

## Department of Biological Sciences

*creating leaders in research, education and service*

College of Arts & Sciences



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## From the Communications Committee

The academic year is over and we're in that brief lull between graduation and summer school. Several faculty received NIH grants and several more obtained exploratory grants from the University. A number of graduate students received awards in support of their research and for travel to National and International meetings. Dr. Shawn Brown has accepted a faculty position in our department (more about Dr. Brown in the fall!). The National Conferences on Undergraduate Research (NCUR) was here in April and the Department faculty and graduate students reviewed abstracts, chaired sessions, and hosted an open house. We finished off the semester with over 100 5th grade students visiting us for National Lab Day. As always, you can let us know what you're doing by emailing your news to us at [bionews@memphis.edu](mailto:bionews@memphis.edu) and can keep up with the Department by following us on [Facebook](#) and the [Department web site](#)

## The Department remembers

The Department is sad to report the passing of our friend and colleague Dr. Harold R. Bancroft, on February 12, 2017. Dr. Bancroft received his BS and MS from Mississippi State University and received the first doctorate of entomology awarded by the University in 1962. Dr. Bancroft retired from the University of Memphis in 1997 and was awarded Professor Emeritus in the



Department of Biological Sciences and the College of Arts and Sciences. Dr. Bancroft remained a familiar face at departmental gatherings and events until his death. Should you wish to honor Dr. Bancroft's life with a contribution, a [Memorial Scholarship](#) has been set up to honor his lifelong love of insects and education. Contributions may be made at:

## Faculty News

### Grants

**Dr. Bernie Daigle, Jr** received a new research contract and a new research grant. Leidos Biomedical Research, Inc. via funds from the National Cancer Institute, National Institutes of Health has contracted with Dr. Daigle to identify biomarkers for Post-traumatic Stress Disorder. Dr. Daigle also received a grant from the U.S. Army Research Laboratory to fund his project "Knowledge-Driven Multi-omic Biomarker Identification for Posttraumatic Stress Disorder".



**Dr. Ramin Homayouni** was awarded funding for his NIH R21 grant proposal entitled "Regulation of mitochondrial dihydrogenases and neuronal NADH levels via interaction of NIP-SNAP1 and APP intracellular domain".



**Drs. Tom and Carrie Sutter** received a competitive renewal of their NIH National Institute of Environmental Health Science R01 entitled "Cellular determinants of AH receptor signaling". This five year award is to study the contributions of "early in life" exposures to environmental pollutants on the



risk of eczema, a serious skin disease that predisposes to children to allergy and asthma. Dr. Tom Sutter is the Feinstone Chair of Molecular Biology and the Director of the [W. Harry Feinstone Center for Genomic Research](#). Dr. Carrie Hayes Sutter is a Research Associate Professor in the W. Harry Feinstone Center for Genomic Research and the Department of Biological Sciences.

**Dr. Jennifer Mandel** has received an Early-concept Grants for Exploratory Research (EAGER) grant for her proposal “Resolving the Evolutionary History of the Sunflower Family in the Face of Rampant Gene and Genome Duplication”.



The NSF describes the EAGER funding mechanism as grants “used to support exploratory work in its early stages on untested, but potentially transformative, research ideas or approaches. This work could be considered especially

“high risk-high payoff” in the sense that it involves radically different approaches, applies new expertise, or engages novel disciplinary or interdisciplinary perspectives.”

## Research Investment Awards

University of Memphis President David Rudd allocated \$1 million to support research investments intended to increase sponsored projects activity and help the UofM reach our goal of \$100 million in annual research expenditures. Several faculty members received funds to support cross-disciplinary collaborations.

## Discovery and Development Grants

**Omar Skalli** and Ana Doblaz for “Imagining Cell Motility in 3D Collagen Gels by Structured Illumination Digital Holographic Microscopy.”

**Ramin Homayouni** and Dan Baker for “Identification of Nipsnap1 protein complexes in brain”.

Abby Parrill and **Judy Cole**, for “GPCR-Reverse Pharmacology Studies”

## Team Initiation Grants

**Andrew Liu, David Freeman, Karyl Buddington,** Richard Bloomer and Maria van de Merwe for “Novel

Approach to Hypertension: Characterizing Circadian Regulation of Blood Pressure in Diurnal Nile Grass Rats”

## Interdisciplinary Innovations Award

**Tom Sutter**, Su Chen, Marie van de Merwe, Wilfried Karmaus and Hongmei Zhang, “Eczema prevention in Children (EPIC)”



## Faculty Members In the News

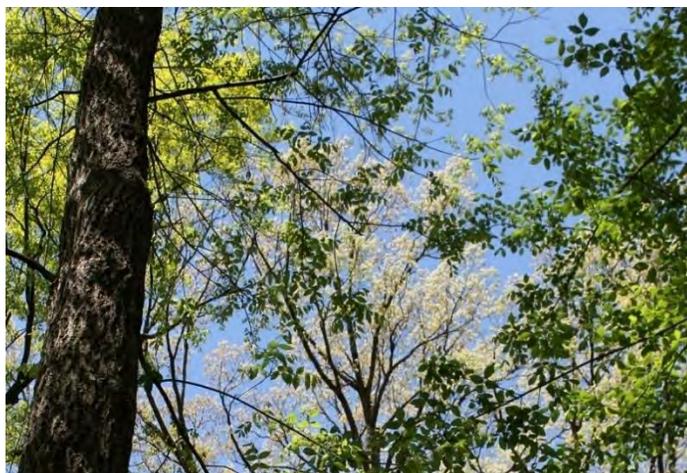
A paper co-authored by **Dr. Jennifer Mandel**, was published online on May 22<sup>nd</sup> in the prestigious journal Nature. “The Sunflower Genome Provides Insights Into Oil Metabolism, Flowering and Asterid Evolution” delves into the evolutionary history of the subgroup of flowering plants known as asterids.

The authors also identified new candidate genes and reconstructed genetic networks for flowering time and oil metabolism, two



major breeding traits, and found that the flowering time networks have been shaped by the latest whole-genome duplication. “We are really excited to report this work in Nature,” said Mandel. “The publishing of a high-quality reference genome for sunflower will aid in agricultural, ecological and evolutionary studies across the globe. Our lab studies sunflower and its relatives to understand mechanisms that drive and maintain biodiversity in the sunflower family (Asteraceae or Compositae). Compositae is the largest family of

flowering plants with more than 25,000 species distributed worldwide. The availability of the sunflower genome and the findings presented in this paper will advance our understanding of biodiversity and the evolutionary processes that have led to the great success of the sunflower family.”



## Talks, Presentations, and Trips

**Dr. Duane McKenna** made two trips to Australia to meet with his collaborator Dr. Rolf Oberprieler at the Australian National Insect Collection and to meet with several colleagues to study/collect weevils and other beetles.



Pictured: Dr. Duane McKenna (look closely!) in Australia. *Picture courtesy of D McKenna.*

**Dr. Dave Clarke** (Postdoc in the McKenna lab) visited the Australian National Insect Collection (ANIC) in Canberra, Australia, from Nov 18<sup>th</sup> to Dec. 22<sup>nd</sup> 2016 to work with Dr. Rolf Oberprieler on Dr. McKenna’s 1K Weevils phylogeny and evolution project. While there he worked with Dr. Oberprieler on taxon sampling, character evaluation, and on several new Cretaceous

Burmese amber weevil fossils that have geniculate antennae like modern curculionid weevils. He also collected and worked at the Jurassic-aged Talbragar fossil beds and Landcare Research in Auckland, New Zealand, where he worked with Dr. Rich Leschen to gather important specimens for the morphology project, including a several hundred valuable larval slide preparations from the Brenda May collection. Dr. Clarke finished up his travels with a visit to the Smithsonian National Museum of Natural History to gather larval specimens for the 1K Weevils project. During these trips he was able to accumulate significant material for the project that would otherwise not have been available for study.

**Dr. Dave Clarke** presented an invited talk entitled “Towards a Comprehensive View of Weevil Morphological Evolution: The 1K Weevils Phylogeny and Evolution Project” to the CSIRO National Research Collections Australia (NRCA) seminar series in Canberra, Australia on December 12<sup>th</sup>, 2016..

**Dr. Forrest Brem** presented a talk entitled “Darwin’s Big Idea and Why it Matters to Us All.” at Jackson State Community College on Feb 9, 2017 for their 7<sup>th</sup> annual Darwin Week Celebration.

**Dr. Bernie J. Daigle, Jr.** presented “Inferring Single-Cell Biochemical Mechanisms Using Stochastic Simulation.” to the Department of Microbiology, Immunology, and Biochemistry, The University of Tennessee Health Science Center, Memphis, TN, May 8, 2017 and “Computational Inference of Single-Cell Gene Expression Mechanisms” to the Memphis Mathematical Biology Seminar group at St. Jude Children’s Research Hospital, Memphis, TN, May 11, 2017. Dr. Daigle also spoke about his pathways to the University of Memphis to the “Meet the Scientist” program of the University of Memphis Graduate Women in Science, April 7, 2017.



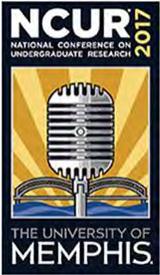
**Drs. Mike Kennedy, Cheryl Goudie, Tit Ye Wang** and **Martha Brown** were judges at the Western Collegiate Division Meeting of the Tennessee Academy of Sciences at CBU in April. **Dr. Keith Bowers** gave the keynote address.

## Service and Outreach

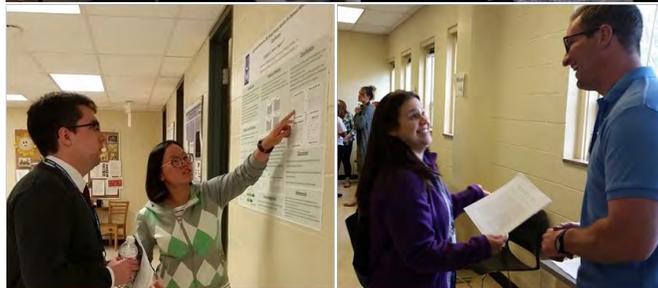
**Dr. Ramin Homayouni** was elected President of the MidSouth Computational Biology and Bioinformatics

Society (MCBIOS) at the 14th annual conference held in Little Rock, AR. His term will begin July 1, 2018. The organization has over 350 members that span 8 states in the midsouth region of the US. He has served on the MCBIOS Board of Directors since 2016, and hosted the 13th annual conference at the FedEx Institute of Technology last year.

## Biology@NCUR



Biology Faculty and Graduate students reviewed over 700 abstracts for the National Conference on Undergraduate Research (NCUR) meeting held at the University of Memphis April 6-8, 2017. In addition, many faculty and graduate students moderated oral sessions and participated in the Department's open house. An informal head count indicated 50 guests checked out the poster session on first floor of Ellington Hall and the self-guided tour of the 3<sup>rd</sup> floor where Drs. Bower, Mandel, and McKenna presented samples of their research.



Scenes from the NCUR open house: *Top:* Darrell Brandon (blue plaid shirt) and Adam Ramsey (blue checked shirt) discuss their work in the Mandel lab. *Center left:* Liangqun Lu at her poster *Center right:* Dr. Keith Bowers talking with a visitor. *Bottom:* A bit of the crowd. *Pictures courtesy of B Daigle, Jr., J Mandel and C Lessman.*

## Graduate Student News

### Defenses and Degrees

**Emily Elderbrock** successfully defended her dissertation entitled "Early Environmental Effects on Nestling Behavior, Physiology, and Future Adult Phenotype of the Florida Scrub-Jay (*Aphelocoma coerulescens*)" on March 31<sup>st</sup>, 2017. Dr. Elderbrock performed her dissertation work in the lab of **Dr. Stephan Schoech** with **Dr. David Freeman** as co-chair of her dissertation committee.

**Gayatri Mamidanna** successfully defended her dissertation on May 19th. Dr. Mamidanna's dissertation work, entitled "Comparison of PTH peptides, PTH (1-34) and PTH (7-34): effects on cell signaling, proliferation and gene expression in the Saos2 human osteosarcoma cell line" was performed in the laboratory of **Dr. Judy Cole**



*Pictured (left to right): Dr. Emily Elderbrock and Dr. Gayatri Mamidanna*

### Awards and Grants

The **Genetics Society of America (GSA)** announced the newly appointed leaders of their Early Career Scientist Steering Committee, which includes graduate student **Adam Ramsey**, who is a Ph.D. candidate in the lab of **Dr. Jennifer Mandel**. The committee is charged with understanding the interests, concerns, and challenges of early career scientist members of the GSA. Adam also received the **Bill A. Simco Scholarship**, which was established in 2014 to honor the many years of service provided to the Department by Dr. Simco and the **Southern Appalachian Botanical Society** **Earl Core**



**Award** established by the Society in 1996 to provide financial assistance in support of student research projects in plant taxonomy, systematics, and ecology. Adam also received a travel award to attend the International Botanic Congress in Shenzhen, China.

**Malle Carrasco-Harris** was selected as a **University of Memphis Society Doctoral Fellow**. The student receiving this award is selected by a committee of faculty who evaluate the student's academic achievement, dedication, and expertise as a scholar. Malle is a Ph.D. candidate working with Dr. Steve Reichling at the Memphis Zoo and **Dr. Judy Cole**, co-chair of her dissertation committee.



**Mike Ballou**, a Master's student with **Dr. Jennifer Mandel**, was awarded Nantucket Biodiversity Initiative 2017 Research Grant.

**Ramhari Thapa**, doctoral student with **Dr. Jennifer Mandel**, received an American Society of Plant Taxonomists travel award to attend the Botanical Society Annual Meeting in Fort Worth, TX

**Bailey Patillo** received the 2017 Ecological Research Center Grant-in-Aid of Research Award with her proposal "The Impacts of Chronic Infection with the Fungal Pathogen, *Batrachochytrium dendrobatidis*, on Reproductive Output and Offspring Quality in the Red-Spotted Newt, *Notophthalmus viridescens*". Bailey is a Ph.D. candidate in the lab of **Dr. Matt Parris**.

**Alexander Mueller**, a Master's student with **Dr. Keith Bowers**, received the Conservation and Research Grant from the Tennessee Ornithological Society for his project entitled, "Experimental manipulation of environmental temperature and its effect on nestling development in the Carolina chickadee (*Poecile carolinensis*)."

## Presentations

**Ferguson, S.M.** and **S.J. Schoech**. "Conspecific call playback leads to an exaggerated adrenocortical response to handling stress in Florida scrub-jay (*Aphelocoma coerulescens*) nestlings.". Society for Integrative and Comparative Biology Annual Meeting, New Orleans, LA. Jan 2017.

**Ferguson, S.M.** and **S.J. Schoech**. "Now you're speaking my language! Florida scrub-jays (*Aphelocoma coerulescens*) are more aggressive toward local variants of a geographically variable, female-specific call.". Society for Integrative and Comparative Biology Annual Meeting, New Orleans, LA. Jan 2017.

**Adam Ramsey** presented "The Presence of a Non-native Alters Pollinator Activity of a Native Plant Species on Nantucket Island, Massachusetts" at the Association of Southeastern Biologists meeting in Montgomery, AL Mar/Apr 2017.



At the 14th Annual MidSouth Computational Biology and Bioinformatics Society (MCBIOS) Conference, Little Rock, AR. Left to Right: Dr. Bernie Daigle, Jr., Caroline Melton, Dr. Ramin Homayouni, Liangqun Lu, Priyam Patel (Bioinformatics Master's student) and Quang Minh Tran (Computer Science PhD student). Picture courtesy of B Daigle, Jr.

**L Lu, BJ Daigle Jr.** Large-scale Microarray Data Based Feature Selection for Improved Molecular Classification. Poster session at the 14th Annual MidSouth Computational Biology and Bioinformatics Society (MCBIOS) Conference, Little Rock, AR, March 2017 and at UT-KBRIN Bioinformatics Summit, Burns, TN, April 2017.

**CE Melton, JR Mandel, BJ Daigle Jr.** Identifying Heteroplasmy in *D. carota* Using Whole Genome Shotgun Sequencing Without Known Variants. Poster session at the 14th Annual MidSouth Computational Biology and Bioinformatics Society (MCBIOS) Conference, Little Rock, AR, March 2017 and at the UT-KBRIN Bioinformatics Summit, Burns, TN, April 2017.

**Jessica Davin** presented a poster entitled "Feeding Activity of the Eastern Woodrat (*Neotoma floridana*)." at the Southwestern Association of Naturalists April 13-16 in Lawton, OK.

**Brittany Pope** gave an oral presentation entitled “An assessment of Species Richness and Distribution of Pocket Gophers (Genus *Thomomys* spp) in Agricultural Lands in California” at the Southwestern Association of Naturalists April 13-16 in Lawton, OK.



**Nimish Kathale** gave an oral presentation entitled “Biochemical Characterization of the Oscillatory Function of CLOCK” at the Rhythms in the South East Region (RISER) meeting in May, 2017.



## BioGSA News

The BioGSA election results are in and here are your new officers for the 2017 – 2018 school year.

President:	Malle Carrasco-Harris
Vice President:	Kelsey Clark
Treasurer:	Kelsi Palmer
Secretary:	Felice Murden
Grad Student Rep:	Elyan Shor

The BioGSA coordinated the Spring Semester Track’s Get Together at the start of the semester and sponsored the First Friday Lunch so students from Ellington Hall and the Life Sciences building can mingle. The BioGSA also sponsored a very successful bake sale to help generate funds for outreach and service projects.

## Graduate Women in Science (GWIS)

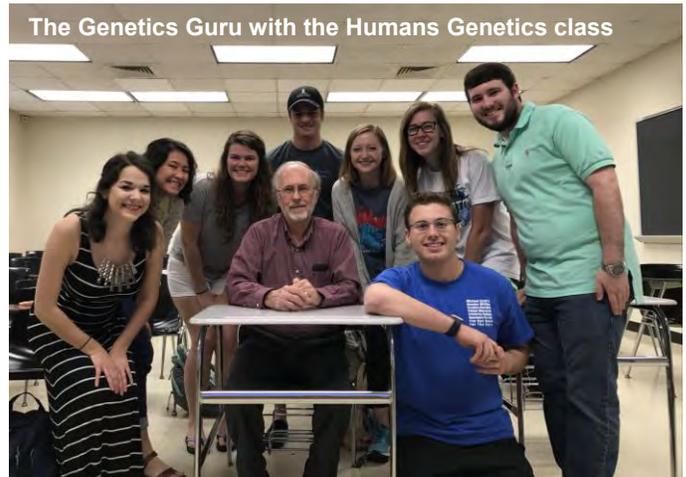
GWIS sponsored and judged the judged science fair projects for 6-8th grade students at Freedom Preparatory Academy/Westwood Campus on May 18<sup>th</sup>. They also sponsored Meet-the-Professor sessions with **Dr. Jaime Sable** from our department, **Dr. Bernie Daigle, Jr.** from our department and the Bioinformatics Program, and Dr. Tara Massad from Rhodes College Biology and Environmental Sciences Departments.



Judges at the Freedom Academy Science Fair. *Picture courtesy of K Clark.*

## Undergraduate Student News

**Kendall Major** won an American Society of Plant Taxonomists travel award to attend the Botanical Society Annual Meeting in Fort Worth, TX . Kendall is working in **Dr. Jennifer Mandel’s** lab.



The Genetics Guru with the Humans Genetics class  
From left to right: Abigail Gardiner, Margaret Nakayama, Lauren Zvolanek, Andrew Thornton (in the hat), Caroline Behrman, Bayli Phillips, Jacob Weaver, Mahyar Mostafavi (kneeling, and of course **the genetics guru** himself, **Dr. Mel Beck**. *picture courtesy of M Mostafavi*

## Biology Scholarship Winners

**The Goldye Feinstone Scholarship** is given to a sophomore, junior, or with an interest in in microbiology or molecular cell sciences, a GPA of 3.25 or demonstrated potential for academic distinction in Biology academic and research achievements as well as potential for professional success. This year’s recipient is **Jacob Myers**.

**The Dr. Virginia M. Norton and Dan Norton Scholarship** is presented to a Junior or Senior who majoring in Biology, with an expressed interest in a career in Health Science. This year’s recipient is **Crystal West**.

# What's new at the Edward J. Meeman Biological Station?

## Visits to Field Stations

Dr. Michael Kennedy, Dr. Cheryl Goudie, Dr. Keith Bower and Dr. Tom Nenon visited the National Great Rivers Research and Education Center in Alton, IL, March 17<sup>th</sup>. Visits to regional field stations and those with similar missions are part of an NSF funded grant (Dr. Kennedy) to



Picture courtesy of Lauralyn Fry.

develop a long-term plan for programmatic and economic sustainability of [Meeman Biological Station \(MBS\)](#). Other field stations visited include Hancock Biological Station in Murray, KY, Highlands Biological Station, Highlands, NC, The University of Mississippi Field Station and Center for Water and Wetlands in Abbeville, MS, The

Ecology Center at the University of Louisiana-Lafayette, LA, Southern University, Baton Rouge, LA and Louisiana State University School of Renewable Natural Resources, Baton Rouge, LA.

## Ecological Research Center (ERC) Grant-in-Aid of Research (GAIR)

The Ecological Research Center Grant-in-Aid of Research awards resumed this year after a two year hiatus. Eight proposals were considered from 5 Master's graduate students and 3 PhD students. Four external reviewers chose the four best proposals and commented that this year's submissions were all very competitive. This year's recipient is Bailey Patillo, who is a Ph.D. student with Dr. Matthew Parris.



## 2<sup>nd</sup> Annual BioBlitz at MBS

[Meeman Biological Station \(MBS\)](#) was one of several locations in the city to participate in the 2<sup>nd</sup> Annual Memphis-Wide BioBlitz. A BioBlitz is a concentrated effort to find and identify as many species of animals, plants, macroinvertebrates, fungi and other organisms as possible. To help with the collection effort, MBS hosted over 120 ninth and tenth grade students and teachers from Memphis Business Academy High School Friday, May 5<sup>th</sup>. Students were given plastic vials and baggies and asked to bring back collected organisms for photographic documentation. Collections were also documented by *in situ* photography, auditory identifications and written lists. This information is in the process of being



Left: Janet Boscarino from Clean Memphis demonstrates how to collect specimens. Right: Dr. Mike Kennedy demonstrates small mammal traps to MBS students. Pictures courtesy of C Goudie

uploaded to [iNaturalist](#) and will contribute to the [biodiversity database](#) being developed for MBS. The BioBlitz was made a success by the many volunteers from the Botany Club, the Bowers Lab, the Kennedy Lab, the Mandel Lab, the McKenna Lab, Christian Brothers University students, Austyn Harriman and Megan Mosier, and Middle Tennessee State

University student, Robert Dixon, all of whom led tours of the trails and helped students with their collections.



Collected specimens. Pictures courtesy of J Mandel



Volunteers, who helped with guided tours and talked about their own research, were from the Department's faculty and graduate students, Christian Brothers University, and Middle Tennessee State University. Picture courtesy of C Goudie



Dr. Goudie gives last minute instructions to students and volunteers. Courtesy of C Goudie.

## Biologists@Large

Dr. Randall Bayer took his Plant Systematics and Evolution class to the Meeman field station for little plant finding mission on April 4<sup>th</sup>. The class and Dr. Bayer found nearly all the plants on the list.



Plant Systematics and Evolution class at Meeman Biological Station. Picture courtesy of R Bayer.

## Mole-rat Queen celebrates 20<sup>th</sup> Birthday

This queen of the Damaraland mole-rat colony in Department is 20 years old. Damaraland mole-rats are one of the two types of eusocial mammal which live in subterranean colonies of up to 40 individuals. As the eusocial title implies, the colony usually consists of a single breeding pair (a queen and her male breeding partner) and several generations of reproductively



Picture courtesy of D Freeman

suppressed offspring. The non-breeding individuals help the breeding pair to raise and care for offspring. This queen mole-rat became a breeder at 10 years of age and has had 17 babies. Read more about these interesting creatures on [Dr. David Freeman's website](#)

## Prize-winning orchids!

The Life Sciences greenhouse won 2 awards at the show this weekend. The *Dendrobium pulchellum* won First Place in the "Dendrobium species, Nobile type" class and the *Phalaenopsis* Brother Sandra 'Splash' won the second in the "Phalaenopsis hybrids, white with markings including harlequin" class.



Scenes from National Lab Day. Pictures courtesy of J Mandle

## National Lab Day 2017 A Big Success!!!

National Lab Day is a volunteer initiative to form local communities of support around science, technology, engineering and mathematics (STEM) teachers and to connect them with STEM professionals who will share their expertise as well as their excitement and passion for their disciplines. Over 100 5th graders from Grahamwood Elementary and the Campus School took part in the Department's National Lab day. The McKenna, Mandel, Bowers, and Abell Labs along with the Herbarium and Dr. Koonz's General Biology Lab were open for activities. The Bowers Lab taught about bird watching, the McKenna Lab tours included learning about insect biodiversity and the Mandel Lab extracted DNA from a strawberry!

## Selected Publications

Afghani N, Mehta T, Wang J, Tang N, **Skalli O**, Quick QA. Microtubule actin cross-linking factor 1, a novel target in glioblastoma. *Int J Oncol*. 50:310-316, 2017.

H Badouin, J Gouzy, CJ Grassa, F Murat, SE Staton, L Cottret, C Lelandais-Brière, GL Owens, S Carrère, B Mayjonade, L Legrand, N Gill, NC Kane, JE Bowers, S Hubner, A Bellec, A Bérard, H Bergès, N Blanchet, M-C Boniface, D Brunel, O Catrice, N Chaidir, C Claudel, C Donnadiou, T Faraut, G Fievet, N Helmstetter, M King, SJ Knapp, Z Lai, M-C Le Paslier, Y Lippi, L Lorenzon, **JR Mandel**, G Marage, G Marchand, ... & NB Langlade. The sunflower genome provides insights into oil metabolism, flowering and Asterid evolution. *Nature* (2017) doi:10.1038/nature22380.

EA Dean, M Reyes, R Fauré, GK Walden, D Canington, **D Brandon** and DM McNair. Identification of the Species of Lycianthes series Tricolores (Capsiceae, Solanaceae) *Systematic Botany* 42:191-209, 2017.

Drawert, A Hellander, B Bales, D Banerjee, G Bellesia, **BJ Daigle Jr**, G Douglas, M Gu, A Gupta, S Hellander, C Horuk, D Nath, A Takkar, S Wu, P Lötstedt, C Krintz, and LR. Petzold. Stochastic Simulation Service: Bridging the Gap between the Computational Expert and the Biologist. *PLOS Computational Biology*, 12(12):e1005220, December 2016.

**RJ. Mobley**, **D Raghu**, LD Duke, K Abell-Hart, JS Zawistowski, K Lutz, SM Gomez, S Roy, **R Homayouni**, GL. Johnson, **AN Abell**. MAP3K4 Controls the Chromatin Modifier HDAC6 during Trophoblast Stem Cell Epithelial-to-Mesenchymal Transition. *Cell Reports* 18:2387-2400, 2017.

Mitchell, R.F., L.P. Hall, P.F. Reagel, **D.D. McKenna**, T.C. Baker, & J.G. Hildebrand. 2016. Odorant receptors and antennal lobe morphology offer a new approach to understanding the olfactory biology of the Asian longhorned beetle (*Anoplophora glabripennis*). *J Comp Physiol A* 203(2):99-109. 203(2):99-109.

Nelson, K., **Sabel, J.**, Forbes, C., Grandgenett, N., Tapprich, W., & Cutucache, C. (2017). How do undergraduate STEM mentors reflect upon their mentoring experiences in an outreach program engaging K-8 youth? *Int'l J STEM Education*, 4(3), 1-13.

**Ourth DD**, Marecaux E, **Raghu D**, Peterson BC. Innate immune response of channel catfish *Ictalurus*

punctatus mannose-binding lectin to channel catfish virus (CCV). *Dis Aquat Organ*. 124(2):159-163, 2017.

**Pope, B. M., Kennedy**, P. K., Mech S. G., & **Kennedy, M. K.** Spatial variation in sexual-size dimorphism of the American black bear in eastern North America. *The Southwestern Naturalists*. In Press, 2017.

Roy S, Curry BC, Madahian B, **Homayouni R.** Prioritization, clustering and functional annotation of MicroRNAs using latent semantic indexing of MEDLINE abstracts. *BMC Bioinformatics*. 2016 17(Suppl 13):350.

Sharkey, C.R., M.S. Fujimoto, N.P. Lord, S. Shin, **D.D. McKenna**, A. Suvorov, G.J. Martin, S.M. Bybee. Beetle UV opsin gene duplications restore the lost short wave insect opsin class. *Scientific Reports* 7, Article number: 8 (2017)

Small, TW, SE Bebus, ES Bridge, EK Elderbrock, **SM Ferguson**, BC Jones, **SJ Schoech**. 2017. Stress responsiveness influences baseline glucocorticoid levels: revisiting the under 3 min sampling rule. *Gen Comp Endocrinol* 247:152-165.

Wible RS, **Sutter TR**. Soft Cysteine Signaling Network: The Functional Significance of Cysteine in Protein Function and the Soft Acids/Bases Thiol Chemistry That Facilitates Cysteine Modification. *Chem Res Toxicol*. 2017 30(3):729-762.

Wilson, MW, CG Sims, **SJ Schoech**, ZL Robinson, SK Peltier. 2017. A test of the migration modulation hypothesis in a non-passerine, the blue-winged teal (*Anas discors*). *J Ornithology* 158:91-100.



# Biology@Memphis

## Department of Biological Sciences

*creating leaders in research, education and service*

College of Arts & Sciences

### Information links for this issue

The Department of Biological Sciences  
[www.memphis.edu/biology](http://www.memphis.edu/biology)

The Edward J. Meeman Biological Station  
<http://www.memphis.edu/meeman/>

The W. Harry Feinstone Center for Genomic Research  
<http://www.memphis.edu/feinstone/>



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