



**MU News Bureau**

*Daily Clips Packet*

June 20, 2017

## Judge sets deadlines for University of Missouri graduate union case

By Rudi Keller

**The lawsuit over unionization of graduate assistants at the University of Missouri will be decided sometime this fall if lawyers can meet the schedule set Monday by Circuit Judge Jeff Harris.**

During a brief hearing, Harris gave the opposing sides until July 10 to decide if they want a trial in the case and until Sept. 15 to submit an agreed set of facts for his consideration. If the parties want a trial, Harris said during the hearing, he wants to know how much time it will take.

In May 2016, the Coalition of Graduate Workers sued the university for recognition of their union, which is a local affiliated with the National Education Association. The coalition was formed in the fall of 2015 after MU angered graduate assistants with notifications that they would no longer receive fully subsidized health insurance.

The health insurance decision was reversed and MU increased the minimum stipends for many graduate assistants, but graduate leaders pressed on with union organizing in an effort to write those promises into a contract. The university does not consider graduate assistants to be employees and denies they have a right to form a union for collective bargaining.

In addition to stipends and health insurance, graduate assistants receive tuition waivers as compensation for their work. As the university has made cuts to cover funding deficits and find money for reallocation, administrators have promised to protect the increased stipends, but MU is considering whether to reduce tuition waivers for some graduate assistants.

The coalition held a vote on unionization in April 2016, winning 84 percent of the ballots cast. The university did not recognize the vote.

During Monday's hearing, Harris asked attorneys Loretta Haggard, representing the coalition, and Bryan Kaemmerer, representing the university, about a March deadline that was missed. In November, the attorneys told Harris they were working on a joint stipulation of facts and would be finished in about 120 days.

Once that was filed, the case would be decided on the legal questions alone because facts were not in dispute.

“That is still the party’s views, that it is an issue of law,” Haggard said.

The stipulation is just taking longer than anticipated, Kaemerer said. He expects his office to finish its version by Aug. 15, he said.

If there is a trial, it will be attorneys arguing over state and federal law governing unions. Attorneys told Harris there are no witness depositions or other pre-trial discovery issues that are necessary before a hearing.

The National Labor Relations Board in August ruled that graduate assistants at private universities are employees with the right to organize unions for collective bargaining. The ruling reversed a 2004 decision that graduate assistants are “primarily students and have a primarily educational, not economic, relationship with their university” but does not apply to public universities.

If there is not a trial, attorneys will file briefs on the law for Harris to review before issuing a ruling.



## **This Volcano-Shaped Pyramid in Peru Has Experts Stumped**

**This story was generated by a direct pitch from the MU News Bureau.**

By Megan Gannon

From far away, El Volcán in the Nepeña Valley of coastal Peru might look like a natural feature in the landscape.

But this volcano is artificial, a mound or pyramid built by human hands with a crater dug out of the top. And some archaeologists are trying to figure out what it was used for.

**Robert Benfer, a professor emeritus at the University of Missouri who focuses on biological anthropology, had previously found a series of mounds shaped like orcas, condors and other animals in coastal valleys in Peru.** He was looking for more of those earthworks by

surveying valleys north of Lima when he spotted the volcanic cone that stands 50 feet tall (15.5 meters).

"I knew that a mountain in the valley had a large archaeological site, San Isidro, with platforms oriented to the solstice," Benfer told Live Science. "So with my team, we climbed it to get a better view of the surrounding valley, and I saw the Volcán site from a platform."

In the 1960s, archaeologists had noted the volcano-like mound and identified it as artificial, but Benfer and his team decided to investigate further. As the researchers report in the latest issue of the journal *Antiquity*, they dug a trench into the inner crater of the volcano, and found a collapsed stairwell that descends below a layer of adobe bricks to a mud-plaster floor.

They also found a fireplace at the bottom of the stairwell, full of bits of charcoal and shell. Archaeologists can determine the age of such organic material using radiocarbon dating. A sample of burned material from the hearth showed that the last fire was lit sometime between A.D. 1492 and 1602.

Benfer believes this date range is important. During the 16th century, there would have been four total solar eclipses, visible from El Volcán, in short order: in A.D. 1521, 1538, 1539 and 1543. This would have been a rare occurrence. "The chances that four solar eclipses could occur during the probability distribution of the radiocarbon date of the hearth is less than 0.0003," Benfer told Live Science. (That's less than a 0.3 percent chance of occurring.)

In their paper, the researchers wrote that "the people of the northern and central coasts, the Yungas, unlike the later Incas, greeted eclipse[s] of the sun with joy, not fear." Benfer speculated that the fire might be all that's left of a ceremony linked to one of these eclipses.

The researchers are not sure when the mound was first built. It's possible that the original structure might be much older than the hearth. The nearby archaeological site at San Isidro was active during the Late Formative period (900 B.C. to 200 B.C.).

The meaning behind the mound's shape is also still unclear. Benfer noted that there are no volcanoes around El Volcán that would have served as models for its construction, if it was indeed meant to look like a volcano, and no other structures like it have been found in Peru.



**HARVEST**  
PUBLIC MEDIA

(NPR program heard on 15 midwest NPR stations)

## **Missouri Researchers Study The Declining Bee Populations By Listening To Their Buzzes**

By KRISTOFOR HUSTED

**Generated from News Bureau press release: [Bee Buzzes Could Help Determine How to Save their Decreasing Population](#)**

See a bee; hear a buzz.

That is what researchers studying the declining bee population are banking on. A new technique based on recording buzzing bees hopes to show farmers just how much pollinating the native bee population is doing in their fields.

Vegetable and fruit growers depend on pollinators to do a lot of work in their greenhouses and fields. Pollinators, like bees, flutter about the blossoms on plants and orchard trees, transferring pollen from plant to plant and ensuring that those organisms have a chance at reproducing.

Indeed, [three-quarters](#) of global food crops depend on pollinators to some extent, according to the Intergovernmental Science-Policy Platform on Biodiversity and Ecosystem Services. Pollinators like bees are especially vital for fields of tomatoes, almonds and apples. In the U.S., pollinators are responsible for more than [\\$24 billion dollars](#) of economic activity, according to a 2014 Obama Administration report.

The problem: Pollinators are [disappearing](#). Beekeepers surveyed last year, for example, lost [one-third](#) of their colonies. A mix of weather, disease, climate change and [chemicals](#) is often fingered as the culprit.

Without a reliable number of animal pollinators, farmers do not know how much pollination is actually going on in their greenhouses and fields.

“Native pollinators are the bees’ knees,” jokes Dan Kelly, owner of [Blue Heron Orchard](#) in Canton, Missouri. “Native pollinators are absolutely essential in agriculture – especially in fruits and vegetables. You can’t do it without them.”

Kelly used to borrow honeybee colonies from his friend every spring to help pollinate his certified organic apple trees. Four years ago, though, the bees he borrowed disappeared – likely due to competition with other species. He decided then that he couldn’t rely on honeybees and shifted his focus to attracting bees native to his Missouri habitat.

“The more diversity you have in the operation, the more beneficial insects you have working for you,” Kelly says. “Then that’s less that I have to do.”

Farmers like Kelly would love to know exactly how active bees are in his orchard. That can help him monitor pollination, let him know if he needs to step in and pollinate by hand and maybe even help him predict how much of a harvest to expect.

But native bees are wild. And even if they are buzzing around, are they actually doing their jobs?

**[Candi Galen](#), a biology professor at the University of Missouri, wanted to answer that exact question. She studies beneficial partnerships between species.**

While honeybees often get the spotlight, they are generally managed by individual beekeepers and commercial operations. Galen wanted to look at native bees, like bumblebees, and see if there was a way to monitor their activity, a tough task for a small team or an individual farmer.

“We wanted to figure out short of cloning ourselves how we could be in many different places getting valuable data on bee populations, their abundances and the pollination they're providing for plants at the same time,” she says.

Bees, of course, produce that buzzing sound as their wings beat against the air. Galen and her team set up microphones in clover patches, which have a tasty flower for native bumblebees, in central Colorado. They wanted to listen in to the buzzing bumblebees make when they are flying from flower to flower.

“We were very aware of the flight buzzes and so we thought if we can hear them, we can record them,” Galen says. “And if we can record them, we can count them.”

Galen and her team recorded fields of clover for a week, then took the audio files and fed them through a computer. With a bit of number crunching, the team was able to determine the number of distinct bee’s buzzes.

Galen and her team were able to break down the buzzes to identify unique frequencies of individual insects. The buzzes could tell the researchers how large a bee is and even how long its tongue is. After that, it became a simple matter of counting.

Then, the more vexing question: Were the bees actually pollinating or just passing by?

“That's what a farmer would want to know if they weren't working on alpine clover, but they were working on apples or blueberries,” Galen says. “How does my yield relate to this simple measurement of buzz density or activity?”

In the fall, she returned to Colorado to count the seeds in the clover plants to see how successful the bees were in pollination. Turns out, [pretty good](#). She says the patches of clovers where her team counted more buzzes during the spring had more seeds in the fall. And those with fewer buzzes had fewer seeds.

While not a conclusive formula, it is good news for, say, a tomato farmer who has opened up her greenhouses to bees for pollination.

“If we have microphones there, we can tell her how she’s done and whether that’s how much time she needs to leave them open in order to get that great pollination service,” Galen says.

That is valuable information for farmers who are already strapped for resources, Galen says. Especially in light of a declining pollinator population. In fact, she is working on an app to help farmers start counting their own buzzes.

# Missourinet

## University of Missouri creates way to help save bees, increase food production

JUNE 19, 2017 BY ALISA NELSON

**Studies say reductions in bee populations endanger 75% of farm crops and the pollination of flowers on more than 85% of flowering plants worldwide. Biological science professor Candace Galen says University of Missouri researchers have created an inexpensive way to eavesdrop on bees to try and boost food production.**

For more than 100 years, scientists have used sound to monitor birds, bats, frogs and insects. The university has expanded that same concept to observe pollinating insects.

Microphones are attached to storage containers that collect sounds and gather information on the close bee population.

“If you’re a parent and you are trying to figure out how your kid is doing, the number one thing you first need to do if you have a teenager like I do, is you need to figure out where they are and who they are with,” chuckles Galen. “That’s the same for our bees.”

Using the data, researchers have developed algorithms that identify and quantify the number of bee buzzes in each location and compare that information to visual surveys the team make in the field. In almost every instance, the acoustic surveys have picked up more buzzing bees.

Using the algorithms developed in this study, the team is developing a smartphone app that could record buzz activity as well as photograph the bees. Future studies could determine whether bees

detect competitors by sound and whether flowers have chemical responses to bee buzzes, says Galen.

Missouri has nearly 300 different kinds of native bees, according to Galen.

“Some of them are doing pretty well and some of them are doing not so well.”

“Here in Missouri, some of my favorite crops, like apples, berries, squash and tomatoes require bee pollination,” says Galen.

The study, published today in PLOS ONE, shows how farmers could use the technology.

# MISSOURIAN

## Columbia Public Schools says Sinclair Farm location safe for new middle school

By Maureen Strobe

COLUMBIA — Members of the Columbia School Board don't think the radioactive research and dumping that took place on the Sinclair Farm property decades ago pose a health risk.

**The board voted to purchase a 63-acre parcel of the 536-acre property, which is owned by MU, for an estimated \$2.9 million at its meeting last week. Jonathan Sessions, a member of the board, said the parcel is nowhere near the area on the Sinclair Farm property where radioactive waste was dumped; it's on the opposite side of the road.**

“It's a massive property,” Sessions said.

A 2014 independent study of the entire property — not specifically the part Columbia Public Schools has chosen — concluded that there is no lasting impact from radioactive waste, and just three areas were deemed to have “little or no potential for small areas of elevated (radioactive) activity,” according to the study, which was paid for by MU.

The study, conducted by Chase Environmental Group — an environmental contractor based in Kentucky — was ordered to ensure that the land was safe to sell.

Sessions emphasized, though, that the board is going an extra mile toward certainty by ordering another independent study, specifically on the piece purchased for the middle school. That analysis will have three phases, Sessions said. The first phase will research the property's history; phase two will include an "independent, scientific analysis to the level of need based on phase one," Sessions said. "Should that independent study come back with anything that needs to be addressed, there would be a phase three."

That final step, if necessary, would estimate the cost of an abatement.

Linda Quinley, chief financial officer for the Columbia Public School District, said the cost of the independent study — which will be conducted by Midwest Environmental Consultants — will come from the budget to buy the land. She said the school district administration would recommend it not exceed \$10,000.

"If it wasn't safe, could you imagine the university selling it?" Sessions said.

According to the Chase Environmental Group's study, Sinclair Farm was historically used for "radioactive materials research, incineration, land disposal and radioactive materials storage."

Patricia Quackenbush, an MU doctoral candidate in soil sciences, said that determining the potential danger on Sinclair Farm depends on how strictly MU researchers followed protocol in disposing of radioactive waste.

"More than likely, (MU researchers) followed the appropriate protocol at that time," she said. If appropriate steps were taken, the likelihood of a problem is relatively low."

The Missouri University Research Reactor Barn, which was demolished, was used to store radioactive materials. The Environmental Trace Laboratory on Sinclair Farm was also demolished. It was used to research radioactive isotopes and short-lived radionuclides, and all waste was dumped into the Environmental Trace Laboratory Lagoon, according to the study.

The study shows there were also two burial sites on Sinclair Farm. One was used to dump chemical and radiological waste, while the other was used to bury animals that were used for research.

If the land is going to be excavated, Quackenbush said, there may be a potential problem for the people — like the construction workers — who are directly encountering the radioactive material. That risk depends on how deep the radioactive waste is buried, whether or not workers inserted a liner in the ground for solid radioactive waste, and what kind of waste was being dumped, she said.

MU News Director Christian Basi, however, said the Nuclear Regulatory Commission labeled all land being sold as available for unrestricted use.

“The majority of materials that were used are naturally occurring radioactive elements in the environment and are commonly found in Missouri soil,” Basi said. “The research was conducted in buildings that are no longer there.”

According to the study, the soil around both the Missouri University Research Reactor Barn and the Environmental Trace Laboratory and Lagoon don’t contain residual radioactivity, both of which are located on the same side of Sinclair Road as the new middle school site.

The incinerator building and waste storage building are located on the opposite side of Sinclair Road, and they have “little or no potential for small areas of elevated activity,” according to the study.

Sessions said the board would have enough time to complete the three-phase process before closing on the property.



## **MU Health Care to pay \$495,000 for pavilion naming rights**

**The Columbia City Council approved Monday night a 10-year agreement with University of Missouri Health Care for the naming rights of the large pavilion at Clary-Shy Park for \$495,000.**

To be known as the MU Health Care Pavilion, the structure will be the primary space for the Columbia Farmers Market and will be available for public rentals when not in use by the farmers market. Signs will feature the MU Health Care logo and will be on display on the pavilion building. MU Health Care must pay for any changes to its signage. MU Health has the first right of refusal for all health care industry naming sponsorships at the park.

Friends of the Farm, a local organization, has raised \$1.5 million in sponsorships, including from MU Health Care, for the construction of a farmers market community center and an urban agriculture garden at the park.

# MISSOURIAN

## MU Libraries posts wish list of books they can't afford

By Madi Skahill

**COLUMBIA — If you want to help out MU Libraries, it's looking for someone to buy and donate a book called "Complete and Truly Outstanding Works by Homer." It includes a Latin literal translation.**

But it's not cheap. It'll run you \$5,250.

Or you could chip in "Another Time, Another Place," by Jessie Kesson. It's only \$16.75.

Those are the most and least expensive books on a wish list of over 400 that MU Libraries had hoped to buy but have been unable to because of recent budget cuts. The wish list, which was posted two weeks ago on the MU Libraries website, provides a portal for willing donors to buy specific books needed to support teaching and research.

Anne Barker, head of research services for MU Libraries, said the list was put together to address cuts the libraries faced in fiscal year 2017 and the cuts they'll see in fiscal year 2018, which begins July 1.

"Last year we also had a big budget cut, which was largely due to inflation," Barker said. "The wish list was partly in response to that."

MU Libraries had to cut \$1.2 million in materials costs for fiscal 2017, according to previous Missourian reporting, and it's looking at about \$1.3 million in one-time cuts to its collection expenses in fiscal 2018.

MU Libraries spends a lot of money on academic journals, spokeswoman Shannon Cary said, and prices for those journals go up every year.

"We have the problem that there's inflation," Cary said. "If there's inflation and you get a flat budget, which on a good year we're getting a flat budget, you still have to cut."

Cary said that most research at MU is being done by journal searching online but that some departments such as history or humanities still use a lot of monographs, otherwise known to most people as books.

Cary described the libraries' spending as a tough balance between the journal subscriptions and these one-time book purchases.

"The bulk of our budget is going toward these big journal packages. It's kind of like a cable package, where you get everything," Cary said. "So say you spend all of your budget on your cable, but you want to go see a movie. You can't go see the movie."

The wish list includes books for arts and humanities, medicine and health sciences, science and engineering, social sciences and business as well as a few special-collection books.

Subject specialists with the libraries communicated with the faculty of each school to put together the wish list.

Barker is a selection representative for the faculty in the English, German, Russian and linguistics programs.

"We try to work closely with faculty and departments to make sure we're in tune with what they want," Barker said.

Faculty members usually request enough resources to spend the entire budget, Barker said, so she tried to prioritize items that MU would not be able to borrow from other institutions.

"By no means is this just a list of all of the books we need," Barker said. "This is just the tip of the iceberg."

Three books have been donated since the wish list was posted.

# MISSOURIAN

## MU graduate student hopes to help identify dangerous diseases in Ghana

By Elizabeth Cassidy

COLUMBIA — Ghana was spared the Ebola outbreak that hit West Africa in 2014, but its people are not immune to major infectious disease.

**A biochemistry graduate student at MU hopes to one day open up a diagnostic center in Ghana, his home country, to help identify these diseases and move toward prevention by providing a place to get tested.**

Kwaku Tawiah works with professor of biochemistry Donald Burke in a laboratory in the Bond Life Sciences Center. Tawiah spends much of his time analyzing cell cultures to find new ways to treat highly transmittable diseases and other illnesses like cancer.

He hopes eventually to take his knowledge back to Ghana to help diagnose diseases on the ground instead of shipping blood samples to other countries, which costs time and money.

“Where I come from in West Africa, we have most of the world diseases, but all the research is done (in the U.S.),” he said. “In the future, I see myself pushing some of those things back to Ghana.”

Tawiah and the team in Burke's lab are developing a targeted delivery approach to treatment, a new strategy in the science world. Instead of attacking the whole body to treat cancer with chemotherapy, for example, the work could help find ways to attack only the cancerous cells.

The research, now in the early stages, focuses on RNA, which carries genetic information from the DNA to other parts of a cell. Tawiah's team uses the genetic information to better understand ways to treat diseases.

“We engineer biology to do cool new things, all the way from building mimics of the organisms that might have existed at the origin of life to combating cancer and HIV and Ebola virus,” Burke said in an interview.

RNA strands can fold themselves into three-dimensional structures that have chemical properties and can identify the type of cell they're interacting with.

“Those (chemical) properties, for example, might have the ability to snuggle up next to some other molecule and differentiate, ‘Oh, this is a flu virus,’ ‘Oh, this is a cancer cell,’ or something else or other sorts of interactions, as it does with other molecules as the bump into each other,” Burke said.

Sometimes when the molecules bump into each other, Burke said, they stick and may remain together. This means Burke, Tawiah and the rest of the team can take advantage of the "stickiness" to block certain cells from replicating and causing diseases such as cancer, HIV and Ebola.

This research could allow physicians to see where tumors are located and potentially stop the replication process of cancer cells to impede the spread of the disease, Burke said.

As part of the team, Tawiah hopes the work will prove valuable when he returns to Ghana. He said his father, Jones Tawiah, is his inspiration. Raised in a small village in Ghana, his father was the only boy among seven children. Education for girls was not encouraged, so he was the only one to attend school.

Now with seven children of his own, Tawiah's father worked to make sure his children had every opportunity to learn. He served as the district chief executive for the government in Ghana, a job similar to a city mayor in the United States. Now that his children are grown, he runs a farm with livestock, mangoes and yams.

Kwaku Tawiah, the first boy in his family, remembers his father pampering him as a child so he could succeed him and become head of the family. In a telephone interview, his mother, Alice Wiredu, said her son was always her helper. She said he would follow her during the day to help solve problems around the house.

Kwaku Tawiah said his parents had a direct influence on both his education and career choices. In Ghana, parents choose a track for their children, and his put him in a science-specific track.

“In our culture, your parents shape what you want to do, and they choose for you,” Kwaku Tawiah said. “They saw all my strengths and my weaknesses, so they directed me to science in high school.”

He began studying agriculture science in high school, but his plans changed when a family friend told him about a scholarship to study in the U.S. He applied for the International Doorway Academic Scholarship Program and started his journey to the United States.

He spent his undergraduate years at Lindenwood University in St. Charles in 2009. That's when he fell in love with research.

“When I got here, I realized the vast opportunities to study,” Tawiah said. “When you think about science, the only thing I could think of was becoming a doctor. But then I started doing research, and I was like, ‘Oh wow, there’s a whole other world out there.’”

After finishing his undergraduate degree, Tawiah decided to study at MU. Graduate students in biochemistry work for 10 weeks in three different labs before they settle on one they would like to join. Tawiah chose Burke’s lab after spending time in a lab that studies viruses and another that studies plants.

Traveling from Ghana to Missouri was an adventure, he said. He had never before left his home country, which has a mild tropical climate.

“Everything was different — the food, the weather. I had this conception in my mind that it was going to be cold, but I got here in St. Louis in August,” Tawiah said with a laugh. “Closest thing to hell.”

When he isn’t in the lab, Tawiah is typically at Stankowski Field playing soccer or watching a game on TV at home. On Sundays, he prepares traditional Ghanaian dishes like jolloff, which, Tawiah said, is like jambalaya.

Food is just one way he stays in touch with his roots. He also talks to his laboratory colleagues about his aspirations to go back to Ghana and help his country.

He said he's motivated by the unanswered questions of the universe and works to find not only better treatments for diseases but also to find what is the root cause of them.

“I think the most intriguing part is getting to the molecular level,” Tawiah said. “We know diseases are dangerous, but it’s intriguing for me to know exactly how this is happening. I think that’s what keeps me going. It drives me to find answers.”

# *the Atlantic*

## How Cats Used Humans to Conquer the World

By Sarah Zhang

Sometime around the invention of agriculture, the cats came crawling. It was mice and rats, probably, that attracted the wild felines. The rats came because of stores of grain, made possible by human agriculture. And so cats and humans began their millennia-long coexistence.

This relationship has been good for us of course—formerly because cats caught the disease-carrying pests stealing our food and presently because cleaning up their hairballs somehow gives purpose to our modern lives. But this relationship has been great for cats as species, too. From their native home in the Middle East, the first tamed cats followed humans out on ships and expeditions to take over the world—settling on six continents with even the occasional foray to Antarctica. Domestication has been a fantastically successful evolutionary strategy for cats.

A comprehensive new study of DNA from ancient cat skeletons and mummies spanning 9,000 years traces the spread of cats from the Middle East to the rest of the world. The whole study, from conception to publication, took about 10 years—not least because of the work it took to find ancient cat remains.

“Cat remains are scarce,” says Eva-Maria Geigl, a paleogeneticist at Institut Jacques Monod and an author on the study. We don’t eat cats for food, so their bones don’t end up in ancient trash piles the way pig or chicken bones do. Geigl and her colleagues, especially Wim Van Neer, wrote to museums and collections asking to sample cat remains found in archeological digs. The team ultimately got bone, teeth, or hair from 352 ancient cats—including Egyptian cat mummies at the British Museum.

Not all of the remains yielded DNA. The Middle East environment is hot. In Egyptian tombs, where the cat mummies came from, it was also humid. “This is really a disaster for DNA,” says Geigl. The very act of extracting DNA can damage it, too. So to protect the DNA from heat released when bones and teeth are ground, the grinding process happens in a liquid nitrogen bath. Ultimately, the team was able to get DNA from 209 of the cats.

This large number of samples painted a fairly detailed picture of how cats followed humans on trade routes. Modern domestic cats appear to have all originated in one of two places. The first was Anatolia, which roughly corresponds to modern-day Turkey. These cats spread to Europe as early as 4,400 B.C.E. A second domesticated lineage appears to have begun in Egypt and then later spread through the Mediterranean. And wherever the cats followed humans, they also interbred with the native wildcats already there.

This DNA exchange went both directions along the trade routes, too. That led to what, at first, seemed like baffling results in the ancient DNA. For example, a 2,000-year-old cat in Egypt had DNA sequences typical of wildcats in India. Claudio Ottoni, another member of the research team now at the University of Oslo, remembers thinking it was a mistake when he first got the sequences back on his laptop. In fact, that cat was found in an ancient Roman port city called Berenike, which was directly connected to trade routes in the Indian Ocean. Humans brought cats onto ships to catch mice and, in the process, spread cats all around the world.

Compared to many other animals, cats have also changed very little in the domestication process. Behaviorally, they’ve become more tolerant of humans. Physically, though, they’re still about the same size and shape. They still like to pounce on small prey. **“Cats have done since before they were domesticated what we needed them to do,” says Leslie Lyons, a feline geneticist at the University of Missouri. In other words, unlike dogs that herd sheep or hunt badgers, cats didn’t need humans to breed them to become good mouse hunters.**

But wildcats and pet cats do look differently in a small but obvious way to humans: Domestic cats come in a great variety of colors and coat patterns. From the ancient DNA, Geigl and her colleagues determined that the tabby pattern first emerged in the Middle Ages based on a single letter mutation in the *Taqpep* gene. This was the only coat gene Geigl and her colleagues investigated. For the most part, their analysis focused on DNA in a part of the cell called mitochondria, which is more abundant than DNA in chromosomes but accounts for only a tiny fraction of genes. This is a good start, says Greger Larson, a paleogenomicist at Oxford, and it sets the stage for using ancient chromosomal DNA to further refine the story of ancient cats.

Larson has done similar work with ancient dog DNA. “It’s great that cats are the getting same long deserved treatment,” he says of the new paper. “It’s kind of strange it’s taken this long given the general interest in cats.” The dog days of ancient cat DNA are over.



## Mizzou basketball player arrested during traffic stop

**COLUMBIA, Mo. - University of Missouri freshman Jeremiah Tilmon was arrested on Friday morning at 1:42 a.m. for a minor in possession of alcohol after a routine traffic stop.**

An MUPD spokesman says an officer pulled Tilmon over for an improper lane change.

The Mizzou basketball team released this statement on Monday.

"The Mizzou Men's Basketball program and head coach Cuonzo Martin are aware of the incident, and the matter will be handled internally."

Tilmon signed to play with Mizzou in May. The freshman is a part of the Tigers 7th ranked recruiting class in the nation, according to rivals.