The Natural Inquirer

FORT HAYS STATE UNIVERSITY DEPARTMENT OF BIOLOGICAL SCIENCES

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UAS: Unmanned Aerial Systems

Dr. Bill Stark taught an Unmanned Aerial Systems (UAS) class (BIOL 607) for the first time this spring. The enrollment was twelve students, seven of whom chose to invest $150 afterwards to take the FAA Airmen Knowledge Test for Unmanned Aircraft (Part 107). All seven passed with "flying colors" and are now legal to fly UAS in commercial applications as remote Pilots in Command (rPIC).

Sean Rogers, one of Dr. Stark's graduate students who had previously trained in operating UAS for his research project, successfully defended his thesis this semester (An aerial perspective: Using unmanned aerial systems to predict presence of lesser earless lizards (*Holbrookia maculata*)).

Future research will include Jared Engelbert and Kaleb Stark working on a pilot study to estimate fishing pressure using aerial imagery captured by unmanned aircraft.

Kaleb Stark and Jared Engelbert prepare to fly a UAS at Cedar Bluff Reservoir, in collaboration with the Kansas Dept. of Wildlife, Parks and Tourism.

The seven new rPICs (back row, l-r): Dr. Bill Stark (instructor), Morgan Noland, Josh Mead, Jamie Oriez, Dylan Steffen, and Tayler Kriss; (front, l-r): Jared Engelbert and Kaleb Stark.

Kaleb Stark flies a UAS at Cedar Bluff Reservoir.

Inside this issue:

Meetings and Presentations

16th Annual Kansas IDeA Network of Biomedical Research Excellence (K-INBRE) symposium, January 13-14, Overland Park, KS.

Link between food intake and the expression of O-linked N-acetylglucosamine Transferase (OGT) in channel catfish. O. Abernathy, M. Dougherty, D. Kostner, E. Nevarez, A. Schmidtberger, R. Spainhour, and Y. Kobayashi.

Study of Porcine Endogenous Retrovirus (PERV-C) genomes in domestic pigs from university farm. R. Acharya and E. T. Gillock.

Restoring magnesium to the worlds food source through soil nutrient additions: Helping to spread the 'Magnesium Miracle'. R. Drees and M. Greer.

Genetic surveillance of *Sus scrofa* translationally controlled tumor protein (TCTP) for potential cancer-promoting polymorphisms. K. Klozenbucher and E. T. Gillock.

Examination of dedicator of cytokinesis 2 (DOCK2) mRNA in channel catfish. D. Kostner, M. Dougherty, A. Schmidtberger, and Y. Kobayashi.

Treatment with streptozotocin (STZ) increases expression of macrophage migration inhibitory factor (MIF) but not metalloproteinase-13 (MMP-13) mRNA in the liver of channel catfish. E. Nevarez and Y. Kobayashi.

Effect of sulfide and lactic acid on cytochrome *c* oxidase activities in plant roots and catfish liver. N. C. Quispe, K. O. Westerhaus, Y. Kobayashi, and B. R. Maricle.

Channel catfish GLUT4 mRNA expression in various tissues and muscle changes in response to changes in feeding frequency. A. Schmidtberger, M. Dougherty, O. Abernathy, E. Nevarez, D. Kostner, R. Spainhour, Y. Kobayashi.

Expression of muscle mTOR mRNA in relation to changes in food intake in channel catfish. R. Spainhour, O. Abernathy, M. Dougherty, A. Schmidtberger, D. Kostner, and Y. Kobayashi.

2018 K-INBRE group from FHSU. Front row, l-r: Naomi Quispe, Oaklee Abernathy, Danica Kostner, Megan Dougherty, Ericka Nevarez, Ali Dreiling, Alexa Ast, Michaelyn Laflen, Aubrey Stimpert, Abigail Schmidtberger, Dr. Yass Kobayashi, Claudia Carvalho, Dr. Greg Farley.

Back row, 1-r: Rebekah Spainhour, Drew Zimmerman, Dr. Eric Gillock, Dr. Mitch Greer, Dr. James Balthazor, Glen McNeil, Dr. Brian Maricle, Dr. Mike Madden.

Meetings and Presentations, continued:

Soil microbe isolation surrounding native and invasive grasses to test for antimicrobial properties against E.S.K.A.P.E. relatives. G. Tauber, M. J. Greer, and C. Carvalho.

Sequence variations of the PrP C prion protein gene among various dog breeds. D. Zimmerman and E. T. Gillock.

Megan Dougherty, a K-INBRE research scholarship recipient, received a certificate for her research excellence and presentation.

71st Annual Society for Range Management (SRM) meeting, January 28-February 2, Reno, NV.

The purple plague: Effects of grazing post fire on purple threeawn cover and reproductive effort. J. P. Roemer, M. R. Bain, and M. J. Greer.

Multi-season occupancy modeling and development of long-term monitoring protocols at Quivira National Wildlife Refuge. K. W. Schumacher, E. E. Tanner, R. Channell, M. J. Greer, and W. J. Stark.

11th annual Kansas Natural Resource Conference (KNRC), February 8-9, Manhattan, KS.

Oral presentations:

Age structure of blue catfish (*Ictalurus furcatus*) in two Kansas reservoirs. E. Flores and W. J. Stark.

Critical habitat assessment of the state threatened broad-headed skink with insights on management. A. Hullinger, Z. Cordes, D. Riedle, and W. J. Stark.

Home range size and population dynamics of the ornate box turtle (*Terrapene ornata*) at Quivira National Wildlife Refuge. D. L. Kramer, R. Laubhan, and W. J. Stark.

Home range size of the western massasauga: Implications for conservation. J. J. Mead and W. J. Stark.

Influence of landscape factors on black-tailed prairie dog (*Cynomys ludovicianus*) colony extinction. J. A. Oriez and R. Channell.

Multi-season occupancy modeling and development of long-term avian monitoring protocols at Quivira National Wildlife Refuge. K. W. Schumacher, E. E. Tanner, R. Channell, M. J. Greer, and W. J. Stark.

Ectoparasite presence and absence in Kansas bat species. E. M. Schumann, E. J. Finck, and C. J. Schmidt.

The island nature of national parks. E. Tanner and R. Channell.

Meetings and Presentations, continued:

Posters:

Grip it and flip it: Using artificial cover to monitor changes in herpetofaunal community composition in response to small-scale prairie restoration. J. Alexander, C. J. Schmidt, M. A. Noland, and M. J. Greer.

Small scale restoration of the Sternberg Natural Area: A potential increase of forbs and associated ecosystem services in the plant community. L. F. Black, K. W. Schumacher, J. P. Roemer, and M. J. Greer.

Meristic variation in Kansas broad-headed skinks and five-lined skinks. A. Hullinger, Z. Cordes, D. Riedle, and W. J. Stark.

Reproduction of the broad-headed skink: A natural history note. A. Hullinger, Z. Cordes, D. Riedle, and W. J. Stark.

Species richness, potential site fidelity, time of capture, and sex ratios of bats in north central Kansas. B. A. Rogness, E. J. Finck, and C. J. Schmidt.

The purple plague: Effects of grazing post fire on purple threeawn cover and reproductive effort. J. P. Roemer, M. R. Bain, and M. J. Greer.

Small scale restoration of the Sternberg Natural Area continued: Influences on community structure of small mammals. V. Salazar, M. A. Noland, C. J. Schmidt, and M. J. Greer.

A history and overview of restoration efforts at the Dr. Howard Reynolds nature trails and natural area at Sternberg Museum of Natural History. D. Stramel, M. A. Noland, C. J. Schmidt, and M. J. Greer.

Undergraduate Research Day at the Capitol, February 14, Topeka, KS.

Isolation of soil microbes to test against ESKAPE relatives for antimicrobial properties. S. Nansel and C. M. Carvalho.

Capitol Graduate Research Summit, February 20, Topeka, KS.

Multi-season occupancy modeling and development of long-term monitoring protocols at Quivira National Wildlife Refuge. K. W. Schumacher, E. E. Tanner, R. Channell, M. J. Greer, and W. J. Stark.
2018 BioKansas Capitol Graduate Research Summit Champion

Sara Nansel discusses her poster with Kansas state representative Eber Phelps.

American Society of Microbiology (ASM) Missouri Branch meeting, March 9-10, Kansas City, KS.

Isolation of soil microbes to test against E.S.K.A.P.E. relatives for antimicrobial properties. S. Nansel and C. M. Carvalho.

Meetings and Presentations, continued:

Joint meeting of Kansas Academy of Science and **Kansas Entomological Society**, April 6-8, Topeka KS.

Oral presentations:
Ants from western Kansas. A. N. Durr and R. J. Packauskas. (***2nd place undergraduate presentation***).

Relating estimated birth year of common carp (*Cyprinus carpio*) to heavy rainfall events at Sheridan State Fishing Lake in northwest Kansas. J. G. Engelbert, W. J. Stark, and D. Spalsbury.

Habitat assessment of a southeastern Kansas squamate assemblage with emphasis on a state threatened lizard. A. Hullinger, Z. Cordes, D. Riedle, and W. J. Stark. (***3rd place graduate presentation***).

Herbivory preferences among ecotypes of big bluestem (*Andropogon gerardii*). M. S. Pittenger, K. L. Maricle, S. G. Baer, L. C. Johnson, and B. R. Maricle. (***1st place undergraduate presentation***).

The purple plague: Effects of grazing post fire on purple threeawn cover and reproductive effort.
J. P. Roemer, M. R. Bain, and M. J. Greer.

Posters:
Restoring magnesium to the worlds food supply through soil nutrient additions. R. G. Drees, A. Tucker, and M. J. Greer.

Influence of light intensity on germination, vegetative development, and reproduction of three species of Asteraceae native to Kansas. A. R. Queiroz and B. R. Maricle.

Effect of sulfide and lactic acid on cytochrome *c* oxidase activities in plant roots and catfish liver. N. C. Quispe, K. O. Westerhaus, Y. Kobayashi, and B. R. Maricle.

Multi-season occupancy modeling and development of long-term monitoring protocols at Quivira National Wildlife Refuge. K. W. Schumacher, E. E. Tanner, R. Channell, M. J. Greer, and W. J. Stark.

Soil microbe isolation surrounding native and invasive grasses to test for antimicrobial properties against E.S.K.A.P.E. relatives. G. O. Tauber, C. M. Carvalho, and M. J. Greer.

65th annual Southwestern Association of Naturalists meeting (SWAN), April 12-14, San Marcos, TX.

Influence of landscape factors on the occurrence of pronghorn (*Antilocapra americana*) in Kansas. H. Anderson and R. Channell.

Critical habitat assessment and management of the Kansas state threatened broad-headed skink. A. Hullinger, Z. Cordes, D. Riedle, and W. Stark.

Spatial ecology of the Western Massasauga (*Sistrurus tergeminus*) in central Kansas. J. J. Mead and W. J. Stark.

Species richness, potential site fidelity, time of capture, and sex ratios of bats in northcentral Kansas. B. A. Rogness, C. Schmidt, and E. J. Finck.

Meetings and Presentations, continued:

Experimental Biology, April 21-25, San Diego, CA.

Link between food intake and the expression of O-linked N-acetylglucosamine transferase (OGT) in channel catfish. O. Abernathy, M. Dougherty, D. Kostner, E. Nevarez, A. Schmidtberger, R. Spainhour, and Y. Kobayashi.

Channel catfish GLUT4 mRNA expression in various tissues and muscle changes in response to changes in feeding frequency. A. M. Schmidtberger, M. Dougherty, O. Abernathy, E. Nevarez, D. Kostner, R. Spainhour, and Y. Kobayashi.

Expression of muscle mTOR mRNA in relation to changes in food intake in channel catfish. R. Spainhour, O. Abernathy, M. Dougherty, A. Schmidtberger, D. Kostner, and Y. Kobayashi.

Megan Dougherty was recognized at the American Physiological Society Undergraduate Student Orientation as a recipient of the Integrative Organismal Systems Physiology fellowship. Megan is the second FHSU student to receive this fellowship (Ericka Nevarez received it in 2016).

John Heinrichs Scholarly and Creative Activities Day (SACAD), April 25, Hays, KS.

Plant-soil microbiome feedback impacts on native and non-native grasses throughout Kansas. S. Harrison and M. J. Greer. (***3rd place undergraduate poster, empirical category***).

Influence of light intensity on germination, vegetative development, and reproduction of three species of Asteraceae native to Kansas. A. R. Queiroz and B. R. Maricle. (***1st place (tie) graduate poster, empirical category***).

RNA interference of the unfolded protein response in Acyrthosiphonpisum. J. Ridder and J. Balthazor. (***1st place (tie) graduate poster, empirical category***).

The purple plague: Effects of grazing post fire on purple threeawn cover and reproductive effort. J. P. Roemer, M. R. Bain, and M. J. Greer.

Multi-season occupancy modeling and development of long-term monitoring protocols at Quivira National Wildlife Refuge. K. W. Schumacher, E. E. Tanner, R. Channell, M. J. Greer, and W. J. Stark.

Effects of nitrogen fertilizer on drought-affected corn (*Zea mays*). N. Smith and B. R. Maricle. (***1st place undergraduate poster, empirical category***).

Peer-reviewed Publication:

Relationship between root aeration and oil tolerance in four wetland species. Maricle, K. L. and B. R. Maricle. 2018. Transactions of the Kansas Academy of Science 121:137-144.

Herpetology class field trip locations this spring included Elk County, KS (March 29), Wilson Lake (April 12), and eastern Oklahoma (April 18-22). The total number of species encountered during the Oklahoma trip was 47.

Herpetology field trips, continued:

Spring 2018 herpetology class

Noyce Scholarship grant expands program at FHSU into 2023

Scholarships for the Noyce Teacher Leader program at Fort Hays State University have been granted an additional $1.45 million from the National Science Foundation to extend the program into the spring of 2023. The award will support eight $13,000 scholarships for future mathematics or science teachers each year.

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 return for the scholarship, the awardees must complete their major in science or math education and teach for 2 years in a high-needs school for every year they were awarded the scholarship. Awardees are selected based on their GPAs, personal statements, and letters of recommendation. Funding for the program comes through the NSF from the Robert Noyce Teacher Scholarship Program, created by the family of Noyce, who was a co-founder of Intel.

Five students majoring in Biology and Secondary Education were awarded Noyce Scholarships for the 2018–2019 school year. **Emalee Ratliff**, **Ashley Stratham**, and **Raquel Tomsic** are receiving their second year of support, which is the maximum allowed. **Chantal Solorzano** and **Kate Westerhaus** are receiving their first year of support. In addition to these 5 students, 8 other biology students have received the scholarship in the past. Congratulations to Ashley, Chantal, Emalee, Kate, and Raquel!

2017-18 awardees (l-r): Katie Ellegood, Ashley Strathman, Biology/Secondary Ed advisor Mark Eberle, Raquel Tomsic, and Emalee Ratliff. (not pictured: Breana Meier).

Alumni news

Heidi Albin (B.S. Biology '09, M.S. Education '13) has been named a 2017-18 Milken Family Foundation Educator. The Milken Educator award includes a $25,000 cash prize, and has become the largest teacher recognition program in the U.S. The award recognizes exceptional teachers and those who guide innovation in the classroom. Albin is a science teacher at Complete High School Maize, Maize, KS, a school that educates students in grades 9-12 who struggle in traditional high schools.

By implementing individual plans for students in her classes, Albin has helped to increase their self-worth, improve their attendance, and increase acquisition of jobs and higher-education opportunities after graduation. In addition to helping her own students, she shares her curriculum with other schools so that they may also assist their students. Congratulations to Heidi Albin for her inspiring accomplishments and winning this prestigious award!

Alumni news, continued:

Dr. Michael Toews (B.S. '95) is a professor at the University of Georgia Department of Entomology, and Co-director of the Center for Invasive Species and Ecosystem Heath. He earned a Ph.D. from Oklahoma State University in 2001, then completed post-doctoral fellowships at Kansas State University and the USDA Agricultural Research Service. Dr. Toews joined the faculty at University of Georgia as a research entomologist with responsibilities in applied insect ecology and pest management. He has served on 24 graduate student committees (12 as major professor), secured $14.9 million dollars in competitive grant funding and published more than 60 research papers. In 2015 he was the Southeastern Branch recipient of the Entomological Society of America's award for excellence in integrated pest management.

Whitney Taylor (B.S. '13) and **Justin Kerby** (B.S. '12, M.S. '14) graduated medical school at University of Kansas School of Medicine. Dr. Taylor has been accepted to a general surgery residency at the University of Arkansas College of Medicine in Little Rock, AR. Dr. Kerby has been accepted to a radiology residency at KU School of Medicine in Wichita, KS.

Dr. A. J. Thomas (M.S. Biology) has been named the new Chief Executive Officer of the Rooks County Health Center in Plainville, KS. Dr. Thomas completed his doctorate in physical therapy from Rockhurst University, and had previously served as RCH's director of rehabilitation. He is a board-certified sports clinical specialist.

Congratulations to these students for defending their master's thesis this semester!

Oaklee Abernathy: Relationship between food intake and expression of O-linked N-acetylglucosamine transferase in channel catfish.

Allison Hullinger: Critical habitat assessment and recovery plan for the Kansas state threatened broad-headed skink.

Josh Mead: Spatial Ecology of the Western Massasauga (*Sistrurus terminus*) in a Large Interior Wetland.

Sean Rogers: An aerial perspective: Using unmanned aerial systems to predict presence of lesser earless lizards (*Holbrookia maculata*).

Elizabeth Schumann: Ectoparasites presence and absence in Kansas bat species.

And to these students for passing their oral exams!

Rashmi Acharya, Ernesto Flores, Chelsea Hanson, Justin Roemer, and Kyle Schumacher

Congratulations!

Professional and graduate school acceptance:

Oaklee Abernathy has been accepted to and will attend the University of Kansas School of Medicine, Kansas City, KS, beginning fall, 2018. She was also accepted to the A. T. Still University – Kirksville College of Osteopathic Medicine, Kirksville, MO, and Rocky Vista University College of Osteopathic Medicine, Parker, CO.

Shea Bonine has been accepted to the Genetic Counseling Master's program at Augustana University in Sioux Falls, SD, beginning this fall.

Lane Carpenter, **Madeline Muller**, and **Trent Schremmer** have all been accepted to Cleveland University- College of Chiropractic, Overland Park, KS. Lane and Trent will begin in fall 2018, and Madeline will begin in fall 2019.

Ashley Durr has been accepted to the Master's program in the Department of Entomology at Kansas State University, Manhattan, KS.

Kolin Klozenbucher has been accepted to the Ph.D. program in the Division of Biology at Kansas State University, Manhattan, KS.

Marshall Marrs has been accepted to Midwestern University's College of Dental Medicine, in Downers Grove, IL, beginning fall 2018.

Josh Mead has been accepted to the Ph.D. program in Ecology and Evolutionary Biology at the University of Texas at El Paso.

Caitlyn Miller has been accepted to the University of St. Mary's Doctor of Physical Therapy program, Leavenworth, KS, beginning fall 2018.

Derek Peckham has been accepted to the A. T. Still University – Kirksville College of Osteopathic Medicine, Kirksville, MO, beginning July, 2018.

Maddison Schlegel has been accepted to the University of Kansas Medical Center's Doctor of Physical Therapy program, Kansas City, KS, beginning fall 2018.

Rebekah Spainhour has been accepted to Oklahoma State University's Doctor of Veterinary Medicine program, Stillwater, OK, beginning fall 2019.

Taylor Wasinger has been accepted to Kansas City Kansas Community College's Physical Therapy Assistant program.

Undergraduate school acceptance:

Runfan "Helen" Yang, a KAMS senior, has been accepted to the University of California-Davis, University of California-San Diego, Penn State University, and Rutgers University. She has not yet decided where she will continue her higher education, but she is interested in biology and animal behaviors.

Gyuree Kim, a KAMS senior, has been accepted at Texas A&M University in College Station, TX.

Employment and internships:

Lody Black has accepted a position as a Rangeland Conservationist in Medicine Lodge, KS, for the Natural Resource Conservation Service. He has been a student trainee for the last two summers with NRCS, which lead to this full time position. Lody graduated this spring with a B.S. degree in Biology- Natural Resources, with a certification in Rangeland Conservation.

Allison Hullinger has accepted a position with the Iowa Department of Natural Resources and Iowa State University, working as a Multiple Species Inventory and Monitoring (MSIM) technician.

Riggston Walter has accepted a position as a Habitat Specialist with Pheasants Forever at Lake Wilson. He will be working under the Kansas Department of Wildlife, Parks and Tourism's District Biologist in Lincoln, Ellsworth, and Russell Counties. Job duties include providing habitat improvements to private landowners in these counties through the KDWPT Habitat First Program.

Chloe Million has been hired as a summer seasonal ecological technician with the Kansas Department of Wildlife, Parks and Tourism.

Emma Stoyan has been accepted to the Mote Marine Laboratory and Aquarium in Sarasota, FL for a summer internship (May through August). She will be working with loggerhead sea turtles and green sea turtles that nest on five beaches along the Gulf Coast. She will be identifying and marking nests, responding to hatchling events and disorientation, and taking inventory of nests.

Zoey Wallis has been accepted to the National Science Foundation's Research Experience for Undergraduates summer program in Integrative and Evolutionary Biology at the University of Massachusetts in Boston. Zoey will be conducting research on meiotic cytokinesis in *Saccharomyces cerevisiae*, a species of yeast.

Awards:

Jasmine Turley (junior in Biology) was recently selected as a 2018 Newman Civic Fellow through Campus Compact, a Boston non-profit organization devoted to advancing the public purposes of higher education. Turley credits her peers, professors, and the campus community for her success. She has previously served as a new student and family orientation leader, Student Government Association senator, and vice-chair of the Kansas Board of Regents Diversity and Inclusion Task Force.

The Newman Civic Fellowship is a one-year experience emphasizing personal, professional, and civic growth. The fellowship provides a variety of learning and networking opportunities, including a national conference of Newman Civic fellows in partnership with the Edward M. Kennedy Institute for the United States Senate.

KAS student research grants:

Chelsea Hanson will study relationships among drought and disturbance regimes on subalpine forest in Rocky Mountain National Park.

Dylan Steffen will conduct research with drones to classify vegetation near Burrowing Owl nests.

Taffra Picking will be bioprospecting for antimicrobial properties in phytoalexins of Kansas aquatic and emergent plants. Taffra also received a FHSU graduate scholarly experience grant.

K-INBRE summer scholars program:

Naomi Quispe will study effects of ethanol, sulfide, and lactic acid on enzymes of respiration in catfish and plant tissue.

Kolin Klozenbucher (left) was awarded the Outstanding graduate student teaching award for 2017-18, and **Dr. Rob Channel** (right) was awarded the FHSU Pilot award for 2017-18.

Kyle and Emily Schumacher welcomed a new baby boy this spring! Congratulations Kyle and Emily!!

FORT HAYS STATE UNIVERSITY'S
KANSAS WETLANDS
EDUCATION CENTER

KWEC's **Bat Fair**, February 11, began with a presentation by FHSU Sternberg Museum of Natural History Zoologist Curtis Schmidt, coauthor of Bats of Kansas. Kids could make their own bat, complete a scavenger hunt in a "cave", and compare bat wing spans. Information was available on building your own bat box, and several bat specimens were on display.

At the **Celebrating Birds program** on February 17, participants made edible birdhouse feeders, and joined in the Great Backyard Bird Count. Binoculars were provided for those who didn't bring their own.

KWEC **Spring Break activities** (March 17-25):

"*Casting Skills*" - FHSU graduate student **Jared Engelbert** gave instructions on how to make the perfect cast. Then a kid's contest saw who could drop the end of their line in the target area to have their name put into a raffle for a prize. Older visitors could also show off their fish casting skills for a chance to win a prize.

"*Birds and Bernoulli*" - How do birds fly? Birds are the masters of aeronautical engineering. Curtis Wolf, KWEC director, used some simple methods to illustrate the concepts of bird flight. Visitors then had the chance to make paper airplane birds.

"*A Bird's Life*" - FHSU graduate student **Katya Frank** explored the life of birds, beginning with an activity to learn common local bird identification. Visitors built their own bird feeders or nesting material balls to take home and help their backyard feathered friends flourish this spring.

"*Ready to Rock?*" - Young geologists joined FHSU graduate student **Gentry Holaday** to learn about some of the awesome properties of rocks and minerals.

"*A Photosynthesis Battle*" - FHSU graduate student **Tayler Kriss** explained photosynthesis using corn and wheat plants to teach how plants use light and air differently from each other. Visitors could also plant seeds to take home to watch grow.

KWEC hosted the **Great Migration Rally** on April 29, to celebrate International Migratory Bird Day. Activities included a migration adventure contest, crafts, a Ukrainian egg display, FHSU's MakerSpace van, and a live bird display featuring Lurch the turkey vulture, hawks, owls and falcons presented by Pat Silovsky, Milford Nature Center director.

After receiving a map, participants drove through Cheyenne Bottoms and Barton County Community College, collecting bird migration cards throughout the afternoon to earn points for prizes. The migration adventure contest aimed to provide information about the hazards birds face during migration. Afterwards, Silovsky presented *"Birds of Prey"*, featuring several of her live program birds.

We're on Facebook!

Biological Sciences Department at Fort Hays State University

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

600 Park Street
Hays, KS 67601
Phone: 785-628-4214