

Jesse Goliath, an assistant professor of anthropology and director of the MSU Forensic Lab and Skeletal Histology Center, stands with replica models of human bone in what will soon be the center's home in the Cobb Institute.

DISCOVERIES

## 'Bone'a fide Bulldogs: MSU forensics team partners with state agency to solve Mississippi's mysteries

Imagine sitting at your desk, going about your workday, when someone walks in and thrusts a bag of bones your way—a plastic bag containing a smattering of ribs and long bones among leaves, dirt and other debris that looks alarmingly like pieces of a human skeleton.

Suddenly, your day is split into two parts. The before, during which your biggest worry was meeting a deadline, and the after, when you're enmeshed in a bona fide mystery worthy of true crime TV.

But this isn't TV or the plot of a podcast. It's something that really happened in 2015 at a small police department in Ohio.

The department's officers did everything necessary to start an investigation. Questions were asked, reports were filed and the bag was emptied and cataloged. Then, Jesse Goliath, an Ohio State anthropology graduate student at the time, got a call.

"Law enforcement was given these remains—this partial skeleton—and knew there was likely more to be found," he explained. "So, they contacted us to find the rest of the remains."

rivacy - Terms

Now an assistant professor of anthropology at Mississippi State, Goliath is one the first calls of law enforcement agencies across the Magnolia State when they need assistance to find and recover skeletal remains. Since his arrival in Starkville in 2021, he has led teams of MSU faculty, staff and students in the use of proven forensic methods and tools for field recovery work—a testament to how universities can serve their communities.

In the example of the partial skeleton delivered to police in a bag, law enforcement directed university anthropologists to an area often used as a homeless encampment where the initial bones were found. Using methodical grid searches, the team recovered the rest of the remains, including the one piece of bone that positively connected their findings with what had been surrendered to police.

“We found this little piece of bone called a pseudo arthrosis—a faux articulation that forms over time,” Goliath recalled. “And that piece of bone fit perfectly into a portion of a lower-back bone from the bag. Between that, the lack of duplication of bones and the location, we were able to confidently say we found the complete skeletal remains of one individual.”

Goliath explained that with the complete set of remains, the university team and law enforcement were able to determine the deceased was likely biologically female and had a history of healed fractures—compression fractures that indicated she had fallen or jumped from a significant height. While those injuries were not fatal, similar fresh fractures showing no signs of healing implied her cause of death was likely from another fall.



*By examining skeletal remains, similar to the bone replica models seen above, forensic anthropologists can determine certain biological characteristics and uncover damage to bone that can help identify to whom the remains belong and their manner of death.*

The cumulative skeletal evidence led police to conclude that the remains belonged to a woman named Kathleena Burke, known to authorities due in part to her tendency to jump from structures. She was reported missing the previous year, and her death was ruled accidental.

“Without the recovery work of anthropologists, they likely would have only ever had the bones that were turned in, and it would have been very difficult, if not impossible, to close the case,” Goliath explained.

Goliath said this case from his grad school days has inspired and informed his work since joining the Bulldog faculty. In his time at MSU, he has assisted on recovery efforts or processing existing remains in 40 cold cases—25 of which happened in 2025.

Now, through a formal partnership between the Mississippi Department of Public Safety and MSU, the university will expand its forensic science research and education, while providing a much-needed service to the people of the Magnolia State.

Mississippi Department of Public Safety Commissioner Sean Tindell said the partnership is an example of how combining state resources and expertise can better serve the people of Mississippi.

“This gives us a dedicated anthropologist for the state who is embedded in an institution of higher learning, meaning we will always be on the forefront of the technologies, theories and science leading the field,” he said. “It will also create a pipeline for the next generation of anthropologists who will hopefully join our department or the Mississippi Forensics Lab and help us solve cases.”

As part of its anthropological work, MSU also created and houses the Mississippi Repository for Missing and Unidentified Persons. This statewide database is a collection of reports about people who went missing in Mississippi, as well as a catalog of remains found within the state.

As of October, the database contained information on 1,613 currently missing individuals and 141 sets of unidentified remains, with cases dating as far back as the 1960s.

“Before this, the state of Mississippi did not have a centralized missing persons database,” Goliath explained. “Individual jurisdictions had their own records which may or may not have been reported to the National Crime Information Center. But with this, there’s one place where law enforcement and the public can look for information about people who are missing in or are from Mississippi.”

The publicly accessible part of the database includes a basic biological profile—age, sex, ancestry and unique physical characteristics—of each missing person, as well as information about when and where they were last seen, their clothing, and in what direction and how they might have been traveling. The law enforcement side includes more detailed, but possibly sensitive, information.

“In law enforcement, a case can go cold in as little as 48 hours if no new information is discovered,” Goliath explained. “Our database helps make sure these missing individuals aren’t just files in a drawer somewhere but out there and searchable in case anyone—law enforcement or not—comes across a lead.”

The information that populates the database comes from a variety of sources, including federal, state and local law enforcement, private citizens, and a dedicated team of MSU staff and students who scour the internet for new or updated missing persons information.

Goliath said the repository also has partnerships with a variety of groups that support marginalized or at-risk populations and has become a resource for those who might not be comfortable speaking with the authorities.

“Sadly, not everyone who goes missing gets reported, but we’re doing what we can to report as many as possible,” Goliath explained. “Some people come directly to us because we are not law enforcement but we get their case out there through the database.

“Some families have the advocacy and resources to enlist more help with their cases,” he continued. “Others need help navigating the process of filling out a missing persons report and accessing resources available to them. We’re trying to fill that gap with MSU anthropology by helping people be found and bringing resolution to as many families as possible.”

*By Susan Lassetter, Photos by Emily Grace McCall*

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# **‘Who you gonna call?’** MSU experts explain how, when to report found skeletal remains

As director of Mississippi State’s Forensic Lab and Skeletal Histology Center, Jesse Goliath regularly gets asked, “Is this human?” by people who find bones in unexpected places.

Using his expertise as an assistant professor of anthropology, he can look for specific characteristics to determine the origin of a bone specimen. Some of these are visible to the naked eye, but others only become apparent under a microscope.

He said the animal bones most confused for human are the long bones of deer, which are roughly the size of adult leg bones, or the paws of bears or raccoons, which approximate the size and shape of adult and child-sized hands, respectively.

“One of the things trained anthropologists can see to help tell the difference between human and animal bones are muscle attachments and growth plates,” Goliath said. “If I can touch the bone, I can sometimes tell by the density as well.”

Goliath’s evaluations are informed by three degrees and more than a decade of experience. For the public, he says it’s best to contact local law enforcement agencies if you suspect skeletal remains are human or the result of a criminal wildlife violation, such as unauthorized hunting.

Even if the bones are animal and appear to be the result of natural causes, they could still hold valuable ecological insights. Daryl Jones, an Extension professor in the MSU Department of Wildlife, Fisheries and Aquaculture, said many wildlife species are tracked or studied for research into their health, population size and habitat range.

In Mississippi, for instance, Louisiana black bears and deer are often part of multiyear, statewide studies. He said there is also important data to be collected if an animal’s remains are found outside its home range.

Jones suggests using a cellphone to photograph found remains and document the site. He said your phone’s mapping capability can also be used to mark the location.

“Dropping a pin on your phone’s map or using some brightly colored material to mark the site can help you or wildlife conservation officers return to investigate, if necessary,” Jones said.

In Mississippi, you can call 1-800-Be-Smart to report unusual animal sightings or remains, or to ask questions about area wildlife. Your local Extension office also has resources and experts available.

Jones said the Be-Smart hotline, or your state’s equivalent, is also important if found remains have a collar or tag indicating the animal was part of a research study. He added that MSU experts are always happy to take reports, help answer questions or discuss wildlife concerns. To connect with an MSU wildlife expert, call the Department of Wildlife, Fisheries and Aquaculture at 662.325.3830.


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