

# NATURAL INQUIRER

FORT HAYS STATE UNIVERSITY  
Department of Biological Sciences

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## FACULTY HAPPENINGS

### *Dr. Packauskas on the World Wide Web*

Dr. Richard Packauskas, FHSU Entomologist, recently finished a peer reviewed technical conservation assessment of the Hudsonian Emerald (a dragonfly) for the USDA Forest Service, Rocky Mountain Region. Species assessments by experts like Dr. Packauskas are critical to understanding biodiversity and conserving and managing our natural resources. Dr. Packauskas was selected to conduct the assessment because of his past experience and expertise with aquatic insects such as dragonflies. The results of his study are now available on the internet at:

<http://www.fs.fed.us/r2/projects/scp/assessments/hudsonianemeralddragonfly.pdf>.

On another note Dr. Packauskas has accepted an invitation back to his old alma mater (U. Conn) to teach a field entomology course this coming summer.

### *Dr. Thomasson Honored with Scientific Name*

What do immense, 90 million year old, plant eating dinosaurs such as those shown in the movie Jurassic Park and research conducted by Fort Hays State University botanist Joseph R. Thomasson and his students have in common? Well, it turns out that when a team of Swedish and Indian researchers recently found the oldest known fossil grasses in fossilized dinosaur dung (or coprolites) from India and published their remarkable and exciting discovery in the November 18, 2005 issue of Science magazine, they decided to name one of the new fossil grasses *Thomassonites sinuatum*, "in honor of J. R. Thomasson, the paleobotanist who contributed significantly to current knowledge about grass evolution based on studies of mesofossils from North America".

The new fossil grass is based on structures called phytoliths that were recovered from the dung of sauropods, a group of large, long-necked, plant eating dinosaurs common during the Cretaceous geologic age. Phytoliths are tiny pieces of hard, stone-like silica deposited in the cells of some plants, but are especially common in grasses and are found in many distinctive shapes that allow scientists to tell which grasses produced particular phytoliths. In grasses the phytoliths

cause leaves to be very rough and abrasive as a food source, and as a result less attractive to many feeding animals. However, some animals, such as horses, have adapted teeth specialized to graze on grasses.

The recent report shows that the dinosaur fed on at least five different grasses, and is the first known evidence of dinosaurs grazing on grasses. Evidence suggests that unlike many of the shorter grasses presently found in Kansas, the grasses the dinosaurs were eating were large forest types, perhaps several meters tall. The fossil grasses also provide some of the first known evidence that explains the very specialized grazing teeth of an early evolving type of ground hog-sized mammal called gondwanatheres. Prior to the discovery of the Cretaceous fossil grasses, the puzzling teeth of gondwanatheres, which were adapted to grazing on very abrasive plants such as grasses, had been difficult to explain.

For nearly 30 years Dr. Thomasson and his students have been studying fossil grasses and have published the results in one book and more than 20 articles in professional journals, most recently in the Journal of Paleontology in 2005. These studies are recognized nationally and internationally as providing much of our present knowledge of the evolution of grasses and grasslands of central North America. Besides teaching botany related courses in the Department of Biological Sciences, Dr. Thomasson serves as Curator of Botany and Paleobotany at the Sternberg Museum of Natural History where he continues his studies of fossil grasses.

## GRADUATE STUDENTS

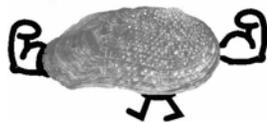
The following graduate students have recently completed their comprehensive oral examinations: Eric Starkey, Matt Sexson, Hector Serna, Shannan Nilz, and Shaun Dunn.

Graduate student AJ Thomas successfully defended his thesis entitled, "Assessment of West Nile Prevalence Using RT-PCR in Resident and Migratory Birds of Western Kansas" on the 16<sup>th</sup> of March. AJ's research led him to develop a new method of testing for infections of West Nile Virus in birds.

### *Pistolgrip Mussel Update*

#### Seasonal Movement of the Pistolgrip Mussel (*Tritogonia verrucosa*)

By Eric Starkey  
March 2005



Pistolgrip mussels have been rather cold since the last update in December. However, this has not prevented them from being active. We have noted many individuals siphoning and having their foot out, even under the ice! Between December and January we saw low flow conditions, which may have contributed to several mortalities. The average distance moved between December and January was 0.44 meters. Individual 40 moved the farthest with a distance of 1.20 meters. Preliminary results were reported at the Kansas American Fisheries Society meeting on February 10<sup>th</sup>. Some of the main points were:

- Most individuals have moved between 0.00 and 19.00 meters
- A few individuals have moved between 20.00 and 36.00 meters – these are likely washouts from the flood in September
- There has not been a significant difference between male and female movement
- We saw a declining rate of movement as water temperatures cooled in the fall

Data has not been fully tabulated for February, but will be done very soon, and can be seen at the Kansas Academy of Science meeting in April.

## **MEETINGS & WORKSHOPS**

### *Fourth Annual KINBRE Symposium*

On January 14 and 15th, Dr Eric Gillock, graduate student Rich Zwenger, and undergraduate Stacey Michaelis attended the Fourth Annual KINBRE Symposium at Kansas State University. The following posters were presented:

Stacey A. Michaelis and Eric T. Gillock. Isolation and partial characterization of a chlorhexidine resistant-bacterium from soil.

Sherrie Stawinski, Lance Thurlow and Eric T. Gillock. Characterization of a Saccharopolyspora by 16S rRNA sequencing, fatty acid methyl ester analysis and scanning electron microscopy.

Also in attendance was graduate student AJ Thomas, who presented the following platform talk:

AJ Thomas, ET Gillock, and GH Farley. Effectiveness of an RT-PCR protocol for West Nile virus detection in live birds.

Former graduate student Sherrie Stawinski also took time out from her new job as a microbiologist with the KDHE to attend the meeting. She reports her job is going well. We also had a chance to catch up with former graduate Lance Thurlow, who is busy with his dissertation research on Enterococcus at KSU.

### *Department Hosts Annual Meeting of State Fisheries Biologists*

The Biology Department hosted the 31st Annual Meeting of the Kansas Chapter of the American Fisheries Society on 10-11 February 2006. Seventy people registered for the meeting, most coming from state universities and governmental agencies.

The meeting began Friday morning with a GIS workshop for fisheries biologists conducted by Jodi Whittier of Kansas State University. The 6-hour workshop was a component of the one Jodi helped to lead at the American Fisheries Society meeting in Anchorage, Alaska, in September 2005. The workshop in Kansas was attended by 24 fisheries biologists and students, and held in the Biology Department's computer lab in Albertson Hall.

After the workshop, activities moved to the Sternberg Museum of Natural History, where the business meeting was held in the late afternoon. Following the business meeting, everyone was able to stay at the museum for a barbecue supper and evening social. Registrants were able to visit with colleagues, view the museum exhibit area, and participate in a fish identification contest and a raffle that generated funds for the student subsection of the chapter. Two FHSU undergraduate students, Aaron Austin and Kyle Tutak, earned a 3-way tie for first place in the fish ID contest, for which they were able to select a fish print from among several available by FHSU alumnus Joe Tomelleri ([www.americangfishes.com](http://www.americangfishes.com)). The raffle and fish ID contest raised over \$700 to support the activities of the student subsection.

On Saturday morning, 11 oral presentations were given in Albertson Hall: 4 by post-graduates, 4 by graduate students from FHSU and K-State, and 3 by undergraduate students from FHSU and K-State. The best presentation award went to recent FHSU Biology graduate Curtis Wolf for his presentation: "Recruitment in Three Freshwater Mussel Species (Unionidae) Correlated to Seasonal River Discharge", which was coauthored by Bill Stark. Best student presentation award went to current FHSU Biology undergraduate

student Tyler Pilger for his presentation: "Preliminary Observation of Prey of Introduced Largemouth Bass (*Micropterus salmoides*) in the San Juan River, New Mexico".

All in all, it was an excellent weekend of camaraderie among ichthyologists and fisheries biologists from across the state, and the success of FHSU students in the competitions reflects the continued high quality of our students and program.

#### ***Department Hosts Annual Meeting of the Kansas Chapter of the Wildlife Society***

February 24 through 25, 2006, the spring meeting of the Kansas Chapter of the Wildlife Society was held at Fort Hays State University. Several Fort Hays State University graduate students, including Shannan Nilz, Matt Sexson, Amy Zavala, Cody Thompson, and Ben Wheeler, presented results from their thesis research. In addition, Amy Zavala was awarded the student presentation award for her paper entitled "Grazing effects of ground-nesting birds in the Red Hills of south-central Kansas". Furthermore, graduate students AJ Thomas and Matt Sexson presented posters highlighting results of West Nile Virus research.

#### ***Shorebird Science in the Western Hemisphere***

Recently, Matt Sexson attended the First Meeting of Shorebird Science in the Western Hemisphere which was held in Boulder, Colorado from February 27 through March 2, 2006. Matt presented a poster entitled "Prevalence of West Nile Virus among Snowy Plovers in Kansas." In addition, Matt presented results from his thesis entitled "Nest-site selection and reproductive success of the Snowy Plover in Kansas." The Shorebird Science Meeting was the first meeting of shorebird scientists throughout the western hemisphere, with a goal to bring together biologists who work on species in different areas of their migratory range.

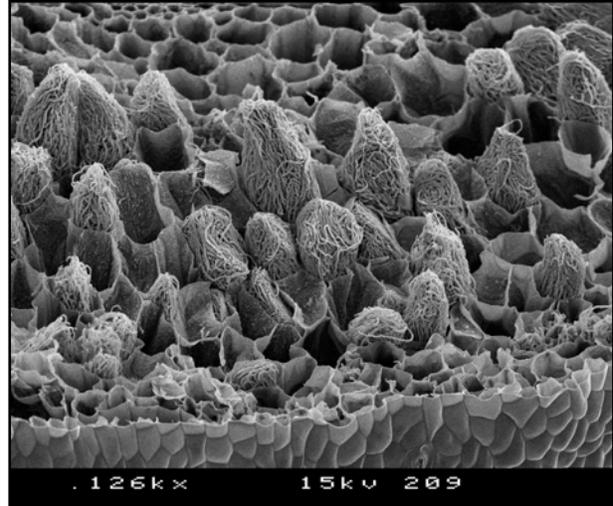
Of note, the meeting marked the academic retirement of Lew Oring, an influential ornithologist who has ties to many past and present faculty members and graduates of Fort Hays State University.

#### ***Midwest Ecology and Evolution Conference***

On March 18<sup>th</sup> and 19<sup>th</sup> biology students Shaun Dunn, Tyler Pilger, and recent FHSU graduate Cheryl Schmidt (M.S. 2004) attended the Midwest Ecology and Evolution Conference in St. Louis, MO. The meeting had presentations over a wide variety of topics including systematics, biogeography, behavior, and of course ecology and evolution. Research was presented on an abundance of taxonomic groups, including: plants,

insects, mammals, birds, amphibians, reptiles, fish, and much more!

### **CLOSING PICTURE**



Appearing like bundles of yarn, coiled masses of fungal hyphae protrude from cells in this SEM image of the rhizome of the western spotted coralroot orchid (*Corallorhiza maculata*). Because the orchid does not photosynthesize, the masses of hyphae (called pelotons) supply the orchid with carbon and nutrients. This image was taken as part of Scott Thomasson's M.S. thesis study of orchid mycorrhizae. 126X.