anthropologist is just focused on the bones. Normally you do an inventory and you don't take the bones out. There's all kinds of documentation in situ when it's still in the ground, whether it's photographs or sketches and whatnot. But nothing comes out of the ground till the coroner tells you it's okay. At that point, when the bones come out, the forensic anthropologist can help inventory the bones that are recovered and make note of what's missing and then the forensic anthropologist may go back to the lab with the bones, work in concert with a medical examiner, and interpret defects on a bone, whether they were put on the bone at the time of death, like, for instance, if the person was beaten to death or if it was a healed defect from an injury in childhood that might help identify this person if they don't know who it is, and so on and so forth. So the forensic anthropologist focus is on the bones, reading the bones themselves. For instance, mass graves, people who go to sites where they're recovering, the bodies of people who have been executed and buried in mass graves, then you're going to want a bona fide forensic anthropologist that can help separate out those bones to the right individuals, because that takes a whole nother level of expertise. And I've been called in on sites where I've had to determine, yes, this is a historic burial. It's not forensic. And in Arizona, we have what we call Nagpur burials, which are basically Native American remains that have been uncovered. I've been called to determine, is this is this a modern deposit of a body or is this a historical one? And as soon as it's determined that for instance that it's Native American and there's a state representative that you turn all this information over to and it's up to them to contact the tribe that may be involved, to reclaim their member for repatriation and all of that. So there's a process that goes in one direction or another, depending on what you discover with the remains.

Jaclynn McKay [00:29:22] So you mentioned that forensic archeology can help law enforcement as far as save manpower and money when it comes to search patterns and trying to find scattered remains.

Dr. Sharon Moses [00:29:36] In a no-body homicide, yeah, because you have to have an offender in mind. That's the key. You already have to have someone in mind, someone you've arrested or you think, and then based upon what you can put together of that individual, then with forensic archeology and search patterns and human - understanding of human behavior, understanding of that individual's preferences and familiarity with different places to help search in those areas that are pinpointed as more likely to be someplace where a body would be than just in a blanket area. You have limited resources and you want to be able to hone that down and focus in on an area that's going to produce something or has a higher likelihood of producing something.

Jaclynn McKay [00:30:24] So if law enforcement wanted the help of a forensic archeologist, how exactly what they find one?

Dr. Sharon Moses [00:30:29] I would suggest that the first line of defense is to contact the local university and inquire after an anthropology program and specifically ask if there is a forensic archeologist in their midst.

Jaclynn McKay [00:30:44] Well, I know the field is very grateful for your service, and like you said, with money constantly being an issue for agencies, that is very helpful. Before we close, do you have any final thoughts that you'd like to leave our audience with?

Dr. Sharon Moses [00:30:59] Just that, you know, forensics is a very wide field. It's got a great deal of scope to it. Most people think of forensics as the hard sciences, the physical sciences, the natural sciences, and doing a whole lot of lab work. But having said that, forensics is also extremely interdisciplinary. You know, you look at things like forensic archeology or forensic psychology. There are different aspects of social sciences that also get factored into forensic sciences in terms of interpretation. You can't really remove the human being from a human system. We know from the Innocence Project and its works that people who are wrongly convicted, 24% are based on so-called forensic evidence that convicted them and when they have revisited those cases, what they discover is forensic sciences or interpretations that were supposed to be objective based upon a certain structure or a template or whatever, you still can't remove the human being. And there are such things as misapplications of certain methodologies. There's misinterpretation of the findings. There's bias involved in what evidence gets selected or compromised evidence, or just the failure to explain to a jury that simply because you have DNA doesn't mean you're going to solve the case black and white, easily done, just check off the box. It doesn't work that way. It's all a matter of context. All of this has a bearing and for those people who want to get involved in crime scene investigation or forensic work, but their area of strengths doesn't include organic chemistry, there's other ways to get involved, other ways to do death investigation or crime scene work. But don't give up looking for those ways because they're out there and they can certainly use you.

Jaclynn McKay [00:32:58] I think that's very impactful, especially for a lot of our listeners who might be early on in their careers, and you don't have to work in a traditional crime lab to be affiliated with forensics and death investigations so, thank you so much, Dr. Moses. We really appreciate your time and your insight.

Dr. Sharon Moses [00:33:17] Well, thank you again for having me.

Jaclynn McKay [00:33:18] If you enjoy 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 ForensicCOE.org. I'm Jaclynn McKay and this has been another episode of Just Science.

Voiceover [00:33:39] Next week, Just Science sits down with Leighton D'Antoni to discuss how forensic genetic genealogy solved a series of sexual assault cases in Texas and Louisiana from the 1980s. 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.