W. K . Kellogg Biological Station
MICHIGAN STATE UNIVERSITY

KBS K-12 Partnership 2017 Fall Workshop – Tuesday, October 24

A Sense of Place: Science in your School Yard

8:00am **Breakfast, Introductions, Announcements** **Auditorium**

8:30am **Plenary Speaker: Dr. Tyler Bassett,** MSU Postdoctoral Researcher **Auditorium**

A Sense of Place - The Past, Present, and Future of Southwest Michigan's Prairies and Savannas

9:30am **Concurrent Session Teasers** **Auditorium**

10:00am **Concurrent Session 1**

A. **Can Theory Predict the Distribution of Foraging Animals? (Middle & High)** Organizer: Misty Klotz (KBS Community Outreach Assistant) Roy Robertson (Volunteer, Retired Statistician)	**Bird Sanctuary**
B. **STREAM School (Middle School)** Organizers: Nate Alkire (Otsego Middle School) Dr. Stephen Scogin (Hope College Dept. of Biology and Dept. of Education)	**Stack Bldg Room 139**
C. **Carbon Time ()** Organizer: May Lee ()	**Stack Bldg Room 138**

11:00am **Break**

11:15am **Concurrent Session 2**

A. **Can Theory Predict the Distribution of Foraging Animals?** (Middle & High) Organizer: Misty Klotz (KBS Community Outreach Assistant)	**Bird Sanctuary**
B. **A Classroom Activity Simulating Population-Level Evolution by Hand** (All ages) Organizer: Travis Hagey (MSU BEACON Postdoctoral Researcher)	**Terrace Room**
C. **Teaching Science Outdoors** (Elementary Students) Organizer: Kara Haas (KBS Science Education & Outreach Coordinator) Renee Bayer (Asst. Director for Outreach & Engagement, CREATE for STEM)	**Stack Bldg Room 141**

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12:15pm **Lunch** **McCrary Dining Hall**

1:15pm **Concurrent Session 3**

A. **A Classroom Activity Simulating Population-Level Evolution by Hand** (All ages) Organizer: Travis Hagey (MSU BEACON Postdoctoral Researcher)	**Terrace Room**
B. Shedding Light on Ecological Trophic Cascades (Middle & High School) Organizer: Courtney Larson (MSU Graduate Student, Dept. of Entomology)	**Stack Bldg Room 138**
C. **The Physics of Flight** Organizers: Susan Magnoli (KBS Science Fellow)	**Stack Bldg Room 141**

2:15pm **Break**

2:30pm **Concurrent Session 4**

A. Organizers: Marsha Engel	**Terrace Room**
B. **Healthy Soil Microbes Will Eat Your Underwear** Organizer: Heather Kittredge (KBS Science Fellow)	**Stck Bldg Room 141**
B. Shedding Light on Ecological Trophic Cascades (Middle & High School) Organizer: Courtney Larson (MSU Graduate Student, Dept. of Entomology)	**Stack Bldg Room 138**

3:30pm **Group Brainstorm –** **Auditorium**

4:00pm **Evaluation & Adjourn** **Auditorium**

The evaluation form can be found online at this link:

If you are unable to access the form at the moment, please let a workshop coordinator know.

Session Descriptions (listed in order they occur in the schedule overview)

Plenary: A Sense of Place - The Past, Present, and Future of Southwest Michigan's Prairies and Savannas
Speaker: Dr. Tyler Bassett, Post-doctoral researcher, Kellogg Biological Station

Can Ecological Theory Predict the Distribution of Foraging Animals? (?)
Organizer: Misty Klotz (KBS Community Outreach Assistant)

Let's take math outside and learn a little about statistics. We will test the ecology theory of ideal free distribution (IFD)! We will see if wildlife really do distribute themselves among resources without competition by analyzing the wild foraging behaviors of swans, geese and ducks.

A Classroom Activity Simulating Population-Level Evolution by Hand All grade levels
Organizers: Travis Hagey, MSU BEACON Postdoctoral Researcher

The goal of our project is to improve public knowledge about evolution, providing K-12 and undergraduate teachers with an intuitive and hands-on activity. We have developed a scalable K-16 classroom activity that illustrates how evolution occurs at the population level. Using a board-game type spinner, students assign phenotypes (plumage color) and differential reproductive to individual birds across a population, over successive generations. At the completion of the activity, students have created a pedigree of individuals, showing how plumage color changed over time through surviving clades. This activity examines how traits evolve under drift and selection, allowing students to make predictions and compare results.

Shedding light on ecological trophic cascades Middle & High School
Organizer: Courtney Larson (MSU PhD Student)

Structure and function is an important core concept that spans biology – from miniscule bio-molecules to large ecosystems. The structure of aquatic insect bodies allows them to perform unique roles in headwater stream ecosystems. These roles allow them to exist in a particular "niche" in the food web. When a disturbance to the stream occurs, this can have far reaching effects on the ecosystem, through trophic cascades in the food web. During this session, we will first examine the diversity of body structures that aquatic insects have and what roles they play in streams. Then, we will develop hypotheses on how a particular disturbance, such as the Emerald Ash Borer invasion in Michigan, can have an ecological trophic cascade throughout a stream system.

Teaching Science Outdoors Elementary School
Organizers: Kara Haas (KBS Science Education & Outreach Coordinator)

Renee Bayer (Asst. Director for Outreach & Engagement, CREATE for STEM, MSU)

During this session participants will go outside to compare seasonal change in a variety of habitats. Following these observations we will debrief and discuss how to use the Heads On, Hands On, Hearts On model to guide us when planning and carrying out lessons in the outdoors. Session participants will also practice the language and three-dimensional design from Michigan Science Standards.