

Midwest Ecology and Evolution Conference



April 27–28, 2019

**Indiana State University
Terre Haute, Indiana**

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Welcome to MEEC 2019!

On behalf of Indiana State University, the Biology Graduate Student Association, and the MEEC 2019 organizing committee, welcome to Terre Haute and the 2019 Annual Midwest Ecology and Evolution Conference! For 39 years, MEEC has provided a great opportunity for students in the Midwestern United States to present their research, network with peers, and grow as scientists. We hope that this year's conference continues to inspire new ideas and collaborations.

We have many people to thank for making MEEC 2019 possible, including the Department of Biology, the Department of Earth and Environmental Systems, Indiana State University, the Biology Graduate Student Association, and all of our volunteers. Without you, this conference would not be possible.

Thanks so much for participating in MEEC 2019, and we hope you enjoy the conference.

Sincerely,

The MEEC 2019 Organizing Committee

Elizabeth Beilke, Alexis Bender, Morgan Chaney, James Cox, Zoé Delefortrie, Nicholas Gabry, Andrew Kump, Josué G Millán, Sarah Moore, and Sarah Worthington.

A big thanks to our 2019 panelists...

Dr. Shaad Ahmad, Ashley Clodfeller, James Cox, Dr. Joel Crespo, Tim Divoll, Hannah Gasparovic, Carissa Lovett, Liz Metzger, Dr. Donna Selman, Dr. James H. Speer, ISU Health Center, and ISU Career Center.

Our volunteers...

Patty Bollinger, Keeley Cleghorn, Ashley Clodfeller, Timothy Divoll, Maggie McKinney, Danielle Muse, and Chloe Story.

And all of the other individuals who made this possible, including...

Pamela Chamberlain, Melissa Chase, Martin Collins, Dr. Rusty Gonser, Laura Jenkins, Matt Jenkins, Tracy McDaniel, Katie Lindsey, Dr. Donna Selman

Guide to MEEC 2019

- If you need help or have a question: MEEC volunteers will be wearing blue and white name badges. Don't hesitate to ask one of our volunteers!
- **Getting to ISU:** There will be construction on 1st St. and 3rd St., so use 7th St. as an alternate route. 7th St. will take you directly to on-campus parking lots (see the parking map on page 23).
- **Check-in:** The check-in table will be located on the second floor of the science building (in the southwest corner).
- **Handicap Access:** Both buildings (HMSU and Science) are handicap-accessible. The science building elevators are located near the west entrance of the building.
- **Coffee/Snacks:** Will be served on both Saturday and Sunday throughout the conference in the lounge area outside room S012 (science building).
- **WiFi:** Free wifi is available via the ISU-OPEN network. See page 9 for connection instructions.
- **T-Shirts:** Pre-ordered t-shirts may be picked up during check-in on Friday, Saturday, or Sunday. Remaining t-shirts will be sold during check-in for \$12 (cash only, no change available).
- **Talk uploads:** All talks must be uploaded to the laptop at registration before your session. Please arrive at the check-in desk before 8:00 am so that you can upload your talk before the oral sessions begin.
- **Poster drop-off:** Posters should be brought to check-in with you; we will give you your poster number and location. You will be responsible for hanging your poster. Please make sure your name is on the outside of your poster tube, and remember to take your poster home with you on Sunday.
- **Dinner Friday** will be a pizza social in the Science Building (Biology Lounge, southwest corner of second floor). Cost is \$4, paid during online registration.
- **Breakfast Saturday and Sunday** will be offered during registration in the lounge area outside room S012 (science building).
- **Lunch Saturday** will be a taco buffet, served in the DEDE1 event center in HMSU (see map on page 24).
- **Dinner Saturday** will be a plated meal served in the DEDE2 event center in HMSU. Please be ready to tell the staff which meal choice you selected on your registration form (chicken or vegan).
- **Saturday social** will be held at 7:00 pm at Terre Haute Brewing Company (see the map on page 21). Everyone is welcome, but alcoholic drinks will only be served to those 21 and older.
- **Plenary Speaker Meet & Greet:** There will be a meet & greet with both plenary speakers on Saturday evening from 4:30 pm to 5:00 pm.

Interested in Hosting MEEC 2020?



Applications should include:

- List of the co-chairs willing to help organize the event (minimum 4)
- Description of your institute's capacity to host MEEC. This includes potential meeting spaces and funding (if available).
- Letters of support from your department chair and faculty panel that indicates their permission to host MEEC at your institution.

Please send your application to:

isu-BGSA@indstate.edu

Deadline: June 1, 2019

Saturday Plenary Speaker



Dr. Edmund "Butch" Brodie

University of Virginia

Butch Brodie is the B.F.D. Runk Professor in Botany at the University of Virginia as well as the director of the Mountain Lake Biological Station. His research broadly focuses on how evolution occurs in natural populations. Some examples of his work include his studies on the predator-prey arms race between newts and garter snakes, the social behavior and networks among forked fungus beetles, and the evolution of G-matrices in Caribbean Anolis lizards. To learn more about Dr. Brodie's research, please visit his lab website.

Lab Website: <http://www.faculty.virginia.edu/brodie/butch.html>

Sunday Plenary Speaker



Dr. Armin Moczek

Indiana University—Bloomington

Armin Moczek is a professor in the department of biology at Indiana University. His research focuses on the development and evolution of novel traits in insects. Primarily, his lab works with “beetle horns and horned beetles” in the genus *Onthophagus* to study when and how ecological processes drive phenotypic evolution. Some of his current research subjects include the origin of novelty and the nature of innovation. To read more about Dr. Moczek’s work, please visit his lab website.

Lab Website: <http://ecoevodevo.com/research/>

ISU Code of Conduct and Emergency Resources

ISU is committed to fostering a safe and positive atmosphere of learning and informed decision-making. All individuals associated with the university have the same rights and responsibilities, which include (but are not limited to):

- The right to participate in a free exchange of ideas and peaceful assembly in accordance with applicable laws.
- The right to be free from discrimination or harassment on the basis of race, sex, gender, religion, disability, age, national origin, sexual orientation, or veteran status.

Please visit the following website for a full PDF of our Indiana State University Code of Conduct—<https://www.indstate.edu/sites/default/files/media/documents/pdf/code-of-student-conduct.pdf>

All ISU policies and procedures apply to every person working, visiting or staying on ISU’s campus. Any transgression related to the above may be grounds for *dismissal or removal* from ISU campus with *no refund*.

In an emergency, **call 911** for local emergency responders!

| | |
|---------------------------------------|--------------|
| University Police | 812-237-5555 |
| Union Hospital Emergency Department | 812-238-7523 |
| Vigo County Sheriff’s Department | 812-462-3226 |
| Equal Opportunity and Title IX Office | 812-237-8954 |



ISU is also equipped with a number of emergency “blue light phones.” The Blue Light Phone System provides a direct link to the Public Safety Department and to 911 services.

Access to the Internet

Welcome Guests!



Get Connected-Guest

ISU-OPEN Log On Instructions

- 1.** Find ISU-OPEN on the list of Wireless Networks.

Look in the Wireless Network Options section of your device or computer.

- 2.** Select it and wait for a dialogue box to open.

If a dialogue box does not appear, you may need to open a browser to prompt it.

- 3.** Fill in the Username and Password Section.

If you do not have a Username and Password, proceed to the “Don’t Have an Account?” link at the bottom of the page and follow the prompts.

Note: Your username and password will be emailed to the address you provided (usually within 5 minutes).

- 4.** Look for the “Successful Login Page.”

You are now connected to the ISU-OPEN Network. Your information will be stored for 5 days without the need to re-enter your credentials.

CAREFULLY READ THE ACCEPTABLE USE POLICY WHEN YOU LOG IN.

Note: Your traffic is not encrypted on this network.

For assistance please call the Technology Support Center at 812-237-2910.



Schedule Overview

| | |
|-------------------|---|
| Friday | |
| 5:00–8:00 pm: | Registration, t-shirt pickup, and pizza social (\$4 extra, paid during registration). |
| Saturday | |
| 7:30–9:00 am | Registration, t-shirt pickup, talk uploads, and poster hanging (starting at 8 am). |
| 9:00–9:20 am | Welcome: <i>Donna Selman, Chair of the Department of Biology at Indiana State University</i> . Room 012 in Science Building |
| 9:30–10:30 am | Session I student talks. Rooms 18 and 22 in Science Building. More info on page 14. |
| 10:30–10:45 am | Break |
| 10:45–11:45 am | Session II student talks. Rooms 18 and 22 in Science Building. More info on page 15. |
| 11:45 am–12:00 pm | Break |
| 12:00 pm | Lunch becomes available. DEDE1 in HMSU. |
| 12:30–2:00 pm | Lunch, poster session (45 minutes rotations). DEDE1 in HMSU. |
| 2:00–2:15 pm | Break |
| 2:15–4:15 pm | Workshops and panels. Rooms 18 and 22 in Science Building OR in field. More info on page 12. |
| 4:30–5:00 pm | Meet and greet with the speakers (lobby in front of room 012 in Science Building). |
| 5:00–6:00 pm | Plenary speaker: <i>Dr. Edmund “Butch” Brodie, University of Virginia</i> . DEDE2 in HMSU. |
| 6:00–7:00 pm | Plated dinner. DEDE2 in HMSU. |
| 7:00 pm | Evening entertainment. Terre Haute Brewing. |
| Sunday | |
| 7:30–9:00 am | Registration, t-shirt pickup, and talk uploads |
| 9:00–10:15 am | Session III student talks. Rooms 18 and 22 in Science Building. More info on page 16. |
| 10:30–11:30 am | Plenary speaker: <i>Dr. Armin Moczek, Indiana University - Bloomington</i> . DEDE2 in HMSU. |
| 11:30 am–11:45 am | Award ceremony and closing statements. DEDE2 in HMSU. |

Workshop Descriptions

2:15-4:15 pm

| | 2:15 | 2:30 | 2:45 | 3:00 | 3:15 | 3:30 | 3:45 | 4:00 |
|-----------------|---|------|-----------------|------|-----------------|------|------------|------|
| Room 018 | Ask a graduate student | | Resume building | | Industry career | | | |
| Room 022 | Grant writing and evaluation criteria | | | | Managing stress | | Getting IN | |
| Outdoors | ISU Community Garden workshop with Dr. James H. Speer - 2hr | | | | | | | |

Ask a Graduate Student - Open panel discussion

Panelists: Ashley Clodfelder, *Ph.D. candidate*, James Cox, *M.S. student*, and Tim Divoll, *Ph.D.candidate*.

Resume Building - Presentation

Panelists: ISU Career Center

Industry Career - Open panel discussion

Panelists: Dr. Joel Crespo, *postdoctoral scientist at Eli Lilly and Company in Indianapolis, IN.*, Hannah Gasparovic, *Meyer Lab Manager at Indiana University Purdue University Indianapolis, IN.*, and Carissa Lovett, *Naturalist at Dobbs Park Nature Center Terre Haute, IN.*

Grant Writing and Evaluation Criteria

Panelists: Liz Metzger, *Contracts and Grants Specialist with the Department of Sponsored Programs at ISU*, and Dr. Shaad Ahmad, *Assistant Professor in the Department of Biology at ISU and grant evaluator for NIH, NSF*.

Description: Follow the grant writing process from start to finish; how do you find and apply for grants? What makes a strong application package? What does the evaluation process look like? Learn how to set yourself up for success.

Strategies for Managing Stress in College - Presentation

Panelists: ISU Health Center

Getting IN: Curriculum Vita, Personal Statements and Reference Letters

Panelist: Dr. Donna Selman, *Interim chair for the department of biology at ISU*.

Description: This workshop is intended to serve as a starting point for students developing personal statements for graduate schools and professional programs. It includes descriptions of what a personal statement is and why it is important, several approaches used to create personal statements, as well as best practices, tips, and additional resources for developing a successful personal statement. We will also discuss best practices in organizing your curriculum vita and reference letters.

Workshop: ISU Community Garden



Dr. James H. Speer
Indiana State University

One of the greatest assets of environmental science is the opportunity for hands-on application. We will walk eight minutes to our field site (the ISU Community Gardens at the edge of campus). This was a residential neighborhood from 1920 until 2008. Since that time, it has been converted into an urban community garden with all of the benefits and problems associated with such. Due to a legacy of lead contamination our university worked to complete low-cost remediation efforts. This garden now supports the community and produces a large amount of organic produce in the city. This workshop will demonstrate the organic processes that help to develop soil, sample soil with a portable X-ray fluorescence (pXRF) device to examine soil chemistry across the community garden, and study the permaculture food forest we are currently developing. We will also take part in citizen science data collection using the free iNaturalist app to identify and document pollinators in the garden as part of a larger long-term study. This event will cover approximately 2 hours including a short walk, a short sustainability tour of campus, sampling with the pXRF, and data collection with the iNaturalist app.

Limited spaces—must register at check-in.

Talk Sessions

Saturday, April 27, 2019

Session 1a

9:30 am-10:30 am

Room S018

| | |
|-----------------------|---|
| 9:30-9:45 am | Problem-solving performance of songbirds in urban and rural environments Kayce M. Miller, Lydia M. Hopper, Seth Magle, Jalene M. LaMontagne |
| 9:45-10:00 am | An experimental investigation of food unpredictability, housing and water-fasting on hematocrit levels in captive red crossbills Dawson Bradley, Rebecca Cameron and Jamie M. Cornelius |
| 10:00-10:15 am | How does predator mobility influence spillover from agricultural ditches into fields? John Woloschuk |
| 10:15-10:30 am | The influence of land use history and microhabitat on ground-nesting bees Kristen Manion |

Session 1b

9:30 am-10:30 am

Room S022

| | |
|-----------------------|--|
| 9:30-9:45 am | Impacts of soil microbiome on invasive <i>Lonicera maackii</i> seedling success Taylor Strehl |
| 9:45-10:00 am | Differentiating live and dead bacteria during beach monitoring with the use of propidium monoazide (PMA) and qPCR. Benjamin Giffin and Charlyn Partridge |
| 10:00-10:15 am | Investigation of the role of bacterium, <i>Rhodococcus fascians</i> in fasciation of common dandelion, <i>Taraxacum officinale</i> Maria Renteria, Daniel Chaffin and Logan Minter |
| 10:15-10:30 am | The pollen virome: viral discovery and diversity Andrea M. Fetters, Jessica D. Stephens, Maria Teresa Sáenz Robles, Paul G. Cantalupo, Na Wei, James M. Pipas and Tia-Lynn Ashman |

Session 2a

10:45 am – 11:45 am

Room S018

| | |
|-----------------------|--|
| 10:45-11:00 am | Changes in a pollinator food web in the face of climate change Melissa Seidel |
| 11:00-11:15 am | Testing the relationship between intraspecific competition and individual specialization across both behavior and diet Amaryllis Adey and Eric R. Larson |
| 11:15-11:30 am | Should I stay or should I flow? The clash between temperature, stream flow and eDNA Amanda N. Curtis, Jeremy S. Tiemann, Sarah A. Douglass, Mark A. Davis and Eric R. Larson |
| 11:30-11:45 am | Bioaccumulation and biomagnification of legacy pollutants in freshwater food webs using <i>Lontra canadensis</i> as a bioindicator Kathryn Mudica and Jennifer Latimer |

Session 2b

10:45 am – 11:45 am

Room S022

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|----------------------|--|
| 10:45-11:00am | Influence of prior conspecific parasitism in host selection by dodder, <i>Cuscuta gronovii</i> Erika Proffitt and Logan Minter |
| 11:00-11:15am | Preliminary comparisons of wild strains and standard cultivars of Hops, <i>Humulus lupulus</i>, in Southern Ohio Haley Bigham, Brad Bergefurd, Daniel Chaffin and Logan Minter |
| 11:15-11:30am | Severe inbreeding depression is predicted by the “rare allele load” in <i>Mimulus guttatus</i> Keely E. Brown and John K. Kelly |
| 11:30-11:45am | Morphological reevaluation of the <i>Trifolium depauperatum</i> species complex Lydia Tressel |

Sunday, April 28, 2019

Session 3a

9:00am – 10:15am

Room S018

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|---------------------|---|
| 9:00-9:15am | Can a large generalist herbivore mediate negative density dependent tree seedling mortality? Stephen Murphy |
| 9:15-9:30am | Synchrony of Mast Seeding Patterns in a Boreal Forest Community Jillian A. Sterman, Abigail C. Leeper and Jalene M. LaMontagne |
| 9:30-9:45am | Synchrony and Variation in Mast Seeding White Spruce: A Genetic Approach Evan S. Cowles and Jalene M. LaMontagne |
| 9:45-10:00am | How effective are ant mutualists at protecting Karner Blue Butterflies (<i>Lycaeides Melissa samuelis</i>) under warming? & How do Alle... Preston Thompson |

Session 3b

9:00am – 10:15am

Room S022

| | |
|----------------------|--|
| 9:00-9:15am | Context dependency of belowground effects on plant-pollinator interactions and fecundity in a tallgrass prairie species Savannah Fuqua |
| 9:15-9:30am | Gene Expression of Corn Earworm (<i>Helicoverpa zea</i>) when infected with <i>pseudomonas aeruginosa</i> bacteria Bayan Aljamal |
| 9:30-9:45am | Promises and pitfalls of using vaguely georeferenced occurrence records in biodiversity modeling David Henderson, Stephen J. Murphy, Kelley Erickson and Adam B. Smith |
| 9:45-10:00am | How does changes in soil phosphorus influence understory plant nutrient concentrations in a lowland tropical rainforest? Ashley Wojciechowski, Meghan Midgley, Amayrani Sanchez, Mary Ashley Tenedor , Andrea Vincent and Silvia Alvarez-Clare |
| 10:00-10:15am | Winter climate change, snow depth, and prescribed fire affect prairie plant persistence and growth Jonathan Henn, Laura Ladwig, and Ellen Damschen |

Poster Session

DEDE I

12:30 pm - 01:15 pm = Odd

01:15 pm - 02:00 pm = Even

| | |
|----|--|
| 1 | Dung Beetle Resource Preference Within a Landscape Matrix Sheryl Hosler |
| 2 | Seed predation in tallgrass prairies changes throughout the year and is affected by litter cover Genevieve Anderegg, Jonathan Henn and Ellen Damschen |
| 3 | Body shape diversity in dogfish sharks (Elasmobranchii: <i>Squaliformes</i>) Phillip Sternes and Kenshu Shimada |
| 4 | Effects of urbanization on stress responses in Eastern Garter Snakes Elizabeth Rock, Jeffrey Bartman, Jamie Cornelius and Katherine Greenwald |
| 5 | Structural Approach to Understanding Restoration Management Effects on Prairie Community Composition Rebecca Stelzer, Nick Barber and Holly Jones |
| 6 | A new skeleton of an ichthyodectiform fish (Osteichthyes: <i>Actinopterygii</i>) from the Upper Cretaceous Woodbine Formation of Texas Riley Hacker and Kenshu Shimada |
| 7 | Peculiar dental pattern of the Late Cretaceous durophagous shark, <i>Ptychodus marginalis</i> Amanda Alt and Kenshu Shimada |
| 8 | Pollen in The Bank: Does pollen removal and deposition by four native bee taxa differ in a prairie perennial? Evan X. Jackson, Zeke Zelman and Jennifer L. Ison |
| 9 | Little Cost of Reproduction in the Long-Lived Perennial, <i>Echinacea angustifolia</i> Tristram O. Dodge, Michael J. LaScaleia, Lea K. Richardson and Stuart Wagenius |
| 10 | What to eat when you live in manure: wasps that parasitize filth flies Elizabeth Taylor and B. H. King |
| 11 | How many pollen grains does it take to set a seed in <i>Echinacea angustifolia</i>? Mia Stevens, Nate Scheerer and Jennifer L. Ison |
| 12 | Hydraulic Traits in Epiphytic <i>Elaphoglossum</i> ferns from Puerto Rico Mary Pitts, Gary K. Greer and Jennifer Winther |
| 13 | Native <i>Echinacea angustifolia</i> has depressed viability relative to non-native <i>E. pallida</i> and reciprocal hybrids (<i>E. angustifolia</i> x <i>E. pallida</i>) in a fragmented prairie habitat Riley Thoen, Pamela Kittelson, Sanjive Qazi, Stuart Wagenius |

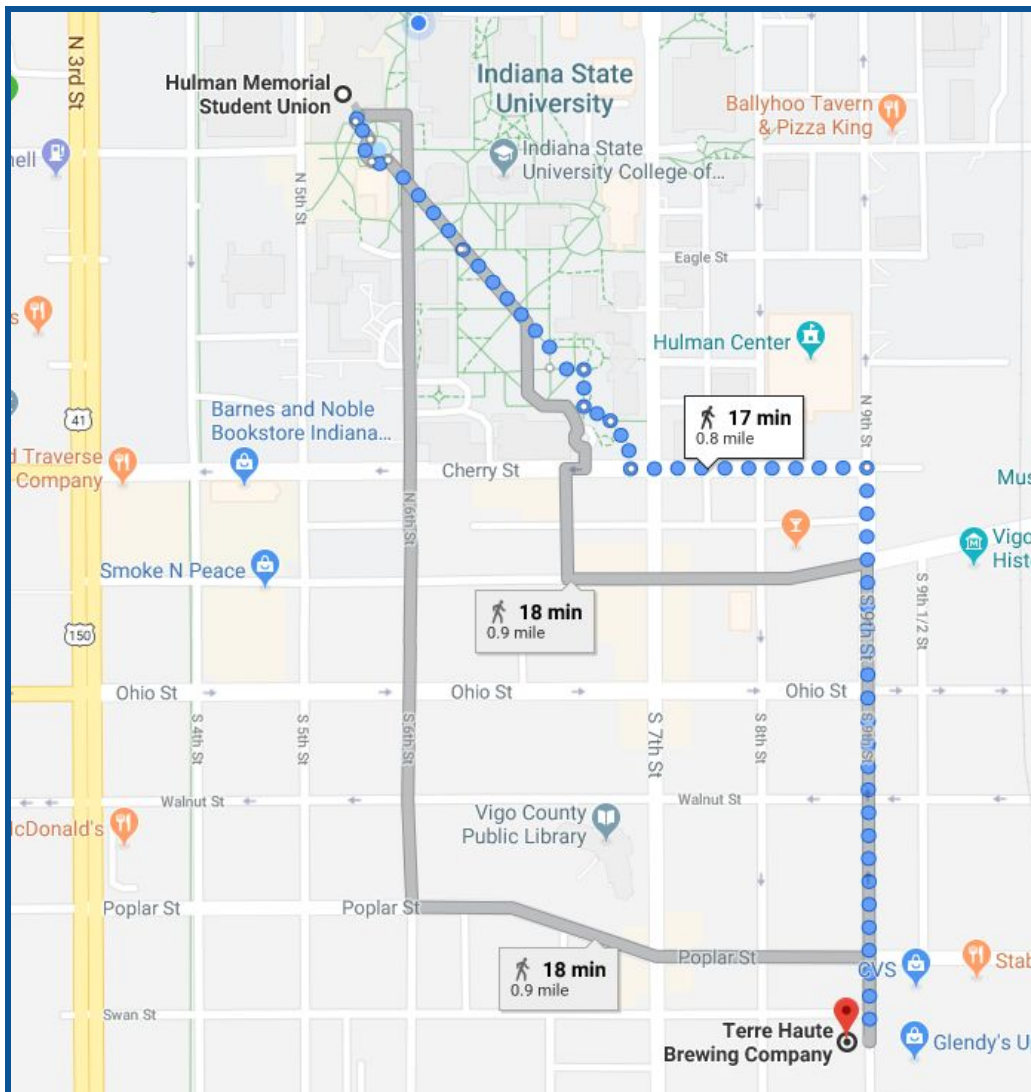
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|----|---|
| 14 | <p>Calcification level in vertebrae of thresher sharks (Lamniformes: <i>Alopiidae</i>), and its behavioral implications</p> <p>Luke A. Banta and Kenshu Shimada</p> |
| 15 | <p>Fire predictably modifies fungal community structure and successional trajectory across ecosystems</p> <p>Jacob Hopkins and Benjamin A. Sikes</p> |
| 16 | <p>How does restoration and management techniques (prescribed fire and bison grazing) affect carbon and nitrogen cycling in prairie</p> <p>Angelica Bautista</p> |
| 17 | <p>Late Cretaceous marine vertebrate fauna from the Juana Lopez Member of the Carlile Shale in southeastern Colorado</p> <p>Daniela Garza, Bruce A. Schumacher, and Kenshu Shimada</p> |
| 18 | <p>Pectoral fin musculature of the three species of thresher sharks (Lamniformes: <i>Alopiidae</i>)</p> <p>Cecil A. Phibbs and Kenshu Shimada</p> |
| 19 | <p>The influence of <i>Andropogon gerardii</i> (big bluestem) on beta diversity and possible combined effects with climate change</p> <p>Julia Armitage</p> |
| 20 | <p>Ecological Stoichiometry of Neotropical Fishes Along Elevation Gradients of the Andes Mountains</p> <p>Jessica Vaclav and Windsor Aguirre</p> |
| 21 | <p>Lyme Disease in Migratory vs. Resident Birds</p> <p>Jennifer Driscoll, Tham Mana, Shane Andrews, Cassidy Hanson, Damon Roznowski, Sean Beckman and James Marshall</p> |
| 22 | <p>Spatio-temporal Patterns of Brown Rat Populations and Free-Roaming Cat Populations in Chicago</p> <p>María Jazmín Ríos, Seth B. Magle, and Jalene M. LaMontagne</p> |
| 23 | <p>Borrelia Infection in Canopy and Ground Dwelling Birds in Northern Illinois</p> <p>Whitney Felker, Hailey Avery, Jennifer Driscoll, Tham Mana, Shane Andrews, Cassidy Hanson, Damon Roznowski, Sean Beckmann and James Marshall</p> |
| 24 | <p>Effect of Borrelia infection on body mass of birds</p> <p>Tham Mana, Jennifer Driscoll, Shane Andrews, Cassidy Hanson, Damon Roznowski, Sean Beckmann and James Marshall</p> |
| 25 | <p>Testing Parameters in Maxent for SDMs of Natural Papaya</p> <p>Hannah B. Scheppeler, Mariana Chávez-Pesqueira and Richard C. Moore</p> |

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| 26 | A preliminary exploration of local adaptation in common milkweed Angie Martinez, Cassandra Arratia, Andrew McCall and Emily Mohl |
| 27 | Lyme Disease in Birds from Urban and Rural Areas Kayla Pruitt, Jennifer Driscoll, Shane Andrews, Tham Mana, Cassidy Hanson, Damon Roznowski, Sean Beckmann and James Marshall |
| 28 | Effects of chemical composition on plant performance and associated insect communities across <i>Solidago Canadensis</i> clones Bryan S. Foster, Scott J. Meiners and Thomas Canam |
| 29 | What factors drive insect pollen load quality? Nevin Cullen and Tia-Lynn Ashman |
| 30 | Learning through education: understanding selection on the flower microbiome by leveraging the classroom Rebecca A. Hayes, María Rebolledo-Gómez, Kristen Butela, Nancy Kaufmann and Tia-Lynn Ashman |
| 31 | Evaluating the relationship between Microcystis abundance, toxicity, and environmental conditions in Muskegon and Bear Lakes Andrew Pyman and Charlyn Partridge |
| 32 | Ovoviviparous Lizards and Their Offspring Sarah Worthington |
| 33 | Does Genetic Diversity Lead to Greater Variation in Crops for Sustainable Agriculture? Jenny Trafford and Scott Meiners |
| 34 | Raccoon Behavior in Urban and Rural Environments Bairbre C. Connolly, Kayce M. Miller and Jalene M. LaMontagne |
| 35 | Does urbanization influence the population trends of European Starlings, Red-headed woodpeckers, and other cavity nesting birds? Jessica Barton and Jalene M. LaMontagne |
| 36 | Comparative Analysis of Microvertebrate Sites from Late Cretaceous Hell Creek Formation Alysia Alfano, Megan Seckinger, James Marshall and Josh Mathews |
| 37 | No evidence of pollen limitation in the long-lived perennial <i>Echinacea angustifolia</i> Michael LaScaleia and Stuart Wagenius |
| 38 | Segmentation patterns of the pectoral fin radials in lamnid sharks (Elasmobranchii: <i>Lamnidae</i>) Andres Lafuente S. and Kenshu Shimada |

| | |
|----|--|
| 39 | Mechanistic Modeling of Evolutionary Dynamics for Phylogenetic Inference Christina Kolbmann B.S. and April Wright |
| 40 | Effects of Food Source on Fatty Acid Composition in Amphipods Alissa Buchta |
| 41 | Herbicide drift has species-specific effects on wildflowers and alters the timing and abundance of pollinator resources Veronica Iriart, Gina Baucom and Tia-Lynn Ashman |
| 42 | Plant chemical defenses, density dependence, and biodiversity in a temperate tree community Emily A. Dewald-Wang, Joseph A. LaManna, Brian E. Sedio, Marko J. Spasojevic and Jonathan A. Myers |
| 43 | Analysis of <i>D. melanogaster</i> Survival on Dietary Sterols, Sterol Metabolism, and Ecdysteroid Production. Scott Martin, Jordan Middleton, Patrick Comerford, Robert Grebenok and Andrew Stewart |
| 44 | Nanoplankton Ecology of the Arabian Sea Shawn Gibford and Amos Winter |
| 45 | Relative sizes of olfactory, optic, and otic regions of the skull in lamniform sharks, and their ecological implications Nora Westman and Kenshu Shimada |
| 46 | Mast seeding synchrony and tree fate during an insect defoliator outbreak Abigail C. Leeper and Jalene M. LaMontagne |
| 47 | Function of juvenile color in a cichlid fish Benjamin Prindle, Daniel Licari, Carlos David Santos and Hugo F. Gante |
| 48 | The Effects of <i>Alliaria petiolata</i> (Garlic Mustard) Invasion on Mycorrhizal Fungi Colonization in Areas of Conservation Efforts Maria L. Taylor and Andrew C. McCall |
| 49 | Morphometric variation of teeth in the extant megamouth shark, <i>Megachasma pelagios</i>, and its paleontological implications Alexandra Krak and Kenshu Shimada |
| 50 | The effect of fungicide on root and leaf associated fungi in <i>Glycine max.</i> Terri Billingsley Tobias, Matthew Gooch, Winthrop Phippen and Andrea Porras-Alfaro |
| 51 | Quantitative feeding patterns in <i>Daphnia magna</i> using fatty acid mixing models Maria Butler and Jonathan O'Brien |

Evening Entertainment

On Saturday evening after dinner at the Hulman Memorial Student Union, MEEC attendees will make their way to the second oldest brewery in the US, The Terre Haute Brewing Company! The brewery is a short walk or drive from campus. There is parking across 9th street at CVS/Glendy's uptown mall as well as around the venue. There will be no cover charge for anyone wearing their MEEC name badge. Food and beverages will be available for purchase. Please note that 8th St. and 9th St. are one-way streets.



Things to do in Terre Haute

Parks

- Deming Park
- Dobbs Park (Nature Center and Native American Museum)
- Fairbanks Park
- Hawthorn Park
- Wabashiki Fish and Wildlife Area

Museums and Art

- Arts Illiana
- Candles Holocaust Museum and Education Center
- Clabber Girl (Museum - free entrance and Bake Shop Café)
- Swope Art Museum
- Terre Haute Children's Museum (for the young at heart)
- Veterans Memorial Museum
- Vigo County Historical Society and Museum

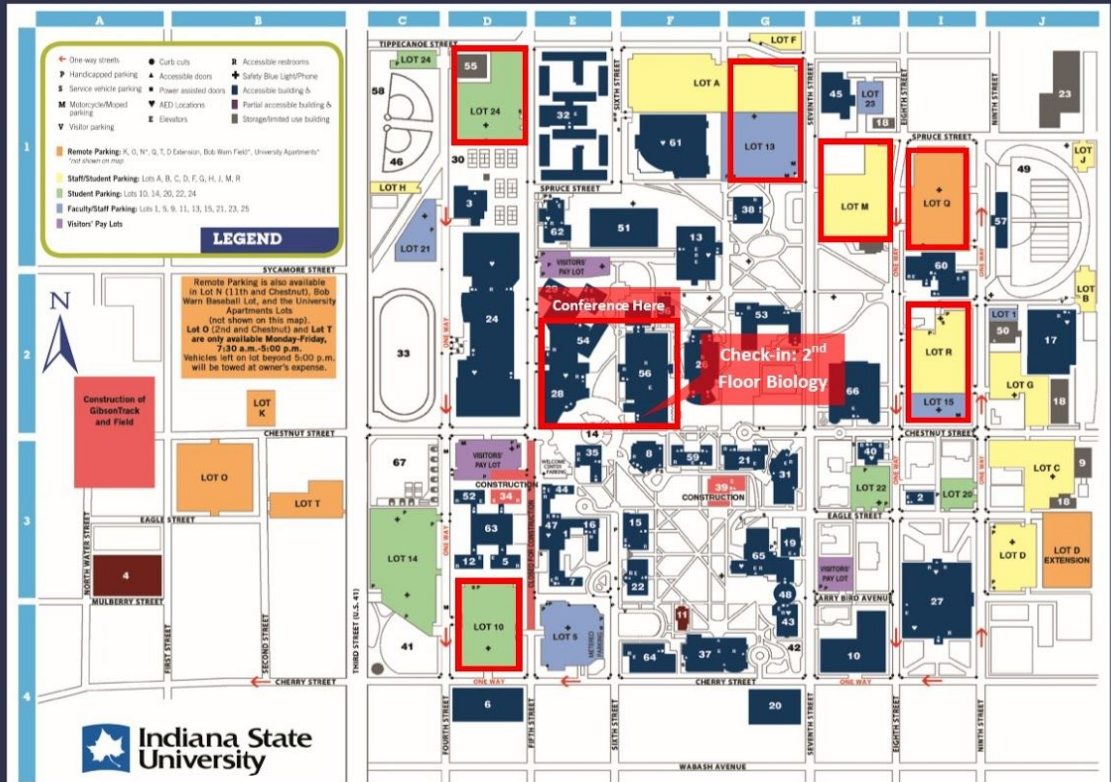
Wineries and Breweries

- Water Tower Estates
- The Sycamore Winery (Big Leaf Brewing on site)
- Terre Haute Brewing Company

Unique Coffee Shops

- Boos Crossroads Cafe and Corner Grind
- Gingersnaps Coffeehouse and Cafe
- Second Cup Cafe (inside the Honey Creek Mall, family owned!)
- Java Haute espresso bar and kitchenette

INDIANA STATE UNIVERSITY CAMPUS MAP



CAMPUS BUILDING LIST

REVISED MAY 2014

| | | | | |
|---|--|---|--|--|
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Higher resolution map available on our website:

<https://www.indstate.edu/cas/meeec/program/miscellaneous>

Indiana State University

Hulman Memorial Student Union

Located at 5th and Chestnut Streets

FIRST FLOOR GUIDE

-  AED (Automated External Defibrillator)
-  Automated Teller Machine
-  Bulletin Board
-  Cell Phone Chargers
-  Elevator (Passenger)
-  Emergency Exits
-  Entrance
-  Fire Alarm Pulls
-  Fire Extinguishers
-  Handicap Access
-  ID Card Building Access
-  Microwave
-  Notary Service
-  Package Drop Box (Fedex/UPS)
-  Piano
-  PoolTable(s)
-  Printer
-  Restroom (Men)
-  Restroom (Women)
-  Vending Machine
-  Stair/Steps
-  Telephones
-  Television
-  Water Fountain



03/2017





“NOT ONLY IS IT IMPORTANT TO ASK
QUESTIONS AND FIND THE ANSWERS, AS
A SCIENTIST I FELT OBLIGATED TO
COMMUNICATE WITH THE WORLD WHAT
WE WERE LEARNING.”
— STEPHEN HAWKING

WE THANKS YOUR PARTICIPATION AND COMMITMENT
SUPPORTING ECOLOGY, EVOLUTION AND SCIENCE
COMMUNICATION. WE HOPE TO SEE YOU NEXT YEAR!

THE MEEC 2019 ORGANIZING COMMITTEE

