

FORT HAYS STATE UNIVERSITY

December 2005 Department of Biological Sciences

Volume 5 Issue 2

FACULTY HAPPENINGS

Gillock wins \$10K faculty scholar award

Countless attempts to satisfy an endless curiosity paid off today for Dr. Eric T. Gillock, assistant professor of biological sciences at Fort Hays State University, when he received a \$10,000 Faculty Scholar Award from the Kansas IDeA Network of Biomedical Research Excellence.

"Dr. Gillock is a shining example of the creativity, diligence and overall excellence of the FHSU faculty," said FHSU President Edward H. Hammond, who presented Gillock with a plaque commemorating the award.

"It is people like Dr. Gillock," said Hammond, "who are a major part of making 'affordable success' a promise instead of an empty boast. He started at FHSU in 2001 with minimal facilities and has developed a \$95,000 laboratory and attracted the Li-Cor Corporation into donating an \$80,000 DNA sequencer."



Hammond quoted the letter written by Dr. Tom Jackson, dean of graduate studies and research, to the K-INBRE: "Dr. Gillock is an innovative researcher and teacher at Fort Hays State University. He was the driving force for the establishment of Fort Hays State University's Western Kansas Center for Biotechnology and Bioinformatics, which he now directs."

The K-INBRE recently established a prestigious award for mid-level faculty of distinction, called "Faculty Scholars," to acknowledge their outstanding contributions to Kansas universities. The K-INBRE

chose cell and development biology as its scientific research theme.

"We decided to nominate Gillock because of his success with conducting quality research and establishing an infrastructure for biomedical research initiatives," said Dr. Jeff Briggs, dean of the College of Health and Life Sciences. "We recognized his talent and knew he was a prime candidate for the K-INBRE award."

Gillock was one of 10 statewide award recipients and the first at FHSU.

Since beginning his career at FHSU as assistant professor of microbiology, Gillock has published two refereed papers and given five presentations at state and regional levels. His research focuses on the description, purification and identification of bacterial isolates that have antibacterial responses. He and his students are currently investigating environmental bacteria that show resistance to antibiotics, which could pose a threat to human health.

"I am truly honored to receive such a prestigious award," said Gillock. "I am grateful for the opportunity to work with a team of colleagues and students who share my passion to investigate a mystery that, when solved, has the potential to benefit human health. The money will help tremendously with our research."

Li-Cor Corporation, a leader in the design, manufacture, and marketing of integrated instrument systems for biotechnological research, donated the DNA analyzer to FHSU to aid in developing a state-of-the-art DNA sequencing lab. Gillock was responsible for developing the protocol for the establishment of the lab, which is known as the Western Kansas Center for Biotechnology and Bioinformatics.

"Li-Cor donated the analyzer in confidence that we could effectively demonstrate the use of such equipment in teaching and research," said Dr. Elmer Finck, chair of the Department of Biological Sciences. "They wanted us to set an example for other mid-sized universities by showing that the analyzer was indeed useful -- which Gillock's research has succeeded in doing."

You may find this issue and all other issues on the department's web page: www.fhsu.edu/biology/index.html For University news see: www.fhsu.edu

Out-of-state universities have recognized Gillock's research using the DNA analyzer and have joined in the investment.

"Gillock's incredible expertise and effective interactive teaching style have shaped him into an outstanding faculty member," said Finck. "We are grateful for his contributions to our department."

The award was made possible by NIH grant number P20 RR016475 from the INBRE Program of the National Center for Research Resources.

Press release courtesy of FHSU University Relations

Choate Recognized As Distinguished Scholar

Dr. Jerry Choate, professor of biological sciences and director of Fort Hays State University's Sternberg Museum of Natural History, discoursed on "Bats, Rats, and Graduate Students" recently at a FHSU honors gathering as partial payment for his President's Distinguished Scholar Award.



The award was announced at the Fall General Meeting in August, just before the semester started. The other part of the payment for the award is the 35 years of teaching and research Choate has put into his study of mammalogy at FHSU.

"My focus has been the systematics and biogeography of mammals," he said, by which, he explained, he meant the distributions of mammals – "where they live and how and why they change where they live." He summed up the importance of his studies with one word: "biodiversity." The least weasel and its meeting with the hispid cotton rat in northern Kansas and southern Nebraska illustrated his exposition on biodiversity and biogeography. He explained how, over the last 40 years, the hispid rat's range has expanded far to the north, through Oklahoma and into Kansas and southern Nebraska. The least weasel, in roughly the same period,

has expanded southward, from north of Nebraska.

In the hispid cotton rat, the aggressively predatory least weasel found an abundant, easily obtained food source and expanded into it. Other species affected include rattlesnakes, which suffered in the least weasel range by a reduced food supply.

The President's Distinguished Scholar Award, the highest faculty honor at FHSU, was created in 1988 by President Edward H. Hammond at the urging of the FHSU Faculty Senate. The award recognizes research and creative activities and service performance of faculty. An evaluation committee chaired by the provost selects the honoree. Other members include past award recipients. The committee accepts nominations until March of each year. The award recipient is introduced at the fall faculty orientation meeting.

The honoree is required to present a scholarly lecture during the Honors Convocation in the fall. The honoree also receives a check for \$1,500, an award certificate, a lapel pin and a medallion especially designed for the occasion by Jim Hinkhouse, former FHSU professor of art. The honoree is also recognized by a plaque that is placed in the Memorial Union.

Choate spoke about the beginning of his career, working at large research institutions on the East Coast. He wanted out of the big institutions but did not want to work anywhere without a museum. Then, in 1970, a colleague told him of a position at FHSU. He came here in 1971, taking a position that required teaching four courses a semester. But, he said, "I found that I could do almost as much research here as I could at the large research universities." He emphasized his statement by repeating it and pointing out that this was despite the four-course load. But it did necessitate, he said, using graduate students.

That had its own difficulties. "We had to compete with large research institutions to get them, mostly, until recently, burdened with ridiculously low graduate stipends." But, he said, it is a testament to the quality of the biology program at FHSU that so many graduate students did choose to come here over the years and went on to great careers. "I just tried to interest them in the things I was interested in studying, and I tried to guide them, find money to pay them." And once he got them, he said, "I just kept them pointed in the right direction." Choate received his Ph.D in zoology from the University of Kansas and a bachelor of arts degree from Pittsburg State University.

One other remarkable accomplishment was cited by Dr. Eugene Fleharty, FHSU professor emeritus of biological studies, in his introduction. He said that among Choate's numerous publications was 124 in refereed journals. That is especially significant, Fleharty said, because such journals typically reject anywhere between 20 percent and 50 percent of all submissions, and it is testament to the quantity and quality of Choate's work. *By Kurt Beyers*

Thomasson Fossils In Evolving Planet Display

What did the grasslands of central North America look like tens of millions of years ago and what types and varieties plants and animals would you likely have encountered on a trip through Kansas. What is the available fossil evidence found in Kansas geologic strata from the appropriate geologic periods? A new permanent display, Evolving Planet, opening in March at the Field Museum in Chicago, is intended to help answer such questions, and in the words of the museum it will "take visitors on an awe-inspiring journey through 4 billion years of life on Earth, from singlecelled organisms to towering dinosaurs and our extended human family. Unique fossils, animated videos, hands-on interactive displays, and recreated seaand landscapes help tell the compelling story of evolution—the single process that connects everything that's ever lived on Earth". Among the unique fossils selected by the Field Museum to be a part of the display are specimens collected by Dr. Joe Thomasson from the Miocene Ogallala Formation in Ellis and Graham Counties, Kansas.

Dr. Thomasson and his students have been studying and analyzing the evolutionary, taxonomic, and ecological significance of fossil and modern grasses for more than 25 years, and results of the studies have been published widely, including in such prestigeous scientific journals as Science, National Geographic Research, the American Journal of Botany, and the Journal of Paleontology. In recognition of his expertise and contributions to our knowledge of grass and grasslands evolution, he was asked recently to provide fossil grasses for use in the display.

Fossils provided by Dr. Thomasson that will be on display include mass accumulations of grass husks and leaves. Grass husks are represented by a sample from Ellis County in which are preserved hundreds of specimens of a rice grass, *Nassella pohlii* (see photos), some of which still show exquisitely preserved epidermal cells on the surfaces of the husks.



Living relatives of this fossil species are now restricted to grasslands in Central and South America. The genus Nassella is a member of a larger and important group of prairie grasses that includes living needle-and-thread or porcupine grasses, some of which are found as close to FHSU as the Wilson Lake area. Many of these grasses are of considerable historical significance and one, Stipa spartea, was prominently mentioned in the Lewis and Clark journals. The fossil leaves slated for display are part of a mass collected in Graham County along with a number of vertebrate fossils that included grazers such as horses. The accumulations of fossil husks and leaves were probably the remains of fossilized dung or perhaps, especially in the case of Nasella pohlii, plant materials stored in underground chambers by insects such as red harvester ants now common in our region.

Besides demonstrating the fossils' scientific significance in shedding light on the evolution of the grasses and grasslands of North America, having them on public display at the Field Museum will help generate national and worldwide attention for research studies conducted at Fort Hays State University, the Department of Biological Sciences, and Sternberg Museum of Natural History.

GRADUATE STUDENTS

The following graduate students completed their orals: Kurtis Cooper, Sherrie (Millison) Stawinski, and Amy Zavala.

On October 21, 2005 graduate student Sherrie Stawinski successfully defended her MS thesis. She presented her thesis research in a public seminar entitled "Characterization of a *Saccharopolyspora* by 16S rRNA Sequencing, Fatty Acid Methyl Ester Analysis and Scanning Electron Microscopy". Congratulations are also in order for Sherrie, as she was recently hired by the State of Kansas as a microbiologist and will be working in the state testing laboratory in Topeka. Be sure to see the **Closing Picture** section for a revealing view of Sherrie's bacteria!

Pistolgrip Mussel Update By Eric Starkey



Seasonal Movement of the Pistolgrip Mussel (*Tritigonia verrucosa*)

December 2005

The pistolgrip mussels are in motion! The past 6 sample periods have yielded some great results! During late August and September, Fall River experienced high flow conditions and threatened our experimental setup. Despite a peak discharge of 12,000 cubic feet per second (cfs) and a month of 3,000 cfs, most of our equipment remains. No tagged pistolgrip mussels were lost during the floods, but several individuals moved downstream more than normal.



The following are some highlights from the last sample period.

- 80% of all live individuals were relocated
- Many individuals have moved only slightly, despite the high bed load during floods
- Individual 042 is the current leader with 35.63 meters traveled since the 23rd of August
- Individual 038 has the highest rate of movement with 0.28 m /day
- The greatest distance moved in 24 hours was 1.33 meters by individual 057

To be continued......

MEETINGS & WORKSHOPS

On October 1, 2005 Dr. Eric Gillock and graduate students Sherrie Stawinksi, AJ Thomas and Sam Zwenger attended the 4th Annual Great Plains Infectious Disease Meeting at the University of Kansas in Lawrence. Sherrie presented a poster entitled "Isolation"

and Characterization of a Novel *Streptomyces* Collected from a Preserved Lab Specimen". AJ presented a poster entitled 'Effectiveness of an RT-PCR protocol for West Nile Virus Detection in live Birds". Also presented was a poster by undergraduate student Shingo Ishihara entitled "Isolation and Characterization of Antibiotic-Resistant Bacteria and an Unknown Fungal Species from the FHSU Swine Farm". A good time was had by all, and we met former graduate student Lance Thurlow at the meeting. He is currently a PhD student under Dr Lynn Hancock at Kansas State University. Lance reports that he is doing well and is staying quite busy with his research project. He says hello to everyone back at FHSU.

The Central Plains Society of Mammalogists (CPSM) meeting was held on 14-16 October 2005 at Truman State University in Kirksville, MO. The meeting was attended by several FHSU Department of Biological Sciences faculty, graduate students, and undergraduate students. Graduate student Cody Thompson with Drs. Elmer J. Finck, Jerry Choate, and Hugh Genoways (University of Nebraska at Lincoln) presented a paper titled "Identification and characterization of the contact zone between two species of short-tailed shrews (Blarina) in southern Iowa and northern Missouri." Graduate student Shannan Nilz and Dr. Finck presented a paper titled "Conservation status of the eastern spotted skunk (Spilogale putorius) in Kansas." Cody and Shannan both received awards for their presentations, Cody receiving the 2005 Student Research Award in Mammalogy and Shannan the 2005 Outstanding MS Presentation Award.

The CPSM designated the Sternberg Museum of Natural History as the official repository for the records of the society and Dr. Choate was appointed Archivist. Shannan was elected Secretary/Treasurer of the CPSM. Dr. Rob Channell began his term as President of the society and Dr. Finck completed his term as Past-President. Other meeting participants from FHSU were graduate students Brian Bartels, David Bender, and Amy Zavala as well as undergraduates Brent Clark, T. J. Lamb, Jesse Ost, Courtney Poland, Jessica Schmitt, Kole Stewart, and Ryan Williams.

PUBLICATIONS

Sherrie Stawinski and Dr Eric Gillock have submitted a manuscript for publication entitled "Characterization of a *Saccharopolyspora* by 16S rRNA Sequencing, Fatty Acid Methyl Ester Analysis and Scanning Electron Microscopy". It is currently under editorial review.

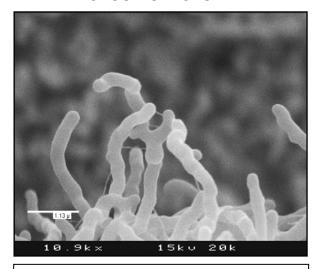
Dr. Robert Nicholson recently co-authored the following publications:

- Vogel, K. P., P. E. Reece, D. D. Baltsenberger, G. Schuman, and R. A. Nicholson. 2005. Registration of 'Beefmaker Intermediate Wheatgrass'. Crop Science 45(1):415-416.
- Vogel, K. P., D. Tober, P. E. Reece, D. D.
 Baltsenberger, G. Schuman, and R. A. Nicholson.
 2005. Registration of 'Haymaker Intermediate Wheatgrass'. Crop Science 45(1):415-416.
- Vogel, K. P., D. Tober, P. E. Reece, D. D.
 Baltsenberger, G. Schuman, and R. A. Nicholson.
 2005. Registration of 'NU-ARS AC2 Intermediate Wheatgrass'. Crop Science 45(1):416-417.

GRANTS AND CONTRACTS

Undergraduate student Stacey Michaelis received a \$3,000 scholarship from the Kansas IDeA Network for Biomedical Research Excellence (KINBRE) for a project she is conducting with Dr. Gillock. Stacey is screening soil samples for the presence of bacteria that are resistant to chlorhexidine, a widely used disinfectant.

CLOSING PICTURE



This is a scanning electron micrograph of the Saccharopolyspora bacterium isolated and identified by Sherrie Stawinksi in her MS thesis research. Scale bar = 1.13 μ m.