



Sprague's Pipit
A. Galt

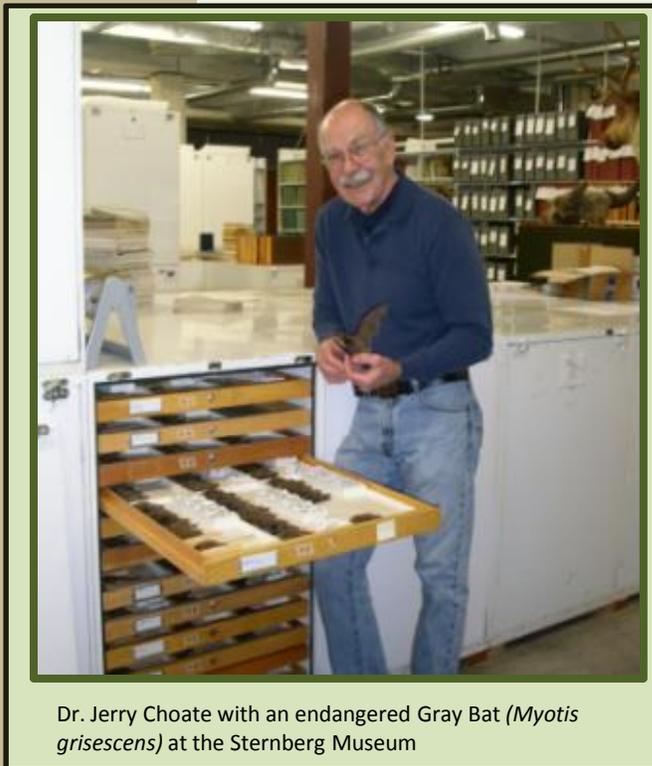
Spring Semester 2009

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The Natural Enquirer

Department of Biological Sciences, Fort Hays State University, Hays, KS

Professor, Sternberg Director and Curator of Mammals Retires



Dr. Jerry Choate with an endangered Gray Bat (*Myotis grisescens*) at the Sternberg Museum

Special Interest Articles:

•Special Ornithology Section

•Human Anatomy Laboratory Experience

•Ornithology Field Experience

•Fleaharty Fellowship Seminars

•Much more!

After 38 years, 52 graduate students, 196 publications and a host of accomplishments, awards and accolades, Dr. Jerry R. Choate is retiring from FHSU this spring. Dr. Choate was born and raised in Oklahoma where he developed a strong affinity for the outdoors. Near completion of his BS in Zoology, he decided he wanted to work with mammals and sought a PhD. Assistantship at Kansas University. Following completion of his PhD in 1969, he worked for a time at the University of Connecticut, but found it too tame for

his liking! Friends and jackrabbits on the runway in Hays convinced Dr. Choate that Fort Hays was where he wished to complete his career.

He is most proud of four major accomplishments:

- His graduate students, of which approximately half went on to earn doctorate degrees and work for universities throughout the United States,
 - Museum of the High Plains, which eventually formed an alliance with the Sternberg Museum and under Dr. Choate's direction, grew and moved to its current location.
 - His active research program with a number of publications, including books, peer-reviewed publications and technical articles. He attributes this accomplishment to good time management and his graduate students.
 - And, the Kansas Mammal Atlas, developed through the Sternberg Museum and a State Wildlife Grant. The atlas and its abundance of information can viewed at <http://webcat.fhsu.edu/ksfauna/mammals/index.asp>.
- When asked, based on his experience, to provide advice for younger faculty he stated, "Go out and recruit good graduate students. Spend as much time with them as you can, help them get started, and get out of their way. Graduate students make you look good, but you have to have them to do that."

Western Meadowlark
A. Galt



Special Ornithology Section ~ Dr. Greg Farley

The Department of Biological Sciences and Dr. Greg Farley host the 60th Annual Meeting of the Kansas Ornithological Society, 3-5 Oct 2008.

The paper session included presentations by current and former graduate students. John Schukman (M.S. 1972) spoke on Yellow-troated Warbler Song Types in the first floor lecture room in Albertson Hall. Another highlight was the banquet lecture by Dr. Geoff Hill, Scharnagel Professor of Biological Sciences, Auburn University. Geoff provided an outstanding scientific summary of his ongoing efforts to document Ivory-billed Woodpecker in the Choctawhatchee River Basin of the Florida panhandle. He also signed copies of his two most recent books on bird coloration and the search for ivorybills. Field trips were led by individuals with strong connections to the region: Greg Farley, Terry Mannell, Mike Rader, and Scott Seltman.

KANSAS ORNITHOLOGICAL SOCIETY
60th ANNUAL MEETING



FORT HAYS STATE UNIVERSITY
1 - 5 OCTOBER 2008

Ornithology Field Experience ~Dr. Greg Farley



The Ornithology class recently completed one of its longer field trips with the annual pilgrimage to the Platte River to witness Sandhill Crane migration. Two vans of participants were treated to views of over 50 bird species; with highlights being a



wonderful Prairie Falcon in flight, 13 species of duck, our first waterbird migrants (Double-crested Cormorant, American White Pelican, Ring-billed Gull and Killdeer), and of course several hundred thousand cranes. There are many sites around Kearney, NE where you can observe Sandhill Cranes feeding in flocks of dozens to thousands of individuals during the day, but the highlight is dusk when all the flocks move towards the Platte to roost overnight in the shallows. We had perfect weather, an impressive sunset, and another unforgettable educational experience.



The 44th consecutive year of autumn bird banding was completed in November, and as usual the site was staffed by student volunteers and Dr. Greg Farley. Various students, including graduate students Christian Edwards, Alex Galt and Andrée Brisson, and undergraduate students Megan Hughes and Clint Helms, were essential in assisting with data collection. A total of 207 individuals of 39 species were handled, including a House Wren first banded on the site in 2004, and our first Northern Mockingbirds. Other highlights included numerous species of Nearctic-Neotropical migrants, such as 4 Mourning Warblers, and multiple other warbler, vireo and oriole species. The most significant scientific value of this long-term data set, other than a unique opportunity to train students, is it represents the only continuous source of migratory songbird population data from the High Plains. This research was initiated and run for the first 25 years by retired Professor Dr. Charles Ely.

Undergraduate Student Feature: Shingo Ishihara*



“Chance favors the prepared mind.”
~ Louis Pasteur

Shingo Ishihara, originally from Japan, recently completed his undergraduate studies in December, 2008. During his undergraduate career Shingo complemented his coursework with a successful research program under the direction of Dr. Eric Gillock. Shingo's research focused on antibiotic-resistant biota at the FHSU Swine Farm. He states, “Several antibiotic resistant bacteria and an unknown fungal species were found at the Fort Hays State University Swine Farm. Some of the bacteria had resistance to multiple antibiotics. These bacterial isolates were characterized by partial 16S rRNA sequence analysis. The results of the partial 16S rRNA sequence analysis showed the bacteria belonged to several genera including *Shigella*. From this result, the bacteria from the swine farm were highly resistant to a couple antibiotics. Furthermore, some of the bacteria were highly resistant against relatively new antibiotics as well.” Shingo commenced his official graduate studies this spring, but is well into his graduate research, also under the direction of Dr. Gillock. Shingo describes his current research in the following abstract:

“High amounts of antibiotics are currently being consumed in the United States, with a large percentage being used in animal feedlots. For instance, half of the 23 million kilograms of antibiotics used annually in the United States is used for agricultural applications. One of the major antibiotics for animal use is tylosin, which is categorized as a macrolide. The majority of this antibiotic is used as a growth promoter in feedlots, rather than in the treatment of sick animals. It has been shown that heavy use of tylosin induces the emergence of tylosin-resistant bacteria in swine feedlots. Furthermore, many of those tylosin-resistant bacteria were shown to carry *erm* genes which encode resistance to macrolide antibiotics, including erythromycin and azithromycin (Zithromax). In the European Union, the use of macrolides in farm animals is banned because there have been well-documented cases of the spread of antibiotic-resistance genes from bacteria in feedlots to bacteria capable of causing human infections. In this study we isolated and analyzed several species of cultivable highly tylosin-resistant bacteria from cattle feedlots and pasture soils. Individual isolates were distinguished by using 16S PCR-RFLP analysis. Most of these bacteria were shown to have cross-resistance to the related human macrolides erythromycin and azithromycin as well. Minimum inhibitory concentrations (MICs) of tylosin, erythromycin and azithromycin for some of the bacterial isolates were over 256µg/ml, which is several times the therapeutic dose in humans. 16S rRNA identifications of bacterial isolates showed most of them are known as human normal flora which is not considered as serious disease causing factors. Future work includes determining whether the isolates carry other antibiotic resistance genes.”

*at time of publication, Mr. Ishihara is a graduate student



Shingo Ishihara and Holly Miller work in the Western Kansas Bioinformation and Technology Lab



Undergraduate Student News

Biology Club News ~ Kyle Cook

As the second semester got off to a start so did the FHSU Biology Club. Teaming up with the Sternberg Museum the biology club helped Brian Bartels, Sternberg Museum Educator, with his Slammin' Snakes program on February 7th at the men's and women's basketball games against Washburn. Biology Club members also helped Bartels and the Museum present native plants and animals to school children on "Kansas Day" at the Old Fort Hays. Biology Club is now working with the Geosciences Club. The two clubs feel that by working together they

will be able to get much more accomplished. One goal is to enhance public knowledge of the Sternberg Museum and other public places. For more information about the Biology Club contact Kyle Cook (President) by email at wkcook@scatcat.fhsu.edu. Photos courtesy of Kyle Cook and Genna Shuler.



Fun At Slammin' Snakes



Brian Bartels and Zachary Bunch

➤ Kori Tagtmeyer was accepted into the Colorado Center for Medical Laboratory Science medical technology program

➤ Kyle Reed was accepted into the University of Kansas physical therapy program

➤ Tyler Schrant was accepted into the University of Kansas occupational therapy program

3-D Experience for Human Anatomy Students

The air was thick with tension as Dr. Christopher Bennett handed back lab practical exams. Although their expressions told the story, whether good or bad, students murmured nary a complaint as Dr. Bennett proceeded into the day's tasks. It is the Human Anatomy Lab (BIOL 345 lab) which meets in the departments Cadaver lab on the third floor of Albertson Hall. In this lab, students dissect human cadavers with the goal of a better understanding of human anatomy than can

be acquired through lecture or textbook methods. Dedicated students listened diligently during a brief lecture on the study of structures of the thorax and abdomen, and then filed next door to the Cadaver lab. As they gloved up and put on their lab coats amid a variety of (not unpleasant) aromas, Jordan Pruser and Roger Clark discussed some of the benefits associated with the Human Anatomy Lab. "It's better seeing the muscles in person than just on the board...we can put everything together better," said Pruser. Groups of students gathered around several cadavers and began dissections of the thorax and abdominal region. When asked how he views the laboratory experience, Dr. Bennett stated, "The students are looking at three dimensional relationships and individual variation," which differs from "textbooks where its all the same," and depicted in a two-dimensional fashion.



Human Anatomy students and Dr. C. Bennett in the cadaver lab



Graduate Student News

Thesis Defenses

- David Bender: Population Characteristics and Diet of Western Massasauga in Central Kansas with Inference from Stomach Contents and Stable Isotopes of Carbon and Nitrogen
- P. Allen Casey: Comparative Studies of Two Freshwater Wetlands in Ellis County, Kansas
- Dustin Tacha: Effects of Black-Tailed Prairie Dog on Shortgrass Vegetation of Western Kansas
- Claudia Carvalho: Cultivation and Characterization of Halophilic Bacteria from Quivira National Wildlife Refuge
- Christian Edwards: Snowy Plover Nest Density and Reproductive Success at Great Salt Lake, Utah



Dustin Tacha at his research site in Western Kansas



“An expert is a man who has made all the mistakes, which can be made, in a very narrow field.”
~Niels Bohr

Graduate Student Feature ~ Kristen Polacik

Hometown: New Martinsville, WV
Undergraduate degree: Ecology and Evolutionary Biology from Marshall University, Huntington, WV
Research Interests: Understanding the physiology and ecology of invasive plants or plants in general.
Why did you come to FHSU?
At the beginning of my senior year of undergraduate, I was trying to decide if I wanted to stay in state or

leave for my masters.
My



Kristen Polacik performing research



Biosystematic professor sent me information on FHSU. I started e-mailing Dr. Brian Maricle back and forth for more information about the school. I thought the school would seem like a great fit for me, and plus coming out to Kansas would allow me to experience other regions of the country.

Why study plants?

I have always been interested in plants. Back in high school, I had two science projects that dealt with hydroponic comparisons. I had my own homemade set up and everything. I got away from plants when I first entered Marshall University. It wasn't until my junior year when I took an economic botany class that I realized I wanted to continue studying plants.

Congratulations to Graduate Students successfully completing their comprehensive oral examinations!

➤ Zachary Schwenke

➤ Justin Hamilton

2008-2009 Fleharty Fellows Presentations

Factors influencing capture success of migrant songbirds in western Kansas

Ryan T. Schmitz,

The North American Breeding Bird Survey (BBS) is a monitoring program used to track long-term avian population trends. Likewise, mist-netting during migration can be used to monitor breeding bird populations trends; however, variations in weather can influence catchability. From 1996 to 2006, temperature and precipitation at a local and regional scale was compared to capture success of 16 songbirds in western Kansas. BBS data were used to assess if the Fort Hays State University bird banding site was a good estimator of central North American population trends during this 11 year period. In addition, trends in migratory arrival date were assessed. No general trends in capture success relative to precipitation during the banding season (20 August to 31 October) were observed. However, with increases in local temperature and decreases in regional temperature, capture success increased for the Orange-crowned Warbler (*Vermivora celata*), Wilson's Warbler (*Wilsonia pusilla*), House Wren (*Troglodytes aedon*), and Song Sparrow (*Melospiza melodia*). Capture success was related positively to BBS trends for only the Spotted Towhee (*Pipilo maculatus*); therefore, the Fort Hays State bird banding site is probably not a good estimator of regional BBS population trends. Relative to migratory arrival date, 11 species arrived in Hays, Kansas earlier during fall migration than in previous years; however, only the Yellow Warbler (*Dendroica petechia*) and Wilson's Warbler arrived significantly earlier than in previous years. These results suggest that temperature at both local and regional scales appeared to have a larger influence on capture success than did precipitation; however, the factors that might be influencing capture success at the Fort Hays State bird banding site and elsewhere do vary with species, geographic region, as well as the spatial and temporal scale these patterns are investigated at.



Habitat Preference of Texas Horned Lizards on Matagorda Island, TX.

Ashley Inslee

As a Fleharty Fellow, I have the ability to study and conduct research off campus while the academic year is in session. This past spring and summer I worked at Aransas National Wildlife Refuge along the coastal bend of Texas on Matagorda Island. I had the opportunity to study several charismatic and endangered species including the Kemp's Ridley sea turtle (*Lepidochelys kempii*). However, my research is focused on the habitat preference of the Texas Horned Lizard (*Phrynosoma cornutum*) on Matagorda Island. A prescribed burning regime was actively employed on the island in 1993. Results from a set of 24 drift fence arrays within six habitat types indicated that the single road running the length of the island was the most species rich and diverse habitat. Only three Texas horned lizards were trapped within the drift fences not allowing for an association to be made. Yet, when looking at roadside captures, two distinct distributions of Texas horned lizard were identified. The distributions were split by a recent burn area. Convincing evidence from these roadside captures suggests a negative association with recent burns, and a positive association with burns that



occurred two seasons ago. Efforts for this coming spring and summer will be focused on powder dusting to study microhabitat and macrohabitat associations. I am also pursuing stable isotope analysis of the Texas horned lizard and various ant species on the island to diagram a food web. I thank the Fleharty family for their continued support to the Department of Biological Sciences, and for the opportunity that this fellowship allowed me.



Faculty News

Publications

Bennett, S. C. 2008. Morphological evolution of the forelimb of pterosaurs: myology and function. Pp. 127-141 in Buffetaut, E. and D. W. E. Hone, eds., *Flugsaurier: pterosaur papers in honour of Peter Wellnhofer*. Zitteliana, B28.

Farley, G. 2008. Sex-Specific Feeding Rates and Provisioning of Fruit to Nestling Bell's Vireo. *Prairie Naturalist* 40:33-35.

S.F. Enloe, A. Kniss, M. Ferrell, J. LaFantasie. In press. Black greasewood (*Sarcobatus vermiculatus*), rubber rabbitbrush (*Chrysothamnus nauseosus*) and perennial grass response to chlorsulfuron and metsulfuron. *Invasive Plant Science and Management*.

Maricle, B.R. and A.M. Pfeifer. In press. Ascorbate concentrations and osmolalities in orange and apple juices. *Transactions of the Kansas Academy of Science*

Packauskas, R. 2009. *Catalog of Coreidae or Leaf-Footed Bugs of the New World*, FHSU (see inset).

Eberle, M. E. Type locality and conservation status of the northern plains killifish (*Fundulus kansae*: Fundulidae) in Kansas. 2009. *Transactions of the Kansas Academy of Science*, 112.

Maricle, B.R., N.K. Koteyeva, E.V. Voznesenskaya, J.R. Thomasson, and G.E. Edwards. In Press. Diversity in leaf anatomy, and stomatal distribution and conductance, between salt marsh and freshwater species in the C_4 genus *Spartina* (Poaceae). *New Phytologist*



Members of Coreidae,
Tam Nguyen AMNH,
Senior Scientific Assistant

For Release this Semester!

Dr. Richard Packauskas' new book entitled: "Catalog of the Coreidae or Leaf-Footed Bugs of the New World," Fort Hays Studies Fourth Series, Number 5

Introducing New Faculty:

Jordana (Jordge)
LaFantasie

I joined the Biological Sciences faculty in August, 2008. My undergraduate degree was in Rangeland Ecology and Watershed Management with a minor in Soil Science. I recently earned my PhD from the University of Wyoming in Agronomy, focusing on rangeland invasive plants and their interactions with native plant communities and soils. I currently teach Rangeland ecology majors courses, Human Biology, Humans and the Environment and will introduce a new Soil Ecology and Biogeochemistry course for Spring, 2010.

Congratulations!

~To Mr. Mark Eberle who became President of Southwest Association of Naturalists, April 25th

~ Ms. Sheila Pfeifer who celebrated her 20 year anniversary with FHSU

~To Dr. Elmer Finck for being awarded the Kansas Chapter of the Wildlife Society Award for Outstanding Contributions to Wildlife Conservation

~And to Dr. William Stark for his promotion to full professor

Department Outreach, Presentations and Posters

Kansas Ornithological Society

Snowy Plover Nesting Success and Nest Density at Great Salt Lake, Utah. *Christian N. Edwards, Greg H. Farley, Department of Biological Sciences, Fort Hays State University, and John Cavitt, Department of Zoology, Weber State University.*

Factors Influencing Capture Success of Neotropical Warblers in Western Kansas. *Ryan T. Schmitz, Greg H. Farley, and Elmer J. Finck, Department of Biological Sciences, Fort Hays State University.*

Public Attitudes toward the Effects Of Avian Influenza on Waterfowl Hunting. *Jason K. Black, Elmer J. Finck, Department of Biological Sciences, Fort Hays State University, and Helen Hands, Cheyenne Bottoms Wildlife Area.*

Burrowing Owl Ecology in Western Kansas. *Carol D. Grover, and Elmer J. Finck, Department of Biological Sciences, Fort Hays State University.*

Kansas Natural Resources Conference

The Effects of Prescribed Burning on Grassland Nesting Birds on Conservation Reserve Program Areas in Gove County Kansas. *Justin V. Hamilton, Elmer J. Finck and Randy D. Rogers*

Attitudes of Hunters Toward the Effects of Avian Influenza on Waterfowl Hunting. *Jason K. Black, Elmer J. Finck and Helen Hands.*

Home Range and Habitat Selection of the Bald Eagle Wintering along the Upper Mississippi River Corridor. *Ryan T. Schmitz, Brett A. Mandernack and Elmer J. Finck.*

Effects of Black-tailed Prairie Dog (*Cynomys ludovicianus*) on Short Grass Vegetation of the Chalk Flats Region of Western Kansas. *Dustin H. Tacha, Charles D. Lee, Robert A. Nicholson and Rob Channell*

Does Repeated Intensive Defoliation Influence Cool- and Warm-season Plant Cover in Shortgrass Steppe and Northern Mixed-grass Prairie? *Jordana J. LaFantasie, Justin D. Derner and Stephen F. Enloe*

A Distributional Survey of Crayfish in Kansas. *Ryan Pinkall and William Stark*

Comparative Studies of Two Small, Non-Saline, Inland Wetlands in Ellis County, Kansas. *P. Allen Casey and Joseph R. Thomasson*

Also attended by Drs. Bill Stark and Elmer Finck

Annual Meeting of the Waterbird Society

Snowy Plover Nesting Success and Nest Density at Great Salt Lake, Utah. *C. Edwards and G.H. Farley*

Kansas Academy of Sciences (Posters accepted)

Response to flooding in invasive saltcedar (*Tamarix*). *Polacik, K.A. and B.R. Maricle.*

Effects of flooding on light harvesting and CO₂ fixation in native and nonnative wetland grasses of central Kansas. *Waring, E.F. and B.R. Maricle.*

Effects of diet, drugs, and activity levels on $\delta^{13}\text{C}$ of breath and hair of humans. *Pfeifer, A.M., R.W. Lee, and B.R. Maricle.*

Society for Range Management Annual Meeting

Effects of Black-tailed Prairie Dog (*Cynomys ludovicianus*) on Short Grass Vegetation of the Chalk Flats Region of Western Kansas. *Dustin H. Tacha, Charles D. Lee, Robert A. Nicholson and Rob Channell*

Does Repeated Intensive Defoliation Influence Cool- and Warm-season Plant Cover in Shortgrass Steppe and Northern Mixed-grass Prairie? *Jordana J. LaFantasie, Justin D. Derner and Stephen F. Enloe*

FHSU Research and Creative Activities Week Patterns of Snowy Plover Nest Density and Reproductive Success at Great Salt Lake, Utah. *Christian N. Edwards and Greg Farley*

Modeling Distributions of Montane Vegetation Under Climate Change. *Georgina Jacquez*

Isolation and characterization of halophilic bacteria from Quivera National Wildlife Refuge. *Claudia Carvalho and Eric T. Gillock.*

Isolation of tylosin-resistant bacteria from cattle feedlots and pastures: Cross-resistance to human macrolides. *Shingo Ishihara and Eric T. Gillock.*

Prevalence of triclosan-resistant bacteria among soil collected from residential sites. *Tanner Welsch and Eric T. Gillock*

Nested Subsets: A pattern of community assembly. *Elita Baldrige*

Response to flooding in invasive saltcedar (*Tamarix*). *Kristen A. Polacik and Brian R. Maricle*

Effects of flooding on light harvesting and carbon fixation in native and nonnative wetland grasses of central Kansas. *Elizabeth Waring and Brian R. Maricle*

Polypodiaceae and Botrychium (Ophioglossaceae) in the Elam Bartholomew Herbarium. *Jessica Casey*

Effects of Primary Productivity. *Megan Hughes.*

Orchidaceae in the Elam Bartholomew Herbarium. *Zachary Roth.*

Population Trends (1966-2008) of Long Distance Migrants Captured at the FHSU Bird Banding Site. *Greg H. Farley.*

Evidence of Seed Predation on Anthoecia of *Berriochloa tuberculata* (Poaceae) from Miocene Ogallala Sediments in Scott County, Kansas. *Joseph R. Thomasson*

Southwestern Association of Naturalists

Attended by Mark Eberle and Zachary Schwenke



Biology Graduate Students presenting research



The FHSU Graduate School published an issue of Fort Hays Studies entitled "*Unlocking the Unknown: Papers Honoring Dr. Richard J. Zakrewski*". The volume contains 14 papers by professional colleagues and former M.S. students of "Dr Z", and was produced in honor of a longtime friend and collaborator of FHSU Biology. Professors Greg Farley and Jerry Choate edited the 153 page volume, which contained a Preface by former Dean of Graduate Studies and current FHSU Professor of English, Dr. Steve Trout. Copies are

available for \$20, including shipping, with all proceeds going to Support student research in the Sternberg Paleontology Collection (visit.

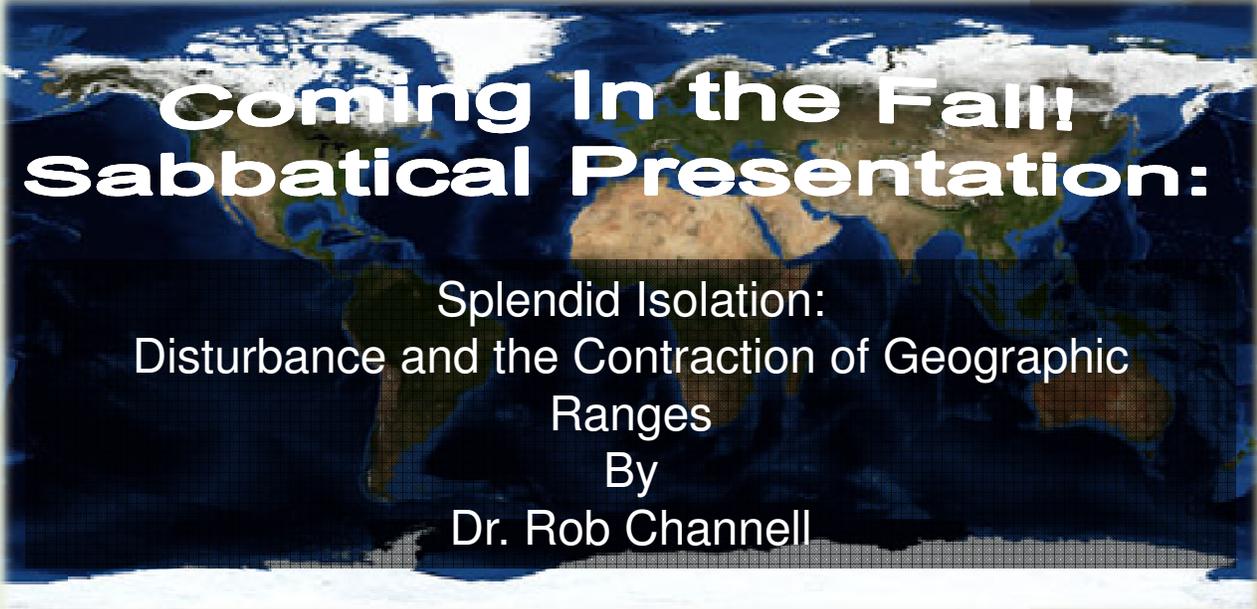
http://www.fhsu.edu/geo/news_events/publications.shtml)

Research and Creative Activities Week

The poster session was well populated by biologists, with eight graduate students, four undergraduate students and four faculty members presenting their research.

Congratulations:

- Tie for Third Place in the Graduate Student Poster Contest:
 - **Georgina Jacquez**, "Modeling Distributions of Montane Vegetation Under Climate Change" and
 - **Elizabeth Waring** and Dr. Brian Maricle, "Effects of flooding on light harvesting and carbon fixation in native and nonnative wetland grasses of central Kansas"
- Second Place in the Undergraduate Student Poster Contest:
 - **Megan Hughes** "Effects of Primary Productivity"
- Third Place in the Undergraduate Student Poster Contest:
 - **Zachary Roth** "Orchidaceae in the Elam Bartholomew Herbarium"

A world map showing the continents in shades of green and brown, set against a dark blue background representing the oceans. The map is centered on the Atlantic Ocean.

Coming In the Fall! Sabbatical Presentation:

Splendid Isolation:
Disturbance and the Contraction of Geographic
Ranges
By
Dr. Rob Channell

Biology Field Coursework!

“The poetry of
the Earth is
never dead.”
~John Keats



Photos from
Ichthyology and
Ecological and
Rangeland
Techniques
Courses



Happy Field Season!



T. Towers