# The Natural Inquirer

FORT HAYS STATE UNIVERSITY DEPARTMENT OF BIOLOGICAL SCIENCES

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Spring Semester, 2014

## Department of Biological Sciences Chair Dr. Elmer Finck stepping down

Dickcissel Song — Reflecting on my 13 years as Chair of the Department of Biological Sciences here at FHSU has been very meaningful to me. When I started in 2001 we had 169 undergraduate students and 19 graduate students. This past year we had 216 undergraduate students and 35 graduate students. Since 2001, we have granted 325 undergraduate degrees and 97 graduate degrees. We had 12 grants for $309,335 in 2001 and this year we had 29 grants for $846,638.

The above reflects the numbers, but the essence of a department is its faculty. When I started in 2001 we had Dr. Rob Channell, Dr. Jerry Choate, Mr. Mark Eberle, Dr. Greg Farley, Dr. Eric Gillock (as a temporary), Dr. Karen Hickman, Dr. Duane Hinton, Dr. Mary Morgan, Dr. Bob Nicholson, Dr. Rich Packauskas, Dr. Frank Potter, Dr. Bill Stark, and Dr. Joe Thomasson. Since then we have added Dr. Chris Bennett, Ms. Joanna Fay as a temporary instructor, Dr. Eric Gillock moved to a tenured position, Ms. Hilary Gillock as lecturer, Dr. Yasuhiro Kobayashi, Dr. Jordana (Jordge) LaFantasie, Dr. Brian Maricle, and Dr. Eric Strauss. Dr. Hinton left to become a lecturer at Washburn University, Dr. Hickman went to Oklahoma State University, Dr. LaFantasie left to go to Colorado, and Dr. Strauss went to University of Wisconsin-Lacrosse. Drs. Potter, Nicholson, Morgan, Choate, and Thomasson have retired. I have enjoyed each and every faculty member because they have all helped the department succeed.

During my tenure as Chair I have worked with two deans, Dr. Tony Fernandez and Dr. Jeff Briggs. Both of them have helped me develop as Chair. I am especially thankful to Dr. Briggs for helping me through some of the rough times.

I have had two administrative assistants, Ms. Sheila Pfeiffer and Ms. Kacie Vogt. I could not have persisted without their strong support and tremendous effort.

Some of my most trying times came at the news of the death of students, faculty, and alumni. Most memorable to me were Dr. Jerry R. Choate, Margaret (Kritsch) Anderson, Hyeonju (Julie) Gim, and Maverick Werner.

Some of my most joyous times were when we had news of the accomplishments of the faculty and students. These are way too numerous to mention, but I do want to mention that Drs. Choate, Farley, and Packauskas have all been awarded the Presidential Scholar during my tenure.

Some have asked how could you be Chair so long? Well it is because of the students, faculty, and deans with whom I have associated. They are what makes a department function. However, without my wife, LaVonne, I could never have endured. She has been there for me whenever I have needed her. Thank you LaVonne.

Finally, I thank my mentor, colleague, and friend, Dr. Jerry R. Choate, who strongly encouraged me to become a faculty member and Chair at FHSU. I thank him for believing in me. I thank you all for a very exciting 13 years.

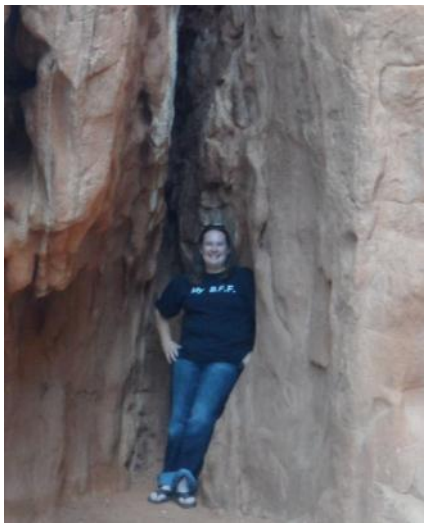
*Dr. Greg Farley will be replacing Dr. Finck as Chair of the Department of Biological Sciences*

Photograph by Ian Cost

**Inside this issue:**

## Congratulations to students completing their Master's degrees this semester!

**Jason Black** (Title: The human dimensions of waterfowl hunters at Cheyenne Bottoms Wildlife Area, Great Bend, Kansas).



**Jessica Casey** (Title: Timing and intensity of steer use on old world bluestem (*Bothriochloa ischaemum*) and blue grama (*Bouteloua gracilis*) in southern mixed-grass prairie).

*Jessica will be working at K-State Agricultural Research Center in Hays in the Range Management Department, and hopes to eventually work as a Range Conservationist.*

**Ian Cost** (Title: Description of an unusual cervical vertebral column of a plesiosaur from the Kiowa Shale).

*Starting next year, Ian will be working on a PhD in Integrative Anatomy through the Department of Pathology and Anatomical Sciences of the School of Medicine at the University of Missouri in Columbia, MO with Dr. Casey Holliday. His project will begin with exploring the evolution of cranial mechanics, the feeding apparatus, and muscle anatomy in the avian skull.*

**Clinton Helms** (Title: Nest survival of grassland breeding birds in a southern mixed-grass prairie wetland).

*Clint will be working in Prudhoe Bay, AK, for the Wildlife Conservation Society assessing the effects of oil-field development on tundra nesting birds.*

## Students completing Master's degrees, continued:

**Jordan Hofmeier** (Title: Antimicrobial resistance of channel catfish intestinal microflora in the Arkansas and Ninnescah Rivers in Kansas).

*Jordan will be working as an Environmental Technician for the Kansas Department of Wildlife, Parks, and Tourism for the summer.*

**Nina Luna Haro** (Title: Possible effects of black-tailed prairie dogs on abundance and diversity of raptors and small mammals in mixed and shortgrass prairie of western Kansas).

**Jared Oyster** (Title: Distance sampling as a technique to monitor pronghorn in Kansas).

**Jennifer Pfannenstiel Klaus** (Title: Dispersal of antibiotic-resistant bacteria near central Great Plains feedlots).

*This fall Jenn will begin a Ph.D. in the Department of Molecular Biosciences at the University of Kansas.*

**Lisa Prowant** (Title: Inferring herpetofaunal distributions and habitat preferences for conservation planning).

*Next year Lisa will be pursuing a PhD in Ecology and Evolution at Stony Brook University in New York. She will be working with Dr. Resit Akçakaya, studying the effects climate change has on biodiversity.*

**Ryan Shoffner** (Title: Life history of a dune-dwelling Rhaphidophorid, *Utabaenetes tanneri* Tinkham, in the San Rafael Desert of Utah).

*Ryan will be working this summer in Colorado for the NRCS as a team leader performing plant and soil surveys. His long-term goal is to pursue a PhD in systematics at the University of New South Wales, Sydney, Australia.*

**Brian Zinke** (Title: Comparison of small mammal communities in ephemeral wetlands and wet meadows during drought).

*Brian will be working for Wyoming Game and Fish as crew leader on an occupancy study of the water vole (*Microtus richardsoni*) in the Bighorn Mountains of Wyoming. The water vole population in the Bighorn Mountains is geographically separated from other populations, making it sensitive to local extinction. The purpose of the study will be to determine where the water vole currently occurs in order to make future management decisions.*

Congratulations to:

**Brad Leupold** (KAMS student) on his acceptance to the University of Missouri at Kansas City's 6-year BS/MD program

**Whitney Taylor** (B.S. '13) on her acceptance to the University of Kansas Medical School

**Drew Thomas** (B.S. '12) on his acceptance to Kansas City University of Medicine and Biosciences Osteopathic School

**Tanner Welsch** (B.S., '11) on his acceptance to the Physical Therapy program at the University of Kansas Medical Center

**Dr. Jordana (Jordge) LaFantasie** is moving to Colorado to join her husband Darren. Jordge taught several range, plant, and ecology classes. She also conducted research on rangeland responses to anthropogenic disturbance, and impacts of invasive plants. Her grad student mentorship, undergraduate advising, and many other contributions to the department will be missed.

*Good luck Jordge!*

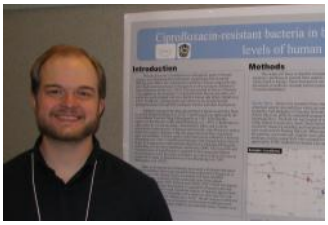
Congratulations to grad students who completed their orals this semester:

*Jeff Carter* *Brian Serpan* *Scott Brack*

## Posters and Presentations:

**Kansas IDeA Network of Biomedical Research Excellence (K-INBRE) Symposium, Kansas City, MO, January 17-18, 2014:**

Carter, J. J., G. H. Farley, and E. T. Gillock. Ciprofloxacin-resistant bacteria in bird species exposed to varying levels of human disturbance.

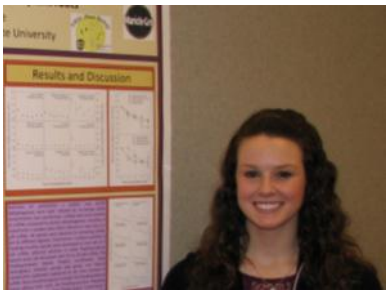


Hofmeier, J. R., B. J. Stark, E. T. Gillock, and Y. Kobayashi. Antimicrobial resistance of catfish intestinal microflora in the Arkansas and Ninnescah Rivers.

Honig, A.D., M. Rehm, B.R. Maricle, and Y. Kobayashi. The effects of motor oil pollution on green algal chlorophyll concentrations.

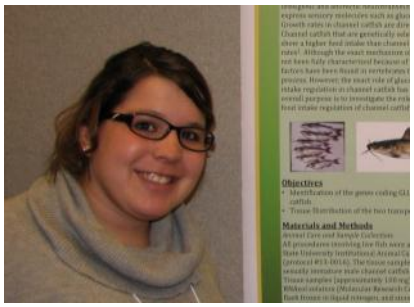
Honig, A., and Y. Kobayashi. Effects of exposure to motor oil contaminated water on the brain specific aromatase (CYP 19B) mRNA in fathead minnows.

Kobayashi, Y., and A. C. Pflughoeft. Changes in brain expression of kisspeptin-1 (KiSS1) mRNA in female walleye during different reproductive stages.




Martin, N.M., and B.R. Maricle. Effect of sulfide toxicity on enzymes of respiration in plant roots.

Pfannenstiel Klaus, J., R. Channell, and E. T. Gillock. Dispersal of antibiotic-resistant bacteria near central plains feedlots.



Watkins, B., A. Honig, and Y. Kobayashi. Relationship between expression of two glucose transporters on growth rate and food intake in channel catfish.

**Kansas Natural Resources Conference, Wichita, Kansas, January 31, 2014:**

Distler, D., M. Eberle (presenter), D. Edds, K. Gido, S. Haslouer, D. Huggins, T. Mosher, B. Stark, J. Tomelleri, J. Triplett, and E. Wiley. Forthcoming Book on *Kansas Fishes*: the Process and the Product.

**Kansas Undergraduate/Masters Research Day at the Capitol, Topeka, KS, February 12, 2014** (Full story available here) :

Caudle, K. L., and B. R. Maricle. Effects of extreme drought on photosynthesis and water potential of *Andropogon gerardii* (big bluestem) ecotypes in common gardens across Kansas.

Helms, C. J., and J. J. LaFantasie. Nest survival of wet meadow breeding birds at the Nature Conservancy's Cheyenne Bottoms preserve.

**Kansas Academy of Science annual meeting, Emporia State University, Emporia, KS, April 4-5, 2014:**
*Oral presentations:*

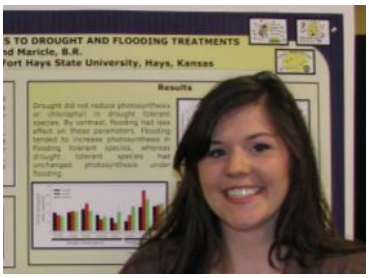
Caudle, K. L., C. M. Smart, C. J. Hilt, and B. R. Maricle. The role of root aerenchyma in oil tolerance of wetland plants. **(1st place oral presentation by an undergraduate student)**

Galliart, M., L. Johnson, S. Sabates, H. Tetreault, A. DeLaCruz, J. Bryant, T.J. Morgan, M. Knapp, N. M. Bello, S. G. Baer, D. Gibson, L. Wilson, K. L. Caudle, and B. R. Maricle. Adaptive potential and trait variation of a widespread grass *Andropogon gerardii* across Great Plains climate gradient: Implications for climate change.

*Poster presentations:*

Caudle, K. L., C. J. Hilt, C. M. Smart, D. L. Kramer, S. G. Cheema, L. C. Johnson, S. G. Baer, and B. R. Maricle. Pigment variation among ecotypes of big bluestem (*Andropogon gerardii*) across a precipitation gradient. **(3rd place poster by an undergraduate student)**


Cheema, S. G., K. L. Caudle, and B. R. Maricle. Effects of nitrate and phosphate concentrations on inorganic nitrogen assimilation in the grasses *Pascopyrum smithii*, *Phalaris arundinacea*, and *Phragmites australis*.



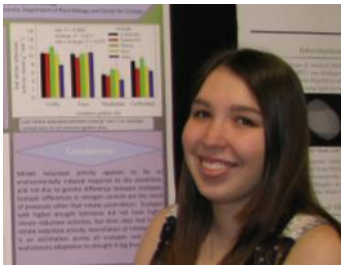

Hilt, C. J., and B. R. Maricle. Physiological responses of grasses to drought and flooding treatments.

Honig, A. D., M. Rehm, B. R. Maricle, and Y. Kobayashi. The effects of motor oil pollution on green algal chlorophyll concentrations. **(1st place poster by an undergraduate student).**

Honig, A., and Kobayashi, Y. Effects of exposure to motor oil contaminated water on the brain specific aromatase (CYP 19B) mRNA in fathead minnows.


Kramer, D. L., K. L. Caudle, C. M. Smart, C. J. Hilt, S. G. Cheema, S. G. Baer, L. C. Johnson, and B. R. Maricle. Glutamine synthetase activities in big bluestem (*Andropogon gerardii*) ecotypes from common garden sites across the U.S. Great Plains.

Martin, N. M., and B. R. Maricle. Effect of sulfide toxicity on enzymes of respiration in plant roots.



Smart, C. M., D. L. Kramer, K. L. Caudle, C. J. Hilt, S. G. Cheema, L. C. Johnson, S. G. Baer, and B. R. Maricle. Nitrate reductase activities in big bluestem (*Andropogon gerardii*) ecotypes.

Watkins, B., A. Honig, and Y. Kobayashi. Relationship between expression of two glucose transporters on growth rate and food intake in channel catfish.

**Southwestern Association of Naturalists annual meeting, Oklahoma State University, April 17-19, 2014:**

Mark Eberle represented an 11-person editorial committee in his presentation, "Forthcoming Book on *Kansas Fishes*: Why a Book?". Additional information about the book, due out in June 2014, can be found on page 10 of this newsletter.

Nina Luna presented a summary of her Master's thesis research, coauthored with her advisor, Dr. Greg Farley, on the "Possible effects of black-tailed prairie dogs on abundance and diversity of small mammals and raptors in mixed and shortgrass prairie of western Kansas."

## Recipients of the 2014-15 K-INBRE student research scholarships

*Left to right: Nicole Martin, Claire Nash, Alexyss Leiker, and Melissa Vides (also pictured are faculty advisors Dr. Brian Maricle and Dr. Yass Kobayashi)*

**"Challenges Lead to Undergraduate Opportunities and Success in Biological Sciences"** is an article written by Dr. Bill Stark describing a large-scale survey of reptile and amphibian populations in southwestern Kansas. This two-year investigation began in July 2011, and ultimately brought over $400,000 in research funds to the university. The study, under the direction of Dr. Stark and Dr. Rob Channell, involved 16 paid research positions and 30 students who participated either full-time, part-time, or as short-term volunteers. The full article can be viewed on Dr. Stark's department webpage: http://www.fhsu.edu/biology/wstark/

**Clint Helms** and **Stasya Berber** created some wonderful educational tools about grassland birds and using grazing to improve their habitat. A land management guide and accompanying video are available at:

https://sites.google.com/site/grazingforgrasslandbirds/

The KWEC, Cheyenne Bottoms, and Graduate Wetlands Assistant **Jessica Casey** were featured on KAKE television news out of Wichita on Sunday, March 30, 2014.

The "Hatteberg's People" segment focused on the spring bird migration at Cheyenne Bottoms and the van tours offered by KWEC, emphasizing the role of FHSU graduate students as guides.

You can watch the video on the KAKE website by clicking here: Hatteberg's People – Cheyenne Bottoms: A 41,000 acre Classroom.

A related newspaper story, featuring Clinton Helms, appeared in the Great Bend Tribune: http://www.gbtribune.com/section/1/article/69208/


Photograph by Ian Cost

The 2014 Wild Goose Chase 5k/3k Fun Run at Cheyenne Bottoms was run on Saturday, April 26. A windy day proved to make the Flattest Fastest Race in Kansas more challenging than expected. However, all enjoyed the sights and sounds of Cheyenne Bottoms as they raced to the finish line.

(Courtesy: wetlandscenter.fhsu.edu)

Photographs
by Ian Cost

**Alexander Galt** (M.S., 10) is a recipient of the 2014 TWS Leadership Institute Award from The Wildlife Society. Alex worked with Dr. Elmer J. Finck. Two other former MS students have been so honored: Shauna Marquardt (M.S., 05), who worked with Dr. Jerry R. Choate, and Amy Zavala-Garnsey (M.S., 06), who worked with Dr. Elmer J. Finck. TWS Leadership Institute was established by TWS to provide leadership training for highly talented individuals in the conservation and wildlife management profession that have potential for leadership with TWS and the profession.

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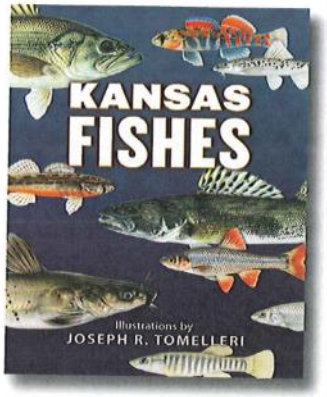
# Kansas Fishes

Kansas Fishes Committee
Foreword by William J. Matthews
Illustrations by Joseph R. Tomelleri

A guide and a first-rate reference for the angler, scientist, and amateur naturalist alike, this comprehensive volume profiles each of the 144 fish species inhabiting the waterways of Kansas—as well as 27 others that might make their way to the state from nearby river basins.

With 121 maps and 184 full-color drawings by Joseph Tomelleri, arguably the best illustrator of North American fishes, *Kansas Fishes* is an incomparable resource. For each species, the authors, an all-star cast of regional biologists, provide information about fundamental natural history, anatomy, and physiology, along with in-state distributions, habitats, characteristics, and pertinent issues of conservation and ecology. With these experts authoring detailed accounts of the species they know best, this is a uniquely authoritative account of the region's fishes. As such, it will prove useful to students and professionals while providing the passionate amateur and the simply curious an entry into the fascinating world of the fishes of Kansas and nearby states.

**The Kansas Fishes Committee** members represent each of the six state universities (Emporia State, Fort Hays State, Kansas State, Pittsburg State, and Wichita State Universities, and the University of Kansas), as well as the Kansas Biological Survey, the Kansas Department of Health and Environment, and the Kansas Department of Wildlife, Parks and Tourism—the people responsible for studying, protecting, and educating people about the fishes and waters of Kansas. In addition to the committee, nearly 50 biologists from the United States and Canada volunteered to contribute species accounts to the book based on their expertise with those species in Kansas and nearby states. These individuals work for a variety of universities, federal and state agencies, and private companies, making this book a broad collaboration of experts on the fish species of Kansas.




**Joseph R. Tomelleri**, an avid fisherman and naturalist, has traveled more than 200,000 miles over the past twenty-five years to collect live fishes. His illustrations have appeared in over a thousand places, including magazines, advertisements, greeting cards, t-shirts, furniture, posters, trading cards, identification guides, and thirty books. His fine art prints and originals can be found at www.americanfishes.com.

"*Kansas Fishes* is an authoritative account of the fishes of the Great Plains and a wonderful tribute to the legendary Frank Cross. The information is the new baseline for streams undergoing rapid change and should form the basis for conservation of the special fishes that inhabit them. And don't miss the wonderful illustrations by Joe Tomelleri, the best fish artist I know, anywhere."

**Peter B Moyle**, Department of Wildlife, Fish, and Conservation Biology Center for Watershed Sciences

"An exhaustive compilation on the taxonomy, biology, ecology, zoogeography, and conservation status of Kansas fishes. *Kansas Fishes* has broad appeal to naturalists, anglers, and scientists within and outside of Kansas. Frank B. Cross would be proud."

**Timothy Bonner**, coauthor of *Freshwater Fishes of Texas*

JUNE
496 pages, 184 color illustrations, 121 maps, 9 x 12
Cloth ISBN 978-0-7006-1961-0, $39.95

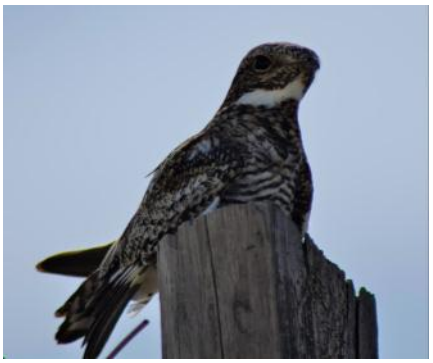
The new Kansas Fishes book is due out in June 2014!

**Alysia Schwarz** (Grinnell, KS) was selected for the National Science Foundation's Robert Noyce Scholarship. She will receive $12,000 during the 2014-2015 school year, with the possibility of the scholarship being renewed the following year. Alysia was the third student majoring in Biology and Secondary Education to receive the award; Karli Henning (Great Bend, KS) and Julie Weber (Garden Plain, KS) received the award during the 2013–2014 school year. Karli and Julie both graduated this May.

The Noyce Scholarship Program was established to increase the number of quality teachers at the secondary education level (grades 6-12) in the subjects of biology, chemistry, earth sciences, math, and physics who teach in high-needs areas, such as rural and inner-city schools. The scholarship is available to juniors and seniors. In addition to financial support, the awardees receive special instruction in topics related to teaching in high-needs schools, such as using distance-learning technology and financial issues facing small, rural schools. In return for the scholarship, the awardees must complete their major in science or math secondary education and teach for 2 years in a high-needs school for every year they were awarded the scholarship.

A committee of representatives from the FHSU Science and Mathematics Education Institute and the departments of Biological Sciences, Chemistry, Geosciences, Math, Physics, and Teacher Education select the awardees based on their GPAs (overall and in their science or math major), written personal statements, letters of recommendation, and interviews. Congratulations to Alysia!

Photographs by Ian Cost



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