Scientists Want To Track The Nation’s Buzzes To Monitor The State Of Our Bees

The best way to monitor bees turns out to be listening to them? So scientists are proposing using microphones and a new app to track the bugs as they go about their pollinating.

BY ADELE PETERS

Generated from News Bureau press release: Bee Buzzes Could Help Determine How to Save their Decreasing Population

Most food crops, from apples and almonds to coffee and chocolate, depend at least in part on pollination from bees and other pollinators. But as those species decline—40% of invertebrate pollinators now face extinction—it’s difficult for farmers and researchers to track changes in real time. One thing that could help: an app and other tools that can capture the sound of buzzing as bees work.

In a recent study, researchers placed cheap microphones in fields of flowers, and then developed an algorithm to quantify the number of buzzes in the area as bees flew by. The method was almost always more accurate than researchers who tried to count the bee flights visually—and it’s something that could be used much more easily, and more cheaply, over large areas (and unlike another common method of monitoring bees—trapping them—it doesn’t kill bees).

“If you can get relatively cheap, small microphones to work for you, then that really allows you to cover a broader stretch of the landscape,” says Candace Galen, a professor of biological science at the University of Missouri-Columbia and one of the authors of the study. “As scientists, we always want to compare different locations if we’re trying to compare the distributions of species.”

Recording buzzes can’t be used to count the population in an area, but it can indicate how active bees are and how they’re pollinating. Conservation biologists could use the system to find hotspots of activity to study in more detail. Farmers could use the system to quickly identify
places where bee activity was slowing down or to measure results after implementing bee-friendly practices like planting wildflowers.

“It could be helpful for farmers to know how well their bee-pollinated crops are being pollinated right away, without having to use a fancy trapping system,” Galen says. “Then they can take steps either to bring in honeybees commercially to supplement pollination or potentially, if it’s a very valuable crop, use some sort of hand pollination methods if they know they’ve got a problem.”

Organic farmers could use the system to identify when pesticides are blowing on their crops from neighboring farms. “This would be sort of like a monitoring system to say ‘Uh-oh, you’ve just had a crash in your bee population, let’s look at the pesticide records from around your farm and see what’s going on,’” she says.

The team is also collaborating with other researchers who are developing a visual, facial-recognition-like tool for bees to identify species, which could eventually be used in combination with a microphone recording buzzing. A new app that the researchers are developing, which may include both sound recording and image recognition, could help crowdsourced data about populations of the more than 20,000 species of wild bees, along with other pollinators.

The sound of buzzing may also later be used to provide other clues about bees populations. When bees visit a flower, they buzz differently; the researchers hypothesize that because getting pollen out of a flower is harder work than flying, the sound of that buzz could help indicate a bee’s health. “If we could make those connections, that could be very useful as a sort of early warning system for parasites and pathogens in bee populations,” says Galen. Disease, along with pesticide use, climate change, and several other factors, is one of the stresses thought to be causing the decline of pollinators. “We would use it sort of like a doctor would use a stethoscope, but for a bee.”
NEW BLOOMFIELD — During the Nixon administration, the spotlight was bright on the diagnosis and treatment of autism.

Lawmakers committed to reducing the backlog of kids waiting for evaluation.

Last year, budgeters committed millions of new dollars toward the effort.

It's been 17 months since then-Governor Jay Nixon stood in front of an audience at the MU Thompson Center for Autism and Neurodevelopmental Disorders in Columbia and promised a $5 million bump in state funding.

Nixon also wanted to put a new autism center at Truman State University, but had to gut that funding last summer when state revenues came up short.

The Thompson Center received its expanded funding and now is just days away from opening this new research and training facility, which will instruct teachers, child care providers and those in the general community on how to deal with autism.

The big target for training is family doctors. In the 1970's, researchers identified only one in 5,000 kids as being afflicted with autism. Today, with the spectrum of autism disorders greatly expanded, the diagnosis affects one in every 68 kids. While the number of evaluations has tripled in the last five years, the waiting list has grown as well. If a doctor suspects autism and refers a child to Thompson, it still could be a year before that child is evaluated and diagnosed.

For the past couple of years, the Thompson Center has increased its reach with ECHO, or extended care health option. It's a telemedicine program developed at the University of New Mexico and elevated by researchers at Vanderbilt to teach people such as community health physician Jasmine El Khatib to diagnose autism for toddlers as young as 14 months old in rural areas. Khatib said she now is doing three to four evaluations every week.

Doctors across the state and around the globe can meet through teleconference to discuss their findings and get confirmations on their diagnoses from the Thompson staff.

The Thompson Center does not have a formal list of ECHO autism-trained doctors, but you can find more information [here](http://mms.tveys.com/PlaybackPortal.aspx?SavedEditID=f049ec45-07b9-4c18-8595-207b6f7d22ad).
Dr. Sohl said the Centers for Disease Control next year will release a new series of studies on autism, studies which could alter the spectrum once again and, as a result, change the frequency of diagnosis to something other than the current one in 68.

In her ideal world, Sohl said every pediatrician and family doctor would become a qualified autism evaluator.

MU announces new initiative to increase adoption of research animals

By Rudi Keller

Generated by News Bureau press release: Mizzou Announces New Animal Research Adoption Partnership

A new initiative from the University of Missouri to increase the number of research animals being adopted touched off a war of words between the group chosen to help and another suing the university for records of dogs and cats used in laboratories.

On Thursday, MU issued a news release that it will work with Homes for Animal Heroes, a program developed by the National Animal Interest Alliance to encourage adoptions of research animals. The alliance is an animal welfare group that supports responsible animal research, President Patti Strand said.

The university is being sued by Animal Rescue Media Education over a request for documents relating to 179 dogs and cats used in research. The UM System records office demanded $82,222.23 to locate and copy the records for the organization’s Beagle Freedom Project.

“They are liars and they are vicious people,” Pat Wiese, coordinator of the new Missouri adoption effort of Homes for Animal Heroes, said of the Beagle Freedom Project.

The Beagle Freedom Project is a radical animal rights group trying to end animal research, Strand said.
“Our national group is aware in general of the Beagle Freedom Project and basically we just felt like there needed to be an organization that was supportive of humane, properly conducted research and to adopt these animals,” she said.

In response, Kevin Chase, vice president of Animal Rescue, said the alliance wants to protect animal research. Its board includes an attorney for the company that operated Ringling Bros. Circus and others involved in laboratory research on animals, he said.

“We are suspicious because this is an entity that speaks out on behalf of businesses and others who use animals for profit,” he said.

The Beagle Freedom Project has used a variety of tactics to pressure the university to meet its demands. In September, it generated a lot of media attention with a research effort highlighted in MU literature where seven beagles were blinded in one eye with an alkali substance to test a medication, then euthanized because they were considered unsafe to be adopted.

The project followed that with a settlement offer — it would allow the university to pay a symbolic $1 penalty for a Sunshine Law violation if the documents were provided at no cost and the university took on the project as a partner in adopting research animals.

The new partnership is not intended to appease the beagle project, university spokesman Christian Basi said.

“We have always had a robust adoption program in place and we have actually been in discussions with this organization for a very long time and we are very pleased that we are able to make this connection and expand our adoption program,” Basi said.

The news release stated that the university has, since 2007, found homes for 394 dogs and 294 cats no longer needed for research. In September, the university stated that from the beginning of 2014, it had euthanized 242 dogs and cats and found adoptive homes for 155.

Basi could not provide the number of animals euthanized since 2007 or the number adopted and euthanized since September.

Animals available for adoption include dogs and cats that have been used for research into cancer, genetic disorders and other conditions. In many cases, dogs are the final step to testing lifesaving therapies and diagnostics needed for human clinical trials, the release stated.

“Animal research on the MU campus, and throughout the country, has led to discoveries that have saved the lives of both humans and animals,” Mark McIntosh, MU interim vice chancellor for research, graduate studies and economic development, said in the news release.

McIntosh defended the care and treatment of animals at MU.

“MU researchers take the utmost care of their research animals, follow all federal and state laws, and must go through a rigorous approval process before beginning their studies,” he said.
The lawsuit in Boone County Circuit Court is in settlement negotiations, attorney Dan Kolde, who represents the beagle project, said.

“I think they are productive,” he said. “But nobody has agreed to do anything.”

Department of Energy awards nuclear research grants

The University of Missouri won $2.1 million in grants from the U.S. Department of Energy to promote research and technology development and infrastructure needs for the study of nuclear science, the department said Thursday in a news release.

The grants were among $67 million awarded nationwide for 32 university-led nuclear energy research and development projects in 23 states.

The Columbia campus will receive $1.1 million, including $319,067 for safety equipment upgrades at the MU Research Reactor and $799,999 for experiments seeking data on fission product diffusion, transport and absorption in graphite materials.

The Missouri University of Science and Technology in Rolla will receive $954,317, including $799,317 to design, build and test a platform for determining the characteristics of nuclear fuel for test reactors and $155,000 for a fellowship.
Lawmakers protest stricter enforcement at MU

Three Democratic lawmakers called on the University of Missouri to reconsider plans for stricter enforcement of rules requiring first-time students to live on campus, citing a February rape at UMKC as a reason to relax rules for students who feel unsafe.

Reps. Courtney Curtis, D-Ferguson, Brandon Ellington, D-Kansas City, and Clem Smith, D-Velda Village Hills, sent a letter to President Mun Choi asking him to take steps to protect students living in dorms.

“Students need to feel safe on campus and the UM System has not yet provided a comprehensive plan on how to create a safe environment for these students,” Curtis said in a news release.

A plan for stricter enforcement of housing policies will be presented at next week’s meeting of the UM Board of Curators. Because of a sharp decline in enrollment, the Columbia campus has shuttered seven residence halls. As part of a plan to generate more revenue, the campus estimates it can reap $750,000 from a stricter policy.

In February, an unconscious student was raped in her dorm room at UMKC by a man who carried her in from a night of drinking. Police arrested Juan Contreras, who was not a UMKC student, for the rape.
MU hosts entrepreneurship boot camp for post 9/11 veterans


By Kyrah Davis

COLUMBIA – Nineteen veterans from across the country are in Columbia participating in a week-long series of workshops about entrepreneurship.

**The Trulaske College of Business at MU is hosting the national Entrepreneurship Bootcamp for Veterans known as EBV.** It is a small business education program designed to open the door to economic opportunity.

Veteran Du’an Lightfoot said programs like this help people like him get on their feet.

“There’s a gap when it comes to being an entrepreneur,” he said. “So, any program that’s going to help a veteran give back to the community is definitely needed.”

Lightfoot said the issues veterans face can hold them back from success.

“The lack of confidence, the lack of outlets or avenues or just connections to be successful,” he said.

Program Director Greg Bier said the goal is to empower veterans.

“A lot of times they just want to control their own destiny once they leave active duty,” he said. “If we can give them the skills to be a successful entrepreneur, they can go back home and really be a part of that economic engine in their community.”

Bier said, throughout the week, the vets learned about marketing, finance, accounting and other elements of the business world.

The boot camp will end this Sunday, June 11.
State Music Festival to remain in Columbia for next five years


By Sara Maslar-Donar

COLUMBIA, Mo. - **After a six-month bid process, Columbia and the University of Missouri will continue to remain home to the state music festival for another five years.**

MSHSAA officials decided to bid out the festival for the first time this year.

The MSHSAA board awarded the bid to Columbia at its meeting Wednesday.

The Convention and Visitor's Bureau worked with Mizzou to put together the bid and also received support from many businesses and organizations in the community. The festival costs about $35,000 to put on each year.

The community is a key player in keeping festivals and events in Columbia. For instance, low community engagement was a main factor in the loss of the MSHSAA state basketball tournament to Springfield. The city raised $80,000 in mostly private donations last year to lure the tournament for 2018-2022.

The Convention and Visitors Bureau will pay $12,500 for the festival. Mizzou and the community partners will pay the rest.

MSHSAA was not only looking for the promise of financial support for the festival, but also a warm welcome from the community.

The CVB said it tried to create "an even stronger atmosphere in hospitality than in the past" at this year's festival, according to a press release.

Those efforts included welcome signage, nametags for volunteers, a Columbia information tent and a custom Snapchat filter for the festival. They also secured additional classrooms on campus for the event.

Dr. Julia Gaines, the director of the School of Music, said Thursday this was great news for Mizzou and Columbia.

"As musicians, we love serving as the host department and bringing music to many locations on campus that don't normally have music," she said. "It's a wonderful festival for us not only to bring future Tigers to campus but to show the importance of music in the general education of a student."
Gaines said they made two large accommodations that also contributed to winning the bid.

First, she said they usually did a few of the same schools on Thursday, some on Friday and then a big day on Saturday. This time around, MSHSAA asked anyone who was applying for the bid to make the competition three equal days. It got complaints that schools had to come on Saturday and stay late.

"Now they are going to rotate schools and switch to even days," she said. "That made it much more challenging for us to find classrooms but we worked with the registrar's office and have to come up with a plan that will accommodate the equal days."

MSHSAA also asked Mizzou to consolidate the festivals because it didn't want students and their audiences traveling so far across campus. In the past, Gaines said that they've used classrooms and spaces that were spread out and made it difficult for accompanists to get to.

"Some accompanists will need to accompany 20 to 30 students and they were literally sprinting across campus at time," she said. "Again, we worked with our registrar's office to find classrooms within a smaller footprint to accommodate this request."

In addition to bringing potential students to Mizzou, the festival has about a $1.3 million economic impact.

Lincoln U. and the University of Missouri System launch official partnership

By Ashley Jost St. Louis Post-Dispatch, 20 hrs ago
ST. LOUIS • **There aren’t really boundaries to a new, formalized partnership between Lincoln University in Jefferson City and the University of Missouri System.**

That’s the point.

“The University of Missouri is fortunate to have a long-standing partnership with Lincoln University, which shares our mission to serve the state of Missouri and beyond,” University of Missouri System President Mun Choi said in a statement. “Today’s agreement takes our historic partnership to the next level and will leverage our mutual strengths for the greater good of our state, nation and world.”

The governing boards for both institutions signed a memorandum of understanding Wednesday.

The goal is to find ways Lincoln and the university system’s four campuses can utilize each other’s resources and human capital to benefit each other. Mizzou and Lincoln are both land grant institutions with research components, and there could be opportunity to leverage that.

There’s also a chance that this formalized partnership builds into a bridge program similar to what [Fisk University and Vanderbilt University have in Nashville](#).

The Nashville program pairs the elite research institution, Vanderbilt, with a Historically Black College and University, Fisk, to give students a dual enrollment program to finish their master’s and doctorate degrees.

The goal there is to increase the number of minorities in science, technology, engineering and mathematics fields.

It’s plausible that a similar program could happen with Lincoln, another Historically Black College and University, and Mizzou, a research school. Nothing appears to be off the table as those discussions continue.
Lincoln is losing their president, Kevin Rome, who will soon become the next president of Fisk University. In lieu of his absence, former longtime Mizzou and University of Missouri System administrator Michael Middleton is stepping in as interim president.

Rome recently questioned whether the declining state appropriations to Missouri's 13 public colleges is part of an effort to pare away at some of the smaller schools like Lincoln.

The school announced in May that because of a $3.8 million budget shortfall, 48 positions are being eliminated, including about 15 faculty members.

Meanwhile, the University of Missouri System continues to handle a $100 million budget situation, including more than 400 positions being eliminated. Granted, a chunk of that overall savings is coming back to the campuses to reinvest in more hiring and a greater focus on the areas each school does well in.

In a time of financial struggle for the universities, the leaders are hoping this formal, five-year partnership could spur something positive.

This partnership allows leaders to find ways to “utilize respective strengths and develop opportunities for our students, faculty and economic development,” said Christian Basi, a longtime spokesman for Mizzou who is now also the spokesman for the University of Missouri System.
Lincoln University, MU launch partnership on research, diversity, outreach


By Karla Valcourt

COLUMBIA - The University of Missouri System and Lincoln University are partnering to strengthen economic development in the state and educational opportunities for the two universities.

An advisory board will be created to assess the strengths of both universities, said MU spokesman Christian Basi. The institutions are looking to collaborate in areas such as research, instruction, outreach, and international programs, he said.

"We want to explore our strengths to help each other - to benefit our students, our researchers and in many ways to benefit the economic development of the state," Basi said.

The Memorandum of Understanding comes after both universities experienced budget cuts this year. MU and LU also have both experienced low enrollment in the last few years.

However, Dr. James Scott, interim vice provost for international programs at MU said low enrollment is not what motivated the new memorandum.

MU student Shelby Anderson said the collaboration is an opportunity for the two universities to utilize resources in each other’s back yards.

"The importance of a collaboration like this is using what's around us - what's so close to home," Anderson said.

One of the objectives is to diversify the MU campus faculty - an area Anderson said MU has always struggled with.

She said, "When you're trying to attract students, if they don't have anyone that looks like them, what does that success look like?"

Anderson said she hopes the two universities follow through with the plan.

"I think we need to focus more on being proactive instead of reactive. Had we been doing this, maybe some of the things that have occurred on this campus wouldn't have," she said.

Below is a list of objectives outlined in the memorandum:
• Explore the development of cooperative and collaborative research and development activities in pursuit of common integration of the two universities
• Exchange scholarly information and materials between the two universities to facilitate collaboration in programs
• Mutually seek grant and contract awards to support collaborations
• Facilitate the matriculation of LU instructors into the doctoral programs of the respective campuses of UM
• Collaborate in developing strong international programs in cooperation among Lincoln University and partner institutions in Africa, the Caribbean, Asia, and other world regions

The advisory board for the two schools have not been created yet, but Scott said the program will begin as soon as possible.

University of Missouri President Talks Enrollment, Image

The University of Missouri System president is laying out plans to improve the Columbia campus' enrollment and public image.

President Mun Choi spoke to the Regional Economic Development Board of Directors on Wednesday, the Columbia Daily Tribune reported.

"During the past two years, I don't think the university has been very proactive in helping to shape the message," Choi said.

Board member Fred Parry said the university's enrollment decline and public image problems can be traced back to the November 2015 protests involving the university's students, faculty and football team.

"Those are the things that seem to have really made the University of Missouri not seem like a viable option for a lot of incoming freshmen," Parry said.

Enrollment was at a record 35,448 students in fall 2015. The campus had 6,419 first-time freshmen. This fall, the university anticipates about 4,000 first-time freshmen and a total enrollment of about 30,800.
Choi said the university should target high achievers to increase graduation rates and raise its profile as a top university.

He also said the university’s goal for enrollment should be about 5,000 new freshmen and about 1,000 community college transfers per year on the Columbia campus.

"We have not really focused on strategic enrollment," Choi said. "I think the mindset had been, let’s get to this target number of students, and as long as the applications were coming in, things were fine."

To attract higher-achieving students, Choi said the school will start offering a scholarship to students ranked as National Merit finalists or semifinalists.

Board Chairman Jeff Echelmeier said he likes Choi’s plan.

"I am excited about his attitude of investment," he said. "I think that is the way the university is going to recover, is to invest the smart resources that will help us grow our way out of it."

COLUMBIA, Mo. (AP) — The University of Missouri plans to close a bed-and-breakfast that has been both a business and a way to educate hospitality students for more than 20 years.
The Gathering Place Bed & Breakfast, located across from the Columbia campus, will close in December. It's one of several programs being closed or reduced as the university responds to budget cuts.

The College of Agriculture, Food and Natural Resources, which oversees the university's hospitality program, said it was closing the business because it didn't meet educational expectations.

The Columbia Missourian reports (http://bit.ly/2rB6tmN) the university hoped students would get managerial and operational experience at the business but students generally worked breakfast service and cleaning up rooms.

MU defensive end Nate Howard suspended, charged with felony drug possession
By Blake Toppe Meyer
Missouri football defensive end Nate Howard was charged Thursday afternoon with a Class D felony after he was arrested Wednesday night on suspicion of possession of psilocybin mushrooms.

Howard, a junior from St. Louis, has been suspended indefinitely from the team, according to football team spokesman Chad Moller.

Howard remained in Boone County Jail as of Thursday afternoon. Bond was set at $4,500 for the felony charge. The maximum punishment for a Class D felony is up to seven years in prison and a $10,000 fine.

“We are aware of the situation, and are addressing it internally,” Moller said in a text message Thursday morning. “Nate is suspended indefinitely.”

Howard was arrested by the University of Missouri Police Department around 7 p.m. Wednesday following a traffic stop on South Providence Road after an officer spotted Howard driving with a temporary license plate that expired in June 2016, according to the probable cause statement filed.

The officer wrote in the probable cause statement that she smelled marijuana emanating from the vehicle, and Howard responded: “It’s from my breath. I smoked about 30 minutes ago.”

Howard was alone in the vehicle. The officers searched the vehicle and, according to the probable cause statement, found a plastic bag containing the butts of marijuana joints and, in the trunk of the vehicle, found a plastic bag containing mushrooms that tested positive for psilocybin, a psychedelic compound.

He was arrested on suspicion of possession of a controlled substance (psilocybin mushrooms), possession of 10 grams or less of marijuana and failure to register his vehicle. Possession of 10 grams or less of marijuana is a Class D misdemeanor, carrying a maximum punishment of a $500 fine and no jail time.

The lone charge filed by Boone County Prosecuting Attorney Spencer Bartlett on Thursday pertained to the psilocybin mushroom possession.

Howard has a prior drug conviction from 2015, according to the probable cause statement. There are no online court records pertaining to such a case in Missouri.

University policy states that any athlete facing felony charges will remain suspended until a judgment is reached in the case. If the athlete pleads guilty to the felony charge or is convicted of the felony, the athlete is permanently barred from competing in athletics for any school in the University of Missouri System.

The team’s summer workouts began last week. Howard was one of Missouri’s top-performing defensive ends in spring camp.
A knee injury sidelined Howard during the first half of last season. He played in four of the final five games and made three tackles. As a freshman, Howard appeared in 11 games and made 12 tackles.

Howard said in April that he hoped to earn a starting defensive end spot opposite Marcell Frazier.

“I personally believe with what I’m doing and how I go about taking care of things, at the end of the day, no doubt I should be the guy,” he said then.

**UPDATE: MU football player Nate Howard arrested on drug charges**

MADI SKAHILL, GABRIELA VELASQUEZ, 21 hrs ago

COLUMBIA — **Missouri defensive end Nate Howard was arrested by MU police late Wednesday on suspicion of drug possession and has been suspended by the football team.**

Howard, 20, was taken to the Boone County Jail on suspicion of three charges: possession of a controlled substance, possession of marijuana and driving without proper vehicle registration. His bail was set at a total of $5,500. He was still in the jail Thursday morning.

"We are aware of the situation and are addressing it internally," MU football spokesman Chad Moller said in a statement. "Nate is suspended indefinitely."

Howard was stopped on Providence Road near Custom Complete Automotive around 7 p.m. for having license plates that expired in June 2016, MU Police Maj. Brian Weimer said. Campus police subsequently found marijuana and psilocybin mushrooms in the car, Weimer said, adding that Howard was the only person in the car at the time.
Howard was one of eight true freshmen to play in the 2015 season, recording 12 tackles in 11 games, according to his profile on the MU football website. He secured a position in the Tigers’ defensive rotation late in the 2016 season after recovering from a knee injury during spring practice, according to previous Missourian reporting. He is a rising junior.

Supervising editors are Katherine Reed and Pete Bland.

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Mizzou football player Nate Howard charged with drug felony, suspended by team

The Kansas City Star

Missouri junior defensive end Nate Howard, a projected starter for the Tigers this fall, was suspended indefinitely from the football team Thursday and charged with a Class D felony for allegedly possessing psilocybin mushrooms.

Howard, 20, was arrested by University of Missouri police and remained in custody at Boone County Jail on Thursday afternoon, according to the Boone County Sheriff’s website. His bond was listed at $4,500.

According to MU police, Howard, who was driving alone, was pulled over at 7:04 Wednesday night on Providence Road in Columbia for having expired tags. Police said upon further investigation, they found mushrooms and less than 10 grams of marijuana in Howard’s vehicle.

Online court records show that Boone County assistant prosecuting attorney Spencer Bartlett charged Howard with the single felony count for allegedly possessing the mushrooms.

“We are aware of the situation, and are addressing it internally. Nate is suspended indefinitely,” said Chad Moller, Missouri associate athletic director for communications.
According to University of Missouri policy, athletes charged with a felony are suspended from a team until their case is resolved and they will be dismissed from the team if convicted of a felony.