The Natural Inquirer

FORT HAYS STATE UNIVERSITY DEPARTMENT OF BIOLOGICAL SCIENCES

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The FHSU House Wren Crew

(Annie Hinds, Leslie Watson, Chloe Musgrove, & Dr. Medhavi Ambardar)

Have you seen or heard a House Wren lately? House Wrens may not be as brightly colored as some birds, but what they lack in color they make up for in personality. They are curious, brave, and surprisingly short-tempered, given how small they are. They like wooded areas, yards, parks, etc. and the males can be heard singing a loud, chattering song in these areas.

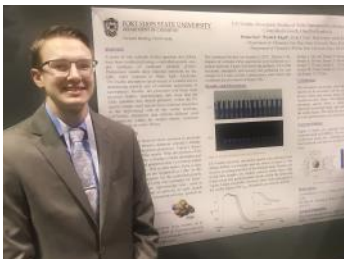
We brave the pre-sunrise mornings and mosquitoes to find evidence of nesting in the wooden nest boxes we have put up. Male wrens build nests of twigs that range from just a few twigs to a very tall twig tower. The female wren finishes up the nest and then lines a little depression in the nest, known as the nest cup, with grass and other soft materials. Then she lays between 5-8 pink/brown speckled eggs in the nest and incubates them to keep them warm and promote development of the embryos. We record the data on nesting in a field book and come up with interesting and insightful questions and ideas based on what we find.

Photos and text by Medhavi Ambardar, summer 2019.

Inside this issue:

Meetings/Presentations	2-3	Student research	6
Alumni	8	KWEC	8

Meetings and Presentations



American Chemical Society Annual Meeting, Orlando, FL, April 2019.

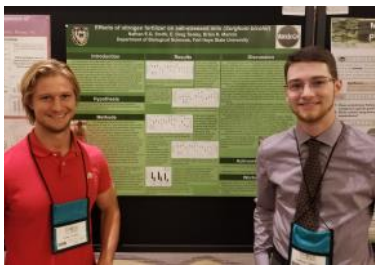
Kee, D., W. J. Engel, A. J. Cruz, F. Schertz, and D. P. Rillema. UV/Visible absorption studies of ZnSe nanoparticles obtained using a controlled-growth, one-pot synthesis.

American Society of Mammalogists Annual meeting, Washington, D.C., July 2019.

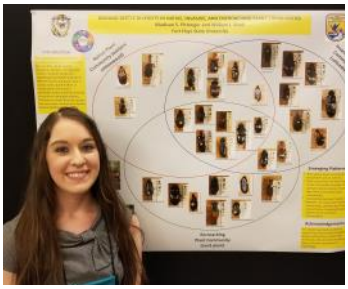
Patrick, L., H. Barron, and S. Cotner. Broadening participation through evidence-based teaching practices.

Botanical Society of America Annual Meeting, Tucson, AZ, July 2019.

Elliott, J. E., N. C. Quispe, and B. R. Maricle. Effects of sulfide, ethanol, and lactic acid on cytochrome c oxidase and citrate synthase activities in plant roots.



Smith, N. E. G., E. G. Tooley, and B. R. Maricle. Effects of nitrogen fertilizer on salt-stressed milo (*Sorghum bicolor*).



Pittenger, M. S. and W. J. Stark. Ground beetle diversity in native, invasive, and encroaching plant communities.

Society for the Advancement of Biology Education Research (SABER), Minneapolis, MN, July 2019.

Patrick, L., H. Barron, and S. Cotner. Testing the "cherry-on-top" hypothesis: How important is evidence in convincing TAs to use evidence-based teaching practices?

Ecological Society of America Annual Meeting, Louisville, KY, August 2019.

Johnson, L. C., M. Galliart, N. M. Bello, S. G. Baer, B. R. Maricle, and J. Poland. Experimental selection of big bluestem grass ecotypes across the Great Plains climate gradient.

University of Kansas invited seminar, September 2019.

Stewart, N. Identification and characterization of female associated meiotic drive within the *Drosophila virilis* subgroup.

Meetings and Presentations, continued:

Kansas Ornithological Society, Sedgwick County Zoo, Wichita KS, October 4-6, 2019.

Frank, K. and R. Channell. Shelterbelt characteristics that influence bird species richness.

Clark, E., M. Ambardar, and W. Stark. An updated status report on the Ferruginous Hawk (*Buteo regalis*) in Western Kansas.

Ambardar, M., L. Watson, C. Musgrove, and A. Hinds. Reponses of House Wrens (*Troglodytes aedon*) to a novel object and influences of fitness-related traits.

(l-r), Dr. Medhavi Ambardar, Dr. Bill Stark, Katya Frank, Robert Penner (Nature Conservancy at Cheyenne Bottoms), and Erica Clark.

National Science Foundation/ Established Program to Stimulate Competitive Research (NSF/ EPSCoR) conference, Columbia, SC, November 2019.

Harrison, S., and M. J. Greer. Microbiomes of grass rhizospheres as potential mechanisms of invasion.

Raptor Research Foundation Conference, Fort Collins, CO, November 5 -10, 2019.

Clark, E., M. Ambardar, and W. Stark. An updated status report on the Ferruginous Hawk (*Buteo regalis*) in Western Kansas (poster).

Publications:

Queiroz, A. R. and B. R. Maricle. 2019. Effects of light levels on germination of five Asteraceae species native to the tallgrass prairie. Transactions of the Kansas Academy of Science 122:267-273.

Patrick, L. E. and E. W. Wischusen. 2019. Training future faculty in 30 minutes a week: A modular framework to provide just-in-time professional development to graduate teaching assistants. CourseSource (https://doi.org/10.24918/cs.2019.26).

Publications, continued:

Stewart, N., and R. L. Rogers. 2019. Chromosomal rearrangements as a source of new gene formation in *Drosophila yakuba*. PLoS Genetics 15(9): e1008314.

Acharya, R., Z. K. Wallis, R. J. Keener, and E. T. Gillock. 2019. Preliminary PCR-based screening indicates a higher incidence of Porcine Endogenous Retrovirus subtype C (PERV-C) in feral versus domestic swine. Transactions of the Kansas Academy of Science (*in press*).

Welcome to **Dr. Lori Patrick**, the newest faculty member in the Department of Biological Sciences. Dr. Patrick is a mammologist who uses fieldwork, phylogenetics, morphometrics, and molecular techniques to answer ecological questions.

She spent the past five years as a postdoctoral researcher in biology education at Louisiana State University and the University of Minnesota. Her research at FHSU will include examining the diets of bats in Kansas using next-gen sequencing methods. She also studies the effectiveness of different teaching practices.

Dr. Patrick received her Master's and Bachelor's degrees from Portland State University, and PhD degree from Louisiana State University. She grew up in rural Klickitat County, Washington, and is looking forward to living in a small town again. In her spare time she enjoys working on science-themed sewing and cross stitch projects.

Dr. Patrick's Mammalogy lab students learned how to set up camera traps this semester. They left them deployed for a few weeks, then analyzed the data.

Claudia Carvalho and **Dr. Mitch Greer** led a group of 8 FHSU students on the second Senegal study abroad trip in May 2019. The group visited many areas near Dakar, Senegal, including a wildlife safari, and the Institut Pasteur de Dakar, a laboratory hospital.

Brittanee White, sophomore in biology, was accepted to the **KU Scholars in Rural Health program**.

The program provides students assured admission to the University of Kansas School of Medicine upon successful completion of program requirements and graduation from their undergraduate institution.

The Scholars in Rural Health program is designed to identify and encourage undergraduate students from rural Kansas who are interested in building successful careers as physicians in rural areas. Students apply for the program in the second semester of their sophomore year in college.

Students participating in **Research Experience for Undergraduates (REU)** programs, summer 2019:

Nathan Smith at Kansas State University Department of Plant Pathology.

Chantal Solorzano at Kansas State University Department of Plant Pathology.

Greg Tooley at Kansas State University Division of Biology.

Student K-INBRE grants awarded:

Engel, R. P. and B. R. Maricle. The impact of land use on the pollen diet of honey bee (*Apis mellifera*) colonies. $4000.

Nansel, S. C. and B. R. Maricle. Varying effects of Kansas honeys as a supplemental antibacterial agent against human pathogens. $4000.

Pearson, M. and E. Gillock. Screening environmental microbes for the production of anti-fungal compounds. $4000.

Higdon, N. and E. Gillock. Assessment of environmental bacteria for resistance to Cetylpyridinium Chloride, modes of potential resistance transmission, and clinical applications. $4000.

Graduate student **Ryan Engel** is studying how human land use change affects the resources and nutrition of honeybees.

Graduate student **Brenna Lawless** releases an evening bat during her summer job working with Kansas Department of Wildlife, Parks, and Tourism.

Jorja Elliott (foreground), a K-INBRE Summer Scholar Award Recipient, is studying how metabolic toxins influence respiration enzymes in plant and animal tissues. Jorja is part of a team of student researchers, mentored by Dr. Brian Maricle, with similar projects, including Naomi Quispe (pictured, background), Kate Westerhaus, Adam Urban, and Nicole Martin.

Biology instructor **Claudia Carvalho** (left) received the WCOSTM 2019 award for outstanding scholarly activity, and Biology lecturer **Hilary Gillock** (right) received the WCOSTM 2019 award for outstanding service. Also pictured are Biology Department chair Dr. Rob Channell (l) and WCOSTM Dean Dr. Grady Dixon (r).

Congratulations!

These students have been accepted to professional schools for fall 2020:

Kyleigh Kasper, Creighton University, Doctor of Occupational Therapy Program, Omaha, NE.

Jacob Lutgen, University of Kansas School of Medicine, Kansas City, KS.

Carter Morrison, Southern College of Optometry, Memphis, TN.

Jared Schumacher, Cleveland Chiropractic University, Kansas City, MO.

Passed thesis defense:

Tayler Kriss

Passed comprehensive oral exam:

Ryan Engel

Madison Pittenger

Alumni news:

Heidi Albin (B.S. Biology '09, M.S. Education '13) received a Presidential Award for Excellence in Mathematics and Science Teaching (PAEMST).

https://www.kwch.com/content/news/Maize-science-teacher-named-Presidential-Awardee-563217851.html?fbclid=IwAR0bKNo40IMER6kvC9MsLEHnvu-1RVFmKQLBw3QUoh8n8jOqYpcPL-AxgP0

FORT HAYS STATE UNIVERSITY'S
KANSAS WETLANDS
EDUCATION CENTER

Biology graduate student **Madison Pittenger** helped to educate visitors about the importance of insects at the **Monarch Butterfly Festival** on September 21, 2019.

There were numerous **Whooping Crane** sightings near the KWEC during their migration in October. Whooping cranes, one of the rarest birds in North America, usually arrive at the wetlands in the evening, roost over night, then leave mid-morning. Fewer than 500 individuals of this endangered species exist today. Photo credit: USFWS.

We're on Facebook!

Biological Sciences Department at Fort Hays State University

We're on the Web!
www.fhsu.edu/biology

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