The Society for Integrative and Comparative Biology

with the American Microscopical Society
The Crustacean Society

Conference Program

SICB 2023

January 3-7, 2023
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2023 marks the 100th anniversary of Journal of Experimental Biology

We are celebrating this historical milestone throughout the year, with activities including:

- publishing a series of Centenary Articles documenting the past, present and future of comparative physiology and biomechanics
- interviewing journal editors about the next 100 years of experimental biology
- promoting early-career researchers and their research
- digitising the full archive of JEB content back to 1923
- celebrating with our community at society meetings
- providing greater funding opportunities to support researchers

Find out more at journals.biologists.com/jeb/pages/100 or scan the QR code below
Welcome to SICB 2023! From the terrific program, awesome registration numbers and the excitement I’m hearing (and feeling), SICB 2023 is looking to be a great conference. Many who are attending haven’t been to an in-person SICB conference in a few years or are new to SICB. We are so, so glad you are here!

Recent virtual meetings and experimentation with SICB+, SICB’s virtual platform, have led to increased accessibility of conference activities. Like last year, select sessions including some symposia, plenaries and the business meeting will be streamed for those who are unable to attend in-person this year. SICB+ continues with virtual presentations available after the in-person meeting.

Putting together a SICB conference is a community effort. It is the energy, creativity and hard work of people from across the Society that makes the conference so special. In addition to the contributed talk and posters, there is a so much more in store this year with an outstanding line-up of plenaries, symposia, workshops, exhibitor booths and other meeting activities – check out Program Officer Thom Sanger’s message below that provides more detail. Many of you contributed to the program, organized symposia and workshops and planned other events for the meeting. In particular, our Society and Divisional Program Officers and Burk Inc conference team are amazing and do magic with the program to get so much into just these few days in January. Thanks to all!

This year it is nice to get back to what feels like a more typical SICB conference and we want it to be safe and welcoming. The SICB Annual Meeting Code of Conduct continues to be updated and strengthened. As stated in the Code, SICB is committed to equal opportunity and treatment for all conference participants. Our professional safety officer, Paula Brantner, is available to you virtually (SafeConferences@gmail.com) during and after the conference and trained volunteer allies will be attending the conference. Allies will wear Ally buttons and are here to support you. For Code of Conduct related issues or other concerns, SICB also has both a reporting call line (703-592-9946) for immediate response of a trained staff member of the management company, Burk Associates, Inc. during the meeting and a reporting portal (burkinc.ethicspoint.com) that can be used to submit identified or anonymous reports. Covid is also still a serious concern - masking and attentiveness to other safety precautions will help prevent covid transmission that we’ve seen at other conferences last year. Please review the SICB code of conduct and covid safety policies on the conference website. We aim for conference in-person activities to be fun and safe as well as scientifically stimulating.

I end by offering gratitude and recognition to sponsor and supporters of SICB 2023. First, a special thank you Sable Systems International. Sable Systems is a multi-year platinum sponsor and tremendous supporter and friend of SICB. Representatives of Sable Systems will have a booth at the conference and we look forward to thanking them in person as well as seeing their great products. And big thanks to our other SICB sponsors for their generous support! Xcitex, DataClassroom, The Journal of Experimental Biology and PyroScience GmbH are silver sponsors. The Princeton University Press and SRE collegiate are Bronze sponsors. Please visit the booths at SICB 2023 and recognize the support and partnership of these organizations and companies that are such a critical part of making the conference a success.

Melina Hale
SICB President
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Welcome to Austin
Message from the Program Officer

Welcome to the 2023 SICB Annual Meeting in Austin, Texas! At this year’s meeting, we have nine symposia, six special lectures, and 220 scientific sessions covering nearly all areas of organismal biology. In total, there are ~1700 presentations scheduled over the next four days! The full program can be found on the meeting website. Up-to-the-minute meeting updates will be pushed out to the meeting app, which is accessible on your phone. You can use the website and app to create your own personal itinerary, which will help guide you through this jam packed five days. Below are some of the highlights of this year’s program.

There is a lot that we are excited about regarding the 2023 meeting. We are most excited that the SICB annual meeting has returned to its pre-pandemic size. With this return, there is much to celebrate. We encourage everyone to attend society-wide and divisional socials to reconnect with old colleagues and to make new ones. If you are a SICB first-timer, don’t miss the Student Orientation & First Timer Orientation on January 3rd.

We must also recognize that not everyone could attend the in-person meeting. To help maintain our intellectual connection with those that could not attend, we are once again hosting our virtual platform, SICB+, following the in-person meeting. We highly encourage all of our presenters to contribute to SICB+. Uploading oral presentations or posters directly to the meeting platform is quick and can be completed after you return home. At the time that I write this, over 800 people have made that commitment. If you agree to upload to SICB+, please stop by the registration desk to get your commemorative pin.

Now, on to a few highlights of the 2023 program:

**Science and Society Special Lecture:** SICB embraces the multitude of ways that our members make organismal biology an exciting and rewarding field of science. Our scientists are people with diverse ethnicities, races, cultures, backgrounds, ages, and individual stories. The new Science and Society Special Lecture celebrates prominent speakers whose professional career has helped scientists embrace their identities while furthering the scientific endeavor. Our first speaker in this series is Dr. Beronda Montgomery presenting on the opening night of the meeting, January 3rd, at 7:30pm.

**Past President’s Address:** Dr. Beth Brainerd was the 2019-2020 SICB President. She is a world leader in functional morphology and biomechanics, two of SICB’s focal disciplines. On Saturday, January 7th at 11:00am Dr. Brainerd will present “XROMM yields new insights into musculoskeletal structure, function, and evolution” before stepping down from SICB leadership.

**Workshops:** There are three-to-five workshops scheduled per day during the 2023 annual meeting. These provide important professional development opportunities for attendees of all career stages. Be sure to check the schedule for opportunities that interest you.

**Member meetings:** Want to know more about what happens behind the scenes at SICB? Perhaps you want to find ways to get involved. Stop by the divisional and society-wide member meetings. These are a great opportunity to hear about the activities of your division and the society. Everyone is invited!

Finally, before sending you into the program, I need to thank the many people who worked hard to put this conference together, most notably Lori Strong (Senior Meeting Manager), Janet Steven (Program Officer-elect), and the BAI staff. It takes a village to smoothly pull off this meeting and maintain SICB as the leading meeting for integrative and organismal biologists.

Thank you for coming. I am excited to see you.

**Thomas Sanger**
SICB Program Officer
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Co-Sponsoring Societies

American Microscopical Society (AMS)
The Crustacean Society (TCS)

The co-sponsoring society presentations are integrated into the program to minimize the potential conflicts of similar presentations being scheduled at the same time.

Thank you to the following SICB Sponsors

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General Information

Conference Program
SICB does not assume responsibility for any inconsistencies or errors in the abstracts for contributed paper and poster presentations. We regret any possible omissions, changes and/or additions not reflected in this final program.

Speaker Ready Room
All presenters must visit the Ready Room, Room 405, at least one half day prior to their session time. It is highly recommended that you preview your presentation prior to your session to guarantee that it will work properly. Each presentation will be loaded onto a master file for each session. You may use your own computer, however, your fifteen minute time slot does not include time for set up and testing. There will be students and audio visual personnel to assist you and to check you in during the following hours:

- Tuesday 3 January 12:00 PM – 7:00 PM
- Wednesday 4 January 7:00 AM – 5:00 PM
- Thursday 5 January 7:00 AM – 5:00 PM
- Friday 6 January 7:00 AM – 5:00 PM
- Saturday 7 January 7:00 AM – 10:00 AM

Registration
The SICB Registration/Information area is located in the JW Grand Ballroom Foyer. The Registration Desk will be open during the following hours:

- Tuesday 3 January 3:00 PM – 7:00 PM
- Wednesday 4 January 7:00 AM – 5:00 PM
- Thursday 5 January 7:30 AM – 3:00 PM
- Friday 6 January 7:30 AM – 3:00 PM
- Saturday 7 January 7:30 AM – 2:00 PM

Pop Up Meeting?
Do you need a room for an unscheduled meeting, come to the registration desk and book your time.

Quiet Room
Feeling anxious and need a moment to decompress? A Quiet Room, Room 207, with low lighting is available for attendees to rest quietly and recharge before diving back into the fray.

Committee/Business Meetings
Please refer to the Schedule of Events on the first page of each day’s listing for committee meetings and business meetings of your division or co-sponsoring society.

Employment Opportunities
The Employment Opportunity bulletin board will be located in the SICB Registration/Information area. The Employment Opportunity board will provide a place for attendees to post “Positions Wanted,” and learn about “Positions Available.” Interested attendees may schedule interviews in the room set aside for that purpose. See a registration desk attendant for assistance.

Coffee Breaks
Coffee break service is available each day of the meeting. There will be a morning service from 9:30 AM – 10:30 AM, Wednesday through Saturday, and an afternoon service from 3:30 PM – 4:30 PM, Wednesday through Friday. The coffee breaks will be located in the JW Grand Ballroom.

SICB Childcare Room
This year, SICB is providing FREE onsite childcare through Preferred Sitters Childcare in Rooms 310-311. Pre-registration was required, but there may be space for drop-ins. Contact the registration desk if you would like to contact Preferred Sitters.

Mother’s Room
SICB recognizes that balancing a family and meeting attendance creates unique challenges for parents. There is a Mother’s room on the third floor in Room 305, located next to the childcare room and within quick access of talks. The Mother’s room is a private room equipped with comfortable chairs for nursing, chairs and tables for pumping, outlets, a refrigerator for milk.
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Meeting Highlights

Events take place in the JW Marriott Austin, unless otherwise noted.

Tuesday 3 January

Student Worker Orientation & First Timer Orientation
5:00 PM – 7:00 PM, Lonestar Ballroom
“How to get the most out of your SICB Meeting”
Required for students with Charlotte Mangum support

Welcome to Austin Reception
8:30 PM – 10:00 PM, Griffin Hall
The Society for Integrative and Comparative Biology welcomes you to Austin with a reception. The Welcome Reception will follow the Science and Society Special Lecture. Light snacks and cash bar will be provided.

Wednesday 4 January

Poster Session 1
3:30 PM – 5:30 PM, JW Grand Ballroom
Even # poster authors present from 3:30 pm-4:30 pm
Odd # poster authors present from 4:30 pm-5:30 pm

Thursday 5 January

Poster Session 2
3:30 PM – 5:30 PM, JW Grand Ballroom
Even # poster authors present from 3:30 pm-4:30 pm
Odd # poster authors present from 4:30 pm-5:30 pm

Friday 6 January

Poster Session 3
3:30 PM – 5:30 PM, JW Grand Ballroom
Even # poster authors present from 3:30 pm-4:30 pm
Odd # poster authors present from 4:30 pm-5:30 pm

SICB Member Meeting
6:00 PM – 7:00 PM, Lonestar D
SICB Society Member Meeting & Awards Presentation

Saturday 7 January

Past-President Address: Dr. Beth Brainerd
11:00 AM – 12:00 PM, Lonestar Ballroom
The Past President’s Address, “XROMM yields new insights into musculoskeletal structure, function, and evolution”, will be given by Beth Brainerd.

End of Meeting Celebration
6:00 PM – 8:00 PM, Terrace Deck
Come celebrate the accomplishments of our symposium organizers, divisional officers, student award winners, and an all around amazing meeting. This is a ticketed event ($20 for faculty and postdocs, $10 for students and other members). A drink ticket is included in the price. Contact meetings@sicb.org if you already registered and missed the opportunity. Tickets are non-refundable.

SICB Society Member Meeting & Awards Presentation
Friday 6 January, 6:00 PM – 7:00 PM, Lonestar D

The Exhibits will open on Wednesday 4 January at 9:30 AM. JW Marriott Austin Grand Ballroom will be the location for coffee breaks Wednesday through Saturday mornings from 9:30 AM – 10:30 AM, and 3:30 PM – 4:30 PM Wednesday through Friday during the poster sessions.
High impact research from Royal Society Publishing

The Royal Society journals regularly publish content in the areas of organismal, functional and evolutionary biology and we welcome further submissions in these disciplines. Our authors benefit from high quality peer review, promotion by a dedicated press office and rapid dissemination to an international audience. We also offer open access options.

For further information, please visit royalsociety.org/journals
SICB and Divisional Business Meetings

Wednesday 4 January

- DAB Member Meeting
  5:45 PM – 6:45 PM, Lonestar A
- DCPB Member Meeting
  5:45 PM – 6:45 PM, Lonestar B
- DEDB Member Meeting
  5:45 PM – 6:45 PM, Lonestar C
- DEE Member Meeting
  5:45 PM – 6:45 PM, Lonestar F
- DEE Member Meeting
  5:45 PM – 6:45 PM, Lonestar G
- DOB Member Meeting
  5:45 PM – 6:45 PM, Lonestar H
- DVM Member Meeting
  5:45 PM – 6:45 PM, Rooms 301-302

Thursday 5 January

- TCS Member Meeting
  12:00 PM – 1:30 PM, Lonestar A
- DCB Member Meeting
  5:45 PM – 6:45 PM, Lonestar B
- DCE Member Meeting
  5:45 PM – 6:45 PM, Lonestar C
- DIZ Member Meeting
  5:45 PM – 6:45 PM, Lonestar F
- DNNSB Member Meeting
  5:45 PM – 6:45 PM, Lonestar G
- DPCB Member Meeting
  5:45 PM – 6:45 PM, Lonestar H

Special Lectures

Science and Society Special Lecture: Dr. Beronda Montgomery
Tuesday 3 January, 7:30 PM – 8:30 PM, Lonestar Ballroom
Lessons about and from plants: Insight for human thriving

George A. Bartholomew Lecture: Dr. Eric Riddell
Sponsored by Sable Systems International
Wednesday 4 January, 7:30 PM – 8:30 PM, Lonestar D
Organismal physiology as a lens into the fundamental niche and beyond

Howard A. Bern Lecture: Dr. Tyrone Hayes
Thursday 5 January, 7:30 PM – 8:30 PM, Lonestar DE
Right back where I started: Enamored with anurans

Carl Gans Award: Dr. Alejandro Rico-Guevara
Sponsored by the Journal of Experimental Biology
Friday 6 January, 7:30 PM – 8:30 PM, Lonestar D
Comparative ecophysiology of avian nectarivory

John A. Moore Lectureship: Dr. Kimberly Tanner
Saturday 7 January, 4:30 PM – 5:30 PM, Lonestar D
Talk matters: Investigating the nature of non-content classroom language – instructor talk – that may mediate student inclusion, engagement, and learning
Social Events

Events take place in the JW Marriott Austin, unless otherwise noted

Tuesday 3 January

Welcome Reception in Honor of Students and Postdocs
8:30 PM – 10:00 PM, Griffin Hall
The Society for Integrative and Comparative Biology welcomes you to Austin with a reception. The Welcome Reception will follow the Science and Society Special Lecture. Light snacks and cash bar will be provided.

Outgroup-In Sober Social
6:30 PM – 7:30 PM, Rooms 303-304
Outgroup-In (sober, all ages) is the sister event to our annual Outgroup Social event (Jan 5th, 21+, offsite). Come meet other LGBTQ+ friends, allies, colleagues, and conference buddies at Outgroup-In. Learn about LGBTQ+ programs and initiatives at SICB, discuss issues impacting LGBTQ+ folks in STEM, and meet great people. Light refreshments will be served.

Wednesday 4 January

Morning 5K run
6:00 AM – 7:00 AM, Hotel Lobby
Morning person or not, come join Michele Nishiguchi on a morning run to get your body moving before the meeting begins. The run will be about 5K.

DCPB/BART Social
8:30 PM – 10:00 PM, Griffin Hall

Thursday 5 January

Morning 5K run
6:00 AM – 7:00 AM, Hotel Lobby

DOB/DEE/DPCB Social
3:30 PM – 5:30 PM, Zilker Botanical Garden

Broadening Participation Social and Awards Ceremony
6:15 PM – 7:15 PM, Brazos

DAB/DNNSB/DCE Social
8:30 PM – 10:00 PM, Brazos

Outgroup Social
8:30 PM – 10:30 PM, Offsite
Join us offsite for the annual LGBTQ+ happy hour and social (allies welcome!), 21+

Friday 6 January

Morning 5K run
6:00 AM – 7:00 AM, Hotel Lobby

Birding in Austin
7:15 AM – 8:45 AM, Offsite
Come join professional guide Richard Kostecke for a birding trip to Roy G. Guerrero Colorado River Metropolitan Park.

DVM/DCB Social
8:30 PM – 10:00 PM, Terrace Deck

Libbie Hyman Auction and DIZ/DEDB/TCS/AMS Dessert Social
8:30 PM – 10:00 PM, Brazos

Saturday 7 January

Morning 5K run
6:00 AM – 7:00 AM, Hotel Lobby

End of Meeting Celebration
6:00 PM – 8:00 PM, Terrace Deck
Come celebrate the accomplishments of our symposium organizers, divisional officers, student award winners, and an all around amazing meeting. This is a ticketed event ($20 for faculty and postdocs, $10 for students and other members). A drink ticket in included in the price. Include this option during meeting registration if you plan to attend or contact meetings@sicb.org if you already registered and missed the opportunity. Tickets are non-refundable.
Symposia

Wednesday 4 January

S1: Genomics of Marine Larval Evolution and Development  
Organizers: Christina Zakas, Chema Martin

S2: Neuroethology in the Age of Gene Editing: New Tools and Novel Insights Into the Molecular and Neural Basis of Behavior  
Organizers: Beau Alward, Scott Juntti

S3: Sexual Diversity and Variation  
Organizers: Kelsey Lewis, Sam Sharpe

Thursday 5 January

S4: Daily Torpor Across Birds and Mammals: Recent Progress and How Do We Advance the Field?  
Organizers: Anusha Shankar, Kenneth Welch

S5: Pathways to Adulthood: Environmental, Developmental, and Evolutionary Influences on the Ontogeny of Form and Function  
Organizers: Terry R. Dial, Mark C. Mainwaring, Ashley M. Heers

S6: Large-Scale Biological Phenomena Arising From Small-Scale Biophysical Processes  
Organizers: Jeanette Wheeler, Karen Chan

Friday 6 January

S7: Biology at Birth: The Role of Infancy in Providing the Foundation for Lifetime Success  
Organizers: Christopher Mayerl, Rebecca German

S8: The Role of Mechanosensation in Robust Locomotion  
Organizer: Katie Stanchak, Hilary Katz

S9: Envisioning a Diverse, Inclusive & Safe Future for Field Biology  
Organizers: Vanessa K. Hilliard Young, Robin Verble, Corinne L. Richards Zawacki
Workshops and Programs

Tuesday 3 January

Exploring -omics beyond assembly and general annotation for non-model organisms
11:00 AM – 5:00 PM, Room 302
Chairs: Donald Mykles, Jorge Pérez-Moreno, Mihika Kozma
The goal of this NSF-funded workshop is to conduct hands-on training sessions for researchers in utilizing -omics data beyond the initial stages of assembly, summary stats, and basic BLAST-based annotations. Towards that purpose, speakers will lead sessions, where they train participants to use custom pipelines, databases, or applications that harness the strengths of transcriptomic/genomic/phenomic datasets.

Topics covered: data mining strategies to build refined phylogenetic trees; orthology inference for phylogenomics and downstream applications, such as determining positive selection; revise subset of the Pfam database using a user-defined taxonomic pool through TIAMMAt.

Wednesday 4 January

Scientists Crossing: Getting involved in cross-disciplinary research
12:00 PM – 1:30 PM, Room 401
Chairs: Jeanette Wheeler, Kit Yu Karen Chan
Cross-disciplinary research is receiving increasing attention, but it can seem daunting to get involved. In an intimate group discussion setting, this workshop will explore how one can get involved and be successful in a single market for knowledge, research and innovation. Some questions we will explore include:

• How to prepare students/oneself to engage in research that do not fall neatly within on discipline? Does one need to be a “jack of all trades”?
• How to build and manage a diverse and inclusive research team? For example, how may one work to provide a “common language”?
• What are strategies to solicit funding for research questions that are not included in canonical silos?

Mentorship and sponsorship: how to curate your support team and guide your successful career
12:00 PM – 1:30 PM, Lonestar A
Chair: Laura Mydlarz
The concept of mentorship and finding mentors can be a stressful endeavor for an early career scientist. But there are tools and a variety of mentor models that can be used to help alleviate this stress. Also understanding the difference between mentors and sponsors can help you develop these relationships. This workshop will be a discussion to learn what to give and gain from your mentors and sponsors to support your own career goals. You will learn the difference between a sponsor and a mentor and how to curate and map your mentor and sponsor relationships with the eventual goal of building your support team based around your career goals. This workshop is geared for late-stage graduate students, post-docs, and early career researchers.
Faculty Launch Workshop
12:00 PM – 1:30 PM, Lonestar B
Chair: Leslie Babonis
This workshop aims to demystify the postdoc-to-faculty transition in academia. As such, the target audience is late-stage postdocs and pre-tenure faculty, although anyone in the SICB community is welcome to attend. The inaugural workshop (Phoenix, 2022) laid the foundation for an ongoing training opportunity to be offered annually at the SICB meeting. Panelists from diverse career stages (postdoc, new PI, up for tenure, and full Professor) will provide discussion, advice, and tools to help attendees navigate the final years of their postdoctoral research programs, land their ideal jobs, and survive their first years as newly-minted assistant professors. Proposed topics of discussion include: compiling a competitive job application, giving an effective chalk talk, building and negotiating a startup request, writing a lab prospectus/philosophy statement, recruiting and mentoring diverse personnel, developing and managing budgets, and navigating the tradeoff between data collection and grantsmanship as a new PI. This workshop requires advanced registration so that the discussion topics can be tailored to the interests of the participants. Minutes from the workshop will be archived along with supporting materials (e.g., successful job application materials, examples of start-up request spreadsheets, lab expectation statements, etc.) and archived materials will be available to workshop registrants in perpetuity. The norms for securing faculty jobs, and the expectations placed on junior faculty, change frequently and thus the topics covered in the workshop will evolve over time.

NSF Program Officers: What’s New in BIO and Q&A session
12:00 PM – 1:30 PM, Lonestar D
NSF Program Officers from the Directorate for Biological Sciences will present information on new and continuing programs of interest to SICB members, and will be available to answer participants’ questions.

Thursday 5 January

An introduction to high structure course design for the life sciences
12:00 PM – 1:30 PM, Lonestar B
Chair: Justin Shaffer
Calls for using evidence-based pedagogies have been expanding in the past decade to order to improve student learning and outcomes. High structure courses are designed to do just that as they prepare students to be actively engaged in the learning process via pre-class content acquisition and assessment, in-class active learning and problem solving, and after-class review. You will leave this workshop with the knowledge, skills, and references necessary to begin adding elements of high structure course design into your own life sciences courses.
Workshops and Programs

Continued

**Accessing and working with NEON Small Mammal Data**
12:00 PM – 1:30 PM, Lonestar C
*Chair: Sara Paull*

The National Ecological Observatory Network (NEON) ([www.neonscience.org](http://www.neonscience.org)) provides a diversity of open access ecological data from 81 sites across the United States. At these sites, data describing organismal observations, biogeochemistry, remote sensing, and micrometeorology are collected and published for public use. Numerous organismal and environmental samples are also collected and archived at the NEON Biorepository at Arizona Statue University. The organismal datasets include information on the diversity, abundance, and in some cases pathogens of small mammals, terrestrial invertebrates, aquatic macroinvertebrates, fish, birds and plants. This workshop will provide an introduction to discovering, accessing and preparing NEON data using R. The workshop will include an introduction to the NEON program and data collection procedures followed by a guided data access tutorial for the small mammal dataset.

**BPC Workshop: Developing the Tools of Influence and Persuasion for Leadership**
12:00 PM – 1:00 PM, Lonestar F
*Chair: Nicholas Burnett*

The Broadening Participation Committee is pleased to have our annual workshop hosted by Dr. Clifton Poodry. This workshop will focus on developing leadership skills related to persuasion and influence. This event will be interactive, utilizing small group discussions in response to prompts and mini-case studies. Additional discussions will focus on individual career paths and the leadership skills and tools that are essential for those paths.

**Friday 6 January**

**CRISPR gene editing in non-model organisms**
12:00 PM – 1:30 PM, Room 404
*Chairs: Scott Juntti, Beau Alward*

During our workshop, community members will have an opportunity to plan gene editing experiments with experts. Questions regarding best practices in genetics experiments (e.g., molecular biology or husbandry) will be welcomed.

**Integrative Biology Incubator: How do plants, animals, fungi, and algae solve the same problems differently?**
12:00 PM – 1:30 PM, Lonestar B
*Chairs: Morgan Furze, Ulrike Muller*

How do plants, animals, fungi, and algae solve the same problems differently? What blind spots become apparent in our core biological concepts when we compare and contrast solutions from different biological kingdoms? What do you wish more biologists knew about the kingdom of organisms that you work on? The Journal of Integrative and Comparative Biology (ICB) wants your thoughts on these questions! We are planning to publish a collection of papers on organismal biology and cross-kingdom comparative biology, and we anticipate developing articles that address the universal constraints on living organisms and highlight how life has evolved to solve similar problems differently. We are searching for scientists at all career stages to participate in this brainstorming workshop, and we seek a diversity of experiences and perspectives.

Please register here if you intend to attend the workshop: [forms.gle/YUks6cWvax9AecpN9](https://forms.gle/YUks6cWvax9AecpN9)
SPDAC Workshop: Sci-Comm Round Table
12:00 PM – 1:30 PM, Griffin Hall
This event aims to pair members of SICB that have experience as science communicators with other members interested in learning more about the various avenues of science communication. Science communication exists in many forms and the workshop aims to provide examples of this variety so that SICB members can learn from and exchange ideas with a panel of experts in a more intimate small group discussion-type environment. The workshop will have experts spread throughout the room and allow participants to move from table to table to hear about various types of science communication and answer any questions you may have. This is meant to be a no pressure exchange of practical skills, stories, and career advice in as it relates to science communication.

PAC Workshop: Communicating science across the ideological spectrum
12:00 PM – 1:30 PM, Lonestar C
Chair: Phoebe Edwards
The goal of this workshop is to discuss strategies for working and communicating with individuals who may have different ideological views, come from different backgrounds, and/or a distrust or disbelief in science. How can we talk about science with people who may have anti-science mentalities? How can we work with people across the political spectrum to reach a common scientific goal? How do we make progress together instead of increasing polarization? The workshop will be a panel format with a Q&A, where speakers will draw on their experiences with communication and cooperation in these contexts. We will highlight panelists who work in science communication with broad audiences, where there is sometimes disinformation and clashing ideologies, and panelists who have engaged in local politics or projects that seem politically-charged to some. Discussion will be solution based, aiming to equip members with tools for communication in an increasingly polarized environment.

Bridging Collaborations Between University and K-12 Classrooms: Cross-generational Active Teaching Approaches
7:00 PM – 9:00 PM, Room 404
A disconnect often persists between expectations of student knowledge upon graduating from secondary school and expectations of student knowledge upon entering the higher education system. This workshop highlights collaborative approaches in which university classrooms can interact with K-12 classrooms to empower students, encourage pursuits of higher education, facilitate cross-generational active learning, and fill knowledge gaps to better prepare students for university. The hands-on workshop will involve brainstorming, discussions, reflective activities, case studies, and resources that collectively will aid participants to apply new teaching approaches with acquired tools.
2023 SICB Exhibitor Floorplan

Grand Ballroom • JW Marriott Austin

View the latest floorplan and company profiles on your phone or tablet. Scan the QR Code or visit sicb23.expofp.com

Exhibit Hours

Wednesday 4 January
9:30 AM – 5:30 PM
Thursday 5 January
9:30 AM – 5:30 PM
Friday 6 January
9:30 AM – 5:30 PM

Drop in with the President and Executive Director

Booth 100
Stop by and meet with the President and Executive Director
3:00 PM – 4:00 PM

DPCB Ask-An-Expert

Booth 401
Get phylogenetic and comparative methods support with an expert

Coffee Breaks

WEDNESDAY
9:30 AM – 10:30 AM
Sponsored by Sable Systems International
3:30 PM – 4:30 PM

THURSDAY
9:30 AM – 10:30 AM
3:30 PM – 4:30 PM
Sponsored by SRE.college

FRIDAY
9:30 AM – 10:30 AM
3:30 PM – 4:30 PM

SATURDAY
9:30 AM – 10:30 AM

Journal of Experimental Biology

Silver Sponsor

Meet the Editors session

Booth 505
Wednesday 4 January – 3:30pm

2023 marks the 100th anniversary of Journal of Experimental Biology. Please visit The Company of Biologists’ booth to find out more about the journal, meet the Editors and pick up a limited edition JEB T-shirt ‘100 years of discovery’.

JEB Editors attending the meeting:

• Craig Franklin, Editor-in-Chief
• Sheila Patek, Deputy Editor-in-Chief
• Monica Daley, Monitoring Editor
• Charlotte Rutledge, Reviews Editor
• Jarren Kay, Features & Reviews Editor
The American Microscopical Society is an international society of biologists organized to encourage the use of microscopy. AMS publishes the journal Invertebrate Biology and co-sponsors the SICB Annual Meeting. The AMS booth features the annual Buchsbaum Photomicrography Contest and information on opportunities for student research fellowships.

Auburn University
Department of Biological Sciences
120 West Samford Avenue
Auburn, AL 36830
www.auburn.edu/cosam/departments/biology
334-844-4830

The Biological Bulletin disseminates novel scientific results in broadly related fields of biology in keeping with more than 125 years of a tradition of excellence. The journal publishes outstanding original research of general interest to biologists throughout the world.

Blue Beehive Studio
BlueBeehiveStudio@gmail.com
BlueBeehiveStudio.com
Melissa A. Moore started Blue Beehive Studio to combine her love of science with art. She began her studies in science, earning a B.S. in Biology from Loyola University Chicago and an M.S. in Biology from the University of Illinois, Urbana-Champaign. After taking several art courses over the years, she decided to change career paths and launched Blue Beehive Studio in 2012. Her work breathes new life into scientific shapes and symbols, turning these into functional pieces of jewelry. Her works can be seen online, in select galleries, and as an exhibitor at scientific conferences.

The Company of Biologists
Bidder Building, Station Rd
Histon, Cambridgeshire CB249LF, United Kingdom
www.biologists.com
44 (0) 7741 053447

The Company of Biologists is the not-for-profit publisher of the three distinguished journals Development, Journal of Cell Science and The Journal of Experimental Biology. The Company also publish two open access journals, Disease Models & Mechanisms and Biology Open.

The Crustacean Society
950 Herndon Parkway, Suite 450
Herndon, VA 20170
www.thecrustaceansociety.org
703-790-1745

The Crustacean Society (TCS) achieves its mission by promoting the exchange and dissemination of information throughout the world by:

1) The Journal of Crustacean Biology (JCB) an SCI journal, with Editor-in-Chief Dr. Pedro Castro, published by the Oxford University Press;

2) Biannual, international meetings to gather the world’s carcinologists for constructive interaction and collaboration, and by supporting other societies, meetings, and conferences that share our mission;

3) annual competitions for fellowship, scholarship, and travel awards for postdocs and both graduate and undergraduate students.

DataClassroom
1022 Cottonwood RD
Charlottesville, VA 22901
u.dataclassroom.com
434-882-8005

DataClassroom U is a web-tool for graphing, statistics, and data analysis in the college classroom. The tool has been designed by scientists and expert teachers to make it easy to integrate practical data and statistical skills into introductory science courses.
Expert Digital Imaging  Booth: 402
193 Jefferson Ave, Suite 102
Salem, MA 01907
www.expertdigitalimaging.com
339-440-4423
Expert Digital Imaging is an independent distributor of high-speed and high-resolution camera equipment from various manufacturers, including the full NAC, Optronis, IOI, and Edgertronic camera lines. At EDI, we offer traditional high-speed camera systems as well as long-recording high speed systems with associated automatic image tracking software.

LaVision Inc.  Booth: 201
211 W Michigan Ave Suite 100
Ypsilanti, MI 48197
www.lavision.com
734-485-0913
LaVision provides integrated imaging systems to scientific, industrial and educational markets. LaVision has extensive experience in optical techniques such as 2-D, stereo, and tomographic particle image velocimetry, gaseous and liquid laser induced fluorescence, shadowgraphy for multi-phase flows, digital image correlation for deformation/strain, high-speed and ultra-high-speed imaging, and intensified camera systems.

Fastec Imaging Corporation  Booth: 301
17150 Via Del Campo, Suite 301
San Diego, CA 92127
www.fastecimaging.com
858-592-2342
Fastec Imaging is a trusted manufacturer and supplier of high-speed imaging systems to the SICB community. With portable and fixed-mount cameras up to 5 Megapixels and 2500 fps at full HD resolution, Fastec has a camera for all your applications in the lab and in the field.

Loligo® Systems  Booth: 403
Toldboden 3
Viborg, DK-8800 Denmark
www.loligosystems.com
+45 6166 6929
Loligo® Systems develops research equipment for aquatic biology. Our products allow scientists all over the world to excel in the fields of swimming performance, respirometry, blood physiology and behavior analysis in a diversity of marine and freshwater organisms. We offer customized solutions as well as free scientific advice and support.

Gene Tools LLC  Booth: 302
1001 Summerton Way
Philomath, OR 97370
www.gene-tools.com
547-929-4840
Gene Tools manufactures Morpholino oligos for blocking translation, modifying splicing or inhibiting miRNA activity. Morpholinos are used in cell cultures, embryos or, as Vivo-Morpholinos, in adult animals. Morpholinos are effective, specific, stable and non-toxic. Backed by Ph.D.-level customer support, Gene Tools designs and synthesizes Morpholinos and offers cytosolic delivery options.

Manomet  Booth: 206
125 Manomet Point Road
Plymouth, Massachusetts 02345
www.manomet.org
508-224-6521
Manomet uses science and collaboration to strengthen bird migration routes, coastal ecosystems, and working lands and seas across the Western Hemisphere. For over 50 years, we have formed vital partnerships with businesses, producers, and educators to help nature and local communities thrive and create a more resilient future together.

National Science Foundation  Booth: 304
2415 Eisenhower Avenue
Alexandria, VA 22314
www.nsf.gov
703-292-8420
The National Science Foundation, an independent federal agency created by Congress in 1950, supports non-medical basic research in all science and engineering fields with an annual budget of about $7 billion. NSF funds approximately 20% of all federally supported basic research conducted by US colleges and universities.
The Society for Integrative and Comparative Biology

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Princeton, NJ 08540
press.princeton.edu
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613-384-1977

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The Royal Society
6-9 Carlton House Terrace
London, England SW1Y 5AG United Kingdom

The Royal Society publishes high quality, peer-reviewed journals covering all scientific disciplines as part of our mission to the dissemination, discovery and preservation of scientific findings and ideas. We offer you a range of services including rapid publication, rigorous peer review, international recognition and the option of open access publication. All our journals are compliant with funder mandates (such as Plan S). We welcome submissions of high-quality science from anywhere in the world. Whichever journal you choose we aim to make it as rewarding and as easy as possible for you.

Sable Systems International
3840 N Commerce Street
North Las Vegas, NV 89032
Sablesys.com
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SICB Journals
Booth: 501

Integrative and Comparative Biology (ICB) is SICB's flagship journal that consists of primarily symposia papers yet some invited groupings & Integrative Organismal Biology (IOB) is SICB's open access journal (receiving an impact factor this year)

Star-Oddi
Booth: 303

Star-Oddi makes small, high performing loggers for short and long term animal research.
University of Chicago Press
1427 East 60th St
Chicago, IL 60637
journals.uchicago.edu

Founded in 1890, the University of Chicago Press is one of the oldest continuously operating university presses in the United States. From its inception, a primary goal of the Press has been to publish academic findings and analyses from scholars the world over. The Journals Division publishes more than 90 scholarly journals that cover a wide range of disciplines, from the humanities and the social sciences to the life and physical sciences.

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SAVE THE DATE
ICVM 2023
International Congress of Vertebrate Morphology
Cairns - QLD - Australia
28 July - 1 August 2023
@SilkeCleuren
# Tuesday Schedule of Events

Events take place in the JW Marriott Austin, unless otherwise noted

<table>
<thead>
<tr>
<th>EVENT</th>
<th>TIME</th>
<th>LOCATION</th>
</tr>
</thead>
<tbody>
<tr>
<td>Speaker Ready Room</td>
<td>12:00 PM – 7:00 PM</td>
<td>Room 405</td>
</tr>
<tr>
<td>Exhibitor Set-Up</td>
<td>1:00 PM – 6:00 PM</td>
<td>JW Grand Ballroom</td>
</tr>
<tr>
<td>Registration</td>
<td>3:00 PM – 7:00 PM</td>
<td>JW Grand Ballroom Foyer</td>
</tr>
</tbody>
</table>

**SPECIAL LECTURE**

Science and Society Special Lecture: Dr. Beronda Montgomery  
Lessons about and from plants: Insight for human thriving  
7:30 PM – 8:30 PM  
Lonestar Ballroom

**COMMITTEE AND BOARD MEETINGS**

SICB Executive Committee Meeting  
2:00 PM – 5:00 PM  
Brazos

Student Orientation & First Timer Orientation*  
“How to get the most out of your SICB meeting”  
5:00 PM – 7:00 PM  
Lonestar Ballroom

“Required for students with Charlotte Mangum support”

Student Support Committee  
5:30 PM – 7:00 PM  
Room 301

**WORKSHOPS AND PROGRAMS**

Exploring -omics beyond assembly and general annotation  
for non-model organisms  
11:00 AM – 5:00 PM  
Room 302

**SOCIAL EVENT**

Outgroup-In Sober Social  
6:30 PM – 7:30 PM  
Rooms 303-304

SICB Welcome Reception  
8:30 PM – 10:00 PM  
Griffin Hall
# Wednesday Schedule of Events

Events take place in the JW Marriott Austin, unless otherwise noted

<table>
<thead>
<tr>
<th>EVENT</th>
<th>TIME</th>
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</thead>
<tbody>
<tr>
<td>Registration</td>
<td>7:00 AM – 5:00 PM</td>
<td>JW Grand Ballroom Foyer</td>
</tr>
<tr>
<td>Speaker Ready Room</td>
<td>7:00 AM – 5:00 PM</td>
<td>Room 405</td>
</tr>
<tr>
<td>Poster Session 1 Set Up</td>
<td>7:00 AM – 8:00 AM</td>
<td>JW Grand Ballroom</td>
</tr>
<tr>
<td>Coffee Break AM, <strong>sponsored by Sable Systems International</strong></td>
<td>9:30 AM – 10:30 AM</td>
<td>JW Grand Ballroom</td>
</tr>
<tr>
<td>Exhibit Hall</td>
<td>9:30 AM – 5:30 PM</td>
<td>JW Grand Ballroom</td>
</tr>
<tr>
<td>Coffee Break PM</td>
<td>3:30 PM – 4:30 PM</td>
<td>JW Grand Ballroom</td>
</tr>
<tr>
<td>Poster Session 1 Even Numbers Authors Present</td>
<td>3:30 PM – 4:30 PM</td>
<td>JW Grand Ballroom</td>
</tr>
<tr>
<td>Poster Session 1 Odd Numbers Authors Present</td>
<td>4:30 PM – 5:30 PM</td>
<td>JW Grand Ballroom</td>
</tr>
<tr>
<td>Poster Session 1 Teardown</td>
<td>5:30 PM – 6:00 PM</td>
<td>JW Grand Ballroom</td>
</tr>
</tbody>
</table>

**SPECIAL LECTURE**

George A. Bartholomew Lecture: Dr. Eric Riddell

**Organismal physiology as a lens into the fundamental niche and beyond**

*Sponsored by Sable Systems International*

7:30 PM – 8:30 PM | Lonestar Ballroom

**SYMPOSIUM ORAL PRESENTATIONS**

S1: Genomics of Marine Larval Evolution and Development

8:00 AM – 3:30 PM | Lonestar C

S2: Neuroethology in the Age of Gene Editing: New Tools and Novel Insights Into the Molecular and Neural Basis of Behavior

8:00 AM – 3:30 PM | Lonestar E

S3: Sexual Diversity and Variation

8:00 AM – 3:30 PM | Lonestar D

**CONTRIBUTED PAPER ORAL PRESENTATIONS**

**MORNING**

Evolution of Behavior I

8:00 AM – 9:15 AM | Rooms 408-409

Movement, Migration and Dispersal I: Individual Strategies and Human Impacts

8:00 AM – 9:45 AM | Rooms 402-403

Cell and Molecular Physiology

8:00 AM – 9:45 AM | Rooms 303-304

DEDE Best Student Presentation

8:00 AM – 10:00 AM | Rooms 301-302

DEE Best Student Presentation: Ray Huey Award

8:00 AM – 10:00 AM | Rooms 203-204

Heads or Tails: Control Surfaces in Aquatic Locomotion

8:00 AM – 10:00 AM | Rooms 201-202

Reproduction and Community Ecology

8:00 AM – 10:00 AM | Lonestar H

Skins Have It: Scales and Denticles

8:00 AM – 10:00 AM | Lonestar G

Terrestrial Locomotion I: Terrestrial Ectotherms

8:00 AM – 10:00 AM | Lonestar B

Communication I: Context Dependent Signals

8:30 AM – 10:00 AM | Lonestar F

Special session: What Amphibians Have Taught Us About Organism-Focused Evolutionary Biology

9:00 AM – 12:00 PM | Lonestar A

Coral Stress: Responses and Resilience

10:15 AM – 12:00 PM | Rooms 402-403

DCE Best Student Presentation - Gorbman Award

10:15 AM – 12:00 PM | Rooms 203-204

Evolution of Behavior II

10:15 AM – 11:45 AM | Rooms 408-409

Muscle and Tendon Morphology, Actuation and Mechanics I

10:15 AM – 12:00 PM | Lonestar B

Sexual Selection

10:15 AM – 11:30 AM | Lonestar F

Communication II: Masked Signals and Mimicry

10:30 AM – 12:00 PM | Rooms 201-202

Evolutionary Genomics

10:30 AM – 11:45 AM | Lonestar H

Reproductive Physiology

10:30 AM – 12:00 PM | Rooms 303-304

Skins Have It: Armor, Beaks and Bumps

10:30 AM – 12:00 PM | Lonestar G

Global Change Biology I: Climate Change Vulnerability

10:45 AM – 12:00 PM | Rooms 301-302

**AFTERNOON**

DCPB Best Student Presentations

1:30 PM – 3:45 PM | Rooms 203-204

Eco-immunity and Disease Ecology

1:30 PM – 3:15 PM | Rooms 402-403

DIZ Best Student Presentation: Mary Rice Award

1:30 PM – 3:30 PM | Lonestar H
<table>
<thead>
<tr>
<th>Event</th>
<th>Time</th>
<th>Location</th>
</tr>
</thead>
<tbody>
<tr>
<td>DPCB Best Student Presentation: David &amp; Marvalee Wake Award</td>
<td>1:30 PM – 3:30 PM</td>
<td>Lonestar A</td>
</tr>
<tr>
<td>Ecophysiology: A Focus on Temperature</td>
<td>1:30 PM – 3:30 PM</td>
<td>Rooms 301-302</td>
</tr>
<tr>
<td>Feeding and Swallowing Anatomy and Mechanics I</td>
<td>1:30 PM – 3:30 PM</td>
<td>Rooms 303-304</td>
</tr>
<tr>
<td>Flying &amp; Landing I</td>
<td>1:30 PM – 3:30 PM</td>
<td>Rooms 201-202</td>
</tr>
<tr>
<td>Form &amp; Function of Anatomical Novelties</td>
<td>1:30 PM – 3:30 PM</td>
<td>Lonestar G</td>
</tr>
<tr>
<td>Muscle and Tendon Morphology, Actuation and Mechanics II</td>
<td>1:30 PM – 3:30 PM</td>
<td>Lonestar B</td>
</tr>
<tr>
<td>Comparative Endocrinology</td>
<td>1:30 PM – 3:45 PM</td>
<td>Lonestar F</td>
</tr>
<tr>
<td>Predator/Prey Interactions</td>
<td>1:45 PM – 3:30 PM</td>
<td>Rooms 408-409</td>
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**COMMITTEE AND BOARD MEETINGS**

<table>
<thead>
<tr>
<th>Event</th>
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<th>Location</th>
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<tbody>
<tr>
<td>PAC - Student Journalist Meeting</td>
<td>7:00 AM – 8:00 AM</td>
<td>Room 401</td>
</tr>
<tr>
<td>Development Committee</td>
<td>12:00 PM – 1:00 PM</td>
<td>Room 404</td>
</tr>
<tr>
<td>Division Chairs, President/President Elect Meeting</td>
<td>12:00 PM – 1:30 PM</td>
<td>Room 407</td>
</tr>
<tr>
<td>ICB Editorial Board</td>
<td>12:00 PM – 1:00 PM</td>
<td>Room 406</td>
</tr>
<tr>
<td>TCS Board Meeting</td>
<td>8:00 PM – 10:00 PM</td>
<td>Room 407</td>
</tr>
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**BUSINESS MEETINGS**

<table>
<thead>
<tr>
<th>Event</th>
<th>Time</th>
<th>Location</th>
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</thead>
<tbody>
<tr>
<td>DAB Member Meeting</td>
<td>5:45 PM – 6:45 PM</td>
<td>Lonestar A</td>
</tr>
<tr>
<td>DCPB Member Meeting</td>
<td>5:45 PM – 6:45 PM</td>
<td>Lonestar B</td>
</tr>
<tr>
<td>DEDB Member Meeting</td>
<td>5:45 PM – 6:45 PM</td>
<td>Lonestar C</td>
</tr>
<tr>
<td>DEDE Member Meeting</td>
<td>5:45 PM – 6:45 PM</td>
<td>Lonestar F</td>
</tr>
<tr>
<td>DEE Member Meeting</td>
<td>5:45 PM – 6:45 PM</td>
<td>Lonestar G</td>
</tr>
<tr>
<td>DOB Member Meeting</td>
<td>5:45 PM – 6:45 PM</td>
<td>Lonestar H</td>
</tr>
<tr>
<td>DVM Member Meeting</td>
<td>5:45 PM – 6:45 PM</td>
<td>Rooms 301-302</td>
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</table>

**WORKSHOPS AND PROGRAMS**

<table>
<thead>
<tr>
<th>Event</th>
<th>Time</th>
<th>Location</th>
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<tbody>
<tr>
<td>Scientists Crossing: Getting involved in cross-disciplinary research</td>
<td>12:00 PM – 1:30 PM</td>
<td>Room 401</td>
</tr>
<tr>
<td>Faculty Launch Workshop</td>
<td>12:00 PM – 1:30 PM</td>
<td>Lonestar B</td>
</tr>
<tr>
<td>Mentorship and sponsorship: how to curate your support team and guide your successful career</td>
<td>12:00 PM – 1:30 PM</td>
<td>Lonestar A</td>
</tr>
<tr>
<td>NSF Program Officers: What's New in BIO and Q&amp;A session</td>
<td>12:00 PM – 1:30 PM</td>
<td>Lonestar D</td>
</tr>
</tbody>
</table>

**SOCIAL EVENTS**

<table>
<thead>
<tr>
<th>Event</th>
<th>Time</th>
<th>Location</th>
</tr>
</thead>
<tbody>
<tr>
<td>Morning 5K Run</td>
<td>6:00 AM – 7:00 AM</td>
<td>JW Marriott Lobby</td>
</tr>
<tr>
<td>DCPB/DEDE/BART Social</td>
<td>8:30 PM – 10:00 PM</td>
<td>Griffin Hall</td>
</tr>
</tbody>
</table>
Wednesday 4 January 2023

Wednesday Program Symposia

Note: Presenter is first author unless noted by an asterisk (*).

8:00 AM – 3:30 PM  

**St: Genomics of Marine Larval Evolution and Development**  
**Chairs:** Christina Zakas, Chema Martin

<table>
<thead>
<tr>
<th>Time</th>
<th>Presenter(s)</th>
<th>Topic</th>
</tr>
</thead>
<tbody>
<tr>
<td>8:00 am</td>
<td><strong>Elizabeth Williams, Kei Jokura, Gaspar Jekely</strong></td>
<td>Environment-neuroendocrine interactions regulating larval settlement in the marine worm Platynereis</td>
</tr>
<tr>
<td>8:30 am</td>
<td><strong>Allison Edgar, Dorothy Mitchell, Joseph Ryan, Mark Martindale</strong></td>
<td>The gene regulatory basis for an evolutionary loss of regeneration in ctenophores</td>
</tr>
<tr>
<td>9:00 am</td>
<td><strong>Catriona Munro, Maciej Manko</strong></td>
<td>Siphonophore genomics, larval development and evolution</td>
</tr>
<tr>
<td>9:30 am</td>
<td><strong>Coffee Break</strong></td>
<td><strong>Grand Ballroom</strong></td>
</tr>
<tr>
<td>10:00 am</td>
<td><strong>Alberto Stolfi, Billie Swalla, Sydney Popsuj</strong></td>
<td>Evolution of swimming behavior (or lack thereof) in tunicate larvae</td>
</tr>
<tr>
<td>10:30 am</td>
<td><strong>Carrie Albertin</strong></td>
<td>How to make a cephalopod: insights from the genome</td>
</tr>
<tr>
<td>11:00 am</td>
<td><strong>Paul Bump, Blair Benham-Pyle, Carolyn Brewster, Lauren Lubeck, Catherine Rogers, Alejandro Sánchez-Alvarado, Christopher Lowe</strong></td>
<td>Building larvae and adults cell by cell: insights from the hemichordate Schizocardium californicum</td>
</tr>
<tr>
<td>11:30 am</td>
<td><strong>Adam Reitzel, Sarah Estvander, Amy Klock</strong></td>
<td>Genomic regions contributing to temperature response in an estuarine cnidarian</td>
</tr>
<tr>
<td>12:00 pm</td>
<td><strong>Lunch</strong></td>
<td></td>
</tr>
<tr>
<td>1:30 pm</td>
<td><strong>Rannyele Passos-Ribeiro, Jamie MacKinnon, B. Duygu Ozpolat</strong></td>
<td>Comparative transcriptomics reveals sex-specific differences in Platynereis dumerilii</td>
</tr>
<tr>
<td>2:00 pm</td>
<td><strong>Rebecca Varney</strong></td>
<td>A checklist for reproducible publication of genomic data from non-model taxa</td>
</tr>
<tr>
<td>2:30 pm</td>
<td><strong>Tim Wollesen</strong></td>
<td>On cells giving rise to shells and spicules in spiralians</td>
</tr>
</tbody>
</table>

8:00 AM – 3:30 PM  

**S2: Neuroethology in the Age of Gene Editing: New Tools and Novel Insights Into the Molecular and Neural Basis of Behavior**  
**Chairs:** Beau Alward, Scott Juntti

<table>
<thead>
<tr>
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<th>Topic</th>
</tr>
</thead>
<tbody>
<tr>
<td>8:00 am</td>
<td><strong>Beau Alward</strong></td>
<td>Genetic dissection of the hormonal control of social status in a cichlid fish</td>
</tr>
<tr>
<td>8:30 am</td>
<td><strong>Devanand Manoli, Ruchira Sharma, Kristen Berendzen, Amanda Everitt, Kimberly Long, Nerissa Hoglen, Michael Sherman, Arthur Willsey</strong></td>
<td>Dissecting the neural basis of social attachment</td>
</tr>
<tr>
<td>9:00 am</td>
<td><strong>Johanna Kowalko</strong></td>
<td>Genetic underpinnings of behavioral evolution in the blind Mexican cavefish</td>
</tr>
<tr>
<td>9:30 am</td>
<td><strong>Coffee Break</strong></td>
<td><strong>Grand Ballroom</strong></td>
</tr>
<tr>
<td>10:00 am</td>
<td><strong>Kristin Tessmar-Raible</strong></td>
<td>Timing physiology and behavior by moon and sun: molecular insight from the annelid Platynereis</td>
</tr>
<tr>
<td>10:30 am</td>
<td><strong>Waring Trible</strong></td>
<td>A socially parasitic ant lineage originated within the colony of its free-living parent</td>
</tr>
<tr>
<td>11:00 am</td>
<td><strong>Douglas Menke</strong></td>
<td>Anolis Lizards for Studies of Gene Function in Evolution and Development</td>
</tr>
<tr>
<td>11:30 am</td>
<td><strong>In Hae Lee, Anthony Lee, Laura Duwell</strong></td>
<td>Seasonal regulation of reproductive physiology and behavior in Aedes albopictus mosquitoes</td>
</tr>
<tr>
<td>12:00 pm</td>
<td><strong>Lunch</strong></td>
<td></td>
</tr>
</tbody>
</table>
Wednesday 4 January 2023

1:30 pm  Jason Rasgon  
CRISPR in non-model organisms through ReMOT Control

2:00 pm  Tessa Montague, Daniella Garcia-Rosales, Connor Gibbons, Thomas Barlow, Adriana Nemes, Mycah Simmons, Erica Shook, Larry Abbott, Richard Axel  
The neural basis of cuttlefish camouflage

2:30 pm  Scott Juntti  
Insights into female reproductive behaviors from CRISPR-edited and transgenic cichlids

8:00 AM – 3:30 PM  Lonestar D

S3. Sexual Diversity and Variation  
Chairs: TBD

8:00 am  Sam Sharpe, Kelsey Lewis*  
Sex, Science, and Society

8:30 am  Alexandra Kralick  
Skeletal Variation in Adult Orangutans (Pongo sp.) Defies Expectations of Sexual Dimorphism

9:00 am  Idelle Cooper  
Sexual dimorphism beyond sexual selection: evolution of body and wing color in two damselfly systems

9:30 am  Coffee Break  
Grand Ballroom

10:00 am  Andrew Anderson, Suzy Renn  
A proposed hypothesis for predicting regulation of sex-biased traits using evolutionary history

10:30 am  Sara Lipshutz, Jess McLaughlin, Kinsey Brock  
Multimodal models of animal sex: breaking binaries to better understand reproductive behaviors

11:00 am  Tim James  
Sex without sexes: understanding the evolution of mating systems in fungi

11:30 am  Chris Martine, Jason Cantley, Melody Sain, Tanisha Williams, Angela McDonnell, Ingrid Jordan-Thaden, Gregory Anderson  
Fluidity and inconstancy: Australian bush tomatoes (Solanum) as an exemplar of non-normative sex expression in plants (and across life)

12:00 pm  Lunch

1:30 pm  Banu Subramaniam  
Linnaean libertines: the queer possibilities of plants

2:00 pm  Hans Lindahl  
Sex diversity: from medicalization to affirmation

2:30 pm  Alicia Roth-Weigel  
Putting the ‘I’ in LGBTQIA+: law and policy implications

3:00 pm  Kelsey Lewis, Sam Sharpe  
Roundtable discussion: sexual diversity and variation

Wednesday Program Morning Sessions

Note: Presenter is first author unless noted by an asterisk (*).

8:00 AM – 9:15 AM  Rooms 408-409

Evolution of Behavior I  
Chair: Carlos Rodriguez-Saltos

8:00 am  Eric Arredondo, Alison Bell, Tina Barbasch, Chad Brock, Alexis Heckley  
Quantifying territorial aggression among three-spined male stickleback in the wild

8:15 am  Liz Aguilar, Elizabeth George, Sarah Wolf, Mary Woodruff, Aaron Buechlein, Doug Rusch, Kimberly Rosvall  
Tracing inter-individual variation in behavior and neural gene expression of aggressive female birds

8:30 am  Nadje Najar, Alan Breelsford, Christopher Clark, Brian Myers, David Rankin  
Admixture mapping reveals genomic underpinnings of behavioral courtship displays in hummingbirds

8:45 am  Carlos Rodriguez-Saltos, Fernanda Duque, Kathleen Lynch  
Transcriptomic correlates of brood-parasitism in cowbirds

9:00 am  Amber Rice, Joan Marie Spinelli, Austin Russell, Noel Martinez, Alex Huynh, Scott Taylor, Timothy Roth  
Impacts of hybridization on cognition in wild-caught and captive-reared chickadees
### Movement, Migration and Dispersal I: Individual Strategies and Human Impacts  
**Chair:** Jay Jinsing Falk  

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<thead>
<tr>
<th>Time</th>
<th>Speaker(s)</th>
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<tbody>
<tr>
<td>8:00 am</td>
<td>Cassie Shriver, Dylan Scott, Isha Palakurthy, Grace Hansen, Steve Place, David Hu, Andrew Schulz</td>
<td>Creating Interdisciplinary Conservation Tools: A Case Study on Vaccinating Urban Wildlife</td>
</tr>
<tr>
<td>8:15 am</td>
<td>Layne Sermersheim, Richard Thompson, Erin Lewis, Susannah French</td>
<td>Effects of roadway disturbances on Side-blotched lizard (<em>Uta stansburiana</em>) behavior and morphology</td>
</tr>
<tr>
<td>8:30 am</td>
<td>Jay Falk, Alejandro Rico-Guevara</td>
<td>The daily life of a hummingbird: Developing a movement ecology of the tiniest birds</td>
</tr>
<tr>
<td>8:45 am</td>
<td>Ian Bentley</td>
<td>Tracking and Counting Bats Across the United States using Neural Networks</td>
</tr>
<tr>
<td>9:00 am</td>
<td>Cassidy Waldrep, Paul Schaeffer, Adam Parlin, Ann Rypstra</td>
<td>Repeatability of biologging data from turtles suggests a new methodology for assessing personality</td>
</tr>
<tr>
<td>9:15 am</td>
<td>Loubna Baroudi, Alex Shorter, Stephen Cain, Kira Barton, Mark Newman</td>
<td>The economy of walking in the real world.</td>
</tr>
<tr>
<td>9:30 am</td>
<td>Ryan Hanscom, Jessica Hill, Tyler Marbach, Charlotte Patterson, Jeet Sukumaran, Timothy Higham, Rulon Clark</td>
<td>Using accelerometry to hop into the behavioral classification of a small nocturnal mammal</td>
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### Cell and Molecular Physiology  
**Chair:** Jessica A. Goodheart  

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<thead>
<tr>
<th>Time</th>
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<tbody>
<tr>
<td>8:00 am</td>
<td>Dimitri Theuerkauff, Rémy Agniel, Claire Varlet, Nine Doutrelaux, Michel Marengo, Cédric Picot</td>
<td>Senescence in crustaceans: a new insight from the spiny lobster <em>Palinurus elephas</em></td>
</tr>
<tr>
<td>8:15 am</td>
<td>Ricky Wright</td>
<td>RNA editing in response to ocean acidification in <em>Octopus rubescens</em></td>
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<tr>
<td>8:30 am</td>
<td>Carly Kenkel, Rachel Wright</td>
<td>Can gene expression studies inform coral reef conservation and restoration?</td>
</tr>
<tr>
<td>8:45 am</td>
<td>Mihika Kozma, Jorge Pérez-Moreno, Neha Gandhi, Luisanna Hernandez-Jeppesen, Tomer Ventura, Donald Mykles</td>
<td>The hunt for MiH Receptor: a quest to find missing pieces of the crustacean molt inhibition puzzle</td>
</tr>
<tr>
<td>9:00 am</td>
<td>Lauren Vandepas, Reed Boohar, Giles Goetz, Nikki Taylor-Knowles, Frederick Goetz, Adam Lacy-Hulbert, William Browne</td>
<td>Immune cell phenotype to genotype: cell behaviors and transcriptomics across diverse metazoans</td>
</tr>
<tr>
<td>9:15 am</td>
<td>David Ensminger, Nicholas Wheeler, Reem Al-Makki, Kristen Eads, Noah Ashley</td>
<td>Contrasting effects of sleep disruption and Ang-I treatment upon pro-inflammatory responses in mice</td>
</tr>
<tr>
<td>9:30 am</td>
<td>Jessica Goodheart, Abegail Bigasin, Rose Fiorenza, Deirdre Lyons</td>
<td>Identifying putative nematocyst sequestration genes in the nudibranch <em>Berghia stephanieae</em></td>
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### DEDE Best Student Presentation  
**Chairs:** James Adelman, Daniel Becker  

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<thead>
<tr>
<th>Time</th>
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<tbody>
<tr>
<td>8:00 am</td>
<td>Marissa Langager, Dana Hawley</td>
<td>Sociality as a potential form of behavioral tolerance in <em>Mycoplasma gallisepticum</em>-infected songbirds</td>
</tr>
<tr>
<td>8:15 am</td>
<td>Mary Campbell, Bryon Tuthill, Isabela Velasquez-Gutierrez, Eve Mluisch, Jessica Hua</td>
<td>Costs of pesticide tolerance influence the effect of habitat structure on amphibian disease outcomes</td>
</tr>
<tr>
<td>8:30 am</td>
<td>David Adams, Michael Deutsch, Lorin Neuman-Lee, Matthew Gifford</td>
<td>Consequences of Anthropogenic Fire Suppression for Lizard Immunity</td>
</tr>
<tr>
<td>8:45 am</td>
<td>Joe DeMarchi, Mark Wilber</td>
<td>Do Bd infected green frogs (<em>R. clamitans</em>) act as competent hosts?</td>
</tr>
<tr>
<td>9:00 am</td>
<td>Sydney Horan, Elizabeth Cochrane, Gabrielle Solomon, Ashley Love, Alyssa McGurer, Kunzike Kunzika, Sarah Knutte</td>
<td>Beating the heat: Mechanisms mediating effects of temperature on host resistance to parasitism</td>
</tr>
<tr>
<td>9:15 am</td>
<td>Katie Taibott, Elen Keterson</td>
<td>Investigating the roles of tolerance, resistance in functional responses to <em>Plasmodium</em> inoculation</td>
</tr>
</tbody>
</table>
Wednesday 4 January 2023

9:30 am  Grace Westphal, Tara Stewart-Merrill
Partitioning variance in immune traits in a zooplankton host – fungal parasite system

9:45 am  Isabella Changsut, Haley Womack, Alicia Schickle, Koty Sharp, Lauren Fuess
A comparison of constitutive and induced immune response in coral of variable symbiont densities

8:00 AM – 10:00 AM  

DEE Best Student Presentation: Ray Huey Award
Chair: Frances Bonier

8:00 am  Guillermo Garcia-Costoya, Karla Alujevic, Akhila Gopal, Michael Logan
Predicting ectotherm responses to climate change by quantifying shifts in thermal landscapes

8:15 am  Julia Kendrick, Frances Bonier
Beetlejuice: Anal secretions as a competitive strategy in the burying beetle, Nicrophorus orbicollis

8:30 am  Emily Lau, Nicholas Hensley, Arnab Mukherjee, Todd Oakley
Functional testing of luciferases in ostracods challenge the ortholog conjecture

8:45 am  Korin Jones, Myra Hughey, Lisa Belden
Bacterial colonization order on treefrog embryos impacts tadpole microbiome structure in tadpoles.

9:00 am  Wayne Wang, Alex Gunderson
A multi-level analysis of correlated divergence in sperm and adult thermal tolerance in lizards

9:15 am  Stephanie Bristow, Samantha Skerlec, Krista Ward, Thomas Luhring
Limits of phenotypic plasticity and implications for collateral effects on fitness

9:30 am  Eloise Hunt, Ryan Felce, Joseph Tobias, Anjali Goswami
Ecological and Life History Drivers of Avian Skull Evolution

9:45 am  Jess Sterling, Justin Havird
The Forming of a New Kingdom: Primary Microbial Succession in Anchialine Ecosystems

8:00 AM – 10:00 AM  

Heads or Tails: Control Surfaces in Aquatic Locomotion
Chair: Frank Fish

8:00 am  Andrew Kovac, Henry Astley, Colleen Unsworth, Matthew Turchick, Sarah Mcinerney
The Effects of Crocodilian Tail Serrations on Water Surface Disturbance

8:15 am  Frank Fish, Caitlyn Swiston, Scott Moon, Allison Kolpas, Megan Leftwich
Taking a new heading: the sea lion head as a control surface

8:30 am  Ming Gong, Eric Tytell, Yordano Jimenez
Dorsal and ventral asymmetries in tail motion during vertical maneuvering in largemouth bass

8:45 am  Andrew Clark, Eric Tytell
All turn3D around: a 3-dimensional analysis of turning in bluegill sunfish

9:00 am  Alissa Ganley, Ian Bartol
Turning abilities of Sepia officinalis and Sepia bandensis hatchlings

9:15 am  Olivia Hawkins, Duncan Kennedy, Megan Vandenberg, Richard Hoover, Collie Crawford, Todd Clardy, Emily Kane, Cassandra Donatelli
To eel or not to eel: functional diversity of control surfaces in elongate fishes

9:30 am  Zachary Quigley, Jonathan Huie, R. Pyron, Sandy Kawano
Kinematic variation in ecologically diverse Desmognathus salamanders during terrestrial locomotion.

9:45 am  Tai Perevolotsky, Jacob Brozman-Krass, Adam Summers, Matthew Kolmann, Cassandra Donatelli, Roi Holzman
A snap to the left, a swing to the right - head and body shape affect biting kinematics in fishes

8:00 AM – 10:00 AM  Lonestar H

Reproduction and Community Ecology
Chair: Jonathan Allen

8:00 am  Jonathan Allen
Cloning, polyembryony and asexual reproduction in echinoderms

8:15 am  Katherine Karkosiak, Hunter King, Ravi Schwartz, Todd Blackledge
Do spider egg sacs prevent water vapor loss?
Wednesday 4 January 2023

8:30 am  Jessica Zehnpfennig, Matthew Graham, Andrew Mahon  Are you my mother? Investigating reproductive patterns within Pycnogonida (sea spiders)

8:45 am  Zachary Lane, M. Zachary Darnell  Energetic costs, thermal benefits, and variations in structure of fiddler crab mating burrows

9:00 am  Dimitri Theuerkauff, Nine Doutreloux, Michela Patrissi, Michel Marengo  Reproductive biology of a spiny lobster: variations after more than forty years under pressure

9:15 am  Peter Edmunds, Chris Perry  Decadal-scale variation in coral calcification on coral-depleted Caribbean reefs

9:30 am  Sam Miess, Andy Dzialowski  Assessing mass effect and ecological drivers in Oklahoma macroinvertebrate metacommunities

9:45 am  Christopher Wells, Joseph Benz, Kaitlyn Tonra, Emily Anderson, Howard Lasker  Grazers mediate the post-settlement bottleneck in Caribbean octocoral forests

8:00 AM – 10:00 AM

Skins Have It: Scales and Denticles

Chairs: Molly Gabler-Smith, Diego Francisco Biston Vaz

8:00 am  Dylan Wainwright  Studying scale-space: an exploration of fish scales across species

8:15 am  Diego Vaz, Tess Avery, Molly Gabler-Smith, George Lauder  Denticle Multiverse 1: Morphological Madness of Placoid Scales in the Portuguese Dogfish

8:30 am  Tess Avery, Diego Vaz, Molly Gabler-Smith, George Lauder  Denticle Multiverse 2: 3D imaging and analysis of dermal denticles on the Portuguese Dogfish

8:45 am  Molly Gabler-Smith, Tess Avery, George Lauder  Denticle Multiverse 3: quantifying variation in denticle morphology through leopard shark ontogeny

9:00 am  Sean Trainor, Kory Evans  Scale shape vs trophic position: testing the functional relationship in an assemblage of reef fishes

9:15 am  Finn Mander, Karly Cohen, Matthew Kolmann, Adam Summers, Lauren Simonits  An assessment of the anti-fouling properties of Pacific spiny dogfish (Squalus suckleyi) denticles

9:30 am  Amani Webber-Schultz, Kayla Hall, Ayi Ajavon, Adam Summers, Brooke Flammang, Lauren Simonits  Who nose what flows: dermal denticle morphology and narial flow

9:45 am  Daniel Doucet, Juan Daza  The neglected system of squamate reptiles provides clues to higher relationships of Lepidosaurians

8:00 AM – 10:00 AM

Terrestrial Locomotion I: Terrestrial Ectotherms

Chairs: Robert Cieri, Jessica Tingle

8:00 am  Henry Cerbone, Michelle Yuen, Perrin Schiebel  Biorobotic study of how basilisk lizard feet mediate reaction forces while running

8:15 am  Robert Cieri  Locomotor joint moments in Varanid lizards and the scaling of locomotion in sprawling tetrapods

8:30 am  Peter Bishop, Stephanie Pierce  Limb performance and versatility across the synapsid sprawling-to-erect postural transition

8:45 am  Charles Edwards, Jacob Newell, Henry Astley  Lateral head rotation decreases penetration force of a robophysical model in damp granular media

9:00 am  Eric McElroy, Joseph Bazzle  Changes in limb function with fatigue in a running lizard

9:15 am  Robert Brocklehurst, Magdalen Mercado, Stephanie Pierce  Adaptive landscapes reveal complex evolution of forelimb posture in stem mammals (Synapsida)

9:30 am  Jessica Tingle, Derek Jurestovsky, Henry Astley  The relative contributions of multarticular snake muscles to movement in different planes

9:45 am  David Baier, Morgan Turner, Erin Trammell, Intavha Singharaj, Rudich Sasha, Ryan Carney  XROMM analysis of the distal forelimb of Alligator mississippiensis during the high walk
### Wednesday 4 January 2023

#### 8:30 AM – 10:00 AM
**Lonestar F**

**Communication I: Context Dependent Signals**
*Chairs: Ayala Berger, Julie Rej*

<table>
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<tr>
<th>Time</th>
<th>Speakers</th>
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<tbody>
<tr>
<td>8:30 am</td>
<td>Nicholai Hensley, Todd Oakley</td>
<td>Rules for emergent synchrony during bioluminescent behavior of sea fireflies</td>
</tr>
<tr>
<td>8:45 am</td>
<td>Nicole Moody, Matthew Funjeger</td>
<td>Network analysis reveals context dependent variability in woodpecker territorial strategy</td>
</tr>
<tr>
<td>9:00 am</td>
<td>Ayala Berger, Polly Campbell, Christopher Clark</td>
<td>An Apparent Match in Signal Form in two Acoustic Courtship Displays in Calypte Hummingbirds</td>
</tr>
<tr>
<td>9:15 am</td>
<td>Mariana Rodriguez-Santiago, Esteban Russi, Maite Sánchez, Erik Zornik, Paula Pouso, Kim Hoke</td>
<td>Variability in the vocal repertoire of a South American treefrog</td>
</tr>
<tr>
<td>9:30 am</td>
<td>Julie Rej, Alex Gunderson</td>
<td>High temperatures lead an invasive lizard to exhibit increased aggression towards native competitor</td>
</tr>
<tr>
<td>9:45 am</td>
<td>Luke Larter, Michael Ryan</td>
<td>Call elaboration may insure calls against unflattering overlap in túngara frog choruses</td>
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#### 9:00 AM – 12:00 PM
**Lonestar A**

**Special session: What Amphibians Have Taught Us About Organism-Focused Evolutionary Biology**
*Chair: David C. Blackburn*

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<tr>
<td>9:00 am</td>
<td>Corinne Richards-Zawacki, Yusan Yang, Kimberly Howell, Layla Freeborn, Marco Gonzalez-Santoro, Justin Yeager, Matthew Dugas, Mana Servedio</td>
<td>Lessons in evolution and speciation learned from a polymorphic poison frog, Oophaga pumilio</td>
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<tr>
<td>9:15 am</td>
<td>Michael Ryan</td>
<td>Mate choice in túngara frogs: an analysis of brain, behavior, and evolution</td>
</tr>
<tr>
<td>9:30 am</td>
<td>Kiisa Nishikawa</td>
<td>What amphibians have taught us about the evolution and neuromuscular control of ballistic movements.</td>
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<tr>
<td>9:45 am</td>
<td>Molly Womack</td>
<td>Evolutionary and developmental curiosities</td>
</tr>
<tr>
<td>10:00 am</td>
<td>Tushar Sharma, David Cannatella*</td>
<td>Breaking Dollo's Law? Evolution of developmental modes in Marsupial Frogs</td>
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<tr>
<td>10:15 am</td>
<td>Coffee Break</td>
<td>Grand Ballroom</td>
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<tr>
<td>10:45 am</td>
<td>James Hanken, Zachary Lewis, Ryan Kerney</td>
<td>Lost and found: Lung development in lungless salamanders</td>
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<tr>
<td>11:00 am</td>
<td>Daniel Paluh, James Hanken, Gareth Fraser</td>
<td>Probing for the developmental mechanisms underlying repeated tooth loss in frogs</td>
</tr>
<tr>
<td>11:15 am</td>
<td>David Blackburn, Rachel Keefle, Paulo Pinheiro</td>
<td>Hyperelongated finger evolution in the African squeakers, family Arthroleptidae</td>
</tr>
<tr>
<td>11:30 am</td>
<td>Elizabeth Jackusch, Christopher Evelyn</td>
<td>Evolutionary correlates of elongation in plethodontid salamanders</td>
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<tr>
<td>11:45 am</td>
<td>Nancy Staub, Stephen Hayes, Mary Mendonca</td>
<td>Androgen levels in species of the plethodontid genus Aneides.</td>
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#### 10:15 AM – 12:00 PM
**Rooms 402-403**

**Coral Stress: Responses and Resilience**
*Chair: Erin Nicole Shilling*

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<tr>
<td>10:15 am</td>
<td>Kristen Brown, Elizabeth Lenz, Benjamin Glass, Rayna McClintock, Craig Nelson, Hollie Putnam, Katie Barott</td>
<td>The acclimatization and sensitization of reef-building corals in response to repeat marine heatwaves</td>
</tr>
<tr>
<td>10:30 am</td>
<td>Carsten Grupstra, Kirstin Meyer-Kaiser, Matthew-James Bennett, Maikani Andres, Hannah Aichelman, James Fifer, Alexa Huzar, Annabel Hughes, Hanny Rivera, Sarah Davies</td>
<td>Adaptation to thermal stress in cryptic coral lineages from marginal habitats</td>
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<tr>
<td>10:45 am</td>
<td>Marie Strader</td>
<td>Legacy effects of marine heatwaves on reef-building corals</td>
</tr>
<tr>
<td>11:00 am</td>
<td>Nia Walker, Erik Hanson, Stephen Palumbi</td>
<td>Genetics of recovery in corals with differing heat resistance capacity</td>
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11:15 am Katie Barott, Kristen Brown, Matheus Mello-Athayde, Eugenia Sampayo, Aaron Chai, Sophie Dove
Environmental memory of extreme diel pCO2 variability promotes coral cellular acid-base homeostasis

11:30 am Dakota McCoy, Sonke Johnsen, Stephen Palumbi, Jennifer Dionne
The optics of runaway bleaching in corals (Scleractinia)

11:45 am Shayle Matsuda, Brian Glazer, Ty Roach, Robert Quinn, Spencer Miller, Crawford Drury, Craig Nelson
Does coral structural morphology influence within-colony microbial spatial heterogeneity?

10:15 AM – 12:00 PM
Rooms 203-204

DCE Best Student Presentation - Gorbman Award
Chairs: Rachel M. Bowden, Sara O'Brien

10:15 am Christopher Smaga, Samantha Bock, Matthew Hale, Benjamin Parrott
Environmental determinants and genetic pathways responsible for reproductive disorders in alligators

10:30 am Emily Harders, Ryan Paitz
Avian embryos concurrently metabolize and respond to yolk corticosterone

10:45 am Rebecca Evey, Matthew Savoca, John Ososky, Michael McGowen, Jeremy Goldbogen, Kathleen Hunt
Reconstructing Stress and Reproductive History of Critically Endangered Rice's Whales Using Baleen

11:00 am Kevin Pham, Madeline Choi, Haruka Wada
Nighttime light exposure decreases blood glucose levels independent of the adrenocortical response

11:15 am Emily Sperou, Dan Crocker, Dan Costa, Michael Goebel, Renato Borras-Chavez, Shane Kanatous, Stephen Trumble, Sarah Kienle, Douglas Krause
Hot off the stress: Leopard seals exhibit high levels of cortisol, driven by sex, diet, and mass

11:30 am Jeremy Starkey, David Delehanty, Melissa Rivas, Devaleena Pradhan
Testosterone and Estradiol are Tightly Linked Across Different Regions of the Avian Brain

11:45 am Jessica Karr, Jamie Cornelius
Metabolic and acute stress responses to abrupt cold acclimation in a nomadic songbird

10:15 AM – 11:45 AM
Rooms 408-409

Evolution of Behavior II
Chair: Todd Oakley

10:15 am Kelsey Garner, Cari Hickerson, Carl Anthony
Assessment of Repeatability and Behavioral Syndromes in Eastern Red-backed Salamanders

10:30 am Todd Oakley, Nicholai Hensley, Yogannanda Isukapalli
Waterborne Autonomous Low-Light Electrostereovideograpy to quantify luminous courtship signals

10:45 am Aaron Krochmal, Timothy Roth, Travis LaDuc, Brian Palmer, Josephine Cleverdon, Daniel Ardia, Aaron Place
Snake, Rattle, and (B)Roll: Animal responses to rattlesnake rattling revealed by field videography

11:00 am Dante Nesta, Cristina Ledón-Rettig
Ancestral plasticity in behavior and gene expression precedes the evolution of a larval polyphenism

11:15 am Melanie Kimball, Christine Lattin*
The "seven deadly sins" of neophobia experimental design

11:30 am Jesse Granger, Sonke Johnsen
Collective Navigation as a Solution to Noisy Navigation and Its Vulnerability to Population Loss

10:15 AM – 12:00 PM
Lonestar B

Muscle and Tendon Morphology, Actuation and Mechanics I
Chairs: David Labonte, Jim Usherwood

10:15 am Cas Jorissen, Sam Van-Wassenbergh
Force-frequency trade-offs in muscle-powered lever systems

10:30 am David Labonte
A dimensionless number for muscle dynamics

10:45 am Adrien Arias, Elizabeth Mendoza, Manny Azizi
Alligators use elastic energy storage in ankle extensors during steady state walking

11:00 am Dan Rivera, Madhusudhan Venkadesan
Crossbridge stiffnesses do not add in parallel
### Wednesday 4 January 2023

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<tr>
<td>11:15 am</td>
<td><strong>Amy Lagorio</strong>, <strong>Mara Fields</strong>, <strong>John Fortner</strong>, <strong>Eeden Mackereth</strong>,</td>
<td>New applications of 3D musculoskeletal modeling methods: a shared look inside the heads of Anolis</td>
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<td></td>
<td><strong>Christian Perez</strong>, <strong>Faye McGeachie</strong>, <strong>Alec Wilken</strong>, <strong>Manuel Leal</strong>,</td>
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<td></td>
<td><strong>Carol Ward</strong>, <strong>Kevin Middleton</strong>, <strong>Casey Holliday</strong></td>
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<tr>
<td>11:30 am</td>
<td><strong>Jim Usherwood</strong></td>
<td>Legs as linkages: thinking of isometric muscles and tendons as bicycle spokes</td>
</tr>
<tr>
<td>11:45 am</td>
<td><strong>Miles Valencia</strong>, <strong>Apolo Ibáñez-Rincon</strong>, <strong>Haleigh Hernandez</strong>,</td>
<td>Early-exercise effects on mice tendon mechanics</td>
</tr>
<tr>
<td></td>
<td><strong>Angela Horner</strong></td>
<td></td>
</tr>
</tbody>
</table>

#### 10:15 AM – 11:30 AM

<table>
<thead>
<tr>
<th>Time</th>
<th>Speaker(s)</th>
<th>Title</th>
</tr>
</thead>
<tbody>
<tr>
<td>10:15 am</td>
<td><strong>Zachary Emberts</strong>, <strong>Wei Song Hwang</strong>, <strong>John Wiens</strong></td>
<td>Weapon performance drives weapon evolution</td>
</tr>
<tr>
<td></td>
<td><strong>Pablo Delclos</strong>, <strong>Richard Meisel</strong></td>
<td>Regulation of an odorant binding protein by a proto-Y chromosome affects male house fly courtship</td>
</tr>
<tr>
<td>11:00 am</td>
<td><strong>Gabriella Sparkes</strong>, <strong>Jaime Heiniger</strong>, <strong>Nicholas Smith</strong>, <strong>Vincent Careau</strong>, <strong>Ami Fadhillian Amir-Abdul-Nasir</strong>, <strong>Skye Cameron</strong>, <strong>Robbie Wilson</strong></td>
<td>War and Sex in the Tropics: Performance trade-offs in the world’s largest semelparous mammal</td>
</tr>
<tr>
<td>11:15 am</td>
<td><strong>Fadeke Adeola</strong>, <strong>Simon Lailvaux</strong>, <strong>Michael Kasumovic</strong></td>
<td>Antennae removal affects calling effort and lifespan in adult male Teleogryllus commodus crickets</td>
</tr>
</tbody>
</table>

#### 10:30 AM – 12:00 PM

<table>
<thead>
<tr>
<th>Time</th>
<th>Speaker(s)</th>
<th>Title</th>
</tr>
</thead>
<tbody>
<tr>
<td>10:30 am</td>
<td><strong>Judith Smit</strong>, <strong>Andrew Cronin</strong>, <strong>Vera Thijssen</strong>, <strong>Wouter Halfwerk</strong></td>
<td>The effects of urbanization on male-male vocal interactions and mate choice</td>
</tr>
<tr>
<td></td>
<td><strong>Jain Pushpalatha-Krishnan</strong>, <strong>Manjari Jain</strong>, <strong>Richa Singh</strong></td>
<td>Sound perception in a field cricket (Acanthogryllus asiaticus) and the effect of traffic noise.</td>
</tr>
<tr>
<td>11:00 am</td>
<td><strong>Bennett Price</strong>, <strong>T. Erin Cox</strong>, <strong>Kelly Boyle</strong>, <strong>Amanda Kirkland</strong>, <strong>Dakota Brunetti</strong></td>
<td>Red Drum calling behavior interactions with vessel noise at Panama City beach, FL, U.S.A.</td>
</tr>
<tr>
<td>11:15 am</td>
<td><strong>Caleb Short</strong>, <strong>Paul Moore</strong></td>
<td>Degradation of signals in forested environments: changing habitats and songbird communication</td>
</tr>
<tr>
<td>11:30 am</td>
<td><strong>Tyler Buchinger</strong>, <strong>Ke Li</strong>, <strong>Ugo Bussy</strong>, <strong>Belinda Huerta</strong>, <strong>Sonam Tamrakar</strong>, <strong>Nicholas Johnson</strong>, <strong>Weiming Li</strong></td>
<td>Male lake char release taurocholic acid as part of a mimetic pheromone</td>
</tr>
<tr>
<td>11:45 am</td>
<td><strong>Ignacio Escalante</strong>, <strong>Jerald Kellner</strong>, <strong>Camille Desjonquères</strong>, <strong>Rafael Rodríguez</strong></td>
<td>The function of a female-mimic signal type in the vibrational repertoire of male treehoppers</td>
</tr>
</tbody>
</table>

#### 10:30 AM – 11:45 AM

<table>
<thead>
<tr>
<th>Time</th>
<th>Speaker(s)</th>
<th>Title</th>
</tr>
</thead>
<tbody>
<tr>
<td>10:30 am</td>
<td><strong>Michelle St.-John</strong>, <strong>Julia Dunker</strong>, <strong>Emilie Richards</strong>, <strong>Christopher Martin</strong></td>
<td>Parallel genetic changes underlie novel trophic specialization in an adaptive radiation of pupfishes</td>
</tr>
<tr>
<td>10:45 am</td>
<td><strong>Riley Kellermeyer</strong>, <strong>Rachel Moran</strong>, <strong>Luis Espinasa</strong>, <strong>Nicolas Rohner</strong></td>
<td>A natural hybridization experiment: eyed and eyeless Astyanax mexicanus reveal origins of eye loss</td>
</tr>
<tr>
<td>11:15 am</td>
<td><strong>Jorge Audino</strong>, <strong>Kyle McElroy</strong>, <strong>José Amoroso-Rodriguez-Marian</strong>, <strong>Jeanne Serb</strong></td>
<td>Uncovering opsin expression and diversity among bivalve visual systems</td>
</tr>
<tr>
<td>11:30 am</td>
<td><strong>Sofia Barreira</strong>, <strong>Andreas Baxevanis</strong></td>
<td>Deducing the Common Ancestor of the Nucleolar Transcription Factor and its Role in Regeneration</td>
</tr>
</tbody>
</table>
### Wednesday 4 January 2023

#### Reproductive Physiology
**Chair: Donald B. Miles**

<table>
<thead>
<tr>
<th>Time</th>
<th>Speaker(s)</th>
<th>Title</th>
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</thead>
<tbody>
<tr>
<td>10:30 am</td>
<td>Emma Timmins-Schiffman, Jennifer Telish, Chris Monson, Chelsea Field, José Guzmán, Kristy Forsgren, Graham Young</td>
<td>Proteome analysis of coho salmon ovaries reveals the breadth of physiological changes during puberty</td>
</tr>
<tr>
<td>10:45 am</td>
<td>Beth Roberts, Mark Sandfoss, Matteo Oliveri, Melanie Richter, Tonia Schwartz, Alexis Lindsey, Jessica Cantrell, Steve Reichling</td>
<td>Achieving multi-paternity clutches: Developing AI in the endangered Louisiana pinesnake</td>
</tr>
<tr>
<td>11:00 am</td>
<td>Michael Lough-Stevens, Caleb Ghione, Matthew Dean</td>
<td>Gestational investment and pseudopregnancy are evolutionarily correlated</td>
</tr>
<tr>
<td>11:15 am</td>
<td>Donald Miles, Pau Carazo, Martin Whiting</td>
<td>Brain size evolution is shaped by reproductive mode and thermal biology</td>
</tr>
<tr>
<td>11:30 am</td>
<td>Rysa Thomas, Lauren Merlino, Deborah Lutterschmidt, M. Rockwell Parker</td>
<td>Sex- and life-history-dependent variation in stress hormone receptor expression in garter snakes</td>
</tr>
<tr>
<td>11:45 am</td>
<td>Anthony Breitenbach, Ryan Paitz, Rachel Bowden</td>
<td>The role of transient thermal cues in temperature-dependent sex determination</td>
</tr>
</tbody>
</table>

#### Skins Have it: Armor, Beaks and Bumps
**Chair: Khanh To**

<table>
<thead>
<tr>
<th>Time</th>
<th>Speaker(s)</th>
<th>Title</th>
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</thead>
<tbody>
<tr>
<td>10:30 am</td>
<td>Megan Vandenberg, John Michael Racy, Olivia Hawkins, Adam Summers, Cassandra Donatelli</td>
<td>Agonidae armor: an advantage or disadvantage?</td>
</tr>
<tr>
<td>10:45 am</td>
<td>Yutao Chen, Marianne Alleyne, Elizabeth Bello</td>
<td>Testing the anti-microbial property of cicada wings and wing surface replicates</td>
</tr>
<tr>
<td>11:00 am</td>
<td>Avalon Feiler, Matthew Kolmann, Cassandra Donatelli</td>
<td>Relating active and passive bending to armor overlap in the starsnout poacher(Bathyagonus alascanus)</td>
</tr>
<tr>
<td>11:15 am</td>
<td>Madeleine Hagood, Joseph Alexander, Marianne Porter</td>
<td>Exotendon or not? Mechanical anisotropic behavior of shark skin</td>
</tr>
<tr>
<td>11:30 am</td>
<td>Veronica Urgiles, Dylan Wainwright, Molly Womack</td>
<td>Warts and all: A comparative approach to understanding the evolution of amphibian skin</td>
</tr>
<tr>
<td>11:45 am</td>
<td>Khanh To, Michelle Stocker, Tobin Hieronymus</td>
<td>Is it that simple? Heterogeneous relative hardness of keratin in simple rhamphotheca in chickens</td>
</tr>
</tbody>
</table>

#### Global Change Biology I: Climate Change Vulnerability
**Chair: Amanda Wilson Carter**

<table>
<thead>
<tr>
<th>Time</th>
<th>Speaker(s)</th>
<th>Title</th>
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<tbody>
<tr>
<td>10:45 am</td>
<td>Amanda Carter, Kimberly Sheldon</td>
<td>Plasticity of dung beetle mothers rescues offspring survival under climate change conditions</td>
</tr>
<tr>
<td>11:00 am</td>
<td>Gavin Stark, Wei-guo Du, Zhi-Gao Zeng, Liang Ma, Ofir Levy*</td>
<td>Cool shade and not-so-cool shade: the importance of microclimate diversity in a changing world</td>
</tr>
<tr>
<td>11:15 am</td>
<td>Eric Riddell, Coton Poore</td>
<td>Conflicting patterns among indices of climate vulnerability between two species of bumble bees</td>
</tr>
<tr>
<td>11:30 am</td>
<td>Kentrell Richardson, Kamari Boyd, Megan Barlowe, Kelsey Reider</td>
<td>Understanding context dependent responses to climate change in Arizona Tiger Salamanders</td>
</tr>
<tr>
<td>11:45 am</td>
<td>Margaret Streeter, Nathalie Le-François, Thomas Desvigne, Jacob Grondin, John Postlethwait, H. William Detrich, Jacob Daane</td>
<td>Examining the impact of climate change at a critical life history stage using Antarctic fishes</td>
</tr>
</tbody>
</table>
### Wednesday Program Afternoon Sessions

Note: Presenter is first author unless noted by an asterisk (*).

#### 1:30 PM – 3:45 PM

**Rooms 203-204**

**DCPB Best Student Presentations**

*Chair: Michael Sears*

<table>
<thead>
<tr>
<th>Time</th>
<th>Presenters</th>
<th>Title</th>
</tr>
</thead>
<tbody>
<tr>
<td>1:30 pm</td>
<td>Aurora Alvarez-Buylla, Jonathan Long, Lauren O’Connell</td>
<td>Adapts to deadly diets: a poison frog plasma protein mediates alkaloid transport</td>
</tr>
<tr>
<td>1:45 pm</td>
<td>Joseph Mack, Alexandra Beli</td>
<td>Regenerative and non-regenerative annelids maintain their resting metabolic rate after amputation</td>
</tr>
<tr>
<td>2:00 pm</td>
<td>Emma M. Rhodes, Kang Nian Yap, Paulo H. C. Mesquita, Hailey Parry, Andreas Kavazis, Jesse Krause, Geoffrey Hill, Wendy Hood</td>
<td>Mitochondrial respiratory function varies between migratory and non-migratory White-crowned Sparrows</td>
</tr>
<tr>
<td>2:15 pm</td>
<td>Ana Lyons, Kevin Roberts, Kylie Cheng, Lily Shang, DeJenaé See, Caroline Williams</td>
<td>Mechanisms of cold tolerance in tardigrades (<em>Hypsibius exemplaris</em>)</td>
</tr>
<tr>
<td>2:30 pm</td>
<td>Patrick Brown, Abigail O’Hara, Jaime Gutierrez-Portillo, Elizabeth Walsh</td>
<td>Do colonial rotifers display allometric scaling of respiration with colony size?</td>
</tr>
<tr>
<td>2:45 pm</td>
<td>Ellen Keaveny, Mitch Helling, Franco Basile, James Strange, Jeffrey Lozier, Michael Dillon</td>
<td>Common garden reared bumble bees (<em>Bombus vosensenskii</em>) maintain constitutive differences in cellular</td>
</tr>
<tr>
<td>3:00 pm</td>
<td>Lindsey Daniel, Warren Burggren</td>
<td>Genetics and Environment Regulate Zebrafish Embryo Division Rates and Subsequent Survival</td>
</tr>
<tr>
<td>3:30 pm</td>
<td>Chi Huang, Ioana Murgulet, Wei Xu</td>
<td>Development of a novel human breast cancer xenograft model in zebrafish</td>
</tr>
</tbody>
</table>

#### 1:30 PM – 3:15 PM

**Rooms 402-403**

**Eco-immunity and Disease Ecology**

*Chair: Patricia C. Lopes*

<table>
<thead>
<tr>
<th>Time</th>
<th>Presenters</th>
<th>Title</th>
</tr>
</thead>
<tbody>
<tr>
<td>1:30 pm</td>
<td>Gabriel Hessler, Jason Davis</td>
<td>A dirty planet: the effects of anthracite on varying invertebrate gut biomes</td>
</tr>
<tr>
<td>1:45 pm</td>
<td>Erin Sauer, Chloe Connelly, Weston Perrine, Ashley Love, Sarah DuRant</td>
<td>Male-biased disease dynamics of <em>Mycoplasma gallisepticum</em></td>
</tr>
<tr>
<td>2:00 pm</td>
<td>Patricia C. Lopes</td>
<td>To be aware of danger before danger: the effects of disease risk on animal physiology</td>
</tr>
<tr>
<td>2:15 pm</td>
<td>David Elzinga, Charlotte Beckford, Christopher Strickland</td>
<td>A Mathematical Model of the Impacts of Climate Change on the Winter Tick Epizootic in Moose</td>
</tr>
<tr>
<td>2:30 pm</td>
<td>Kyra Ricci, Grascen Shidemantle, Jessica Hua</td>
<td>Communicating disease ecology through art: an empirical investigation</td>
</tr>
<tr>
<td>2:45 pm</td>
<td>Amanda Bryant, Caitlin Gabor</td>
<td>Are organic agricultural practices less stressful? How farming methods alter immune and GC responses</td>
</tr>
<tr>
<td>3:00 pm</td>
<td>David Rodriguez, Maria del Mar Moretta-Urdiales, Rebecca Brunner, Ryan Lynch, Juan Manuel Guayasamin-Ernest, Shawn McCracken</td>
<td>Leveraging portable instrumentation to inform host-pathogen dynamics in tropical amphibians in situ</td>
</tr>
</tbody>
</table>

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36  The Society for Integrative and Comparative Biology
Wednesday 4 January 2023

1:30 PM – 3:30 PM  Lonestar H

**DIZ Best Student Presentation: Mary Rice Award**  
Chair: Jonathan Allen

<table>
<thead>
<tr>
<th>Time</th>
<th>Presentation</th>
<th>Title</th>
</tr>
</thead>
<tbody>
<tr>
<td>1:30 pm</td>
<td>Caroline Fleming, Randi Rotjan, Justin McAlister, Grace Beery, Itasca Motter, Wendy Heiger-Bernays</td>
<td>Nutrient or pollutant? Disentangling the effects of nitrogen on urbanized corals in a changing ocean</td>
</tr>
<tr>
<td>1:45 pm</td>
<td>Brinton Vandegrift, Kit Yu Karen Chan</td>
<td>Ocean acidification but not GABA manipulations affect predator avoidance of larval sand dollars</td>
</tr>
<tr>
<td>2:00 pm</td>
<td>Samuel Bogan, Olivia Porat, Gretchen Hofmann</td>
<td>Thermal plasticity has higher fitness costs among thermally-tolerant genotypes</td>
</tr>
<tr>
<td>2:15 pm</td>
<td>Abigail Tarleton, Katie Statile, Andrea Frías-Vellón, Jason Macrander</td>
<td>Is ‘Reef Safe’ Sunscreen Really Safe?</td>
</tr>
<tr>
<td>2:30 pm</td>
<td>Danielle Kirsch, Barney Luttbeg</td>
<td>Does the timing of predation risk affect reproductive success across the lifetimes of snails?</td>
</tr>
<tr>
<td>2:45 pm</td>
<td>Emily Pierce, Markus Frederich</td>
<td>Squishy versus crunchy: physical characteristics affect invasive species detection using environment</td>
</tr>
<tr>
<td>3:00 pm</td>
<td>Bridget Vincent, Emily Lau, Srim Ramamurthy, Clara Bourguignon, Todd Oakley</td>
<td>Spotlight on cephalopods: How early evolutionary steps constrain photophore morphology</td>
</tr>
<tr>
<td>3:15 pm</td>
<td>William Ballentine, Kelly Dorgan, Allison Penko</td>
<td>Biostabilization of marine sands by microalgae and meiofauna</td>
</tr>
</tbody>
</table>

1:30 PM – 3:30 PM  Lonestar A

**DPCB Best Student Presentation: David & Marvalee Wake Award**  
Chairs: Ryan Felice, Leigha M. Lynch, Samantha A. Price

<table>
<thead>
<tr>
<th>Time</th>
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</thead>
<tbody>
<tr>
<td>1:30 pm</td>
<td>Liam Taylor, Richard Prum</td>
<td>There are no invariants in the phylogenetic natural history of avian delayed reproduction</td>
</tr>
<tr>
<td>1:45 pm</td>
<td>Emily Watt, Ryan Felice, Anjali Goswami</td>
<td>Use it or lose it: decreasing mandibular complexity through time in amphibians and stem tetrapods</td>
</tr>
<tr>
<td>2:00 pm</td>
<td>Katherine Starr, Emma Sherratt, Thomas Sanger</td>
<td>Evolutionary Patterns of Anolis Skull Shape Diversity</td>
</tr>
<tr>
<td>2:30 pm</td>
<td>Kendra Zwonitzer, Justin Havird</td>
<td>Causes of mtDNA mutations across Metazoa: Using substitution spectra to predict mutation mechanisms</td>
</tr>
<tr>
<td>2:45 pm</td>
<td>Julia S.-Parreiras, Tod Reeder, Edward Stanley, David Blackburn</td>
<td>Evolutionary processes and environmental pressures underlying skull diversity of New World toads</td>
</tr>
<tr>
<td>3:00 pm</td>
<td>Inbar Maayan, Dan Bock, Anthony Geneva, R. Graham Reynolds, Alyssa Vanerelli, Scott Edwards, Jonathan Losos</td>
<td>In situ diversification of a classic adaptive radiation: phylogenomics of Jamaican anoles</td>
</tr>
<tr>
<td>3:15 pm</td>
<td>Sneha Dharwadkar, Guinevere Wogan</td>
<td>Biogeography of genus Nilssonia in the Indian subcontinent: past inferences and future predictions</td>
</tr>
</tbody>
</table>

1:30 PM – 3:30 PM  Rooms 301-302

**Ecophysiology: A Focus on Temperature**  
Chair: James Moloney

<table>
<thead>
<tr>
<th>Time</th>
<th>Presentation</th>
<th>Title</th>
</tr>
</thead>
<tbody>
<tr>
<td>1:30 pm</td>
<td>Gabrielle Names, Lindsey Chiesl, Victoria Roper, Anuj Ghimire, Heather Mathewson, Jennifer Grindstaff, Britt Heidinger</td>
<td>Variation in house sparrow growth and aging across a latitudinal gradient</td>
</tr>
<tr>
<td>1:45 pm</td>
<td>Jeremy Cohen, Brooke Bodensteiner, Diego Ellis-Soto, Shubhi Sharma, Julia Barbosa, Jussi Makanen</td>
<td>Species distribution models are improved by incorporating thermal physiology</td>
</tr>
<tr>
<td>2:00 pm</td>
<td>Isabella Burger, Evin Carter, Eric Riddell</td>
<td>Assessing hybrid vigor based on the thermal sensitivity of physiological trade-offs in ambystomids</td>
</tr>
<tr>
<td>2:15 pm</td>
<td>James Moloney, Amy Iler, Elsa Godtfredsen</td>
<td>The Effect of Snowmelt Timing on Pollinator Visitation to Subalpine Wildflowers</td>
</tr>
<tr>
<td>2:30 pm</td>
<td>Morgan Muell, Kendall Jackson, Ansley Strength, Matt Harrington, Christian Cox, Daniel Warner</td>
<td>Geographic variation in thermal developmental plasticity in the green anole (Anolis carolinensis)</td>
</tr>
</tbody>
</table>
Wednesday 4 January 2023

2:45 pm  Alex Gunderson  Disentangling physiological and physical explanations for body-size dependent thermal tolerance
3:15 pm  Alex Hoffman, Haruka Wada  Developmental thermal stress and its effects on wound healing in adulthood in zebra finches

1:30 PM – 3:30 PM  Rooms 303-304

Feeding and Swallowing Anatomy and Mechanics I  Chairs: Corrine Avidan, Katie Whitlow

1:30 pm  Samantha Gartner, Mark Westneat  Elastic skull ligaments and the biomechanics of the parrotfish bite.
1:45 pm  Corrine Avidan, Elizabeth Brainerd  Pharyngeal jaw suction feeding in channel catfish
2:00 pm  John Fortner, Kaleb Sellers, Kevin Middleton, Casey Holliday  Functional Morphology of the Intramandibular Joint and Mandibles of Alligator
2:15 pm  Katie Whitlow, Callum Ross, Mark Westneat  Cranial kinematics and modulation of feeding strikes due to prey-type effects in Amia calva
2:30 pm  Jonathan Huie, Callie Crawford, Emily Kane, Allyson Evans, Karly Cohen, Thaddeus Buser, Matthew Kolmann  The enemy of your anemone: feeding kinematics and biomechanics of a narrow niche cnidarian nibbler
2:45 pm  Tim Andries, Sam Van-Wassenbergh, Wendt Muller  Relationships between feeding performance, kinematics, and skill in a granivorous songbird
3:00 pm  Victor Ortega-Jimenez, Benjamin Seleb, Tien Yee, Pankaj Rohilla, Jake Belair, Joseph Mendelson, Saad Bhamla  Chattering, feet stomping, and skimming induce vortical structures that boost flamingos’ feeding
3:15 pm  Jarrod Petersen, Alexander Wilde, John Capano, Thomas Roberts  Costocutaneous muscle function following large prey ingestion in Boa constrictor

1:30 PM – 3:30 PM  Rooms 201-202

Flying & Landing I  Chairs: Christina Harvey, Jean-Michel Mongeau

1:30 pm  Tanner Saussaman, Gal Ribak, Wing Lai, Roi Gurka  3D Flow Analysis of Wing-Wake Interactions: A Case Study of Beetles
1:45 pm  Braden Cote, Mark Jankauski  Experimental Evaluation of Wing Hinge Mechanics in Bumblebees
2:00 pm  Christina Harvey  Longitudinal gust response of a gliding gull
2:15 pm  Sonja Friman, Siyang Hao, Cory Elowe, Laura Mendez, Raúl Ayala, Caylan Hagood, Dayna Jackson, Gabriella Orfanides, Evrim Ozcan, Jared Ramirez, Ian Brown, Alexander Gerson, Tyson Hedrick*, Kenneth Breuer  Can flight in flocks be less costly than solo flight?
2:45 pm  Rachel Tran, Simon Walker  Kinematics of Anopheles gambiae during manoeuvring flight and with increasing temperature
3:00 pm  Laura Mendez, Tyson Hedrick  Black skimmers take advantage of wind to power foraging
3:15 pm  Viet Le, Benjamin Cellini, Rudolf Schilder, Jean-Michel Mongeau*  The abdomen of the hawkmoth Manduca sexta regulates wing-generated flight torques for yaw control

1:30 PM – 3:30 PM  Lonestar G

Form & Function of Anatomical Novelties  Chairs: Austin Francis, Zachary Stephen Morris

1:30 pm  Juri Miyamae  Probing the proboscis: comparative morphology of the mammalian nasal proboscis and performance
2:00 pm  Karly Cohen, Emily Carr, Gareth Fraser  The tale of two jaws – development of the tenaculum in the Spotted Ratfish (Hydrolagus colliei)
2:15 pm  Roxanne Armfield  Snakes: The Rulebreakers of Tetrapod Morphology
2:30 pm  Zachary Morris, Bhati-Anjan Bhullar  Evolutionary origins of amniote secondary palates
Wednesday 4 January 2023

2:45 pm Emma Schachner, Aracely Martinez, Kari Bates, Andrew Moore, Clinton Grand-Pre, Raul Diaz-Jr, Scott Echols, Brandon Hedrick

Pulmonary diverticula as functional structures in the red-tailed hawk (*Buteo jamaicensis*)

3:00 pm Austin Francis

Analytical and Experimental Hydrodynamics of the Great Hammerhead Shark Cephalofoil

3:15 pm Ariel Leahy, Robin Dunkin, Bernd Zechmann, Samuel Rivera, Sarah Kienle

Methods and anti-methods of morphologically analyzing a complex arterial structure in odontocetes

1:30 PM – 3:30 PM

**Muscle and Tendon Morphology, Actuation and Mechanics II**

*Chairs: Hosain Bagheri, Marie Janneke Schwaner*

1:30 pm Elizabeth Mendoza, Marie Schwaner, Monica Daley, Manny Azizi

Quantifying the relative contribution of muscular and elastic energy during a frog jump

1:45 pm Caitlin Bemis, Kiisa Nishikawa

Using in vivo length and activation during in vitro experiments to model scaling of muscle force pro

2:00 pm Hosain Bagheri, Salaheddin Ahmadi, Robin Koshy Mathews, Benjamin Bethke, Rebecca Fisher, Hamid Marvi*

Electromyographic Study of Arm Muscle Functions in *Octopus bimaculoides*

2:15 pm Alberto Castro, Allyn Nguyen, Theodore Garland, Saad Ahmed, Natalie Holt

Evolution of muscle contractile properties in mice bred for high voluntary wheel-running behavior

2:30 pm Joseph Thompson, Kari Taylor-Burt, William Kier

One size does not fit all: diversity of length-force properties of obliquely striated muscles

2:45 pm Marie Schwaner, Monica Daley

Sources of variation in muscle workloop patterns in non-steady locomotion in guinea fowl LG muscles

3:00 pm Xun Fu, Juri Miyamae, Talia Moore

Untangling the function of complex tendon branching patterns

3:15 pm Edwin Dickinson, Aleksandra Ratkiewicz, Michael Granatosky, Julia Molnar, Adam Hartstone-Rose

Algorithmic reconstruction of in situ muscle fascicles across a range of body sizes

1:30 PM – 3:45 PM

**Comparative Endocrinology**

*Chairs: Kathleen M. Munley, Melanie M. Richter*

1:30 pm Melanie Richter, Beth Roberts, Mark Sandfoss, Steve Reichling

Seasonal variation in fecal hormone levels in the endangered Louisiana pinesnake

1:45 pm M. Rockwell Parker, Holly Rucker, Julianna Lincoln, Megan Barlowe

Extragonadal aromatase expression in red-sided garter snakes

2:00 pm Christopher Robinson, Matthew Hale, Tyler Wittman, Christian Cox, Henry John-Alder, Robert Cox

Changes in androgen sensitivity of melanogenesis genes underlie ventral color loss in fence lizards

2:15 pm Camilo Alfonso, Jared Gladbach, Ignacio Moore

Annual survival and steroid hormones in birds

2:30 pm Kathleen Munley, David Sinkiewicz, Sydney Szwed, Gregory Demas

Seasonal variation in neural steroid sensitivity and territorial aggression in Siberian hamsters

2:45 pm Bria Metzger, B. Duygu Özpolat

The cost or payout of regeneration on growth and sexual maturation in *Platynereis dumerilii*

3:00 pm Tosha Kelly, Keegan Stansberry, Melanie Kimball, Kenedi Lynch, Christine Lattin

A transient reduction in circulating corticosterone reduces object neophobia in male house sparrows

3:15 pm Makayla Guinn, Christiana Kumar, Hussain Abdulla, Justin Elliott, Seth Foster, Franke Seemann, Carrie Sinclair, Dara Orbach

Effects of salinity on steroid hormones and epidermal integrity in dolphins

3:30 pm Adam Becker, Heather Watts

A role for gonadal steroids in the onset of spring nomadic migration in pine siskins (*Spinus pinus*)
## Predator/Prey Interactions

*Chairs: Allison Davis, Noah D. Gripshover*

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### 7:30 PM – 8:30 PM

**George A. Bartholomew Lecture: Dr. Eric Riddell**

Organismal physiology as a lens into the fundamental niche and beyond

*Sponsored by Sable Systems International*
Wednesday POSTER SESSION P1
JW Grand Ballroom, 3:30-5:30 PM
Poster Set Up: 7:00-8:00 am; Poster Teardown: 5:30-6:00 pm
Even # - Authors present from 3:30-4:30 pm; Odd # - Authors present from 4:30-5:30 pm

**Anatomy and Morphology**

**P1-001** Christina McDonald  
Mechanisms of self-decorating and design of the attachment system in debris-carrying lacewing larva

**P1-002** Giulia DiRaimo, Carla Narvaez-Diaz, Stephanie Crofts  
Aristotle’s Lantern and Soft Tissue Anatomy in Burrowing and Non-Burrowing Sea Urchin

**P1-003** Laura Hunter, Anna Wisniewski  
Tempo and mode in the evolution of primate dental morpholog

**P1-004** Jian-Liang Chen, Ping-Ying Chen, Fu-Yu Tsai, Dian-Han Kuo*  
The nervous system and phototactic behavior in Stenostomum (Platyhelminthes: Catenulida)

**P1-005** Emily Lucas, Jennifer Taylor  
Papillae Retraction in Octopus bimaculoides

**Biodiversity and Biogeography**

**P1-007** Jack Koger, Sarah Foltz, Jamie Lau  
Biodiversity of Insects in Southern Appalachian Burial Grounds Along an Urbanization Continuum

**P1-008** Miranda Gibson, Estefania Rodriguez, Christopher Meyer, Benjamin Titus  
Ecological diversification in the clownfish-hosting sea anemone Heteractis magnifica

**P1-009** John Nguyen  
Diversity and distribution of reed frogs (Hyperolius spp.) on Bioko Island, Equatorial Guinea

**P1-010** Claire Marino, Tanisha Williams, Chris Martine*  
Solanum acanthophisum: a New Dioecious Bush Tomato Species from the Australian Monsoon Tropic

**Communication, Social Behavior, and Movement, Migration and Dispersal**

**P1-011** Anna Godfrey, Erik Zornik  
Vocal responses of male Xenopus borealis to conspecific and heterospecific pairing

**P1-012** Danae Diaz, Sonke Johnsen, Steve Nowicki  
Can you judge a bird by its cap? Assessing the link between cap color and cognition in a songbird

**P1-013** Sara Seidtta, Rafael Rodriguez  
Enchenopa use spontaneous signals to re-establish duetting communication during wind-induced noise

**P1-014** Caroline Troy, Matthew Fuxjager, James Kelner  
Exploring Environmental Predictors of Biogeographical Variation in Woodpecker Drummimg Performance

**P1-015** Jacob Brozman-Krass, Tal Perveroltsky, Adam Summers, Lauren Simonitis, Cassandra Donatelli  
Grunting and Groaning: Characterizing Sound Production in Poachers

**P1-016** Bole Pan, Young Kwon, Elizabeth “Bliss” Bagnato-Conlin, Darcy Kelley  
Ethology and evolution of courtship vocalization in Xenopus

**P1-017** Bushra Moussaoui, Tim Wright  
Effects of aging on adult vocal learning and underlying neural expression

**P1-018** Elizabeth “Bliss” Bagnato-Conlin, Young Kwon, Darcy Kelley  
Phonotactic response to male advertisement calls in Xenopus females

**P1-019** Jeanette Moss, James Tumulty, Eva Fischer*  
Trophic egg feeding calls of a biparental frog co-opt and modify elements of ancestral signals

**P1-020** Aidan Bannon, Simon Thill, Sophie Frem, S. Tonia Hsieh, Suzanne Kane  
Mind the trap: how spotted lanternflies negotiate terrain transitions during climbing

**P1-021** Ava Umlauf, Henry Astley, Kaelyn Gamel, Jared Pettay  
Underwater Ground Reaction Forces of Spotted Prawn

**P1-022** Michelle Osovitz, Taegan McMahon, Gretchen Hilt*, Bridget Hilgendorff  
The effect of Bd fungal metabolites on planarian behavior and developmental regeneration.

**P1-023** Jackie Culotta, Marie Ervin, Brooke Vetter, Allen Mensinger  
Integrating Sensory Physiology and Behavioral Conditioning to Influence Fish Movement
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Some like it hot: Temperature stress and juvenile development in an invasive colonial ascidian

P1-122  Keith Sockman, Michael Beaulieu, Brittany Mosher
Weather and survival in the mountains: how cold, rain, and snow drive songbird population-dynamics

P1-123  Natalie Page, Alex Gunderson
The effect of urbanization on the temperature dynamics of lizards: an experimental approach

P1-124  Shania Burkhead, Krista Ward, Emily Stybr, Thomas Luhring
Drying and rewetting of wetland soil alters larval anuran growth rates, survival, and metamorphosis

P1-125  Kyra Anderson, J. Andres Marquez, Erik Sperling, Murray Duncan
Using the metabolic index to predict changes in habitat of red urchin (Mesocentrotus franciscanus)

P1-126  Naomi Vliet, Sadie Small, Brooke Weigel
Effects of sori incubation temperature on Nereocystis luetkeana gametophyte & sporophyte development

P1-127  Matthew Gifford, David Adams, Casey Brewer
Effect of warming nights on the energy budget and persistence of a locally imperiled urchid

P1-128  Caroline Terry, Kyle Hulse, Wes Dowd
The prevalence and significance of temporal environmental variation in marine biology experiments

P1-129  Andrea Aspbury, Caitlin Gabor, Spencer Levings
Role of urbanization on life history traits, cognition, physiology, and morphology of Gambusia

P1-130  Jada Ormsbee, Sara O’Brien, Gabriel Rodrigues, Brian Walker
Getting down and dirty: optimizing microplastics recovery in penguin fecal samples

P1-131  Amanda Montgomery, Allison Welch
Effect of elevated salinity on predator-prey interactions of amphibian tadpoles and dragonfly nymphs
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**P1-158**  Jonathan Huie, Dylan Wainwright, Adam Summers, Karly Cohen  
A sticky ichthy trinity: adhesive performance in clingfish, lumpsuckers, and snailfish

**P1-159**  Brett Koassen-van-Oorschot, Gerline van-Beusekom, Guillermo Amador  
Improving biomimetic suction cups: What is the function of “sucker rings” in cuttlefish suckers?

**P1-160**  Andrew Moura, Austin Garner, John McCormack, Carla Narvaez-Diaz, Alyssa Stark, Michael Russell  
Stickin’ through it: Hyposalinity reduces sea urchin tube foot performance

**P1-161**  Akshata Gole, Yueming Sun, Alexandre Palaoro, Kostya Kostyak  
Feeding behaviour and wetting characteristics of live hawkmoths

**P1-162**  Caroline Kane, Austin Garner, Michael Russell, Alyssa Stark  
Adhesion and locomotion of the green sea urchin in response to elevated temperature

**P1-163**  Mandy Cai, Stephen Yanovik, Alyssa Stark  
The Effect of Humidity and Substrate Hydrophobicity on Ant Adhesion, Locomotion, and Behavior

**P1-164**  Julia Redpath, Alyssa Stark  
How sticky is too sticky?: gecko locomotor performance in high adhesion conditions

**Neuroanatomy and Neuroethology**

**P1-165**  Rebekah Hansen, Alexandra Kingston  
Structural properties of the orbital hoods of snapping shrimp may contribute to shock wave dampening

**P1-166**  Lourdes Ricks, James Newcomb  
The Role of Cell Division in Regeneration of Rhinophores in Berghia stephanieae

**P1-167**  Journie Gaeta, Veronica Martinez-Acosta  
Changes in Myelin Compaction During Neural Regeneration in Lumbricus variegatus.

**P1-168**  Katherine Pereira, Cindy Rodriguez, Nicholas Sayegh, Noah Weik, Anabela Maia  
Ubiquitous Sensory Innervation in the Membrane of Bluegill’s Spiny Dorsal Fin

**P1-169**  David Iziero, Mahaut Sorlin, Carolina Vargas, Shauna Odum, Gerard Beaudoin, Simon Lailvaux, Michele Johnson  
Exercise-Induced Plasticity in Gray Matter Composition of Green Anole Lizard Brains

**P1-170**  Lindsey Wheaton, Marosh Furimsky  
The Effect of Bisphenol F Exposure on Zebrafish Eye Development

**P1-171**  Mia Greco, Marosh Furimsky  
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**P1-172**  Prasong Mekdara, Eugene Kim, Ariel Levine  
Dynamic sensorimotor interactions in spinal circuits during locomotion

**P1-173**  Victor Han, Gerhard Magnus, Junling Xing, Yueping Zhang  
Diversity of cellular morphology and physiology of Purkinje cells in the adult zebrafish cerebellum

**P1-174**  Katrina Carrier, Daniel Powell, Yasemin Altug, Isabella Kane, Rania Janmohamed, Patsy Dickinson  
Combinatorial effects of changes in ion concentration and temperature on the lobster nervous system

**P1-175**  Brooke Miles, Alex Calli-Wehrman, Rachel Cohen  
The effects of steroid hormones on neurogenesis in the green anole lizard (Anolis carolinensis)

**P1-176**  Sarah Simons, Heather Rice, Charles Lacy, Kriti Shukla, Dylan Barber, Sam Hamman  
Investigating cell-surface binding of sAPPa mutants to GABABR1a

**P1-177**  Alexandra Gurgis, Jessica Goodheart, Rebecca Varney, Todd Oakley, Gabriella Wolff  
The Minute Brains of Sea Fireflies: Evidence of Ancestral Mushroom Bodies

**P1-178**  Julia LaValley, Cheyenne Tait, Paul Katz, Gianna Misuraca, Kelsi Watkins  
The structure and function of the oral tentacle of a nudibranch mollusc

**P1-179**  Adam Kuuspalu, Melonie Hale  
Newly discovered neural pathways provide direct connections among arms of octopuses

**P1-180**  Angelique Allen, Judit Pungor, Cristopher Niell  
2-photon calcium imaging of neural responses to polarized light stimuli

**P1-181**  Daniela Kim, Wing Ko, Kit Yu Karen Chan, Kaja Arusha, Sabrina Elijah, Krystle Boadi, Carolyn Bauer  
Interplay between the endocrine stress response and cognitive assessments of anxiety-like behaviors
### Behavioral Indicators of Stress in Captive Green Anole Lizards

Jeremy Blackburn, Grace Anderson, Mia Kholy, Akshaya Ranjit, Taylor Black, Michele Johnson

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### The effect of habituation on neural activation in the habenula

Alexander Muth

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### Behavioral ventilation in the aquatic Lake Titicaca frog

Jordan De-Padova, Doris Preninger, Nigel Anderson, Matthew Fuxjager

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### The morphology and performance of the Belostomatid visual system

Tanner Mierow, Kate Feller, Alexandra Kingston

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### Lateralization in the Social and Visual Regions of the Green Anole Lizard Brain

Akshaya Ranjit, Michael Patton, Michele Johnson

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### The nudibranch Berghia stephanieae uses visual cues for navigation

Phoenix Quinlan, Paul Katz

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### Neurotransmitter Systems in Lumbriculus variegatus, a regenerating model system

Kaelin Connolly, Veronica Martinez-Acosta

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### Mapping trematode worm infection of the dragonfly brain: Anatomical evidence for parasite control of lateralization in the Social and Visual Regions of the Green Anole Lizard Brain

Rosemary Corkins, Yiheng He, Joshua Martin

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### Phylogenetically conserved vocal central pattern generator in genus Xenopus

Ayako Yamaguchi, Manon Peltier

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### Novice conception in Manduca sexta

Gayathri Kondakath, Annushka Veliko-Shapko, Barry Trimmer

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### Dynamic sensory reweighting in weakly electric fish in relation to sensory salience

Alp Demirel, Ismail Uyanik

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### Flow Speed Affects the Smooth Pursuit Tracking and Active Sensing Movements of Weakly Electric Fish

Emin Aydin, Ismail Uyanik

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### A Novel Experimental Setup to Study Multisensory Integration of Zebrafish During Rheotaxis

Orhun Koc, Ismail Uyanik

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### Identifying Analgesics for Hummingbird Bobtail Squid (Euprymna berryi) to Improve Cephalopod Welfare

Sarah Detmering, Robyn Crook, Jonathan Shia, Skyleer Deutsch

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### Neuronal activation in fear, memory, and mesolimbic structures following model predator exposure

Amir Alayoubi, Laura Stein, Kim Hoke

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### Neural correlates of divergent reproductive behavior in two ecotypes of threespine stickleback

Meghan Maciejewski, Eva Fischer, Alison Bell

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### Biofluorescence as a Tool to Resolve Morphological Cryptsis in Two Bonefish Species

Mason Thurman, Steven Lombardo, Ellis Loew, Paul Wills, Christopher Robinson, Aaron Adams

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### Phylogenetic Focusing: a Novel Approach to Gene Family Phylogenetics

Christopher Gonzalez, David Plachetzki

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### Is egg mass a phenotypically-plastic trait in the European starling, Sturnus vulgaris?

Raven Barbera, Tony Williams

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### Effects of dietary protein quality on fecundity and longevity in grasshoppers

Emma Kordek, Amaya Yip, Alicia Horton, John Hatle

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### Non-Invasive Genetic Sampling for Parentage Analysis in the Endangered Louisiana Pinesnake

Alexis Lindsey, Beth Roberts, Mark Sandfoss, Kristin Hinkson, Steve Reichling, Tonia Schwartz

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### Cryopreservation of Monarch Spermatozoa

Courtney Grula, Arun Rajamohan, Joseph Rinehart

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### How toe spacing affects impact dynamics during passive “foot” intrusions into poppy seeds

Simon Thill, Suzanne Kane, S. Tonia Hsieh

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### In Vivo Tibial Bone Strains During Locomotion in the Green Iguana (Iguana iguana)

Timothy Arlowe, Russell Main, Worapat Sawatwong

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### Effects of large prey ingestion on the kinematics of rectilinear locomotion in Boa constrictor

Alexander Wilde, Jarrod Petersen, John Capano, Thomas Roberts
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**Posters**

P1-207  Chukwuyem Ekhator, Arnavi Varshney, Melody Young, Daniel Tanis, Michael Granatosky, Raul Diaz-Jr, Julia Molnar

Locomotor characteristics of the ground-walking chameleon Brookesia superciliaris

P1-208  Jeffery Anderson-Jr, Joshua Pulliam, Jerry Wong, Ignacio Moore, Ulmar Grafe, Salwa Khalid, Jake Socha

How does height influence perch-related locomotor behaviors in arboreal snakes?

P1-209  Kristin Perrin, Tali Moore, Deanna Gates

Dynamic locomotion of legged robot using biomimetic articulated feet

P1-210  Alexander Rodriguez, Ethan Bailey, Amy Payne, Eduardo Balreira, Michele Johnson

Complexity of post-autotomy lizard tail movement

P1-211  Mark Wright, Stephanie Pierce

A Hip New Perspective on the Synapsid "Sprawling-to-Upright" Transition

P1-212  Alyssa Head, Ethan Livingston, Constant Perry, Princeton Vaughn, Eric Gangloff

Let’s include the ladies: Do morphology-performance relationships vary between sexes in lizards?

**Thermal Physiology**

P1-213  Melissa Butler, Calvin Vary, Anyonya Guntur, Markus Frederich

Dietary effects on lipid composition and subsequent phenotype in the American lobster

P1-214  Whitney Dobbyn, Bret Tobalske, Donald Powers

Body Plumage as a Barrier to Heat Dissipation in Southeastern Arizona Hummingbirds

P1-215  Kendra Wisenbaker, Emma Ortiz, Donald Powers

Do Hummingbirds Select Microclimates to Assist in Post-Flight Heat Dissipation in a High Temperature

P1-216  Clinton Warren, Rachel Bowden, Anthony Breitenbach, Ryan Paiz

How does cold snap exposure affect sex determination in a freshwater turtle?

P1-217  Emma Ortiz, Kendra Wisenbaker, Donald Powers

Microclimate Characteristics of Perches Used Post-Flight by SE Arizona Hummingbirds

P1-218  Wonil Choi, Haruka Wada

Hypoxia induced physical abnormalities in zebra finch embryos

P1-219  Emelia Kudej, Paul Jerem, L. Michael Romero

Circadian rhythms of body surface temperature in juvenile and adult house sparrows

P1-220  Isabella Garino-Heisey, Rylee Vigil, Wesley Rancher, Victor Gonzalez, John Hranitz, Thomas Tscheulin, Theodora Petanidou

Different thermal tolerances of summer-acclimated bees in a diverse island community

P1-221  Sydney Wilcoxson, Wonil Choi, Madeline Choi, Haruka Wada

The effect of hypoxia on sex ratios in zebra finch embryos

P1-222  Ian Rockel, Charles Watson

Comparative physiology and differential thermal environment usage in a South Texas lizard community

P1-223  Heather Axen, Rebecca Bachtel, Ioulia Bespalova

Thermal plasticity in wild Drosophila pseudoobscura across Colorado’s front range

P1-225  Christian Guerzon, Derrick groom, Cecilia Doan

Studying the regulation of cutaneous water loss in Calypte anna (Anna’s Hummingbird)

P1-226  Princely Tamfu, Justin Andries*, Ioulia Bespalova, Heather Axen, James Waters

Testing hypotheses about metabolic compensation and the ecophysiology of phenotypic plasticity

P1-227  Jamie McCoy, John Spicer, Simon Rundle, Oliver Tills

Measuring the most sensitive stages of life as a spectra of energy

**Vertebrate Movement Through Water**

P1-228  David Kramer, Frank Fish, Maura Sheehan

Thrust production and chordal flexion of the flukes of bottlenose dolphins performing tail stands

P1-230  Duncan Kennedy, Cassandra Donatelli, Kayla Hall, Kelsey Lucas

When fish fly: modelling the flapping flight of spotted ratfish (Hydrolagus colliei) pectoral fins

P1-231  Holly Booth, Amanda Burkley, Mary Kate O’Donnell, Charlotte Easterling

Swimming performance of desmognathine salamanders

P1-232  Jake Schmid, Michael Minicozzi

Does Chronic Exposure to Clothianidin Effect Swimming Performance in Rainbow Trout?

P1-233  Catherine Morris, Dave Coughlin, Annika Pfister, Zoe Reynolds, John Parker, Dave Ellerby, Bradley Wood

Electromyography of Bluegill Sunfish at Different Gaits: Steady Versus Intermittent Swimming
Thursday Schedule of Events

Events take place in the JW Marriott Austin, unless otherwise noted

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Howard A. Bern Lecture: Dr. Tyrone Hayes
Right back where I started: Enamored with anurans

**SYMPOSIUM ORAL PRESENTATIONS**

S4: Daily Torpor Across Birds and Mammals: Recent Progress and How Do We Advance the Field?
7:45 AM – 3:00 PM
Lonestar C

S5: Pathways to Adulthood: Environmental, Developmental, and Evolutionary Influences on the Ontogeny of Form and Function
8:15 AM – 4:30 PM
Lonestar E

S6: Large-Scale Biological Phenomena Arising From Small-Scale Biophysical Processes
7:45 AM – 4:00 PM
Lonestar D

**CONTRIBUTED PAPER ORAL PRESENTATIONS**

**MORNING**

Complementary to S1: Genomics of Marine Larval Evolution and Development
8:00 AM – 9:45 AM
Rooms 402-403

Comparative Genomics and Proteomics
8:00 AM – 9:15 AM
Rooms 203-204

Collective Behavior: Schools, Swarms and Blobs
8:00 AM – 9:30 AM
Lonestar G

Invertebrate Ocean Motion
8:15 AM – 9:45 AM
Rooms 408-409

Sensorimotor Integration in Locomotion
8:00 AM – 9:45 AM
Brazos

DVM Best Student Presentation: D. Dwight Davis Award
8:00 AM – 10:00 AM
Rooms 301-302

Sensory Biology I
8:00 AM – 10:00 AM
Lonestar H

Social Behavior
8:00 AM – 10:00 AM
Lonestar F

Vertebrate Development
8:00 AM – 10:00 AM
Lonestar B

Interspecific Interactions: Fiends and Foes
8:15 AM – 9:45 AM
Lonestar A

Spatial Patterns of Diversity
8:15 AM – 10:00 AM
Rooms 201-202

Diversification and Macroevolution
9:00 AM – 10:00 AM
Rooms 303-304

DNNSB Best Student Presentation
10:00 AM – 12:00 PM
Rooms 203-204

Getting to the Point: Puncture and Defense in Biology
10:15 AM – 12:00 PM
Lonestar G

Global Change Biology II: Invasions and Toxins
10:15 AM – 12:00 PM
Rooms 402-403

Interspecific Interactions: Friends and Facilitators
10:15 AM – 12:00 PM
Lonestar A

Movement, Migration And Dispersal II: Below the Surface
10:15 AM – 12:00 PM
Brazos

Inclusion and Outreach in Education
10:30 AM – 11:45 AM
Lonestar B

DEDB Best Student Presentation
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Rooms 303-304

Locomotion Where Water Meets Air and Land
10:30 AM – 12:00 PM
Rooms 408-409

Sensory Biology II
10:30 AM – 12:00 PM
Lonestar H

Sticking to Surfaces
10:30 AM – 12:00 PM
Rooms 301-302

Symbiosis and Immunity
10:30 AM – 12:00 PM
Lonestar F

The Ecology and Evolution of Life History
10:45 AM – 12:00 PM
Rooms 201-202
### AFTERNOON

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<td>Biomaterials, Structure &amp; Mechanics I</td>
<td>1:30 PM – 3:30 PM</td>
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<td>Ecophysiology: A Spotlight on Moisture</td>
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<td>Flying &amp; Landing II</td>
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<tr>
<td>Sensory Motor Control</td>
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<tr>
<td>The Evolution of Shape and Function</td>
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### BUSINESS MEETINGS

<table>
<thead>
<tr>
<th>Meeting</th>
<th>Time</th>
<th>Location</th>
</tr>
</thead>
<tbody>
<tr>
<td>TCS Member Meeting</td>
<td>12:00 PM – 1:30 PM</td>
<td>Lonestar A</td>
</tr>
<tr>
<td>DCB Member Meeting</td>
<td>5:45 PM – 6:45 PM</td>
<td>Lonestar B</td>
</tr>
<tr>
<td>DCE Member Meeting</td>
<td>5:45 PM – 6:45 PM</td>
<td>Lonestar C</td>
</tr>
<tr>
<td>DIZ Member Meeting</td>
<td>5:45 PM – 6:45 PM</td>
<td>Lonestar F</td>
</tr>
<tr>
<td>DNNSB Member Meeting</td>
<td>5:45 PM – 6:45 PM</td>
<td>Lonestar G</td>
</tr>
<tr>
<td>DPCB Member Meeting</td>
<td>5:45 PM – 6:45 PM</td>
<td>Lonestar H</td>
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</tbody>
</table>

### WORKSHOPS AND PROGRAMS

<table>
<thead>
<tr>
<th>Workshop</th>
<th>Time</th>
<th>Location</th>
</tr>
</thead>
<tbody>
<tr>
<td>An introduction to high structure course design for the life sciences</td>
<td>12:00 PM – 1:30 PM</td>
<td>Lonestar B</td>
</tr>
<tr>
<td>Accessing and working with NEON Small Mammal Data</td>
<td>12:00 PM – 1:30 PM</td>
<td>Lonestar C</td>
</tr>
<tr>
<td>BPC Workshop: Developing the Tools of Influence and Persuasion for Leadership</td>
<td>12:00 PM – 1:00 PM</td>
<td>Lonestar F</td>
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</tbody>
</table>

### SOCIAL EVENTS

<table>
<thead>
<tr>
<th>Event</th>
<th>Time</th>
<th>Location</th>
</tr>
</thead>
<tbody>
<tr>
<td>Morning 5K Run</td>
<td>6:00 AM – 7:00 AM</td>
<td>JW Marriott Lobby</td>
</tr>
<tr>
<td>DOB/DEE/DPCB Social</td>
<td>3:30 PM – 5:30 PM</td>
<td>Zilker Botanical Gardens</td>
</tr>
<tr>
<td>Broadening Participation Social and Awards Ceremony</td>
<td>6:15 PM – 7:15 PM</td>
<td>Brazos</td>
</tr>
<tr>
<td>DAB/DNNSB/DCE Social</td>
<td>8:30 PM – 10:00 PM</td>
<td>Brazos</td>
</tr>
<tr>
<td>Outgroup Social</td>
<td>8:30 PM – 10:30 PM</td>
<td>Offsite</td>
</tr>
</tbody>
</table>
## Thursday Program Symposia

**Note:** Presenter is first author unless noted by an asterisk (*).

### S4: Daily Torpor Across Birds and Mammals: Recent Progress and How Do We Advance the Field?

**Chairs:** Anusha Shankar, Kenneth Welch

<table>
<thead>
<tr>
<th>Time</th>
<th>Presenter(s)</th>
<th>Title</th>
</tr>
</thead>
<tbody>
<tr>
<td>7:45 am</td>
<td>Anusha Shankar, Kenneth Welch</td>
<td>Introduction: Daily torpor across birds and mammals: Recent progress and how do we advance the field</td>
</tr>
<tr>
<td>8:00 am</td>
<td>Danielle Levesque, Ana Breit</td>
<td>Non-torpid heterothermy in mammals: another point along the homeothermy-hibernation continuum</td>
</tr>
<tr>
<td>8:30 am</td>
<td>Erich Eberts, Kenneth Welch</td>
<td>Torpor Use in Ruby-Throated Hummingbirds: Energy Stores, Seasonality, Temperature, and Age-Sex Class</td>
</tr>
<tr>
<td>9:00 am</td>
<td>Andrew McKechnie, Marc Freeman, Mathome Makola, Matthew Noakes, Mark Brigham</td>
<td>Evolution of avian heterothermy: why no deep torpor in songbirds?</td>
</tr>
<tr>
<td>9:30 am</td>
<td><strong>Coffee Break</strong></td>
<td></td>
</tr>
<tr>
<td>10:00 am</td>
<td>Santi Tabares Erices</td>
<td>Reassessing torpor use across mammals: does diet influence torpor?</td>
</tr>
<tr>
<td>10:15 am</td>
<td>Grace Guo</td>
<td>A comprehensive phylogeny of avian torpor with ecological context</td>
</tr>
<tr>
<td>10:30 am</td>
<td>Giulia Rossi, Kenneth Welch</td>
<td>Packing on the pounds: The role of leptin in the premigratory fattening of hummingbirds</td>
</tr>
<tr>
<td>11:00 am</td>
<td>Julia Nowack, Clare Stawski, Danielle Levesque</td>
<td>Rare and opportunistic use of torpor in mammals- a ghost from the past?</td>
</tr>
<tr>
<td>11:30 am</td>
<td>Liam McGuire</td>
<td>Heterothermic migration strategies in flying vertebrates</td>
</tr>
<tr>
<td>12:00 pm</td>
<td><strong>Lunch</strong></td>
<td></td>
</tr>
<tr>
<td>1:30 pm</td>
<td>Anusha Shankar, Emily Blackwell, Sophia Wolfe, Shenni Liang, Nora Prior, Irby Lovette, Donald Powers</td>
<td>Hold and cold hummingbirds: What genes does a cold hummingbird functioning at 10% express?</td>
</tr>
<tr>
<td>2:00 pm</td>
<td>Dina Dechmann, Lara Keicher*</td>
<td>Energy saving strategies in common noctule bats</td>
</tr>
<tr>
<td>2:30 pm</td>
<td>Anusha Shankar, Kenneth Welch</td>
<td>Round table discussion: Pressing problems in daily torpor and how to advance the field</td>
</tr>
</tbody>
</table>

### S5: Pathways to Adulthood: Environmental, Developmental, and Evolutionary Influences on the Ontogeny of Form and Function

**Chairs:** Terry R. Dial, Mark C. Mainwaring, Ashley M. Heers

<table>
<thead>
<tr>
<th>Time</th>
<th>Presenter(s)</th>
<th>Title</th>
</tr>
</thead>
<tbody>
<tr>
<td>8:15 am</td>
<td>Terry Dial, Ashley Heers, Mark Mainwaring</td>
<td>The impact of early life conditions on performance during adulthood: past, present and future</td>
</tr>
<tr>
<td>8:30 am</td>
<td>Ashley Heers</td>
<td>Feathers aloft: unexpected performance in developing birds</td>
</tr>
<tr>
<td>9:00 pm</td>
<td>Richard Carter</td>
<td>Ontogeny of Bat Echolocation</td>
</tr>
<tr>
<td>9:30 am</td>
<td>Shawn Noren</td>
<td>Building Cetacean Locomotor Muscles Throughout Ontogeny to Support High Performance Swimming</td>
</tr>
<tr>
<td>10:00 am</td>
<td><strong>Coffee Break</strong></td>
<td></td>
</tr>
<tr>
<td>10:30 am</td>
<td>Mark Mainwaring</td>
<td>The advantageous performance of individuals raised in disadvantageous conditions</td>
</tr>
<tr>
<td>11:00 am</td>
<td>Molly Albecker, Sarah McKay Strobel, Molly Womack*</td>
<td>Predicting outcomes of developmental stress in tadpoles (frog larvae): Who is resilient to what?</td>
</tr>
<tr>
<td>Time</td>
<td>Event</td>
<td>Speaker(s)</td>
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</tr>
<tr>
<td>11:30 am</td>
<td>Clare Rittschof, Rebecca Westwick</td>
<td></td>
</tr>
<tr>
<td>12:00 pm</td>
<td>Lunch</td>
<td></td>
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<tr>
<td>1:30 pm</td>
<td>David Green</td>
<td></td>
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<tr>
<td>2:00 pm</td>
<td>Prashant Sharma</td>
<td></td>
</tr>
<tr>
<td>2:30 pm</td>
<td>Dave Matthews, George Lauder, Terry Dial</td>
<td></td>
</tr>
<tr>
<td>3:00 pm</td>
<td>Coffee Break</td>
<td></td>
</tr>
<tr>
<td>3:30 pm</td>
<td>Valentina Di-Santo</td>
<td></td>
</tr>
<tr>
<td>4:00 pm</td>
<td>Andreas Nord</td>
<td></td>
</tr>
<tr>
<td>7:45 AM</td>
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<tr>
<td>8:00 am</td>
<td>Nandan Nerurkar</td>
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</tr>
<tr>
<td>8:30 am</td>
<td>Rui Wang, Robert Steele, Eva-Maria Collins</td>
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<tr>
<td>9:00 am</td>
<td>Stephanie Ouderkirk, Mason Ong, Alex Sedley, Nathan Wright, Callie Miller*</td>
<td></td>
</tr>
<tr>
<td>9:30 am</td>
<td>Coffee Break</td>
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<tr>
<td>10:00 am</td>
<td>Eva Kanso</td>
<td></td>
</tr>
<tr>
<td>10:30 am</td>
<td>Deepak Krishnamurthy, Rachel Pepper, Manu Prakash</td>
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<tr>
<td>11:00 am</td>
<td>Karen Grace Bondoc-Naumovitz, Georg Pohnert, Kay Bidle, Heidi Fuchs, Kirsty Wan</td>
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</tr>
<tr>
<td>11:30 am</td>
<td>Jeffrey Guasto</td>
<td></td>
</tr>
<tr>
<td>12:00 pm</td>
<td>Lunch</td>
<td></td>
</tr>
<tr>
<td>1:30 pm</td>
<td>Matti Gralka, Shaul Pollak, Otto Cordero</td>
<td></td>
</tr>
<tr>
<td>2:00 pm</td>
<td>Vivek Prakash</td>
<td></td>
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<tr>
<td>2:30 pm</td>
<td>Pedro Márquez-Zacarías, Kai Tong, Peter Conlin, Jennifer Pentz, Anthony Burnetti, William Ratcliff</td>
<td></td>
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<tr>
<td>3:00 pm</td>
<td>Ben Larson</td>
<td></td>
</tr>
<tr>
<td>3:30 pm</td>
<td>Kit Yu Karen Chan, Jeanette Wheeler</td>
<td></td>
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</tbody>
</table>
Thursday Program Morning Sessions

Friday 5 January 2023

**Complementary to S1: Genomics of Marine Larval Evolution and Development**

Chair: Christina Zakas

<table>
<thead>
<tr>
<th>Time</th>
<th>Speaker(s)</th>
<th>Title</th>
</tr>
</thead>
<tbody>
<tr>
<td>8:00 am</td>
<td>Sydney Birch, David Plachetzki</td>
<td>Phototactic preference and its genetic basis in the planulae of the Hydractinia symbiolongicarpus</td>
</tr>
<tr>
<td>8:15 am</td>
<td>Yi-Jyun Luo, Eunice Wong, Mikhail Matz*</td>
<td>Development of neuronal diversity in coral larvae as they become competent to settle</td>
</tr>
<tr>
<td>8:30 am</td>
<td>Nathan Harry, Christina Zakas</td>
<td>The Making of A Life History Transition</td>
</tr>
<tr>
<td>8:45 am</td>
<td>Antonia Bock, Hereroa Johnston, Park Masterson, Jessica Goodheart, Deirdre Lyons</td>
<td>Insights into the nervous system during metamorphosis in the nudibranch Berghia stephanieae</td>
</tr>
<tr>
<td>9:00 am</td>
<td>Patricia Alvarez-Campos, Helena Garcia-Castro, David Salamanca-Diaz, Bria Metzger, Elena Emili, Vincent Mason, Nathan Kenny, B. Duygu Ozpolat*, Jordi Solana</td>
<td>Single-cell transcriptomics reveal specific gut regions in a freshwater annelid</td>
</tr>
<tr>
<td>9:30 am</td>
<td>Thea Rogers, Güzde Yalçın, Natalie Grace Schulz, Darrin Schultz, Camie Albertin, Oleg Simakov</td>
<td>Novel regulatory units underlie the evolution of complex traits in coleoid cephalopods</td>
</tr>
</tbody>
</table>

**Comparative Genomics and Proteomics**

Chair: Sarah E. Orr

<table>
<thead>
<tr>
<th>Time</th>
<th>Speaker(s)</th>
<th>Title</th>
</tr>
</thead>
<tbody>
<tr>
<td>8:00 am</td>
<td>Chris Claypool, John Ely, Mary Ann Raghanti, William Hopkins, Patrick Hof, Chet Sherwood, Amy Bauernfeind, Jason Kamilar, Courtney Babbitt</td>
<td>Evolution of gene expression in the primate prefrontal cortex</td>
</tr>
<tr>
<td>8:15 am</td>
<td>Brendan Mobley, Suzy Renn, Andrew Anderson</td>
<td>Runaway chromosome evolution in a clade of freshwater fish</td>
</tr>
<tr>
<td>8:30 am</td>
<td>Andre Ortiz, Joel Sharbrough</td>
<td>Genome-wide patterns of homoeologous gene flow in allotetraploid coffee</td>
</tr>
<tr>
<td>8:45 am</td>
<td>Joel Sharbrough</td>
<td>The consequences of whole-genome duplications for cytonuclear stoichiometry</td>
</tr>
<tr>
<td>9:00 am</td>
<td>Sarah Orr, Michael Goodisman</td>
<td>Intralocus conflict and the evolution of social phenotypes of wasps</td>
</tr>
</tbody>
</table>

**Collective Behavior: Schools, Swarms and Blobs**

Chair: TBD

<table>
<thead>
<tr>
<th>Time</th>
<th>Speaker(s)</th>
<th>Title</th>
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</thead>
<tbody>
<tr>
<td>8:00 am</td>
<td>Hungtang Ko, Mathias Hagdu, Keyana Komilian, Ting-ying Yu, David Hu</td>
<td>Collective behaviors of fire ants on the water surface</td>
</tr>
<tr>
<td>8:15 am</td>
<td>Ishant Tiwari, Harry Tuazon, Saad Bhamla</td>
<td>Strength in Unity: Force measurements of active entangled worm blobs</td>
</tr>
<tr>
<td>8:30 am</td>
<td>Nina Mohebbi, Matthew Fu, John Dabiri</td>
<td>3D aggregation dynamics of vertically migrating brine shrimp at different swarm densities</td>
</tr>
<tr>
<td>8:45 am</td>
<td>Hungtang Ko, Yangfan Zhang, George Lauder, Radhika Nagpal</td>
<td>Tracking transient formations of fish schools</td>
</tr>
<tr>
<td>9:00 am</td>
<td>Yangfan Zhang, George Lauder</td>
<td>Fish schooling dynamics: reduced use of aerobic capacity and anaerobic energy</td>
</tr>
<tr>
<td>9:15 am</td>
<td>George Lauder, Yangfan Zhang</td>
<td>Fish schools as environmental turbulence filters</td>
</tr>
</tbody>
</table>
Thursday 5 January 2023

8:15 AM – 9:45 AM

Invertebrate Ocean Motion

Chair: TBD

8:15 am  John Costello, Sean Colin, Bradford Gemmell, John Dabiri, Eva Kanso  
Turning kinematics of the scyphomedusa Aurelia aurita

8:30 am  Sean Colin, Kakani Katija, Joost Daniels, John Costello, Shirah Stock, Kelly Sutherland, Bradford Gemmell  
Behavioral time-series and swimming kinematics of mesopelagic siphonophore jellyfish

8:45 am  Simon Anusczyczk, John Dabiri  
Enhanced Swimming and Hydrodynamic Efficiency of Robotically controlled Aurelia aurita

9:00 am  Alexander Hoover  
Modeling multiple pacemaker control in jellyfish swimming

9:15 am  Mitchell Ford, Maura Niemisto, Zachary Wagner, Griffin Wagner, Jeannette Yen, David Fields, Arvind Santhanakrishnan  
Effects of viscosity and temperature on Paraeuchaeta locomotor performance

9:30 am  Nils Tack, Monica Wilhelmus  
Hot and cold: physiological and physical effects of temperature on metachronal swimming

8:00 AM – 9:45 AM

Sensorimotor Integration in Locomotion

Chair: Anabela Maia

8:00 am  Wael Salem, Benjamin Cellini, Eric Jaworski, Jean-Michel Mongeau*  
Drosophila adaptively control flight to compensate for added inertia

8:15 am  Marialberto Ferrero, Benjamin Cellini, Jean-Michel Mongeau  
Altering visual feedback in augmented reality reveals that Drosophila’s gaze system is not flexible

8:30 am  Usama Sikandar, Haritha Sigili, Simon Sponberg  
A simple linear control template enables a hawkmoth’s agile aerial tracking of floral targets

8:45 am  Yu Yang, Dominic Yared, Noah Cowan  
Sensorimotor Adaptation to Novel Dynamics in Weakly Electric Fish

9:00 am  Ramses Ngachoko, Florence Li, Adam Hardy, Melina Hale  
Sensation by free pectoral fin rays of the hawkfish and its role in benthic station holding.

9:15 am  Anabela Maia, Amina Chamanlal, Zakiyat Djabakatie, Chelsea Yang, Tabitha Almeida, Jessica Clark  
Correct stabilizing function of spiny dorsal fin requires local sensorimotor integration

9:30 am  Sophia Beery, Rachel Oslon, Stephane Montuelle, Hannah Curtis, Susan Williams  
The effect of sensory input on occlusal dynamics during chewing tough foods in ferrets.

8:00 AM – 10:00 AM

DVM Best Student Presentation: D. Dwight Davis Award

Chair: Richard W. Blob

8:00 am  Anne Kort  
Testing the function of interlocking zygapophyses in lumbar vertebrae of early placental mammals

8:15 am  Alexus Roberts-Hugghis, Edward Burress, Brian Lam, Peter Wainwright  
Pharyngognathy enhances — not reduces — evolutionary integration in the fish feeding apparatus

8:30 am  Armita Manafzadeh, Stephen Gatesy, Bhart-Anjan Bhullar  
Joint surface interactions distinguish dinosaurian locomotor poses

8:45 am  Darien Satterfield, Peter Wainwright, Thomas Claverie  
Body Shape and Mode of Propulsion Do Not Constrain Routine Swimming in Reef Fishes

9:00 am  Chelsie Snipes, Richard Carter  
Vibroacoustic response of the tympanic membrane due to hyoid-borne sound during echolocation in bats

9:15 am  JoJo West, Kory Evans  
Catch a Fish, Catch a Ride: How Alternate Piscivory Strategies Drive Skull Evolution
Thursday 5 January 2023

9:30 am  Hannah Darcy, Philip Anderson  Consequences of the land-to-water transition on skull morphology and performance in salamanders

9:45 am  Laksh Kumar Punith, Emily Abbott, Gregory Sawicki  Dynamic Muscle Properties Enable Rapid Recovery From Terrain Perturbations Without Neural Control

8:00 AM – 10:00 AM  Lonestar H

**Sensory Biology I**  
*Chairs: Joshua B. Gross, Cheyenne C. Tait*

8:00 am  Cheyenne Tait, Paul Katz  Sensory integration occurs at multiple levels in a nudibranch brain

8:15 am  Aubree Jones, Matthew O’Donnell, Amy Regish, Jacqueline Webb  Rearing Temperature Affects the Development of the Lateral Line System in Brook Trout

8:30 am  Sönke Johnsen, Eleanor Caves, Tracey Sutton  Grandma, what big pixels you have: optimal visual acuity in marine fish and sharks

8:45 am  Marisa McDonald, Megan Porter  Feeding Rates of Larval Stomatopods Under Different Light Environments

9:00 am  Nicholas Steichmann, Daniel Speiser, Jenna Mazza  The Function of Crustacean Accessory Eyes: A Behavioral and Physiological Approach

9:15 am  Mohammad Maruf Billah, Margaret Grizzaffi, Mar Huertas  Neuromodulation of Olfactory Immune Responses In Rainbow Trout (*Oncorhynchus Mykiss*)

9:30 am  Anna Merritt, Faith Leri, Laura Stein  Neural and Physiological Responses to Multiple Sensory Cues of Predation Risk in Trinidadian Guppies

9:45 am  Daniel Berning, Tyler Boggs, Alyssa Hamm, Joshua Gross*  Gustatory evolution in response to environmental pressure

8:00 AM – 10:00 AM  Lonestar F

**Social Behavior**  
*Chairs: Kevin Neumann, Ben K. Tidswell*

8:00 am  Conner Philson, Daniel Blumstein  Survival consequences of group social structure in a wild free-living mammal

8:15 am  Hao Lin Zeng, Noah Egan, Ram Avinery, Shengkai Li, Daniel Goldman, Takao Sasaki  Building dynamics of self-assembly pontoon bridges in the fire ant, Solenopsis invicta

8:30 am  Noah Egan, Hao Lin Zeng, Ram Avinery, Shengkai Li, Takao Sasaki, Daniel Goldman  Global coordination using local information in fire ant pontoon bridge simulations

8:45 am  Kevin Neumann, Alison Bell  Social behavior varies across populations, but not ecological contexts, in stickleback fish

9:00 am  Julia Weil, Cali Wilson, Richard Hall  Human-provided food and heterogeneity in aggression in urbanized flocks of American white ibis

9:15 am  Ben Tidswell, Eric Tytell  Limited Sensory Information Changes Schooling Structure and Behavior of Giant Danios

9:30 am  Anna Jirik, Katrina White, Makenzie Reed, Anthony Hinders, Shanna Barber, Calvin Dirickson, Devaleena Pradhan  Evaluating the spectrum of protandrous sex change in the hermaphroditic fish *Lythrypnus dalli*

9:45 am  Faith Leri, Laura Stein  Signal Detection Theory: Testing Predictions in Naturally Occurring Uncertainty
## Thursday 5 January 2023

### 8:00 AM – 10:00 AM  
**Lonestar B**

**Vertebrate Development**  
*Chair: Becca L. Young*

<table>
<thead>
<tr>
<th>Time</th>
<th>Speaker(s)</th>
<th>Topic</th>
</tr>
</thead>
<tbody>
<tr>
<td>8:00 am</td>
<td>Robert Mobley, Karen Maruska</td>
<td>Effects of rearing temperature on neural development of the cichlid fish Astatotilapia burtoni</td>
</tr>
<tr>
<td>8:15 am</td>
<td>Cristina Ledón-Rettig</td>
<td>Developmental causes and evolutionary consequences of phenotypic plasticity</td>
</tr>
<tr>
<td>8:30 am</td>
<td>Pablo Burraco</td>
<td>Ageing across the great divide: telomere dynamics through amphibian metamorphosis</td>
</tr>
<tr>
<td>8:45 am</td>
<td>Becca Young, Andres Romero-Carvajal</td>
<td>The transcriptional basis of embryonic diversification in frogs</td>
</tr>
<tr>
<td>9:00 am</td>
<td>Jennifer Austiff</td>
<td>Development and evolution of a carnivorous larval stomach in the frog, Lepidobatrachus laevis</td>
</tr>
<tr>
<td>9:15 am</td>
<td>Ruben Tovar, Dana García, Tom Devitt, David Hillis</td>
<td>Deep homology in early eye development across divergent adaptive morphologies of Eurycea salamanders</td>
</tr>
<tr>
<td>9:30 am</td>
<td>Steven Byrum, Gareth Fraser, Gavin Naylor</td>
<td>Development of the Bonnethead shark (Sphyrna tiburo)</td>
</tr>
<tr>
<td>9:45 am</td>
<td>Gordon Leary, Pierre Le-Pabic, Anthony Long, Tom Schilling</td>
<td>Morphological diversification of the teleost skull through endochondral growth</td>
</tr>
</tbody>
</table>

### 8:15 AM – 9:45 AM  
**Lonestar A**

**Interspecific Interactions: Fiends and Foes**  
*Chair: Wouter Halfwerk*

<table>
<thead>
<tr>
<th>Time</th>
<th>Speaker(s)</th>
<th>Topic</th>
</tr>
</thead>
<tbody>
<tr>
<td>8:15 am</td>
<td>Wouter Halfwerk, Ralph Simon</td>
<td>Acoustic camouflage drives body size evolution in a predator-prey arms race</td>
</tr>
<tr>
<td>8:30 am</td>
<td>Britt White, Illiam Jackson, Kelly Zamudio, Melissa Kemp</td>
<td>Effect of congeneric competition on size dimorphism in the Anolis carolinensis clade</td>
</tr>
<tr>
<td>8:45 am</td>
<td>Jessica Hill, Matt Grisnik, Ryan Hanscom, Jeet Sukumaran, Timothy Higham, Rulan Clark</td>
<td>Describing a Predator-Prey System using Ecological Niche Models: Rattlesnakes and Kangaroo Rats</td>
</tr>
<tr>
<td>9:00 am</td>
<td>Collin Gross, Jay Stachowicz</td>
<td>The role of predators in structuring grazer communities across spatial scales</td>
</tr>
<tr>
<td>9:15 am</td>
<td>Josephine Antwi, Dianne Baker</td>
<td>Identification of Fungal Strains on Spotted Lanternfly (<em>Lycorma delicatula</em>)</td>
</tr>
<tr>
<td>9:30 am</td>
<td>Robert Hall, Sean Schoville, Yi-Ming Weng</td>
<td>Genetic Diversity and Infection Pattern of Spiroplasma in the Beetle, Nebria Ingens Species Complex</td>
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</table>

### 8:15 AM – 10:00 AM  
**Rooms 201-202**

**Spatial Patterns of Diversity**  
*Chair: Aleksey Maro*

<table>
<thead>
<tr>
<th>Time</th>
<th>Speaker(s)</th>
<th>Topic</th>
</tr>
</thead>
<tbody>
<tr>
<td>8:15 am</td>
<td>Shari Rohret, Elizabeth Borda</td>
<td>Benthic meiofaunal diversity in karst subterranean estuaries of the Yucatan Peninsula, Mexico</td>
</tr>
<tr>
<td>8:30 am</td>
<td>Dillon Monroe, Caitlin Gabor</td>
<td>Geographic variation in multiple stress markers in the Gulf Coast Toad (<em>Incilius nebulifer</em>)</td>
</tr>
<tr>
<td>8:45 am</td>
<td>Fernando Calderon-Gutierrez, Brett Gonzalez, Thomas Iliiffe, Jessica Labonté, Lauren Ballou, Luis Mejía-Ortiz, Elizabeth Borda</td>
<td>DNA barcoding reveals cryptic diversity in the aquifer of the Yucatan Peninsula and Cozumel, Mexico</td>
</tr>
<tr>
<td>9:00 am</td>
<td>Aleksey Maro, Robert Dudley</td>
<td>Non-random distribution of ungulate salt licks relative to distance from N. American oceanic margins</td>
</tr>
<tr>
<td>9:15 am</td>
<td>Alondra Medina-Charriez, Anthony Gelona, Kelsey Reider</td>
<td>Does soil stoichiometry affect leaf litter herpetofauna in a lowland tropical wet forest?</td>
</tr>
</tbody>
</table>
### Thursday 5 January 2023

<table>
<thead>
<tr>
<th>Time</th>
<th>Speaker(s)</th>
<th>Title</th>
</tr>
</thead>
<tbody>
<tr>
<td>9:30 am</td>
<td>Gabrielle Silva, Elizabeth Borda, Jose Valdez</td>
<td>Species Diversity and Barcoding of Macroinvertebrate of the San Antonio River</td>
</tr>
<tr>
<td>9:45 am</td>
<td>Sara Paull, Cory Ritz</td>
<td>Enabling PI Research at NEON – Assignable Asset Program Explained</td>
</tr>
<tr>
<td><strong>9:00 AM – 10:00 AM</strong></td>
<td></td>
<td>Room: 303-304</td>
</tr>
<tr>
<td><strong>Diversification and Macroevolution</strong></td>
<td>Chair: Edward Burress</td>
<td></td>
</tr>
<tr>
<td>9:00 am</td>
<td>Abisage Sekarore, Chryssanthi Tzetzis*, Julia Cappiello, Erin Patton, Nicole Fuller, Gabriel Rosado, Emily Morgan, Makena Scarlata, Brent Woodworth, Mackenzie Gerringer</td>
<td>Drivers of deep-sea fish community biodiversity in Puerto Rican waters</td>
</tr>
<tr>
<td>9:15 am</td>
<td>Benjamin Titus, Theo Gaboriau, Alberto Garcia-Jimenez, Nicolas Salamin</td>
<td>Sea anemone host use drives convergent clownfish evolution and disentangles an iconic radiation</td>
</tr>
<tr>
<td>9:30 am</td>
<td>Michael O’Connor, Samantha Giancarli, Arthur Dunham</td>
<td>Clade-based differences in vertebrate metabolic allometries.</td>
</tr>
<tr>
<td>9:45 am</td>
<td>Edward Burress, Meaghan Gade, Eric Riddell, Martha Munoz</td>
<td>Innovations and mountains act synergistically to drive the evolution of lungless salamanders</td>
</tr>
<tr>
<td><strong>10:00 AM – 12:00 PM</strong></td>
<td></td>
<td>Room: 203-204</td>
</tr>
<tr>
<td><strong>DNNSB Best Student Presentation</strong></td>
<td>Chair: James Newcomb</td>
<td></td>
</tr>
<tr>
<td>10:00 am</td>
<td>Emily Ray, Julie Butler, Karen Maruska</td>
<td>Neural mechanisms of mouthbrooding, maternal care, infanticide, and fry release in a cichlid fish</td>
</tr>
<tr>
<td>10:15 am</td>
<td>Kristianna Lea, Jessica Fox, Bradley Dickerson</td>
<td>Direct control of fly haltere movement by optogenetic activation of haltere steering muscles</td>
</tr>
<tr>
<td>10:30 am</td>
<td>Alexandra Venuto, Timothy Erickson</td>
<td>Initial swim bladder inflation in larval zebrafish is mediated by the mechanosensory lateral line.</td>
</tr>
<tr>
<td>10:45 am</td>
<td>Karl Hill, Vikram Chandra, Mansi Srivastava</td>
<td>Simple growth rules could explain brain assembly in an acocel worm</td>
</tr>
<tr>
<td>11:00 am</td>
<td>Joanna Reinhold, Ella Halbert, James Hurley, Gabriel Isaacman-VanWertz, Teresita Insautsi, Claudio Lazzari, David McLeod, Chloe Lahondere</td>
<td>In cold blood: deciphering the mechanisms underlying mosquito-frog interactions</td>
</tr>
<tr>
<td>11:15 am</td>
<td>Dana Lim, Kayla Goforth, Catherine Lohmann, Kenneth Lohmann</td>
<td>The magnetic field in which hatchling sea turtles initially swim affects subsequent orientation</td>
</tr>
<tr>
<td>11:30 am</td>
<td>Cara Brittain, Haruka Wada, Dan Cristol</td>
<td>Neural effects of lifelong dietary methylmercury in a model songbird</td>
</tr>
<tr>
<td>11:45 am</td>
<td>Mehrnoush Nourbakhsh-Rey, Michael Markham</td>
<td>Species differences in the leptinergic regulation of electric signals in weakly electric fish</td>
</tr>
<tr>
<td><strong>10:15 AM – 12:00 PM</strong></td>
<td></td>
<td>Room: Lonestar G</td>
</tr>
<tr>
<td><strong>Getting to the Point: Puncture and Defense in Biology</strong></td>
<td>Chairs: Philip Anderson, Linnea L. Lungstrom</td>
<td></td>
</tr>
<tr>
<td>10:15 am</td>
<td>Jules Chabain, Liu Hong, Leonardo Chamorro, Philip Anderson</td>
<td>Influence of serrations on puncture performance in the barbs of stingrays</td>
</tr>
<tr>
<td>10:30 am</td>
<td>Emily Poulin, Jonathan Huie, Jules Chabain, Karly Cohen, Matthew Kolmann, Christopher Martinez</td>
<td>Making a point: exploring the form and function of stingray spines</td>
</tr>
<tr>
<td>10:45 am</td>
<td>Philip Anderson, Kehan Pan, Bradley Scott, Abby Weber, Bingyang Zhang</td>
<td>A Thorny Landscape: The Diversity of Biological Puncture Systems</td>
</tr>
</tbody>
</table>
Thursday 5 January 2023

11:00 am  **Jack Rosen, Cassandra Donatelli, Karly Cohen, Adam Summers, Matthew Kolmann**  Fruit ninja: puncture performance of frugivorous fish dentitions (Serrasalmidae)

11:15 am  **Bingyang Zhang, Philip Anderson**  Modeling biological puncture: on the mechanics, energetics, and scaling

11:30 am  **Linnea Lungstrom, Mark Westnueat, Jonathan Huie, Matthew Kolmann, Karly Cohen**  Sink Your Teeth into the Puncture Performance of a Payara Pendulum

11:45 am  **Alexander Waye, Andrew Ray, Matthew Holding, Talia Moore**  Cutting down the time for comparative FEA studies: a case study with snake fangs

10:15 AM – 12:00 PM

**Rooms 402-403**

**Global Change Biology II: Invasions and Toxins**  
Chair: Abigail Cahill

10:15 am  **Melissa Kemp**  Defaunation and species introductions alter long-term functional trait diversity in insular reptiles

10:30 am  **Braulio Assis, Alexis Sullivan, Stephanie Marciniak, Christina Bergey, Tracy Langkilde, George Perry**  70 years of invasion: genetic adaptation of fence lizards in response to the invasive fire ant

10:45 am  **Richard Li, Walter Jetz**  Temporal dynamics of realized niches during biological invasion

11:00 am  **Abigail Cahill, Emily Rollinson, Katie Ferrero, Patrick Mayo, Elizabeth Deecher, Brittney O’Connor, Nijmih Siryani**  Population sizes of introduced milkweed aphids (*Aphis nerii*) and their effect on plant traits

11:15 am  **Adrian Fisher, Jordan Glass, Nicole DesJardins, Cahit Ozturk, Yash Raka, Keerut Chahal, Gloria DeGrandi-Hoffman, Brian Smith, Jennifer Fewell, Jon Harrison**  The impact of a widely used fungicide on honey bee (*Apis mellifera*) health

11:30 am  **Tim Mitchell, Alex Shephard, Emiliee Snell-Rood**  Pollutant uptake by plants exposes butterflies to elevated toxins loads

11:45 am  **Patrick Wright, Janet Steven**  Accumulation of metals in an agricultural weed and implications for phytoremediation

10:15 AM – 12:00 PM

**Lonestar A**

**Interspecific Interactions: Friends and Facilitators**  
Chair: Jason Macrander

10:15 am  **Jason Macrander, Alyah Bennett, Katie Statile, Kerry Broderick**  Clownfish Influence on Differential Levels of Gene Expression in Sea Anemones

10:30 am  **Hannah Aichelman, Alexa Huzar, Daniel Wuitchik, Kathryn Atherton, Nicola Kriefall, Sarah Davies**  Do facultative coral hosts buffer their symbionts in response to thermal extremes?

10:45 am  **Colleen Bove, Annabel Hughes, Alexa Huzar, Karl Castillo, Daniel Segre, Sarah Davies**  Environmental drivers of coral-associated algal and microbial communities across multiple scales

11:00 am  **Geoff Mitchell, Nathan Faulstich**  Evidence for phosphorous-dependent control of symbiont cell growth

11:15 am  **Erica Westerman, Sushant Potdar, Madison Jennings, Conor Moriarty, My Ly, Neelendra Joshi**  What apples do in the shadows: plant-pollinator interactions at night

11:30 am  **Bryan MacNeill, Michael McKain, Aaron Rodriguez, Eduardo Ruiz-Sanchez**  Dissecting pollinator-driven floral-trait evolution in Agave subg. Manfreda

11:45 am  **Liming Cai**  The Bloody Queen Hypothesis for the Evolution of Parasitic Plants
## Movement, Migration And Dispersal II: Below the Surface

*Chairs: Hosain Bagheri, M. Zachary Darnell*

<table>
<thead>
<tr>
<th>Time</th>
<th>Title</th>
<th>Presenters</th>
</tr>
</thead>
<tbody>
<tr>
<td>10:15 am</td>
<td>Theodolite tracking bottlenose dolphin movement and behavior in a busy Texas ship channel</td>
<td>Eliza Mills, Dara Orbach, Sarah Piwetz</td>
</tr>
<tr>
<td>10:30 am</td>
<td>Floatation of aquatic blackworm blobs</td>
<td>Harry Tuazon, Emily Kaufman, Daniel Goldman, Saad Bhamla</td>
</tr>
<tr>
<td>10:45 am</td>
<td>Energetic Tradeoffs for Foraging and Migration in Large Whales</td>
<td>William Gough, Max Czapanskiy, Matthew Savoca, Elliott Hazen, William Oestreich, James Fahlbusch, Jeremy Goldbogen</td>
</tr>
<tr>
<td>11:00 am</td>
<td>Collective Navigation by Talitrid Amphipods</td>
<td>Magdalena Phillips, Jesse Granger, Sönke Johnsen</td>
</tr>
<tr>
<td>11:15 am</td>
<td>Detecting Subtle Subterranean Movement Via Laser Speckle Spectroscopy</td>
<td>Hosain Bagheri, Paige Caine, Michael Goodisman, Daniel Goldman</td>
</tr>
<tr>
<td>11:30 am</td>
<td>Digging In: An Investigation of Burrowing Behavior in Muusoctopus leioderma</td>
<td>Cheyne Springbett</td>
</tr>
<tr>
<td>11:45 am</td>
<td>Environmental and social context influences decisions associated with fiddler crab burrow retreats</td>
<td>M. Zachary Darnell</td>
</tr>
</tbody>
</table>

## Inclusion and Outreach in Education

*Chair: Molly Jacobs*

<table>
<thead>
<tr>
<th>Time</th>
<th>Title</th>
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</tr>
</thead>
<tbody>
<tr>
<td>10:30 am</td>
<td>Future of Open Educational Resources: Student Teaching in a University-Middle School Collaboration</td>
<td>Jacqueline Rich, Katie Doyle, Dara Orbach</td>
</tr>
<tr>
<td>10:45 am</td>
<td>Developing LGBTQIA+ Inclusive Biology Classrooms and Curricula</td>
<td>Sam Sharpe</td>
</tr>
<tr>
<td>11:00 am</td>
<td>SciComm that reaches millions through livestreaming platforms Twitch &amp; YouTube.</td>
<td>Connor O’Brien, Andrew Schulz</td>
</tr>
<tr>
<td>11:15 am</td>
<td>U360: Training College Students as Real-World Sustainability Superheroes</td>
<td>Molly Jacobs, Lora Babb</td>
</tr>
<tr>
<td>11:30 am</td>
<td>The STEM Ambassador Program – Bridging Science and Society</td>
<td>Andrew George, Sara Yeo, Nalini Nadkarni</td>
</tr>
</tbody>
</table>

## DEDB Best Student Presentation

*Chair: Dave Angelini*

<table>
<thead>
<tr>
<th>Time</th>
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<th>Presenters</th>
</tr>
</thead>
<tbody>
<tr>
<td>10:30 am</td>
<td>Evolutionary Conservation of Chordate Metamorphic Cues</td>
<td>Gwendolyn Lam, Bradley Davidson, Hannah Gruner, C. J. Pickett</td>
</tr>
<tr>
<td>10:45 am</td>
<td>Single Cell Transcriptomics Reveals a Diverse Set of Feather Germ Cell Types</td>
<td>Cody Limber, Gunter Wagner, Richard Prum</td>
</tr>
<tr>
<td>11:00 am</td>
<td>Building a blastema: Early cell dynamics in annelid head regeneration</td>
<td>James Nowotny, Alexandra Bely</td>
</tr>
<tr>
<td>11:15 am</td>
<td>Dueling anemones: Inducible defense structures as a model for the evolution of cell type plasticity</td>
<td>Yareli Alvarez, Leslie Babonis</td>
</tr>
<tr>
<td>11:30 am</td>
<td>A Universal Model of Growth Describing the Evolution and Development of Theropod Beaks</td>
<td>Kathleen Garland, Alistair Evans</td>
</tr>
<tr>
<td>11:45 am</td>
<td>Investigation of the segment polarity network in the tardigrade Hypsibius exemplaris</td>
<td>Taylor Harrison, Frank Smith</td>
</tr>
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</table>
### Thursday 5 January 2023

<table>
<thead>
<tr>
<th>Time</th>
<th>Session</th>
<th>Location</th>
</tr>
</thead>
<tbody>
<tr>
<td>12:00 pm</td>
<td><strong>Kira Heikes, Mandy Game, Frank Smith, Bob Goldstein</strong></td>
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<tr>
<td></td>
<td>Uncovering the Embryonic Origin of Germ Cells in the Tardigrade Hypsibius exemplars</td>
<td></td>
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<tr>
<td>12:15 pm</td>
<td><strong>Wesley Dillard, Gareth Fraser</strong></td>
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<tr>
<td></td>
<td>Evolution of the Dermatoskeleton: Insights from Odontode Scute Development in Armored Catfish</td>
<td></td>
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<tr>
<td>10:30 AM – 12:00 PM</td>
<td><strong>Locomotion Where Water Meets Air and Land</strong></td>
<td>Rooms 408-409</td>
</tr>
<tr>
<td>10:30 am</td>
<td>Noah Bressman, Doug Fudge, Andy Turko, Peter Ly, Christian Quinteros</td>
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<td>Vertical jumping from extremely shallow water by the amphibious killifish Fundulus heteroclitus</td>
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<tr>
<td>10:45 am</td>
<td>Pankaj Rohilla, Johnathan O’Neil, Victor Ortega-Jimenez, Prateek Sehgal, Saad Bhamla</td>
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<tr>
<td></td>
<td>Physical and computational models of vortex recapture during Microvelia’s walking on water</td>
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<tr>
<td>11:00 am</td>
<td>Haodong Zhou, Cassandra Donatelli*, Kaelyn Gamel, Henry Astley, Odette Laneuville, Emily Staden</td>
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<td></td>
<td>Feel it in Your Bones: Differences in the Skeletal Anatomy of Terrestrial and Aquatic Mudskippers</td>
<td></td>
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<tr>
<td>11:15 am</td>
<td>Johnathan O’Neil, Victor Ortega-Jimenez, Pankaj Rohilla, Xingwan Zhu, Saad Bhamla</td>
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<td></td>
<td>Microvelia bugs spin up their own wake while tripod-gait walking on water</td>
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<tr>
<td>11:30 am</td>
<td>Kiersten Fornoso</td>
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<td></td>
<td>Axial morphology may drive swimming style in secondarily aquatic tetrapods</td>
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<tr>
<td>10:30 AM – 12:00 PM</td>
<td><strong>Sensory Biology II</strong></td>
<td>Lonestar H</td>
</tr>
<tr>
<td>10:30 am</td>
<td>Toshiyuki Nakata, Patricio Simoes, Simon Walker, Ian Russell, Richard Bomphrey*</td>
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<tr>
<td></td>
<td>Auditory sensory range in mosquitoes: whence can males hear female flight tones?</td>
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<tr>
<td>10:45 am</td>
<td>Lorian Schweikert, Daniel Chappell, Zijin Huang, Gabrielle Delpizzo, Krish Wahi, Madeline Saunders, Vivian Slay, Lydia Naughton, Nicholas Rummelt, Laura Bagge</td>
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<td></td>
<td>Multisensory Integration of Aposematic Signals by a Mantid Predator</td>
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<tr>
<td>11:00 am</td>
<td>Scott Dixon, Simon Walker</td>
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<td>Using the Optomotor Response to Determine the Flicker-Fusion Frequency of Insects</td>
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<tr>
<td>11:15 am</td>
<td>Ruchao Qian, Jamie Theobald</td>
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<td></td>
<td>The visual influence of swaying behavior of praying mantises</td>
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<tr>
<td>11:30 am</td>
<td>Kyle McCulloch, Leslie Babonis, Kristen Koenig</td>
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<td></td>
<td>Exceptional opsin diversity and light behaviors of the sea anemone Nematostella vectensis</td>
<td></td>
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<tr>
<td>11:45 am</td>
<td>Leo Fleishman</td>
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<td></td>
<td>The visual ecology of Anolis dewlap colors</td>
<td></td>
</tr>
<tr>
<td>10:30 AM – 12:00 PM</td>
<td><strong>Sticking to Surfaces</strong></td>
<td>Rooms 301-302</td>
</tr>
<tr>
<td>10:30 am</td>
<td>Smith Drupa, Cassandra Donatelli, Adam Summers, Jonathan Hue, Karly Cohen</td>
<td></td>
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<tr>
<td></td>
<td>The Hardest Part is Letting Go: Shear Adhesion in the Northern Clingfish</td>
<td></td>
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<tr>
<td>10:45 am</td>
<td>Alyssa Stark, Austin Garner, Stephen Yanoviak</td>
<td></td>
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<tr>
<td></td>
<td>Adhesive performance of arboreal ants as a function of substrate surface temperature and shear rate</td>
<td>2023 Conference Program</td>
</tr>
<tr>
<td>11:00 am</td>
<td>Austin Garner, Andrew Moura, John McCormack, Carla Narvaez-Diaz, Alyssa Stark, Michael Russell</td>
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<tr>
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<td>Hyposalinity negatively impacts sea urchin locomotor performance and tube feet kinematics</td>
<td></td>
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<tr>
<td>11:15 am</td>
<td>Alyssa Hernandez, Jessica Sandoval, Michelle Yuen, Robert Wood</td>
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<td>Elongated shapes in bio-inspired suction cups resist shear loading on diverse surfaces</td>
<td></td>
</tr>
</tbody>
</table>
Thursday Program Afternoon Sessions

Note: Presenter is first author unless noted by an asterisk (*).

1:30 PM – 3:00 PM  
Brazos

### High-impact Practices in Undergraduate Teaching
Chair: Kelly Caithlin Kissane

<table>
<thead>
<tr>
<th>Time</th>
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<th>Topic</th>
</tr>
</thead>
<tbody>
<tr>
<td>1:30 pm</td>
<td>Kelly Kissane</td>
<td>The Effects of High Impact Practices on Student Success in Undergraduate Biology Courses.</td>
</tr>
<tr>
<td>1:45 pm</td>
<td>George Meindl, Jessica Hua</td>
<td>Course-based undergraduate research: phytoremediation in Cu-polluted aquatic environments</td>
</tr>
<tr>
<td>2:00 pm</td>
<td>Sarah Wofford-Mares, Lori Tolley-Jordan</td>
<td>Budget Science: How to implement inquiry-based organismal labs without breaking the bank.</td>
</tr>
</tbody>
</table>
### Thursday 5 January 2023

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<thead>
<tr>
<th>Time</th>
<th>Speaker(s)</th>
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</tr>
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<tbody>
<tr>
<td>2:15 pm</td>
<td>Michelle Osovitz, Taegan McMahon</td>
<td>An interdisciplinary and equitable team based science approach to the undergraduate laboratory class</td>
</tr>
<tr>
<td>2:30 pm</td>
<td>Dianne Baker, Kyle Schultz, Katherine Crowder</td>
<td>Impacts of Research Experiences and Academic Supports on Student Retention, Success, and Identity</td>
</tr>
<tr>
<td>2:45 pm</td>
<td>Tonia Schwartz, Amanda Clark</td>
<td>An RNAseq CURE contrasting 18 pipelines from mapping to functional pathway enrichment</td>
</tr>
</tbody>
</table>

#### 1:30 PM – 3:30 PM

**Biomaterials, Structure & Mechanics I**

*Chair: Sheila Patek*

<table>
<thead>
<tr>
<th>Time</th>
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<tbody>
<tr>
<td>1:30 pm</td>
<td>Sheila Patek, Suzanne Cox, Mark Ilton, Megan Porter</td>
<td>Exquisite energetics of spring-propelled, latch-mediated movements</td>
</tr>
<tr>
<td>1:45 pm</td>
<td>Ivana Serra, Jeanette Wyneken</td>
<td>Mechanical behavior of sea turtle shells throughout ontogeny</td>
</tr>
<tr>
<td>2:00 pm</td>
<td>Zachary Baker, Doug Fudge, Andrew Lowe, Dakota Piorkowski</td>
<td>The Biomechanics of Hagfish Eggs</td>
</tr>
<tr>
<td>2:15 pm</td>
<td>Artis Brasovs, Pavel Aprelev, Alexandre Palmor, Charles Beard, Peter Adler, Kostya Kostya</td>
<td>How blood viscosity correlates with the hawkmoth size</td>
</tr>
<tr>
<td>2:30 pm</td>
<td>Madison Hales, Araditya Rajanala, Christopher Pierce, Ram Avnery, Isaiah Taylor, Mingyu Zhu, Philip Benfey, Daniel Goldman</td>
<td>Visualizing root response to shifting gravity in real time and three dimensions</td>
</tr>
<tr>
<td>2:45 pm</td>
<td>Teagan Mathur, Liyuan Zhang, Marianne Alleyne, Jake Socha, Sara Wilmsen, Kamel Fezzaa, Samuel Clark, Amy Wissa</td>
<td>Latching, Loading, and Release in Click Beetles under Different Mechanical Constraints</td>
</tr>
<tr>
<td>3:00 pm</td>
<td>Alissa Coonfield, Damian Elias, Ross Hatton, Todd Blackledge</td>
<td>Thread tensioning alters acoustic properties of Argiope trifasciata orb webs</td>
</tr>
<tr>
<td>3:15 pm</td>
<td>Justin Jorge, Sheila Patek</td>
<td>Comparative biomechanics of energy storage and release across seed-shooting witch hazels</td>
</tr>
</tbody>
</table>

#### 1:30 PM – 3:30 PM

**DAB Best Student Presentation: Marlene Zuk Award**

*Chair: Avery Russell*

<table>
<thead>
<tr>
<th>Time</th>
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<tbody>
<tr>
<td>1:30 pm</td>
<td>Grace Zhong, Laurel Kroo, Manu Prakash</td>
<td>Thermotaxis in an apolar, non-neuronal animal</td>
</tr>
<tr>
<td>1:45 pm</td>
<td>Annaliene Novinger, Katherine Naumer, Dalton McCart, Rachel Wilkins, Haley Muse, Tia-Lynn Ashman, Avery Russell, Maggie Mayberry</td>
<td>Learned bee-haviors of pollen-foraging bees</td>
</tr>
<tr>
<td>2:00 pm</td>
<td>Rebecca Westwick, Gavin Brackett, Brown Cameron, Bethany Ison, Clare Rittschof</td>
<td>Alarm cues alter nursing behavior in aggressive honey bee colonies (<em>Apis mellifera</em>)</td>
</tr>
<tr>
<td>2:15 pm</td>
<td>Melanie Kimball, Courtney Harding, Kaitlin Couvillion, Keegan Stansberry, Toshia Kelly, Christine Lattin</td>
<td>Estradiol and predator cues affect behavior and brain responses of captive female house sparrows</td>
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<tr>
<td>2:30 pm</td>
<td>Annelise Blanchette, Myra Finkkelstein, Jordan Karubian, Alex Gunderson</td>
<td>Lead exposure is associated with significant physiological detriments in urban lizards</td>
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<tr>
<td>2:45 pm</td>
<td>Subhasmita Patro, Thejaswini Saravanam, Ayush Parag, Maria Thaker</td>
<td>Integration of signaling traits during social interaction in a color-changing lizard</td>
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<tr>
<td>3:15 pm</td>
<td>Lisa Surber, Eva Fischer</td>
<td>Behavioral, morphological, and hormonal plasticity in cannibalistic poison frog tadpoles</td>
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Thursday 5 January 2023

1:30 PM – 3:30 PM

DCB Best Student Presentation: Mimi A. R. Koehl and Stephen A. Wainwright Award

Chair: John H. Long

1:30 pm Alice Leavey, Laura Porro, Christopher Richards

Modelling the effect of different skeletal proportions on hindlimb mechanics in frogs

1:45 pm Christian Brown, Erik Sathe, Robert Dudley, Stephen Deban

Skydiving salamanders: How some lungless salamanders jump, glide, and generate lift

2:00 pm Bradley Scott

Competition from jawed vertebrates was not the only cause of Heterostraci (Agnatha) extinction

2:15 pm Melody Young, Edwin Dickinson, Nicolas Flaim, Daniel Tanis, Alexander Lopez, Michael Granatosky

Climbing is hard (at least for humans).

2:30 pm Mikayla Struble

Terrestrial to Aquatic Locomotor Transitions in Notophthalmus viridescens

2:45 pm Divya Ramesh, Qiyuan Fu, Gargi Sadalgekar, Zachary Souders, Luke Moon, Jack Rao, Mia Urban, Milla Ivanova, Kapi Ketan Mehta, Lucas An, Chen Li

Studying terrestrial fish locomotion on wet deformable substrates

3:00 pm Theodora Po, Matt McHenry

The collective and central control of locomotion in sea stars

3:15 pm Gargi Sadalgekar, Qihan Xuan, Qiyuan Fu, Chen Li

Template-level robophysical models for studying sustained terrestrial locomotion of amphibious fish

1:30 PM – 3:30 PM

Disease and Immune Trade-offs

Chair: Charles M. Watson

1:30 pm Jennifer Terry, Lorin Neuman-lee, Emily Letner, Alexia Vanoven

Innate immune component tradeoffs in a wild freshwater turtle

1:45 pm Marissa Wright, Lucas Kirschman, Kelley Fritz, Logan Oleson, Rebecca Witty

Larval metabolic rate varies with developmental stage and does not predict disease susceptibility

2:00 pm Kwanho Ki, Elizabeth Wu, Erin Lewis, Susannah French, Dale DeNardo

Effects of a high sugar diet on immune response in the green iguana

2:15 pm Weston Perrine, Sarah DuRant, Erin Sauer, Ashley Love, Ashley Morris

Diet composition affects on Serinus canaria infected with Mycoplasma gallisepticum.

2:30 pm Charles Watson, Sadie Gent, Christian Cox

Sex-specific interactions between signal expression, energetics, and parasitism in canyon lizards

2:45 pm Jessica Dudley, Marilyn Renfree, Oliver Griffith

The evolution of extended pregnancy involves taming inflammation; evidence from the tammar wallaby

3:00 pm Stefanny C Titon, Braz Titon-Jr, Vania R Assis*, Alan Lima, Fernando Gomes

Restraint during breeding season impacts hormone levels and immune response of male and female toads

1:45 PM – 3:15 PM

Ecophysiology: A Spotlight on Moisture

Chair: Jill L. Azzolini

1:45 pm Adam Rosenblatt, Laura Habegger

Decreasing humidity leads to dramatic increase in American alligator egg failure

2:00 pm Thomas Luhring, Lyndsie Wszola, Grant Connette, Christopher Schalk

Droughts reduce growth and increase vulnerability to increasingly frequent and severe drying events.

2:15 pm Caleb Loughran, Michael Kearney, Blair Wolf

Modeling evaporative cooling and the potential for extended activity in lizards under future climate

2:30 pm Carrie Veilleux, Rebecca Lewis

Fat storage as a possible strategy for coping with drought in a seasonally-adapted lemur
Thursday 5 January 2023

2:45 pm  Meron Dibia, Hunter King  The termite mound as passive, sorbent-based, vapor harvesting device
3:00 pm  Samantha Skerlec, Stephanie Bristow, Krista Ward, Clarke Burgert, Thomas Luhring  No free refills: the costs of pond drying to growth and survival of aquatic ectotherms

1:30 PM – 3:15 PM  Rooms 203-204

Fish Locomotion
Chairs: Haley Amplo, Yordano Jimenez

1:30 pm  Brendan Gibbs, Clark Morgan, Steven Longmire, James Liao  Swimming kinematics and energetics of wild red drum under ecologically relevant flows
1:45 pm  Michael Fath, Eric Tytell  Bluegill (Lepomis macrochirus) minimize destabilizing torques by resting at an unstable equilibrium.
2:00 pm  Connor White, Theodore Castro-Santos, George Lauder  Volitional burst swimming in White Sucker, Catostomus commersoni, quantified with biologgers
2:15 pm  James Liao, Monica Coraggioso, Leonardo Demarchi, Faustine Giroux, Miguel Peço, Gautam Sridhar, Olivier Mirat, Claire Wyart  Fine motor kinematics of larval zebrafish in laminar flow
2:30 pm  Haley Amplo, Ariel Camp, Brooke Flammang  Exploring the Range of Motion of Antennarius commerson using XROMM
3:00 pm  Yordano Jimenez, Janne Pfeifferberger, Gina Kim, Erik Anderson, Eric Tytell  Linking body mechanics and swimming kinematics of scup, Stenotomus chrysops

1:30 PM – 3:30 PM  Rooms 402-403

Invertebrate Evo Devo
Chair: Kristen Koenig

1:30 pm  Kristen Koenig, Christina Daly  Gene Regulation and Lens Evolution in the Squid Doryteuthis pealeii
1:45 pm  Mandy Game, Frank Smith  Orthodenticle is required for the expression of both r-opsins and c-opsins in tardigrades
2:00 pm  Raúl Chavarria, Frank Smith  Shaggy, a Wnt signaling inhibitor, regulates anteroposterior axis development in tardigrades
2:15 pm  Ariel Chipman  Serial Homology and Segment Identity in the Arthropod Head
Thursday 5 January 2023

2:30 pm Fredrik Hugosson, Brent Foster, Mark Martindale
Expansion of Notum genes in Nematostella vectensis: Implications for Wnt signaling in development

2:45 pm Brent Foster, Fredrik Hugosson, Joseph Ryan, Mark Martindale
Characterizing Notch Signaling in the Ctenophore Mnemiopsis leidyi

3:00 pm Richard Gawne, Michael Levin
Using Tissue Chimeras to Probe Regenerative Patterning and Physiological Controls in Planaria

3:15 pm Elaine Seaver
Characterization of a putative stem cell niche in the annelid Capitella teleta

2:00 PM – 3:30 PM
Living in Stressful Environments
Chair: Mike W. Butler

2:00 pm Erin Lewis, Alison Webb, Spencer Hudson, Karen Kapheim, Charles Knapp, John Iverson, Susannah French
Anthropogenic effects of wildlife-feeding on the physiological health of Bahamian Rock Iguanas

2:15 pm Samuel Lane, Ben Vernasco, Taylor Fossett, Isaac VanDiest, Heather Watts, Kendra Sewall
Effects of urbanization and brood parasites on avian telomere length across sexes and age classes

2:30 pm Mike Butler, Zachary Cullen, Caroline Garti, Dory Howard, Bridget Corpus, Bridget McNish, Justin Hines
Physiologically relevant levels of a putative antioxidant do not oppose oxidative damage in plasma

2:45 pm Esmirna Cantu, MD Rahman
Pesticide Mixtures Influences the Physiology and Induces Oxidative/Nitrative Stress in Goldfish

3:00 pm Chelsea Bowers-Doerning, Justin Hertel, Ashley Ibrahim, Misty Paig-Tran
Ingestion and assimilation of microplastics in the Pacific sardine, Sardinops sagax

3:15 pm Erynn Johnson, Nimran Shergill, Madhusudhan Venkadesan, Derek Briggs
Specialized shell-peeling morphologies are advantageous to durophagous crabs

1:30 PM – 3:30 PM
Sensory Motor Control
Chair: Alexandra C N Kingston

1:30 pm Erin Giglio
Using pose estimation to identify differences in movement across sex and neurodivergence in mice

1:45 pm Alexandra Kingston, Sarah Woodin, David Wethey, Rebekah Hansen, Daniel Speiser
Helmet-like orbital hoods protect snapping shrimp from shock waves

2:00 pm Rachel Parsons, Robyn Crook
Neural control of quadrupedal walking in the flamboyant cuttlefish, Metasepia pfefferi

2:15 pm Kate Feller
Neuromechanics of latch & spring ballistic movement control in the mantis shrimp, Squilla empusa

2:30 pm Abbigale Koenigsmark, Robyn Crook
Injury-induced nociceptive sensitization affects male contests in the cuttlefish Sepia bandensis

2:45 pm Christopher Pierce, Lucinda Peng, Hang Lu, Daniel Goldman
Aperiodic Undulation in High Resistance Environments

3:00 pm Lucinda Peng, Christopher Pierce, Xuefei Lu, Daniel Goldman, Hang Lu
Feedforward and feedback mechanisms interact to control environment-dependent gait adaptation

3:15 pm Rachel Crane, Christofer Brothers, Paul Leary, Stacey Combes
Dragonfly pursuit of artificial prey with biologically relevant flight behaviors
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<td><strong>The Evolution of Shape and Function</strong>&lt;br&gt;Chair: Travis Hagey</td>
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<td><strong>Toepad shape allometry and evolution across Hemidactylus geckos</strong></td>
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<td>2:15 pm</td>
<td>Travis Hagey, Alaina Dawkins</td>
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<td>2:30 PM</td>
<td><strong>Tony Williams</strong></td>
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<td><strong>Why is egg size the ‘Cinderella’ of avian life-history traits?</strong></td>
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<td>2:45 PM</td>
<td>Nicholas Hebden, Alexa Ortega, Lindsay Waldrop</td>
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<td><strong>The Curious Case of Snout Design in Canine Olfaction</strong></td>
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<td>3:00 PM</td>
<td>Brittany Dobbins, Maia Rogers, Ruben Tovar, Tom Devitt, Dana Garcia, David Hillis</td>
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<td><strong>Expansion of the Lateral Line System Among Blind Salamanders of the Genus Eurycea</strong></td>
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<td>3:15 PM</td>
<td>Vinicius Anelli, Priscila Rothier, Anthony Herrel, Tiana Kohlsdorf</td>
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<td><strong>Head shape variation in fossorial lizards reflects distinct burrowing substrates</strong></td>
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<td>7:30 PM</td>
<td><strong>Howard A. Bern Lecture: Dr. Tyrone Hayes</strong>&lt;br&gt;Right back where I started: Enamored with anurans</td>
<td>Lonestar DE</td>
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Thursday POSTER SESSION P2

JW Grand Ballroom, 3:30-5:30 PM
Poster Set Up: 7:00-8:00 am; Poster Teardown: 5:30-6:00 pm
Even # - Authors present from 3:30-4:30 pm; Odd # - Authors present from 4:30-5:30 pm

**Biochemistry and Muscle Physiology**

**P2-001**  
Allyn Nguyen, Natalie Holt  
No speed-endurance tradeoff during the “Love Bite” of southern alligator lizards (*E. multicarinata*).

**P2-002**  
Juliette Rault-Wang, Arpitha Parthasarathy, Audrey Young, Susan Park, Jenna Monroy  
Exercise decreases muscle stiffness in mice with a deletion to titin

**P2-003**  
Natalee Hite, Diana Sarko  
Contractile Properties of the Naked Mole-Rat Masseter: Impacts of Tooth Loss

**P2-004**  
Jacob Pithan, Joseph Rinehart, Kendra Greenlee, Giancarlo López-Martínez  
Oxidative damage and age-related declines in locomotion

**P2-005**  
Kyle Leong, Allyn Nguyen, Anthony Cobos, Natalie Holt  
Contratil Properties of Iliotibialis Muscles Compared to Jaw Muscles in Southern Alligator Lizard

**P2-006**  
Salih Elnour Salih Awouda, Angela Clemens, John Long, Candido Diaz  
The Glue of Moth-Catching Spiders: Biochemical Properties of Spread Droplets

**P2-007**  
Rachel Belanger, Mariana Muskovac*, Diana Chammout, Kenia Contreras, Dorian Goolsby, Reema Hamdan, Christina Rabban, Kendra Evans  
A morphological and biochemical analysis of crayfish tissues post-atrazine exposure

**P2-008**  
Alexandra Krak, Jason Bystriansky, Caleb McMaham  
Salinity tolerance of the swordtail, *Xiphophorus hellerii*

**Biology Education, Outreach, and Citizen Science**

**P2-009**  
Ana Jurcak-Detter  
Power of the People! Utilizing Citizen Science in Course Curriculum

**P2-010**  
Alexandria Hansen  
Investigating undergraduate students’ engagement in a bio-inspired design course

**P2-011**  
Jerry Husak, Rachelle Belanger, Michele Johnson, Kristopher Karsten, Matthew LeFauve, Jason Macrander, Thomas Sanger, Kari Taylor-Burt, Lisa Whitenack  
Integrative Biology at Primarily Undergraduate Institutions

**P2-012**  
Ulrike Muller, Rory Telemeco, Alexandria Hansen, Manuel Gonzalez, Fatima Awad  
A conference proceedings journal shows changes in the publication process since the start of COVID19

**P2-013**  
Alicia Fox  
Bringing wildlife into the lab: Lower division Zoology students use camera traps to observe animals

**P2-014**  
Cathy Chen, Emily Low, Kathleen Lu, Kyra Ricci, Carmela Buano, Elias Miller, Kirsten Prior, Jessica Hua  
Citizen science from the perspective of community members and scientists: case study of an EcoBlitz

**P2-020**  
Jason Macrander, Conner Philson, Bryan MacNeil, Armita Manafzadeh, Kathleen Munley, Maria Stager, Jennifer Houtz, Anusha Shankar, Rebecca Varney, Emily Lessner, Adrien Arias  
SPDAC PRESENTS: Questions you didn’t know you had - The graduate student and postdoc edition

**P2-015**  
Sheila Patek, Sophie Hanson, Kim Manturuk, Mark Ilton, Jeffrey Blanchard, Theo Cai, Donovan Hardy  
Muser: a platform for enhancing equity in and access to interdisciplinary academic research

**P2-016**  
Kelsey Jennings  
LGBTQ+ People in the Outdoors: Insights and Gaps

**P2-017**  
Rowan Marshall, Jason Macrander  
Science Communication Through a Blog: A Case Study with ICB

**P2-018**  
Lily Palumbo, Ioulia Bespalova, Heather Axen, James Waters  
Biodiversity bootcamps and a vision for a regional network of community engagement

**P2-019**  
Cassie Shriver, Margaret Zhang, Staci Wiech, David Hu, Young-Hui Chang, Joseph Mendelson, Andrew Schulz  
Implementing a Zoo Biomechanics Day to Improve Public Outreach

**P2-021**  
Eloise Parish-Mueller, Victor Gonzalez, Charles Abramson  
Investigating residents’ knowledge and perceptions of bees in Lesvos, Greece
Thursday 5 January 2023

Posters

P2-022  Gloria Rodriguez, Davida Smyth
Developing a faster, inexpensive, accessible, microbial detection method for wastewater surveillance

**Complementary to S4: Daily Torpor Across Birds and Mammals: Recent Progress and How Do We Advance the Field?**

P2-023  Leonardo Rodriguez, Cecilia Doan, Alexis Ayala, Rachael Tang, Derrick Groom
High-temperature effects on behavior and torpor in Calypte anna

P2-024  Shenni Liang, Emily Blackwell, Sophia Wolfe, Irby Lovette, Donald Powers, Anusha Shankar
Differential gene expression analysis across organs during daily torpor in Anna's Hummingbirds

P2-025  Sophia Wolfe, Emily Blackwell, Nora Prior, Irby Lovette, Donald Powers, Anusha Shankar
Differential gene expression between normothermy and torpor in 4 brain regions in Calypte anna

P2-026  Emily Blackwell, Shenni Liang, Sophia Wolfe, Irby Lovette, Donald Powers, Anusha Shankar
Surface body temperature as a proxy for metabolic rate during torpor in hummingbirds

P2-027  Santi Tabares-Erices, Grace Guo, Irby Lovette, Anusha Shankar
Reassessing torpor use across mammals: does diet influence torpor?

P2-028  Grace Guo, Santi Tabares-Erices, Irby Lovette, Anusha Shankar
A comprehensive phylogeny of avian torpor with ecological context

**Complementary to S5: Pathways to Adulthood: Environmental, Developmental, and Evolutionary Influences on the Ontogeny of Form and Function**

P2-029  Penelope Baker, Julie Butler, Lauren O’Connell
Parent Recognition and Preference in Poison Frog Tadpoles

P2-030  Thomas Clark, Dillon Monroe, Caitlin Gabor
Effects of chronic exposure to heat on water-borne stress hormones over time in tadpoles

**Complementary to S6: Large-Scale Biological Phenomena Arising From Small-Scale Biophysical Processes**

P2-031  Amanda Platt, Kristen Whalen, Marta Wilbrink
Designing a bacterial biosensor to detect chemical signals within the phycosphere

**DCPB Best Student Poster Competition**

P2-032  Julia Newcomb
Characterization of Biogenic Amine Receptors in the Y-Organ of G. lateralis and C. maenas

P2-033  Kyle Raney, Talia Head, Donald Mykles
Characterization of Catalase and its Role in Molting in G. lateralis and C. maenas

P2-034  Adrian Macedo, Jacob Hutton, Jason Dallas, Robin Warne
Glucocorticoid effects on thermal acclimation capacity in a frog

P2-035  Laura Antizzo, Donald Mykles, Talia Head
Characterization of protein kinase C in the molting gland of two decapod crustaceans

P2-036  Etti Cooper, Ryan Bevis
Critical Thermal MAXIMA and Plasticity in Metabolic Rates: A Comparison of Two Ant Species

P2-037  Talia Head, Donald Mykles
Comparative analysis of protein kinase G in the decapod crustacean molting gland

P2-038  James Harper, Elizabeth Kirkland-Bailey
Effects of Acute Food Restriction on Endoplasmic Reticulum (ER) Stress Response in Nauphoeta cinerea

P2-039  James Harper, Sami Badwan
Does availability impact immune function in speckled cockroaches (Nauphoeta cinerea)?

P2-040  Rylee Vigil, Isabella Garino-Heisey, Victor Gonzalez, John Hranitz
Summer acclimatization by high/low elevation bees yields different thermal and desiccation tolerance

P2-041  Julie Karlsson, Aubrey Jane, Markus Frederich, Doug Rasher, Jessica Waller, Eric Annis
Cardiac performance as a function of temperature in larval American lobsters (Homarus americanus)

P2-042  Sarah Heissenberger, Sarah DuRant, Maya Tipton, Daniela Kim, Kaia Arusha, Luis Luis, Daniela Rivera, Francisco Bozinovic, Grisel Cavieres, Daniela Vera, Pablo Sabat, Carolyn Bauer
Effects of maternal water restriction on offspring water balance physiology in Octodon degus

P2-043  An-Ping Yu, Mihika Kozma, Donald Mykles
Gene expression of insulin-like peptides (ILP) across the molt cycle of the blackback land crab

P2-044  Sydney Collins, Mihika Kozma, Donald Mykles
A novel model for RTK mediated regulation of the molt cycle in the blackback land crab
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<td>Using a vertebrate collection to examine bat species representation and bone conservation</td>
<td>Monique Ades, Ulrike Muller</td>
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<td>Measurement relationships for sea turtles nesting on the Gulf of Mexico</td>
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<td>Visual Field Analysis of Two Viperid Snakes</td>
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<td>Variance of Carotid-Rete-Mediated Selective Brain Cooling Across Aridity Indices</td>
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<td>Exploring cranial integration in geomyoic rodents</td>
<td>Francesca Socki, David Fox</td>
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<td>Rhinella marina: adaptations in limb morphology that potentially promote invasion success.</td>
<td>Sydney Turner, Crystal Kelehear-Graham</td>
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<td>Decolonizing a vertebrate collection housed at a minority-serving university</td>
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<td>Audrey Kellogg, Christin Murphy, Sarah Kienle, Marilyn Marx, Joy Lapsents, Michael Moore</td>
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<td>From sympleiomorphy to synapomorphy; The case of the stapled foramen in Lepidosaurs</td>
<td>Kayla Garza, Juan Daza</td>
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<td>Comparative anatomy of the Brachial Plexus in Mammals</td>
<td>Margaret Hall, Ruxandra Dane, Angel Olivares, Shirinithi Kalai, Alexandra Miller, Dominik Valdez, Justin Georgi</td>
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<td>Habitat structure and ecomorphology of fishes in neotropical blackwater creeks.</td>
<td>Devya Hemraj-Naraine, Hernan López-Fernández, Kirk Winemiller, Gyanpriya Maharaj, Donald Taphorn</td>
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<td>Phenotype-environment associations in the morphological evolution of neotropical lizards</td>
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<td>Mechanical Advantage of Jaw Muscles in a Mouse with Facial Shortening</td>
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<td>An open-source photogrammetry pipeline for acquiring 3D biological models</td>
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<td>Description and comparison of ostrich and common quail natal down: developmental implications</td>
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<td>good.fibes: an R approach for semi-automated detection of muscle fibers from diceCT scans</td>
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<td>Are all caudates boneheads? Exploring lifestyle signals in the microanatomy of amphibian skull roofs</td>
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<td>What a carrion: morphological convergence in vulture skull shape is driven by feeding ecology</td>
<td>Katherine Steinfeld, Andrew Knapp*, Ryan Felice</td>
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<td>Allometry of size and performance in the desert horned lizard (Phrynosoma platyrhinos)</td>
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<td>Characterizing the molecular basis of red-green color vision in Heliconius butterflies</td>
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<td>Differences in Critical Temperature Minimum across the Plethodontidae Family</td>
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<td>Eric Brown, Danielle Levesque</td>
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STRECH: Strain Tension Recorder Engineered from Cheap Hardware

**P2-233**  Yakun Cao, Ruiqi Wang, Nick Gravish  
Development of an FTIR apparatus for observing the dynamics of adhesive engagement in Argentine Ants

**P2-234**  Zachary Nopper, Kaelyn Gamel, Henry Astley  
Detecting Hydrodynamic Wake Forces with an Underwater Force Plate
## Friday Schedule of Events
Events take place in the JW Marriott Austin, unless otherwise noted

<table>
<thead>
<tr>
<th>EVENT</th>
<th>TIME</th>
<th>LOCATION</th>
</tr>
</thead>
<tbody>
<tr>
<td>Poster Session 3 Set Up</td>
<td>7:00 AM – 8:00 AM</td>
<td>JW Grand Ballroom</td>
</tr>
<tr>
<td>Speaker Ready Room</td>
<td>7:00 AM – 5:00 PM</td>
<td>Room 405</td>
</tr>
<tr>
<td>Registration</td>
<td>7:30 AM – 3:00 PM</td>
<td>JW Grand Ballroom Foyer</td>
</tr>
<tr>
<td>Coffee Break AM</td>
<td>9:30 AM – 10:30 AM</td>
<td>JW Grand Ballroom</td>
</tr>
<tr>
<td>Exhibit Hall</td>
<td>9:30 AM – 5:30 PM</td>
<td>JW Grand Ballroom</td>
</tr>
<tr>
<td>Coffee Break PM</td>
<td>3:30 PM – 4:30 PM</td>
<td>JW Grand Ballroom</td>
</tr>
<tr>
<td>Poster Session 3 Even Numbers Authors Present</td>
<td>3:30 PM – 4:30 PM</td>
<td>JW Grand Ballroom</td>
</tr>
<tr>
<td>Poster Session 3 Odd Numbers Authors Present</td>
<td>4:30 PM – 5:30 PM</td>
<td>JW Grand Ballroom</td>
</tr>
<tr>
<td>Poster Session 3 Teardown</td>
<td>5:30 PM – 6:00 PM</td>
<td>JW Grand Ballroom</td>
</tr>
</tbody>
</table>

### SPECIAL LECTURE
Carl Gans Award: Dr. Alejandro Rico-Guevara
Comparative ecophysiology of avian nectarivory
*Sponsored by the Journal of Experimental Biology*

### SYMPOSIUM ORAL PRESENTATIONS

**S7: Biology at Birth: The Role of Infancy in Providing the Foundation for Lifetime Success**
7:45 AM – 3:30 PM
Lonestar E

**S8: The Role of Mechanosensation in Robust Locomotion**
7:45 AM – 3:30 PM
Lonestar C

**S9: Envisioning a Diverse, Inclusive & Safe Future for Field Biology**
7:45 AM – 3:30 PM
Lonestar D

### CONTRIBUTED PAPER ORAL PRESENTATIONS

#### MORNING

**Host-Parasite Interactions**
8:00 AM – 9:30 AM
Rooms 402-403

**Phenotypic Plasticity Across Scales**
8:00 AM – 9:30 AM
Lonestar A

**Sensory Biology III**
8:00 AM – 9:45 AM
Rooms 201-202

**Speciation and Diversity**
8:00 AM – 9:45 AM
Lonestar H

**Thermal Ecology**
8:00 AM – 9:30 AM
Rooms 301-302

**Thermal Physiology I**
8:00 AM – 9:45 AM
Lonestar G

**Ecology and Evolution of Locomotion & Feeding**
8:00 AM – 10:00 AM
Lonestar F

**Living in the Anthropocene**
8:00 AM – 9:45 AM
Lonestar B

**Robots and Physical Models I**
8:00 AM – 10:00 AM
Brazos

**Terrestrial Locomotion II: Mammals**
8:00 AM – 9:30 AM
Rooms 408-409

**Differentiation and Morphogenesis**
8:00 AM – 10:15 AM
Rooms 203-204

**Life in Trees I**
8:30 AM – 9:30 AM
Rooms 303-304

**Examining Mechanisms of Parental, Developmental, or Environmental Impacts**
10:00 AM – 12:00 PM
Rooms 402-403

**Ecophysiology: Can Organisms Take the Heat?**
10:15 AM – 11:45 AM
Rooms 301-302

**Foraging Behavior I: Space, Time and Coordination**
10:15 AM – 12:00 PM
Lonestar H

**Locomotion in Complex Environments**
10:15 AM – 12:00 PM
Rooms 303-304

**Sensory Biology IV**
10:15 AM – 12:00 PM
Rooms 201-202

**Life in Trees II**
10:30 AM – 11:45 AM
Rooms 408-409

**Appendage Kinematics During Aquatic Locomotion**
10:30 AM – 12:00 PM
Brazos

**Coral Biology and Modeling**
10:30 AM – 12:00 PM
Lonestar B

**Feeding and Swallowing Anatomy and Mechanics II**
10:30 AM – 12:00 PM
Lonestar F

**Genomic Windows on Diversity**
10:30 AM – 11:45 AM
Lonestar A

**Global Change Biology III: Distribution/Ecosystem Effects**
11:00 AM – 12:00 PM
Rooms 203-204

**Thermal Physiology II**
10:30 AM – 12:00 PM
Lonestar G
**AFTERNOON**

- **Biological Rhythms and Plasticity**
  1:30 PM – 3:00 PM
  Lonestar H

- **Flying & Landing III**
  1:30 PM – 3:15 PM
  Rooms 301-302

- **Reproduction and Development**
  1:30 PM – 3:15 PM
  Lonestar A

- **Character Development and Evolution**
  1:30 PM – 3:30 PM
  Lonestar G

- **Energetics**
  1:30 PM – 3:15 PM
  Rooms 402-403

- **Evolutionary Comparative Morphology**
  1:30 PM – 3:30 PM
  Rooms 408-409

- **Feeding and Swallowing Anatomy and Mechanics III**
  1:30 PM – 3:30 PM
  Lonestar F

- **Immunity**
  1:30 PM – 3:30 PM
  Lonestar B

- **Modeling & Computational Approaches I**
  1:30 PM – 3:00 PM
  Rooms 303-304

- **Robots and Physical Models II**
  1:30 PM – 3:30 PM
  Brazos

- **Worlds Within: Microbiome Ecology and Evolution**
  1:30 PM – 3:30 PM
  Rooms 203-204

- **Reproductive Behavior**
  2:00 PM – 3:30 PM
  Rooms 201-202

**COMMITTEE AND BOARD MEETINGS**

- **Development Committee**
  12:00 PM – 1:00 PM
  Room 404

- **IOB Editorial Board**
  12:00 PM – 1:00 PM
  Room 406

- **Division Secretaries Meeting**
  12:00 PM – 1:30 PM
  Room 407

**BUSINESS MEETINGS**

- **SICB Society Member Meeting & Awards Presentation**
  6:00 PM – 7:00 PM
  Lonestar D

**WORKSHOPS AND PROGRAMS**

- **CRISPR gene editing in non-model organisms**
  12:00 PM – 1:30 PM
  Room 404

- **Integrative Biology Incubator: How do plants, animals, fungi, and algae solve the same problems differently?**
  12:00 PM – 1:30 PM
  Lonestar B

- **SPDAC Workshop: Sci-Comm Round Table**
  12:00 PM – 1:30 PM
  Griffin Hall

- **PAC Workshop: Communicating science across the ideological spectrum**
  12:00 PM – 1:30 PM
  Lonestar C

- **Bridging Collaborations Between University and K-12 Classrooms: Cross-generational Active Teaching Approaches**
  7:00 PM – 9:00 PM
  Room 404

**SOCIAL EVENTS**

- **Morning 5K Run**
  6:00 AM – 7:00 AM
  JW Marriott Lobby

- **Birding in Austin**
  7:15 AM – 8:45 AM
  Offsite

- **DVM/DCB Social**
  8:30 PM – 10:00 PM
  Terrace Deck

- **Libbie Hyman Auction and DIZ/DEDB/TCS/AMS Dessert Social**
  8:30 PM – 10:00 PM
  Brazos
Thursday 5 January 2023

Friday Program Symposia

Note: Presenter is first author unless noted by an asterisk (*).

7:45 AM – 3:30 PM  Lonestar E

**S7: Biology at Birth: The Role of Infancy in Providing the Foundation for Lifetime Success**  
*Chairs: Christopher Mayerl, Rebecca German*

<table>
<thead>
<tr>
<th>Time</th>
<th>Presenter(s)</th>
<th>Title</th>
</tr>
</thead>
<tbody>
<tr>
<td>7:45 am</td>
<td>Rebecca German, Christopher Mayerl</td>
<td>Biology at Birth: Introduction to the Symposium</td>
</tr>
<tr>
<td>8:00 am</td>
<td>Kaitlyn Murphy, Samantha Le, Alan Wilson, Daniel Warner</td>
<td>The microbiome as a maternal effect: A meta-analysis on vertical transmission of microbiota</td>
</tr>
<tr>
<td>8:30 am</td>
<td>Brett Frye, Dakota McCoy, Jennifer Kotler, Amanda Embury, Judith Burkart, Monika Burns, Simon Eyre, Peter Galbusera, Jacci Hooper, Iru Idoe, Agustin Goya, Jennifer Mickelberg, Marcos Quesada, Miranda Stevenson, Sara Sullivan, Mark Warneke, Sheila Wojciechowski, Dominic Wormell, David Haig, Suzette Tardif</td>
<td>Exploring the impacts of variation in litter composition in callitrichine monkeys</td>
</tr>
<tr>
<td>9:00 am</td>
<td>Chloe Josefson, Emma Seils, Amy Skibiels</td>
<td>Maternal effects of chronic stress during lactation</td>
</tr>
<tr>
<td>9:30 am</td>
<td><strong>Coffee Break</strong></td>
<td></td>
</tr>
<tr>
<td>10:00 am</td>
<td>Katie Hinde</td>
<td>The Adaptively-Relevant Environment of the Primate Neonate: Mother’s Milk in Developmental Context</td>
</tr>
<tr>
<td>10:30 am</td>
<td>Peter Aerts, Falk Mielke, Charlotte Vanden-Hole, Merel Van-Gorp, Chris Van-Ginneken</td>
<td>Early development of locomotion in the piglet model: does size matter?</td>
</tr>
<tr>
<td>11:00 am</td>
<td>Jesse Young, Christopher Mayerl, Alekhya Mannava, Tianhui Fan, Christopher Mamone, Nicole Chapker, Angela Mossor, Rebecca German</td>
<td>Balance development in an infant pig model of preterm birth</td>
</tr>
<tr>
<td>11:30 am</td>
<td>Christopher Mayerl, Chloe Edmonds, Kendall Steer, Khaled Adjerid, Maxwell Johnson, Stephen Howe, Rebecca German</td>
<td>The function of the mammalian extrinsic tongue muscular in the transition from suckling to drinking</td>
</tr>
<tr>
<td>12:00 pm</td>
<td><strong>Lunch</strong></td>
<td></td>
</tr>
<tr>
<td>1:30 pm</td>
<td>Whitney Cole, Karen Adolph</td>
<td>Learning to move in a changing body and a changing world</td>
</tr>
<tr>
<td>2:00 pm</td>
<td>Jennifer Gay, Evelynne Dangcil, Jacqueline Nacipucha, Todd Mowery*</td>
<td>An animal model of preterm infant exposure to the neonatal intensive care unit environment</td>
</tr>
<tr>
<td>2:30 pm</td>
<td>Melissa Bates</td>
<td>Long-term impacts of prematurity on cardiorespiratory control</td>
</tr>
<tr>
<td>3:00 pm</td>
<td>Joseph Duke</td>
<td>Impact of preterm birth on respiratory and cardiopulmonary function in adult humans</td>
</tr>
</tbody>
</table>

7:45 AM – 3:30 PM  Lonestar C

**S8: The Role of Mechanosensation in Robust Locomotion**  
*Chairs: Katie Stanchak, Hilary Katz*

<table>
<thead>
<tr>
<th>Time</th>
<th>Presenter(s)</th>
<th>Title</th>
</tr>
</thead>
<tbody>
<tr>
<td>7:45 am</td>
<td>Kathryn Stanchak, Hilary Katz</td>
<td>Symposium Introduction: The role of mechanosensation in robust movement control</td>
</tr>
<tr>
<td>8:00 am</td>
<td>Bradley Dickerson, Noah Cowan, Andrea Gaede, Auke J. Speert</td>
<td>Feedforward and feedback control architectures for locomotion using mechanosensory input</td>
</tr>
<tr>
<td>8:30 am</td>
<td>Kaushik Jayaram, William McDonnell, Walter Gililland, Heiko Kabutz, Hari Krishna Hari-Prasad</td>
<td>Integrated and Distributed Mechanosensing for Robust Locomotion</td>
</tr>
<tr>
<td>9:00 am</td>
<td>Christina Hamlet, Lisa Fauci, Eric Tytell</td>
<td>Neuromechanical modeling of proprioceptive feedback effects on spinal injury recovery in lampreys</td>
</tr>
<tr>
<td>9:30 am</td>
<td><strong>Coffee Break</strong></td>
<td></td>
</tr>
</tbody>
</table>
Friday 6 January 2023

10:00 am  Hilary Katz  
Rohon-Beard neurons and perspectives on sensorimotor integration after spinal cord regeneration

11:00 am  Claire Wyart, Urs Bohm, Pierre-Luc Bardet, Yasmine Cantaut-Belair, Martin Carbo-Tano, Laura Desban, Lydia Djenoune, Kevin Fidelin, Jeff Hubbard, Hugo Marnas, Andrew Prendergast, Jenna Sternberg, Mingyue Wu  
An axial sensory system detecting spinal curvature impacts locomotion, posture & morphogenesis

11:30 am  Chris Dallmann, John Tuthill  
Context-dependent modulation of leg proprioception in Drosophila

12:00 pm  Lunch

1:30 pm  Kathryn Stanchak, David Perkel, Bingni Brunton  
The avian lumbosacral organ: A spinal mechanosensor for bird balance?

2:00 pm  Aaron West, Thomas Hart, Eve Schneider*  
Tactile Specialization in Domestic and Muscovy Ducks: Integrating Behavior and Physiology

2:30 pm  Julie Simpson  
Mechanosensory cues contribute to the fly grooming sequence

3:00 pm  Kathryn Denny, Steve Huskey, Christopher Anderson, Michael Smith*  
Communication via biotremors in the veiled chameleon (Chamaeleo calyptratus)

7:45 AM – 3:30 PM  Lonestar D

S9: Envisioning a Diverse, Inclusive & Safe Future for Field Biology
Chairs: Vanessa K Hilliard Young, Robin Verble, Corinne L. Richards Zawacki

7:45 am  Vanessa Young, Robin Verble  
Symposium Intro: Current landscape & perspectives from a researcher and a field station director

8:00 am  Nia Morales, Darryl Reano  
What is The Field? Conceptualizing inclusive undergraduate field experiences

8:30 am  Maryam Kamran, Kelsey Jennings, Ashley Dayer  
Fieldwork and LGBTQ+ identities: Queering the outdoors

9:00 am  Shayle Matsuda  
Centering transgender and non-binary experience, access, and safety in ecological fieldwork

9:30 am  Coffee Break  
Grand Ballroom

10:00 am  Charlotte Devitz  
Where the pavement ends: Breaking barriers to accessibility in the field

10:30 am  Alex Troutman  
NFWB: Navigating Fieldwork while Black

11:00 am  Itumeleng Meroenyane  
The future of Black Lives Matter Legacy: Cultivating an Inclusive and Anti-Racist Environment

11:30 am  Elizabeth Rudzki  
Field Safety Manuals: Addressing Exacerbated Field Risks for Marginalized Scientists

12:00 pm  Lunch

1:30 pm  Gillian Bowser, Carmen Cid  
Knowing your field community: a model for effective applied ecology

2:00 pm  Victoria McDermott, Lara Roketenetz*, Phoebe Jekielek  
IDEA+ and OBFS: Using transdisciplinary strategies to create more inclusive spaces

2:30 pm  Gallery Walk and Discussion
### Friday Program Morning Sessions

**Note:** Presenter is first author unless noted by an asterisk (*).

#### 8:00 AM – 9:30 AM  
**Rooms 402-403**  
**Host-Parasite Interactions**  
*Chair: Lauren E. Fuess*

<table>
<thead>
<tr>
<th>Time</th>
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<tbody>
<tr>
<td>8:00 am</td>
<td>Katherine Malinski, Christopher Willett, Joel Kingsolver</td>
<td>Heat disrupts parasitic immunosuppression differently in wild vs. domesticated host populations</td>
</tr>
<tr>
<td>8:15 am</td>
<td>Zunia Colón-Piñeiro, Junangel Aleman-Rios, Laura Reinert, Louise Rollins-Smith, Patricia Burrowes, Ana Longo</td>
<td>Juvenile coqui frogs can mount immune response to chytrid fungus: The key to persistence?</td>
</tr>
<tr>
<td>8:30 am</td>
<td>Lauren Fuess, Amanda Hund, Daniel Bolnick</td>
<td>Investigating mechanisms of variation in parasite resistance using experimental immune challenge</td>
</tr>
<tr>
<td>8:45 am</td>
<td>Ella Halbert, Joanna Reinhold, Megan Roark, Sierra Smith, Katherine Stroh, Cameron Siler, David McLeod, Chloe Lahondere</td>
<td>Culex territans and its role in transmitting Batrachochytrium dendrobatidis to frogs</td>
</tr>
<tr>
<td>9:00 am</td>
<td>Anat Belasen, Anna Savage, Michael Campana, Kevin Mulder, Robert Fleischer, Kelly Zamudio</td>
<td>Leveraging the Past to Preserve the Future: Using Museomics to Understand Amphibian Disease Responses</td>
</tr>
<tr>
<td>9:15 am</td>
<td>Obed Hernandez-Gomez, Lubna Mulla, Vanessa Wuerthner, Jessica Hua</td>
<td>Commonalities in the response of North American salamander skin microbiotas to wildfires and roads</td>
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#### 8:00 AM – 9:30 AM  
**Lonestar A**  
**Phenotypic Plasticity Across Scales**  
*Chair: Sarah E. Kienle*

<table>
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<tbody>
<tr>
<td>8:00 am</td>
<td>Brett Hodinka, Tony Williams</td>
<td>Phenotypic plasticity in mass loss during breeding: annual and individual variation</td>
</tr>
<tr>
<td>8:15 am</td>
<td>Anthony Snead, Corey Quackenbush, Shawn Trojahn, Anna McDonald, Luana Lins, Chris Cornelius, Paula Adams, Dongke Ma, Yuying Hsu, Eric Haag, Frédéric Silvestre, Akira Kanamori, Ryan Earley, Joanna Kelley</td>
<td>Plastic Gene Expression in Response to Embryonic Thermal Conditions</td>
</tr>
<tr>
<td>8:30 am</td>
<td>Aaron Schrey, Kyle Ashton, Melanie Gibson, M. Ellesse Lauer, Andrea Liebl, Lynn Martin, Lance McBrayer, Earl McCoy, Henry Mushinsky, Daniella Ray, Elizabeth Sheldon, David Tev</td>
<td>Epigenetic buffering in heterogeneous and stressful environments</td>
</tr>
<tr>
<td>8:45 am</td>
<td>Joshua Allen, Brett Hodinka, Tony Williams</td>
<td>Experimental manipulation of developmental plasticity and its consequences for juvenile performance</td>
</tr>
<tr>
<td>9:00 am</td>
<td>Kimberly Sheldon</td>
<td>Behavioral plasticity of dung beetle species in warmer, more variable temperatures impacts fitness</td>
</tr>
<tr>
<td>9:15 am</td>
<td>Sarah Kienle, Renato Borras-Chavez, Carolina Bonin-Lewallen, Stephen Trumble, Emily Sperou, Dan Crocker, Michael Goebel, Shane Kanatous, Erin LaBrecque, Krista van-der-Linde, Dan Costa</td>
<td>Phenotypic plasticity across the species range of a Southern Ocean apex predator, the leopard seal</td>
</tr>
</tbody>
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#### 8:00 AM – 9:45 AM  
**Rooms 201-202**  
**Sensory Biology III**  
*Chair: Megan D. Gall*

<table>
<thead>
<tr>
<th>Time</th>
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<tbody>
<tr>
<td>8:00 am</td>
<td>Kayla Goforth, Catherine Lohmann, Kenneth Lohmann</td>
<td>Recognition of site-specific magnetic fields by sea turtles: use of dual magnetic parameters</td>
</tr>
</tbody>
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*The Society for Integrative and Comparative Biology*
<table>
<thead>
<tr>
<th>Time</th>
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</tr>
</thead>
<tbody>
<tr>
<td>8:15 am</td>
<td>Karen Maruska, Chase Anselmo</td>
<td>Gonadotropin-releasing hormone as a modulator of vision in a cichlid fish</td>
</tr>
<tr>
<td>8:30 am</td>
<td>Julie Butler, Penelope Baker, Lauren O'Connell</td>
<td>Sensory Basis of Caregiver Recognition in Mimetic Poison Frog Tadpoles</td>
</tr>
<tr>
<td>8:45 am</td>
<td>Megan Gall, Glenn Proudfoot</td>
<td>Masked Thresholds and Critical Ratios of Northern Saw-whet Owls (Aegolius acadicus)</td>
</tr>
<tr>
<td>9:00 am</td>
<td>Eleanor Caves, Laura Kelley</td>
<td>Bigger is not always better: green swordtails Xiphophorus helleri proportionally process body size</td>
</tr>
<tr>
<td>9:15 am</td>
<td>Shana Caro, Rebeca Moreno-Villarreal, Camilla Hinde, Hans Hofmann</td>
<td>Into the wild: How real-world complexity and fitness consequences shape decision-making in birds</td>
</tr>
<tr>
<td>9:30 am</td>
<td>Steve Nowicki, Alexander Davis, Matthew Zipple, Danae Diaz, Susan Peters, Sonke Johnson</td>
<td>Influence of visual background on discrimination of signal-relevant colors in zebra finches</td>
</tr>
</tbody>
</table>

**8:00 AM – 9:45 AM**

### Speciation and Diversity

**Chair: Marguerite A. Butler**

<table>
<thead>
<tr>
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<tbody>
<tr>
<td>8:00 am</td>
<td>Marguerite Butler, Ethan Hill, Diana Gao, Dan Polhemus, Allen Allison</td>
<td>Geological drivers of diversification in Papuan microhylid frogs</td>
</tr>
<tr>
<td>8:15 am</td>
<td>Christina Ellison, Svetlana Maslakova</td>
<td>Nemerteanos of Pacific Panama</td>
</tr>
<tr>
<td>8:30 am</td>
<td>Greg Rouse, David Caress, Shana Goffredi, Ekin Tilić</td>
<td>Observations on deep-sea Xenoturbellia (Xenoturbellida, Bilateria)</td>
</tr>
<tr>
<td>8:45 am</td>
<td>Grace Tindall, Greg Rouse, Anja Schulze, Elizabeth Borda</td>
<td>Cryptic Species of the Cosmopolitan Eurythoe</td>
</tr>
<tr>
<td>9:00 am</td>
<td>Abigail Uehling, Lisa Mussoi, Gustav Paulay</td>
<td>Cryptic diversity and concordant geographic restriction in Arabian Aquilonastra sea stars</td>
</tr>
<tr>
<td>9:15 am</td>
<td>Mason Strickland, Michael Sandel</td>
<td>Conservation Genetics and Environmental DNA of the Bridled Darter</td>
</tr>
<tr>
<td>9:30 am</td>
<td>Nine Doutreloux, Michel Marengo, Dimitri Theuerkauff, Martal Laurans, Michela Patrissi, Pierre Lejeune, Martin Laporte, Patrick Berrebi</td>
<td>Genetic structure of Corsican spiny lobsters, a matter of irregular annual recruitment?</td>
</tr>
</tbody>
</table>

**8:00 AM – 9:30 AM**

### Thermal Ecology

**Chair: Karla Alujevic**

<table>
<thead>
<tr>
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<tbody>
<tr>
<td>8:00 am</td>
<td>Karla Alujevic, Leah Bakewell, Jelena Bujan, Christian Cox, Luke Frishkoff, Eric Gangloff, Guillermo Garcia-Costoya, Matthew Gifford, Akhila Gopal, Samir Gulati, Alyssa Head, Monica Miles, Ciara Pettit, Charles Watson, Kelly Wuthrich, Michael Logan</td>
<td>Thermal ecology in 3D: new methods for quantifying thermal environments of terrestrial ectotherms</td>
</tr>
<tr>
<td>8:15 am</td>
<td>Rory Telemeco, Cha kong Thao, Kira Gangbin, Nicole Gaudenti, Devon Mitchell, Keyanna Pinto, Kathryn Ramirez, Emily Taylor, Vanessa Valencia, Michael Westphal</td>
<td>Plant Communities Determine Thermal Exposure of Endangered Blunt-nosed Leopard Lizards</td>
</tr>
<tr>
<td>8:30 am</td>
<td>David Chang-van-Oordt, Conor Taff, Daniel Ardia, Maren Vitousek</td>
<td>The effects of developmental cold exposure on nesting thermoregulation in tree swallows</td>
</tr>
<tr>
<td>8:45 am</td>
<td>Analisa Shields-Estrada, David Cannatella</td>
<td>Near-infrared reflectance as a thermoregulatory mechanism in Hyla tree frogs</td>
</tr>
<tr>
<td>9:00 am</td>
<td>Lauren Neel, Jacob Youngblood, Dylan Padilla, Zackary Graham, Michael Sears, Michael Angilletta</td>
<td>Thermal landscapes shape life history variation along an altitudinal gradient</td>
</tr>
<tr>
<td>9:15 am</td>
<td>Julia Joos, Donald Miles</td>
<td>Thermal ecology and activity patterns of desert-living tortoises</td>
</tr>
</tbody>
</table>
8:00 AM – 9:45 AM  
**Thermal Physiology I**
*Chair: Jason W. Dallas*

<table>
<thead>
<tr>
<th>Time</th>
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<tbody>
<tr>
<td>8:00 am</td>
<td>James deMayo, Joseph Tucker, Jenna Tomkinson, Lahari Gadey, Phillip Freda, Janitaa Toxopeus, Gregory Ragland</td>
</tr>
<tr>
<td>8:15 am</td>
<td>Lani Gleason, Florian Fekete, Richelle Tanner, Wes Dowd*</td>
</tr>
<tr>
<td>8:30 am</td>
<td>Jason Dallas, Robin Warne</td>
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<tr>
<td>8:45 am</td>
<td>Gary Burness, Joshua Tabh, Mariah Hartjes</td>
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<tr>
<td>9:00 am</td>
<td>Wonil Choi, Haruka Wada</td>
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<tr>
<td>9:15 am</td>
<td>Aubrey Jane, Doug Rasher, Eric Annis, Jessica Waller, Markus Frederick</td>
</tr>
<tr>
<td>9:30 am</td>
<td>Andrea Rummel, Brooke Quinn, Aaron Corcoran, Sharon Swartz</td>
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</tbody>
</table>

**Abstracts**
- **Life stage and transcriptional dynamics affect differential gene expression during thermal stress**
- **Divergent transcriptomic and proteomic signatures of plasticity in an intertidal mussel**
- **Early-life Manipulations of the Gut Microbiota in a Vertebrate Ectotherm Affect their Heat Tolerance**
- **Do birds and mammals trade-off thermoregulation for the stress response?**
- **The role of eggshell pores in thermal tolerance of zebra finch embryos**
- **Ontogenetic shifts in thermal tolerance of the American lobster (Homarus americanus)**
- **Cold flights on cold nights: extreme regional heterothermy in desert bats**

8:00 AM – 10:00 AM  
**Ecology and Evolution of Locomotion & Feeding**
*Chairs: Sarah Handy, Christopher Martin*

<table>
<thead>
<tr>
<th>Time</th>
<th>Speaker(s)</th>
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<tbody>
<tr>
<td>8:00 am</td>
<td>Michael Berthaume, Sarah Elton</td>
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<tr>
<td>8:15 am</td>
<td>Sarah Handy, Karly Cohen, Lauren Simonitis, Matthew Kolmann</td>
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<tr>
<td>8:30 am</td>
<td>Samantha Giancarli, Michael O’Connor, Matthew Bonnan</td>
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<tr>
<td>9:00 am</td>
<td>Etska Kaczmarek, Elizabeth Brainerd</td>
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<tr>
<td>9:15 am</td>
<td>Christopher Martin</td>
</tr>
<tr>
<td>9:30 am</td>
<td>Shir Bar, Shai Avidan, Roi Holzman</td>
</tr>
<tr>
<td>9:45 am</td>
<td>Candido Diaz, John Long</td>
</tr>
</tbody>
</table>

**Abstracts**
- **Accounting for evolutionary relatedness in biomechanical data**
- **Comparative anatomy and evolution of the gizzard in fishes**
- **Actively foraging lizards build more robust humeri than similarly sized ambush predators**
- **Royal knifefish, Chitala blanci, breathe air using two functionally distinct breath types**
- **How to swim across fitness valleys: the origins of scale-eating (lepidophagy) in pupfishes**
- **Low feeding rates of larval fish persist across a range of environmental conditions**
- **Behavior and Bioadhesives: How Bolas Spiders, Mastophora hutchinsoni, Catch Moths**

8:00 AM – 9:45 AM  
**Living in the Anthropocene**
*Chair: Anchal Padukone*

<table>
<thead>
<tr>
<th>Time</th>
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<tbody>
<tr>
<td>8:00 am</td>
<td>Caitlyn Jenccarelli, John Hranitz, Thomas Klinger</td>
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<tr>
<td>8:15 am</td>
<td>Anchal Padukone, Kimberly Sheldon</td>
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<tr>
<td>8:30 am</td>
<td>Miguel Estrada-Caballero, Brian Tsukimura</td>
</tr>
<tr>
<td>8:45 am</td>
<td>Luke Schmitz, Clinton Moran, John Zardus</td>
</tr>
<tr>
<td>9:00 am</td>
<td>Racine Rangel, Kristy Kroeker, Matthew Bracken, Luke Miller, Cascade Sorte</td>
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</table>

**Abstracts**
- **Paracentrotus lividus in the Gulf of Kaloni may represent a thermotolerant ecotype.**
- **Temperature means and fluctuations interact to impact life-history traits in Spodoptera frugiperda**
- **Potential Climate Effects on the Chinese Mitten Crab, Eriorcheir sinensis, Populations in the SF Bay**
- **Temperature effects on larval swimming of an important biofouling barnacle**
- **Climate Change Impacts on the Shell Structure of an Ecologically Important Shellfish**
**Friday 6 January 2023**

**8:00 AM – 10:00 AM  
Brazos**

**Robots and Physical Models I**  
Chair: Michael C. Granatosky

- **8:00 am** Elizabeth Tucker, Sonia Roberts, Swapnil Pravin, Daniel Koditschek, S. Tonia Hsieh  
  Toe spacing strongly influences jump height on “sand”

- **8:15 am** Michael Granatosky, Melody Young, Nicolas Flam, Edwin Dickinson  
  Unusual phalangeal proportions improve grasping potential in birds, mammals, and bioinspired design

- **8:30 am** Baxi Zhong, Juntao He, Shengkai Li, Eva Erickson, Kelmar Diaz, Tianyu Wang, Daniel Soto, Daniel Goldman  
  Self-propulsion via slipping: frictional swimming in multi-legged locomotors

- **8:45 am** Kartik Urs, Aditya Srinivas Manohar, Michael Rakowiecki, Faris Tulbah, Jessica Carlson*, Tala Moore  
  The Robot Of Theseus: A low-cost modular robot for testing the effect of morphology on locomotion

- **9:00 am** Velin Kojouharov, Tianyu Wang, Christopher Pierce, Kelmar Diaz, Baxi Zhong, Daniel Soto, Valerie Zborovsky, Daniel Goldman  
  Bilateral actuation mechanism for complex terrain navigation in limbless robots

- **9:15 am** Leandra Hamann, Hendrik Herzog, Christian Grunewald, Alexander Blanke  
  Suspension feeders as biological models for bio-inspired filters to reduce microplastic emissions

- **9:30 am** Jisoo Yuk, Anupam Pandey, Leena Park, Willy Bemis, Sungwhan Jung*  
  How foxes dive into snow

- **9:45 am** Tianyu Wang, Velin Kojouharov, Christopher Pierce, Kelmar Diaz, Baxi Zhong, Valerie Zborovsky, Daniel Goldman  
  Robophysical modeling reveals the role of passive body mechanics in C. elegans locomotion

**8:00 AM – 9:30 AM  
Rooms 408-409**

**Terrestrial Locomotion II: Mammals**  
Chairs: Christian Michael Hubicki, Andrew Kyle Schulz

- **8:00 am** Andrew Schulz, Amir Patel, Ardian Jusufi  
  Creating Improved Conservation Reintroductions using observational biomechanics of the Cheetah

- **8:15 am** Lance Brooks, Peter Weyand  
  From humans to hounds: gravity and balance limit sprint running acceleration

- **8:30 am** Andrew Lammers, Grace Schepelmann  
  Do quadrupeds conserve angular momentum during locomotion? A test using Rattus norvegicus

- **8:45 am** Christian Hubicki, Jacob Hackett, Craig McGowan, Monica Daley  
  Modeling adaptive locomotion behaviors using risk-aware optimal control

- **9:00 am** Aja Carter, Ethan Musser, Diego Caporale, Daniel Koditschek  
  Investigating Spinal Column Dynamics in Crown Terrestrial Amniotes

- **9:15 am** Benjamin Seleb, Saad Bhamla, Matt Bull  
  Sled Dog Collective Behavior

**8:00 AM – 10:15 AM  
Rooms 203-204**

**Differentiation and Morphogenesis**  
Chair: Elaine Seaver

- **8:00 am** Jasmine Yimeng Bao, Hannah Gruner, Bradley Davidson  
  Heart development in the tunicate Ciona robusta (Ciona intestinalis type A)

- **8:15 am** Ipeknaz Icten, Bradley Davidson, C. J. Pickett  
  Comparative genomics of D. gegenbauri: The evolution of heart development in a polymorphic chordate
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<thead>
<tr>
<th>Time</th>
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<tbody>
<tr>
<td>8:30 am</td>
<td>Gia Bautista, Bradley Davidson, Hannah Gruner</td>
<td>Characterizing cardiac cell proliferation in the tunicate Ciona robusta</td>
</tr>
<tr>
<td>8:45 am</td>
<td>Sydney Popsuj, Alberto Stolfi</td>
<td>Examining the Role of Dkk3 in Wnt Regulation during Ascidian Neurodegenerative Events</td>
</tr>
<tr>
<td>9:00 am</td>
<td>Aissam Ikmi</td>
<td>Muscular hydraulics drives larva-polyp morphogenesis</td>
</tr>
<tr>
<td>9:15 am</td>
<td>Shelly McCain, Eddy Dowle, Gregory Ragland</td>
<td>Synchronization of developmental gene expression and morphogenesis during dormancy in a fly</td>
</tr>
<tr>
<td>9:30 am</td>
<td>Stephan Schneider, Gaspar Jekely, Steffanie Meha</td>
<td>Organization and development of multi-ciliated arrays in a marine larva</td>
</tr>
<tr>
<td>9:45 am</td>
<td>Nat Clarke, Christopher Lowe, Laurent Formery</td>
<td>Seeing clearly; visualization of whole, intact organ systems in marine invertebrates</td>
</tr>
<tr>
<td>10:00 am</td>
<td>Paul Gonzalez, Andreas Baxevanis</td>
<td>Conserved non-coding elements evolve repeatedly around homeobox genes in cnidarians, molluscs, arthropods and vertebrates</td>
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### 8:30 AM – 9:30 AM

**Rooms 303-304**

**Life in Trees I**

*Chair: TBD*

<table>
<thead>
<tr>
<th>Time</th>
<th>Speaker(s)</th>
<th>Title</th>
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<tbody>
<tr>
<td>8:30 am</td>
<td>Georgia Moore, Richard Blob, Victor Munteanu</td>
<td>How arboreal chameleons and Anolis lizards resist falling from perturbed branches</td>
</tr>
<tr>
<td>8:45 am</td>
<td>Angela Mossor, Andrew McKamy, Melody Young, Michael Granatosky, Michael Butcher, Jesse Young</td>
<td>Comparative three-dimensional limb kinematics during suspensory locomotion in tree sloths</td>
</tr>
<tr>
<td>9:15 am</td>
<td>Michael Curran, Christopher Anderson</td>
<td>Locomotor kinematics and performance among syntopic but spatially divergent chameleon conegers</td>
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</table>

### 10:00 AM – 12:00 PM

**Rooms 402-403**

**Examining Mechanisms of Parental, Developmental, or Environmental Impacts**

*Chairs: Ondi Crino, Jenny Q. Ouyang*

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<thead>
<tr>
<th>Time</th>
<th>Speaker(s)</th>
<th>Title</th>
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</thead>
<tbody>
<tr>
<td>10:00 am</td>
<td>Fernanda Duque, Carlos Rodriguez-Saltos, Kathleen Lynch</td>
<td>Comparative studies using mesotocin in parental and non-parental blackbird species</td>
</tr>
<tr>
<td>10:15 am</td>
<td>Melissa (Misty) Proffitt, Tara Empson, Rachel Evans, Kayci Messerly, Susanna Tsueda, Kimberly Rosvall, Elizabeth Derryberry</td>
<td>Early Postnatal Heat and the Potential for Carryover Effects: an Experimental Approach in Wild Birds</td>
</tr>
<tr>
<td>10:30 am</td>
<td>Victoria Coutts, Haruka Wada</td>
<td>Food restriction during development and its impact on physiology in the zebra finch</td>
</tr>
<tr>
<td>10:45 am</td>
<td>Leigh Bailey, Kimberly Rosvall, Alexandra Bentz</td>
<td>Effects of the maternal social environment on mechanisms of embryonic programming in songbirds</td>
</tr>
<tr>
<td>11:00 am</td>
<td>Victoria Farrar, Alison Ramirez, Jaime Morales-Gallardo, Rebecca Calisi</td>
<td>Does gaining parental experience alter neural hormone receptors? Insights from biparental rock doves</td>
</tr>
<tr>
<td>11:15 am</td>
<td>Jennifer Heppner, Jenny Ouyang</td>
<td>Does the urban bird get the worm? Supplemental food effects on hormones and morphology</td>
</tr>
<tr>
<td>11:30 am</td>
<td>Jenny Ouyang, Jennifer Heppner, Justin White</td>
<td>Urbanization, heavy metal pollution, and fitness in house sparrows</td>
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<tr>
<td>11:45 am</td>
<td>Ondi Crino, Dan Noble</td>
<td>How do developmental conditions affect mitochondrial function?</td>
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**Friday 6 January 2023**

<table>
<thead>
<tr>
<th>Time</th>
<th>Session</th>
<th>Location</th>
<th>Chair</th>
<th>Presenters</th>
<th>Abstract</th>
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<tbody>
<tr>
<td>10:15 AM</td>
<td>Ecophysiology: Can Organisms Take the Heat?</td>
<td>Rooms 301-302</td>
<td><strong>Chair:</strong> Kelly Lin Wuthrich</td>
<td>Constant Perry, Eric Gangloff, Fabien Aubret, Capucine Pierrel, Emma Depreter, Alyssa Head, Ethan Livingston, Maxime Stanislawek</td>
<td>Impact of increased daytime and nighttime temperature on the phenotype of a vertebrate ectotherm</td>
</tr>
<tr>
<td>10:30 AM</td>
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<td>Tyler Goerge, Donald Miles</td>
<td>Heat hardening influences boldness behavior expression in tree lizards, Urosaurus ornatus</td>
</tr>
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<td>10:45 AM</td>
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<td></td>
<td>Ian Clifton, Margaret Duffy, Spencer Hudson, Christopher Robinson, Emily Virign, Susannah French, Kevin McCluney, Jeanine Refsnider</td>
<td>Compensation for exposure to increased temperatures is costly in a montane, desert lizard</td>
</tr>
<tr>
<td>11:00 AM</td>
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<td>Amanda Cicchino, Brenna Forest, Jason Dunham, Cameron Ghalambor, Erin Landguth, Alisha Shah, W. Chris Funk</td>
<td>How a cold-water specialist frog survived a wildfire</td>
</tr>
<tr>
<td>11:15 AM</td>
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<td>Kelly Wuthrich, Leah Bakewell, Claire Williams, Noah Gripshover, Maria Alcivar, Karla Aljevic, Albert Chung, John David Curlis, Guillermo Garcia-Costoya, Anabarbara Gonzalez, Akhila Gopal, Samir Gulati, Renata Pirani, Noa Ratia, Daniel Romero, Adam Rosso, W. Owen McMillan, Michael Logan, Christian Cox</td>
<td>Transient heat waves induce a rapid and reversible increase in thermal tolerance in an Anolis lizard</td>
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<td>Monique Simon, Priscila Rothier, Colin Donihue, Anthony Herrel, Jason Kolbe</td>
<td>Can extreme climatic events induce shifts in adaptive potential?</td>
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<tr>
<td>10:15 AM</td>
<td>Foraging Behavior I: Space, Time and Coordination</td>
<td>Lonestar H</td>
<td><strong>Chairs:</strong> Isaac Young Ligocki, William Ryerson</td>
<td>Kota Ishikawa, Heng Wu, Satoshi Mitarai, Amatizia Genin</td>
<td>Differential responses of swimming reef fish and anchored garden eels to turbulence</td>
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<td>10:30 AM</td>
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<td>William Ryerson, Cassidy Goulet, Ben Sweesy</td>
<td>Arboreal prey-handling in boas and pythons</td>
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<td>10:45 AM</td>
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<td>Natalie Imirzian, Fabian Plum, David Labonte</td>
<td>Investigating the foraging feedback loop in leaf-cutter ant colonies</td>
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<td>11:00 AM</td>
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<td>Nima Jadali, Margaret Zhang, Marieke Gartner, Josh Meyerchick, Jodi Carrigan, Joseph Mendelson, David Hu, Andrew Schulz</td>
<td>Improving Foraging Behavior using a Low-Cost DIY ForageFeeder</td>
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<tr>
<td>11:15 AM</td>
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<td>Isaac Ligocki, Matthew Salena, Brett Culbert, Marian Wong, Sigal Balshine, Ian Hamilton</td>
<td>Joint Predation Activity in Lake Tanganyikan Fishes</td>
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<td>11:45 AM</td>
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<td>James Crall, August Easton-Calabria, Matthew Smith, Olivia Bernauer</td>
<td>Toward automated monitoring of plant-pollinator interactions</td>
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<tr>
<td>10:15 AM</td>
<td>Locomotion in Complex Environments</td>
<td>Rooms 303-304</td>
<td><strong>Chair:</strong> Kelly M. Dorgan</td>
<td>Daniel Soto, Eve Erickson, Kelmar Diaz, Tianyu Wang, Velin Kojouharov, Daniel Goldman</td>
<td>Novel terradynamic interactions in myriapod locomotion in obstacle-rich environments</td>
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<td>10:30 AM</td>
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<td>Heiko Kabutz, Kendall Webster, Kimberly Fung, Kaushik Jayaram</td>
<td>Spatial gait analysis of araneae locomotion through confined terrain</td>
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<td>10:45 AM</td>
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<td>Brooke Christensen, Sean Gonzales, Monica Daley</td>
<td>Integrating substrate damping with leg-substrate interaction forces in guinea fowl</td>
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<td>11:00 AM</td>
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<td>Judith Janisch, Jesse Young, Nicole Schapker, Noah Dunham, Allison McNamara, Lydia Myers, Liza Shapiro, Taylor Phelps</td>
<td>Substrate-related variation in limb joint kinematics in wild primates</td>
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<td>11:15 AM</td>
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<td></td>
<td>Dulce Robles-Martinez, Kelsey WDoldt, Diego Sustaita</td>
<td>Climbing kinematics of salt marsh harvest mice and co-occurring rodents in the Suisun Marsh, CA</td>
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### Friday 6 January 2023

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<tr>
<th>Time</th>
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<tbody>
<tr>
<td>11:30 am</td>
<td>Kelly Dorgan, Sanjay Arwade, Arghavan Loughghalam, Xuejing Wang</td>
<td>How the worm turns: impacts of geotechnical properties on burrower navigation</td>
</tr>
<tr>
<td>11:45 am</td>
<td>Francesca Giammone, Miriam Ashley-Ross</td>
<td>Jumping up that hill: How Kryptolebias marmoratus locomotes under various conditions</td>
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### 10:15 AM – 12:00 PM

#### Sensory Biology IV
Chair: Karthikeyan Chandrasegaran

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<tr>
<th>Time</th>
<th>Presenters</th>
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<tbody>
<tr>
<td>10:15 am</td>
<td>Christian Perez-Martinez, Marissa LaMartina, Juan Daza, Manuel Leal</td>
<td>Comparative anatomy of vibration-sensitive and chemoreceptive structures in Amphisbaenia</td>
</tr>
<tr>
<td>10:30 am</td>
<td>Corie Charpentier, Danielle Barnes, Sajee-Lyn Gidzinski, Heidi Fuchs</td>
<td>Coastal invertebrate larvae vary in their responses to artificial light at night</td>
</tr>
<tr>
<td>10:45 am</td>
<td>Karthikeyan Chandrasegaran</td>
<td>Molecular mechanisms mediating larval ecology and mosquito host-seeking behavior</td>
</tr>
<tr>
<td>11:00 am</td>
<td>Irving Upshur, Mikhyle Fehlman, Vansh Parikh, Chloe Lahondere</td>
<td>Sugar-feeding by invasive mosquito species on ornamental plants</td>
</tr>
<tr>
<td>11:15 am</td>
<td>Hannah Gellert, Daphné Halley, Zackary Sieb, Jody Smith, Greg Pask*</td>
<td>Microstructures at the Distal Tip of Ant Chemosensory Sensilla</td>
</tr>
<tr>
<td>11:30 am</td>
<td>Jeff Riffell</td>
<td>The olfactory gating of color vision in mosquitoes</td>
</tr>
<tr>
<td>11:45 am</td>
<td>Andrew Gordus</td>
<td>Untangling the web of behaviors used in spider orb-weaving</td>
</tr>
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</table>

#### Life in Trees II
Chairs: Joshua Nicholas Pulliam, Jake Socha

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<thead>
<tr>
<th>Time</th>
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<tbody>
<tr>
<td>10:30 am</td>
<td>Andrew McKamy, Melody Young, Angela Mossor, Jesse Young, Michael Granatovsky, Michael Butcher*</td>
<td>Going Out on a Limb: locomotor loading patterns in three-toed sloths (Bradypus variegatus)</td>
</tr>
<tr>
<td>10:45 am</td>
<td>Morgan Furze, Dylan Wainwright, Brett Huggett, Thorsten Knipfer, Andrew McElrone, Craig Brodersen</td>
<td>Ecologically driven selection of nonstructural carbohydrates in oak trees</td>
</tr>
<tr>
<td>11:00 am</td>
<td>Amy Rutter, Matthew Fuxjager, Thomas Roberts</td>
<td>Using sound to understand relative force and mechanics in woodpecker drumming</td>
</tr>
<tr>
<td>11:15 am</td>
<td>Zoe King, Sydney Haywood, Giovanni Morris, Jeffery Anderson-Jr, Joshua Pulliam, Jerry Wong, Beckett Socha, Ulmar Gera, Salwa Khalid, Jake Socha*</td>
<td>Tongue-sticking in arboreal colubrids during gap crossing</td>
</tr>
<tr>
<td>11:30 am</td>
<td>Joshua Pulliam, Giovanni Morris, Sydney Haywood, Zoe King, Jeffery Anderson-Jr, Jerry Wong, Beckett Socha, Ulmar Gera, Salwa Khalid, Jke Socha</td>
<td>Reach for the skies: Effects of perch diameter on vertical gap crossing of snakes</td>
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### 10:30 AM – 12:00 PM

#### Appendage Kinematics During Aquatic Locomotion
Chair: Samantha Trail

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<thead>
<tr>
<th>Time</th>
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<tbody>
<tr>
<td>10:30 am</td>
<td>Kayla Hall, Adam Summers, Cassandra Donatelli</td>
<td>Flappy, flouncy fins: swimming kinematics of the spotted ratfish (Hydrolagus coliei)</td>
</tr>
<tr>
<td>10:45 am</td>
<td>Samantha Trail, Christopher Mayerl, John Capano, Armita Manafzadeh, Noraly van-Meer, Richard Blob, Jeanette Wyneken, Elizabeth Brainard</td>
<td>XROMM analysis of flipper movement during locomotion in loggerhead sea turtles</td>
</tr>
<tr>
<td>11:00 am</td>
<td>Natalia Taft, Noah Bressman, Thaddaeus Buser, Benjamin Teft, Adam Summers</td>
<td>Functional trade-offs in the pectoral fin rays of intertidal versus subtidal sculpins</td>
</tr>
<tr>
<td>11:15 am</td>
<td>Arianna Ramirez, Diego Sustaita</td>
<td>Persistent paddlers: salt marsh harvest mouse hindfoot morphology and kinematics during swimming</td>
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<tbody>
<tr>
<td>11:30 am</td>
<td>Caitlyn Swiston, Frank Fish, Megan Leftwich</td>
<td>On the flip side: Hydrodynamic function of the hind flippers of three otarids</td>
</tr>
<tr>
<td>11:45 am</td>
<td>Matt Wileyto, Rebecca Bottiglio-Kramer, Jeanette Wyneken, Samantha Trail, Frank Fish</td>
<td>Turning Corners in Sea Turtle Maneuvering Performance</td>
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</tbody>
</table>

#### 10:30 AM – 11:45 AM  
**Lonestar B**

**Coral Biology and Modeling**  
Chair: Katherine Buckley

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<thead>
<tr>
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<tbody>
<tr>
<td>10:30 am</td>
<td>Dominique Gallery, John Rippe, Mikhail Matz</td>
<td>Cryptic corals: investigating genetic divergence and environmental adaptation</td>
</tr>
<tr>
<td>10:45 am</td>
<td>Erin Shilling, Ashley Carreiro, Ian Combs, Joshua Voss</td>
<td>Efficacy of story coral tissue loss disease intervention and impacts on coral microbial communities</td>
</tr>
<tr>
<td>11:00 am</td>
<td>Emily Van-Buren, Kelsey Beavers, Laura Mydlarz, Nicholas MacKnight, Li Wang</td>
<td>Coral Disease Fate in Caribbean Corals Influenced by Coral Lineage and Biological Choices</td>
</tr>
<tr>
<td>11:15 am</td>
<td>Katherine Buckley</td>
<td>The Florida false coral (<em>Ricordea florida</em>) mucus harbors an abundant bacterial assemblage</td>
</tr>
<tr>
<td>11:30 am</td>
<td>Carly Scott, Annette Ostling, Mikhail Matz</td>
<td>‘Til death do us part? Modeling the costs of fidelity in coral-algal symbiosis</td>
</tr>
</tbody>
</table>

#### 10:30 AM – 12:00 PM  
**Lonestar F**

**Feeding and Swallowing Anatomy and Mechanics II**  
Chair: Peishu Li, Alexandre Palaoro

<table>
<thead>
<tr>
<th>Time</th>
<th>Speaker(s)</th>
<th>Title</th>
</tr>
</thead>
<tbody>
<tr>
<td>10:30 am</td>
<td>Stephen Howe, Kendall Steer, Maxwell Johnson, Khaled Adjerid, Chloe Edmonds, Rebecca German, Christopher Mayerl</td>
<td>Exploring the Interaction of Viscosity and Nipple Design on Feeding Performance in Infants</td>
</tr>
<tr>
<td>10:45 am</td>
<td>Peishu Li, Nicholas Gidmark, Zhe-Xi Luo, Callum Ross</td>
<td>XROMM reveals tongue base retraction mechanism during swallowing in <em>Didelphis virginiana</em></td>
</tr>
<tr>
<td>11:00 am</td>
<td>David Cuban, Steve Johnson, Alejandro Rico-Guevara</td>
<td>Sunbird drinking: unexpected nectar feeding mechanics despite morphological convergence</td>
</tr>
<tr>
<td>11:15 am</td>
<td>Emily McParland, Peishu Li, Courtney Orsbon, Callum Ross, Nicholas Gidmark</td>
<td>Of mice and models: XROMM’s utility in temporomandibular joint disorder model organisms</td>
</tr>
<tr>
<td>11:30 am</td>
<td>Alexandre Palaoro, Akshata Gole, Charles Beard, Peter Adler, Kostya Kostya</td>
<td>How to be a fast nectar drinker – a masterclass by hawkmoths</td>
</tr>
<tr>
<td>11:45 am</td>
<td>Edward Patterson, David Grossnickle, Nashaly Cortes-Viruet, Stephanie Jimenez-Rivera, Sharlene Santana</td>
<td>Mandible strength profiles reflect dietary adaptations in bats</td>
</tr>
</tbody>
</table>

#### 10:30 AM – 11:45 AM  
**Lonestar A**

**Genomic Windows on Diversity**  
Chair: Joseph J. Dubie

<table>
<thead>
<tr>
<th>Time</th>
<th>Speaker(s)</th>
<th>Title</th>
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<tbody>
<tr>
<td>10:30 am</td>
<td>Kyle McElroy, Rick Masonbrink, Sivanandan Chudalayandi, Jorge Audino, Andrew Severin, Jeanne Serb</td>
<td>Genomic insights into eye evolution in Pectinidae from the disco clam, <em>Ctenoides ales</em></td>
</tr>
<tr>
<td>10:45 am</td>
<td>Emilie Richards</td>
<td>Genetic basis of natural variation in sleep and metabolism in cavefish</td>
</tr>
<tr>
<td>11:00 am</td>
<td>Omela De-Gasperin, Pierre Blacher, Guglielmo Grasso, Solenn Sarton-Loheac, Roxane Allemann, Michel Chapuisat</td>
<td>Cryptic mutation load in a supergene controlling social organization in ants</td>
</tr>
<tr>
<td>11:15 am</td>
<td>Joseph Dubie, K’Brianna Carthen, Justin Havird</td>
<td>Role of homeostatic processes in balancing selective pressures on mitotypes in <em>C. elegans</em></td>
</tr>
<tr>
<td>11:30 am</td>
<td>Ashwini Venkatnarayana-Mohan, Anjali Goswami, Jeffrey Streicher</td>
<td>Ultraconserved Elements as landmarks on genomes: extracting “genospaces” from mammalian genomes</td>
</tr>
</tbody>
</table>
### Friday 6 January 2023

**Rooms 203-204**

#### Global Change Biology III: Distribution/Ecosystem Effects

**Chair: Noa Ratia**

<table>
<thead>
<tr>
<th>Time</th>
<th>Presenter(s)</th>
<th>Title</th>
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</thead>
<tbody>
<tr>
<td>11:00 am</td>
<td>Audrey Sarin, Steve Lonhart, Emily Nazario</td>
<td>Implications of sea urchin culling in Monterey Bay National Marine Sanctuary</td>
</tr>
<tr>
<td>11:15 am</td>
<td>Allison Wilkins, Dara Orbach</td>
<td>Population abundance of bottlenose dolphins in the Texas Coastal Bend using photo-identification</td>
</tr>
<tr>
<td>11:30 am</td>
<td>Desi Wilson, Ana Ospina-L, Nigel Anderson, Ximena Bernal</td>
<td>Distribution Predicts Global Patterns of Extinction Risk in Toads</td>
</tr>
<tr>
<td>11:45 am</td>
<td>Noa Ratia, Eliza Grames, Matthew Forister, Michael Logan</td>
<td>Still alive: Scientists have been shockingly bad at predicting extinctions</td>
</tr>
</tbody>
</table>

#### Thermal Physiology II

**Chair: Mary J. Woodruff**

<table>
<thead>
<tr>
<th>Time</th>
<th>Presenter(s)</th>
<th>Title</th>
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<tbody>
<tr>
<td>10:30 am</td>
<td>Mary Woodruff, Susanna Tsueda, Kimberly Rosvall</td>
<td>Why are some individuals better at coping with climate change?</td>
</tr>
<tr>
<td>10:45 am</td>
<td>Ioulia Bespalova, Rebecca Bachtel, Heather Axen</td>
<td>Testing Acclimation Hypotheses in Drosophila pseudoobscura</td>
</tr>
<tr>
<td>11:15 am</td>
<td>J. Morgan Fleming, Katie Marshall, Timothy Meidl, Jorge Celi, Kimberly Sheldon</td>
<td>Metabolic plasticity of tropical and temperate dung beetles to increasing temperature variation</td>
</tr>
<tr>
<td>11:30 am</td>
<td>Michael Dillon</td>
<td>Into the cold: unearthing the physiology of dormant queen bumble bees</td>
</tr>
<tr>
<td>11:45 am</td>
<td>Jordan Glass, Jon Harrison</td>
<td>Hot bees lift loads without warming or increasing metabolic rate</td>
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</tbody>
</table>

#### Biological Rhythms and Plasticity

**Chair: Valentina Alaasam**

<table>
<thead>
<tr>
<th>Time</th>
<th>Presenter(s)</th>
<th>Title</th>
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<tbody>
<tr>
<td>1:30 pm</td>
<td>Yash Sondhi, Jamie Theobald, Rachit Pratap Singh</td>
<td>Exposure to high levels of artificial light at night decreases wild moth locomotion</td>
</tr>
<tr>
<td>1:45 pm</td>
<td>Lan Lou, Nicole Wynne, Shajaesza Diggs, Karthikeyan Chandrasegaran*, Chloe Lahondere, Zhijian Tu, Clément Vinauger</td>
<td>The role of the timeless gene in regulating olfactory rhythms and sleep patterns in <em>Aedes aegypti</em></td>
</tr>
<tr>
<td>2:00 pm</td>
<td>Alaina Friedrich, Donald Miles</td>
<td>Illuminating the effects of artificial light at night on vocal phenology in the cavity-nesting guild</td>
</tr>
<tr>
<td>2:15 pm</td>
<td>Valentina Alaasam, Jenny Ouyang</td>
<td>Habituation to Artificial Light at Night in Zebra Finches</td>
</tr>
<tr>
<td>2:30 pm</td>
<td>Kaylah Del-Simone, Skye Cameron, Christofer Clemente, Joshua Gaschk, Taylor Dick, Robbie Wilson</td>
<td>Lifestyles of the small and reckless: Using accelerometers to assess behaviour of threatened animals</td>
</tr>
<tr>
<td>2:45 pm</td>
<td>Luke Gohmann, Gregory Demas, Cara Wellman, Jessica Cusick</td>
<td>Maternal microbiome and stress remodel dendrites in prefrontal cortex in Siberian hamster offspring</td>
</tr>
</tbody>
</table>

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**Friday Program Afternoon Sessions**

Note: Presenter is first author unless noted by an asterisk (*).
Friday 6 January 2023

1:30 PM – 3:15 PM

**Flying & Landing III**  
*Chairs: Nicholas Burnett, James Lynch*

<table>
<thead>
<tr>
<th>Time</th>
<th>Speaker(s)</th>
<th>Topic</th>
</tr>
</thead>
<tbody>
<tr>
<td>1:30 pm</td>
<td>Md Zafar Anwar, Bret Tobalske, Suyash Agrawal, Haoxiang Luo, Bo Cheng</td>
<td>Decision making and control in hummingbird’s escape maneuver in response to light removal</td>
</tr>
<tr>
<td>2:00 pm</td>
<td>Sebastian Lee, Stanley Wang, Duyi Kuang, Hannah Stuart, Robert Full</td>
<td>Jump distance effects on landing kinematics, forces, and torques in free-ranging fox squirrels</td>
</tr>
<tr>
<td>2:15 pm</td>
<td>Rémy Delplanche, Ruowen Tu, Henry Sodano, Daniel Inman, Bret Tobalske</td>
<td>Strain and vibration of selected wing feathers during different flight modes in doves</td>
</tr>
<tr>
<td>2:30 pm</td>
<td>Nicholas Burnett, Emily Keliher, Stacey Combes</td>
<td>Maximum force production is robust to changes in spanwise wing stiffness in mason bees</td>
</tr>
<tr>
<td>2:45 pm</td>
<td>James Lynch, Ethan Wold, Andrew Mountcastle, Simon Sponberg, Nick Gravish</td>
<td>Wing collision mitigation through stretch-activated muscle dynamics in flying insects</td>
</tr>
<tr>
<td>3:00 pm</td>
<td>Mary Salcedo, Tyler Ellis, Geoffrey Osgood, Emma Goethe, Spencer Hobbs, Jueliet Menolascino, Spencer Collins, Derek Hertzell, Michael Boggs, Sana Doorani, Jasmine Avery, Taylor Palmrose, Dhanak Kainaat, Emily Cossey, Syeda Mehreen Tahir, Joseph Gazing-Wolf, Abigail Bahamonde, Matthew Johnson, Tristan Lober, Jake Socha, Rick Overson, Arianne Cease</td>
<td>Wing expansion in gregarious migratory locusts</td>
</tr>
</tbody>
</table>

1:30 PM – 3:30 PM

**Reproduction and Development**  
*Chairs: Patricia Brennan, Daniel J. Stadtmauer*

<table>
<thead>
<tr>
<th>Time</th>
<th>Speaker(s)</th>
<th>Topic</th>
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<tbody>
<tr>
<td>1:30 pm</td>
<td>Melanie Laird, Tim Hore</td>
<td>Genome-wide epigenetic reprogramming of the marsupial germline</td>
</tr>
<tr>
<td>1:45 pm</td>
<td>Daniel Stadtmauer, Silvia Basanta, Jamie Maziarz, Mihaela Pavlicev, Gunter Wagner</td>
<td>Origin of a Novel Tissue from the Ancestral Live-Bearing Mammal’s Uterine Cell Type Inventory</td>
</tr>
<tr>
<td>2:00 pm</td>
<td>Daniela Garcia-Cobos, Diego Gomez, Brandon Hedrick, Rachel Keeffe, Patricia Brennan*</td>
<td>Coevolution of male and female genitalia in Helicops pastazae using 3D morphometrics</td>
</tr>
<tr>
<td>2:15 pm</td>
<td>Bonnie Kircher, Megan Meaney, Douglas Menke, Richard Behringer</td>
<td>Female Reproductive Organ Anatomy and CRISPR Gene Editing of the AMH Locus in the Brown Anole</td>
</tr>
<tr>
<td>2:30 pm</td>
<td>Samantha Bock, Yerald Loera, Josiah Johnson, Christopher Smaga, Junsoo Bae, David Lee Haskins, Tracey Tuberville, Randeep Singh, Thomas Rainwater, Philip Wilkinson, Benjamin Parrott</td>
<td>The adaptive significance of temperature-dependent sex determination in a long-lived reptile</td>
</tr>
<tr>
<td>2:45 pm</td>
<td>Yeipyeng Kwa, Maiko Sho, Julia Frederick, Rebecca Li, Gregory Davis</td>
<td>Induction of reproductive fate in the pea aphid</td>
</tr>
<tr>
<td>3:00 pm</td>
<td>Richard Prum</td>
<td>The Performative Phenotype: A Queer-Feminist Model of the Genotype-Phenotype Relationship</td>
</tr>
</tbody>
</table>

1:30 PM – 3:00 PM

**Character Development and Evolution**  
*Chairs: Ryan Felice, Mahaut Sorlin*

<table>
<thead>
<tr>
<th>Time</th>
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<th>Topic</th>
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<tbody>
<tr>
<td>1:30 pm</td>
<td>Able Chow, Bodo Wils, Nathan Lord, Ying Xiao</td>
<td>Beetles in Golden Skin: Structural Color in Chrysochroa jewel beetles (Coleoptera: Buprestidae)</td>
</tr>
<tr>
<td>1:45 pm</td>
<td>Sang-im Lee, Yewon Yun, Hyunsang Yu, Bohyun Kim, Heeso Noh, Piotr Jablonski</td>
<td>Iridescence in the elytra of the flower chafers (genus Protapetia)</td>
</tr>
<tr>
<td>2:00 pm</td>
<td>Ryan Felice, Ryan Marek</td>
<td>Phenotypic integration shapes the evolution of the neck and forelimb in birds</td>
</tr>
<tr>
<td>Time</td>
<td>Speaker(s)</td>
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<tr>
<td>2:15 pm</td>
<td>Madeline Armstrong, Andrew Mahon, Kenneth Halaynch</td>
<td>A morphological and molecular investigation of Ammothea (Pycnogonida, Chelicerata) specimens from An</td>
</tr>
<tr>
<td>2:30 pm</td>
<td>Mahaut Sorlin, Simon Lailvaux, Alexei Maklakov</td>
<td>Age-dependent selection for elite athletic performance: have world class runners gotten younger?</td>
</tr>
<tr>
<td>2:45 pm</td>
<td>Christopher Heesy, Leigah Lynch</td>
<td>Relative Brain Sizes Are Related to Transitions in Body Plan in Squamates</td>
</tr>
<tr>
<td>3:15 pm</td>
<td>Anna Wisniewski</td>
<td>Allometry as a driver of morphological evolution in the equid skull</td>
</tr>
</tbody>
</table>

### 1:30 PM – 3:15 PM

#### Energetics

**Chair: Jamie Cochran**

<table>
<thead>
<tr>
<th>Time</th>
<th>Speaker(s)</th>
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<tbody>
<tr>
<td>1:30 pm</td>
<td>Yufeng Zhang, Amberleigh Henschen, Elina Thomas, James Adelman</td>
<td>Effects of acute and long-term mycoplasma gallisepticum infection on mitochondrial function in house</td>
</tr>
<tr>
<td>1:45 pm</td>
<td>Jamie Cochran, David Buchwaltder</td>
<td>Respirometry reveals major differences in aquatic species responses to salinity</td>
</tr>
<tr>
<td>2:00 pm</td>
<td>Shayne Halter, Blair Wolf</td>
<td>Torpor Use as a Mechanism to Spare Fat in Migrating Hummingbirds - Variation Among Species</td>
</tr>
<tr>
<td>2:15 pm</td>
<td>KayLene Yamada, Kang Nian Yap, Natalie Harris, Shelby Zikeli, Vimala Kaza, Hippokratis Kiaris, Andreas Kavazis, Wendy Hood</td>
<td>Comparison of metabolic performance of white-footed mice in lab, semi-natural, and wild populations</td>
</tr>
<tr>
<td>2:30 pm</td>
<td>Molly Simonis, Megan Rua, Lynn Harztier</td>
<td>Torpid metabolic rates of Eptesicus fuscus are additive and increase following pathogen invasion</td>
</tr>
<tr>
<td>2:45 pm</td>
<td>Rafael Bovo, Luis Senzano, Denis Andrade</td>
<td>Estimating resistance to water loss in amphibians: Error sources and methodological recommendations</td>
</tr>
<tr>
<td>3:00 pm</td>
<td>Keegan Stansberry, Kaitlin Couvillion, Toshia Kelly, Allison Cannon, Melanie Kimball, Christine Lattin</td>
<td>Compensatory growth tradeoffs of experimentally induced asynchronous hatching in a songbird</td>
</tr>
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### 1:30 PM – 3:30 PM

#### Evolutionary Comparative Morphology

**Chairs: Roi Holzman, Antonio Meza**

<table>
<thead>
<tr>
<th>Time</th>
<th>Speaker(s)</th>
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<tbody>
<tr>
<td>1:30 pm</td>
<td>David Kay, Haley O’Brien, Paul Gignac</td>
<td>Crocodylian differential alveolar completion suggests trade-offs in socket formation and crown shape</td>
</tr>
<tr>
<td>1:45 pm</td>
<td>Conrad Wilson, Chris Mansky, Jason Anderson</td>
<td>A New Paleozoic Fish Provides Insight into the Evolution of Actinopterygian Feeding</td>
</tr>
<tr>
<td>2:00 pm</td>
<td>Roi Holzman, Christopher Martin, Peter Wainwright</td>
<td>The functional morphospace of fish skulls is constrained by evolutionarily rigid, ubiquitous bounds</td>
</tr>
<tr>
<td>2:15 pm</td>
<td>Antonio Meza, Christopher Bell, Patrick Lewis</td>
<td>Inter- and Intraspecific Cranial Variation in the Amphibian genus Zygaspis</td>
</tr>
<tr>
<td>2:30 pm</td>
<td>Daniel Rhoda, Kenneth Angielczyk</td>
<td>Diversification of the ruminant skull along an evolutionary line of least resistance</td>
</tr>
<tr>
<td>2:45 pm</td>
<td>Andrew Knapp, Gizeh Rangel-de-Lázaro, Anjali Goswami, Matt Friedman, Sam Giles, Kory Evans, Zenna Johanson</td>
<td>How to tuna fish: Mosaic evolution in the skulls of pelagarian fishes</td>
</tr>
<tr>
<td>3:00 pm</td>
<td>Kassandra Ford, Patricia Hernandez, Pooja Singh, Mikki Law, David Haberthür, Ruslan Hlushchuk, Kory Evans, Ole Seehausen</td>
<td>Analysis of Craniofacial Evolution in Lake Victoria Cichlids based on CT-scans</td>
</tr>
<tr>
<td>3:15 pm</td>
<td>Leah Rubin, Elizabeth Sibert</td>
<td>A novel morphological code to describe dermal denticles and reconstruct fossil shark communities</td>
</tr>
</tbody>
</table>
### Feeding and Swallowing Anatomy and Mechanics III

**Chairs:** Brandon P. Hedrick, Venkata Amarnadh Surapaneni

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<thead>
<tr>
<th>Time</th>
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<tbody>
<tr>
<td>1:30 pm</td>
<td><strong>Comparative anatomy of the musculoskeletal feeding system in plethodontid salamanders</strong></td>
<td></td>
</tr>
<tr>
<td>1:45 pm</td>
<td><strong>Lessons from really big fish: integrating incomplete data to reconstruct 3D coherent skeletal model</strong></td>
<td></td>
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<tr>
<td>2:00 pm</td>
<td><strong>Functional Morphology and Kinematics of Jaw Protrusion in the Hingemouth, Phractolaemus ansorgii</strong></td>
<td></td>
</tr>
<tr>
<td>2:15 pm</td>
<td><strong>Protractor Muscle Diversity in Reptiles and Its Significance for Cranial Kinesis</strong></td>
<td></td>
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<tr>
<td>2:30 pm</td>
<td><strong>Kinematics of a direct prey capture feeding strategy in chameleons</strong></td>
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### Immunity

**Chair:** TBD

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<thead>
<tr>
<th>Time</th>
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<tbody>
<tr>
<td>1:30 pm</td>
<td><strong>Leveraging serum proteomics to characterize bat immune phenotypes and response to viral infection</strong></td>
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<tr>
<td>1:45 pm</td>
<td><strong>Mormon cricket Diet and Immunity following Fungal Attack</strong></td>
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<tr>
<td>2:00 pm</td>
<td><strong>Identification of a teleost lymphoid structure analogous to mammalian germinal center</strong></td>
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<tr>
<td>2:15 pm</td>
<td><strong>Adaptive immune gene evolution and disease in coastal juvenile sea turtles</strong></td>
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<tr>
<td>2:30 pm</td>
<td><strong>Bacterial sepsis triggers elevated immune transcriptomic responses in larger primates</strong></td>
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<tr>
<td>2:45 pm</td>
<td><strong>Gene expression associated with disease tolerance depends on host tissue and pathogen virulence</strong></td>
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<tr>
<td>3:00 pm</td>
<td><strong>Threespine stickleback immune atlas: baseline immune composition and response to immunization</strong></td>
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<tr>
<td>3:15 pm</td>
<td><strong>Compensatory Duplication of Heterodimeric TLRs Suggests Coevolution with Mycobacterial Pathogens</strong></td>
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### Modeling & Computational Approaches I

**Chair:** Jinguo Huang

<table>
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<tbody>
<tr>
<td>1:30 pm</td>
<td><strong>Skeletons in Motion: Interactive visualization techniques for analyzing cyclic kinematic data</strong></td>
<td></td>
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<tr>
<td>1:45 pm</td>
<td><strong>Cooperative effects of model root protrusions on extrusion and anchoring forces in granular media</strong></td>
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</tbody>
</table>
Friday 6 January 2023

2:00 pm  Ryan Schwab, Joseph Reade, Mark Jankauski  Reduced-Order Fluid-Structure Interaction Modeling of Chordwise Flexible Wings
2:15 pm  Aradhya Rajanala, Christopher Pierce, Deniz Kerimoglu, Mingyuan Zhu, Madison Hales, Isaiah Taylor, Philip Benfey, Daniel Goldman  Numerical modeling of heterogeneous cell patterns in plant root growth
2:30 pm  Eugene Lin, Yishun Zhou, Luke Moon, Andrew Gordus, Chen Li  Robophysiological modeling of spider vibration sensing of prey on orb webs
2:45 pm  Jamal Ardister, Brian Feeny  Modeling of Undulatory Swimming Motion Using Velocity Constraints

1:30 PM – 3:30 PM

Robots and Physical Models II
Chairs: Audrey Biondi Kellogg, Perrin Elizabeth Schiebel

1:30 pm  Audrey Kellogg, Joseph Legris, David Beal, Christin Murphy, Brooke Flammang  2D PIV of Bioinspired Oscillating Mola mola Fin Derived from Morphology and Kinematics
1:45 pm  Jose Yañez-Salas, Valeria Saro-Cortes, Yuhe Cui, Brooke Flammang, Amy Wissa  A Flying Fish Robotic Model Organism: Design, Fabrication and Experimental Evaluation
2:00 pm  Krishna Singal, Andrew Schulz, Michael Dimitriyev, Samuel Kirschner, David Hu, Claire Higgins, Elisabetta Matsumoto  Untangling the Collagen of Elephant Skin using Knitted Mimics
2:15 pm  Liyuan Zhang, Teagan Mathur, Yuhe Cui, Amy Wissa, Marianne Alleyn  Launching Engineered Prototypes to Study the Factors that Influence Click-Beetle Jump Capacity
2:30 pm  Yuhe Cui, Valeria Saro-Cortes, Brooke Flammang, Amy Wissa, Jose Yañez-Salas  A Flying Fish Robotic Model Organism: Designing a biologically relevant caudal fin
2:45 pm  Sunny Kumar, Victor Ortega-Jimenez, Ishant Tiwari, Saad Bhamla  Physical models reveal that nematodes harness kinks in their bodies as nonlinear springs for leaping

1:30 PM – 3:30 PM

Rooms 203-204

Worlds Within: Microbiome Ecology and Evolution
Chair: Sarah Gardner

1:30 pm  Brian Trevelline, Kevin Kohl  The gut microbiome influences host diet selection behavior
1:45 pm  Obed Hernandez-Gomez, Reuban Oumnov, Isabela Velasquez-Gutierrez, Vanessa Wuerthner, Jessica Hua  Host vs. environmental factors: Which more strongly associates with wood frog microbiota diversity?
2:00 pm  Madison Pfau, Daniel Blumstein, Conner Philson, Gina Johnson, Sam Degregori  The social microbiome: the relationship between the microbiome and sociality in a wild mammal
2:15 pm  Claire Williams, Maria Alcivar, Anabaria Gonzalez, Kelly Wuthrich, Leah Bakewell, Renata Pirani, Noa Ratia, Daniel Romero, Noah Gripshover, John David Curls, Samir Gulati, Karla Alujevic, Guillermo Garcia-Costoya, Akhila Gopal, W. Owen McMillan, Candace Williams, Christian Cox, Michael Logan  Characterizing rapid shifts in the Anolis gut microbiome after introduction to a novel environment
2:30 pm  Sarah Gardner, Polly Campbell  The effect of genotype on the prenatal gut microbiome in the house mouse
2:45 pm  Valentina Peña, Joseph Heras  Wining and Dining Gut Microbiomes: Uncovering Dietary Diversity in Elongated Fishes
3:00 pm  Libby Wilson, Cassandra Delich, Lydia Zeglin, Sonny Lee, Michi Tobler  Host-microbiome associations in livebearing fishes adapted to sulfidic environments
Friday 6 January 2023

3:15 pm  **Anastasia Dulski, Nicola Kriefall, Sarah Davies, Koty Sharp, Karl Castillo**  
Drivers of microbial diversity in the temperate coral Oculina arbuscula

### 2:00 PM – 3:30 PM  
**Rooms 201-202**

#### Reproductive Behavior  
**Chairs: Lauren Cirino, Patrick Green**

- **2:00 pm**  **Patrick Green, Daniel Sankey, Thomas Collins, Faye Thompson, Michael Cant**  
  Short-term mating resources drive contest success in banded mongoose (*Mungos mungo*) warfare

- **2:15 pm**  **Kelly Stiver, Jennifer Hellmann, Susan Marsh-Rollo, Suzanne Alonzo**  
  Examining the stability of newly formed nesting male and satellite alliances in *Symphodus ocellatus*

- **2:30 pm**  **Lauren Cirino, Ian Gallagher, Camille Desjonquères, Rafael Rodriguez**  
  Means and opportunity but no motive for mate choice copying

- **2:45 pm**  **Drew Little, Rafael Rodriguez**  
  Maternal effects on mating signals and mate preferences in *Enchenopa* treehoppers (*membracidae*)

- **3:00 pm**  **Ummat Somjee**  
  Energetics and the evolution of extreme sexually selected traits

- **3:15 pm**  **Alina Nguyen, Jhoselyn Pineda, Tyrone Hayes**  
  Clasping Behavior in the Female African Clawed Frog (*Xenopus laevis*)

### 7:30 PM – 8:30 PM  
**Lonestar D**

#### Carl Gans Award: Dr. Alejandro Rico-Guevara  
Comparative ecophysics of avian nectarivory  
*Sponsored by the Journal of Experimental Biology*
Friday POSTER SESSION P3
JW Grand Ballroom, 3:30-5:30 PM
Poster Set Up: 7:00-8:00 am; Poster Teardown: 5:30-6:00 pm
Even # - Authors present from 3:30-4:30 pm; Odd # - Authors present from 4:30-5:30 pm

**Cell and Molecular Physiology**

**P3-001**  
Peter Micah, Mark Gunderson  
Organic UV Filter Decreases Metallothionein Content in Signal Crayfish (*Pacifastacus leniusculus*)

**P3-001A**  
Ahmed Nurkovic, Mark Gunderson  
Effects of Oxybenzone on Glutathione Concentrations in Signal Crayfish (*Pacifastacus leniusculus*)

**P3-002**  
Quentin Mata-Figueroa  
Effects of Microgravity on Cell Growth and Silver Nanoparticle Synthesis on Rhodobacter sphaeroides

**P3-003**  
Rysa Thomas, Dima Salih, Emily Plant, Fareeha Ahmed, Aash Eury, M. Rockwell Parker  
Stress hormone-receptor relationships and their dose-dependency in garter snakes

**P3-004**  
Rachel Belanger, Diana Chammour*, Hussien Hazime, Mariana Muskovac, Gregory Grabowski  
Mitotic activity in the hepatopancreas of crayfish (*Faxonius virilis*) following an atrazine exposure

**P3-005**  
Annabelle Murray, Thomas Fogle  
The effects of Ergosterol on the uptake of Lead in Tetrahymena pyriformis

**P3-006**  
Patrick Clouser, Jason Podrabsky  
Molecular signatures of anoxia tolerance in embryos of the annual killifish Austrofundulus limnaeus

**P3-007**  
Gregory Grabowski, ATearea Boggan, Jolani Perez  
Carbonate anhydrase activity localization and pH modeling in GI segments in the Roach: Gromphadorhin

**P3-009**  
Kevin Pham, KayLene Yamada, Emma M. Rhodes, Agata Rudolf, Wendy Hood  
The effects of continuous light and darkness on mitochondrial physiology and body condition

**P3-008**  
Adi Domer, Yariv Brotman, Ofer Ovadia  
Plasma metabolome of migrating passerines: Novel insights into flight metabolism and avian insulin-resistance

**Chemical Ecology and Evolution**

**P3-010**  
Mercille Nguyen, Catherine McGrath, Caitlin McNamara, Alex Huynh  
The effect of host plant species and herbivore-induced plant volatiles on recruiting avian predators

**P3-011**  
Joshua Rivera, Joseph Rangel, André Carvalho, Adam Leaché, Matthew Fujita  
Epidermal Gland Evolution in Whiptail Lizards (*Aspidoscelis*)

**P3-012**  
Joseph Rangel, Joshua Rivera, Matthew Fujita, André Carvalho, Adam Leaché  
Deep Homology of Follicular Glands in Divergent Lizard Clades

**P3-013**  
Maia Dykstra  
Heavy Metal Hyperaccumulation and Physiological Stress in *Ulva fenestrata*

**P3-014**  
Shauntara Good, Chase Mason, Hannah Stanford  
Evaluating the toxic effects of common sunflower terpenes using Vanessa cardui

**P3-015**  
Jasen Liu, Carlos Nunes, Paulo Milet-Pinheiro, Santiago Ramirez  
Patterns of evolution in floral volatile composition across a specialized pollination system

**Complementary to S7: Biology at Birth: The Role of Infancy in Providing the Foundation for Lifetime Success**

**P3-016**  
Molly Wingard, Lindsey Wells, Andrew Fuller, Mark Garcia  
Seasonal Patterns in Reproductive Output in a Self-Fertilizing, Hermaphroditic Fish

**Complementary to S8: The Role of Mechanosensation in Robust Locomotion**

**P3-017**  
Zheng Wang, Alison Weber, Abigail von-Hagel, Mahnoush Babaei, Bingni Brunton, Sarah Bergbreiter, Tom Daniel  
Sense and extensibility: two dimensions of stimulus features for wing strain improve sparse sensing
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<td>Johnny Davila-Sandoval, Allan Carrillo-Baltodano, Néva Meyer</td>
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<td>Is Seagrass Wasting Away? Measuring Disease Dynamics in the Salish Sea</td>
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Kimberley Glenn, Alexis Lindsey, Mike Norris, Kaitlyn Murphy, Daniel Warner  
Habitat Use of Hatchling Lizards Across Different Environments

**P3-041**  
Yujie Liu, Toshi Tsunekage, Iris Levin  
What predicts telomere dynamics in adult barn swallows (*Hirundo rustica erythrogaster*)?

**P3-042**  
Jesus Lopez, Ashley Teufel, Robert Page  
Understanding anuran life cycle ecology and evolution through agent-based modeling.

**P3-043**  
Frederick Nelson, Thomas Hahn  
Causes and consequences of Life History Stage overlap: Insights from migratory songbirds

### Energetics

**P3-044**  
Paul Schaeffer  
Manipulation of photoperiod induces fat storage, but not fat mobilization in a migratory songbird.

**P3-045**  
Kaley Hallmark, Ching-Wen Tan, Jared Ali, Rudolf Schilder*  
Larval history effects on migrant Monarch butterfly flight energetics and longevity

**P3-046**  
Phillip Oelbaum, Renata Solimosi, Paul Faure, Louis Lazure, Gheylen Daghfous, Kenneth Welch  
Effect of dietary protein on wound healing in Jamaican fruit bats, *Antibeus jamaicensis*

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Rebecca Clark, Cassie Smith, Savana Goslovich*  
Surprising impacts of dietary fiber on leafcutter ant foraging and colony growth

**P3-048**  
Holland Galante, Anuj Ghimire, Britt Heidinger, Timothy Greives, Rebecca Young, Emily Elderbrock, Jeffery Kittleson, Jacob Campbell  
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Nicholas Strasser, Maya Makhtin, John Hatle  
Dietary protein quality does not alter P:C intake target in grasshoppers

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Isabel Cote, Anabela Maia  
Planktivorous fish in Narragansett Bay exhibit suppressed metabolic rates as temperature increases

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The Effects of Temperature and Flow on Respiration in Two Marine Mussels

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Claudia Silva-Rubio, Frank van-Breukelen  
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Alexandra Burdette-Lapuz, Ione Hunt-von-Herbing, Jack Eudy, Hollie Greer, Kaili Abram  
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Samantha Schofield, James Waters, Jannelle Couret  
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Ziad Ibbini, John Spicer, Manuela Truebano, John Bishop, Oliver Tills  
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**P3-060**  
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The role of gut microbiota in supplying amino acids to their mammalian hosts

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Experimental test of the environmental matching hypothesis in island populations of the brown anole

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Madison McIntyre, Scott Boback  
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**P3-063**  
Stephanie Rudisill, Haley Martin, Clare Scott-Chialvo  
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Events take place in the JW Marriott Austin, unless otherwise noted.

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### SPECIAL LECTURE

- **Past-President Address:** Dr. Beth Brainerd  
  XROMM yields new insights into musculoskeletal structure, function, and evolution  
  11:00 AM - 12:00 PM | Lonestar Ballroom

- **John A. Moore Lectureship:** Dr. Kimberly Tanner  
  Talk matters: Investigating the nature of non-content classroom language – instructor talk – that may mediate student inclusion, engagement, and learning  
  4:30 PM - 5:30 PM | Lonestar D

### CONTRIBUTED PAPER ORAL PRESENTATIONS

#### MORNING

- **My Microbial Friends**  
  7:45 AM – 9:15 AM | Lonestar F
- **Pathogen Dynamics**  
  7:45 AM – 9:00 AM | Lonestar C
- **New Approaches in Comparative Genomics and Proteomics**  
  7:45 AM – 9:30 AM | Lonestar B
- **Complementary to S4: Daily Torpor Across Birds and Mammals:**  
  Recent Progress and How do we Advance the Field?  
  8:15 AM – 8:45 AM | Rooms 301-302
- **Complementary to S2: Neuroethology in the Age of Gene Editing:**  
  New Tools and Novel Insights into the Molecular and Neural Basis of Behavior  
  8:00 AM – 8:45 AM | Rooms 203-204
- **Complementary to S8: The Role of Mechanosensation in Robust Locomotion**  
  8:00 AM – 9:00 AM | Rooms 303-304
- **Communication III: Signal Production and Detection**  
  8:00 AM – 9:15 AM | Lonestar G
- **Epigenetics**  
  8:00 AM – 9:15 AM | Rooms 201-202
- **Neuroanatomy and Physiology**  
  8:00 AM – 9:15 AM | Lonestar A
- **Evolution Across Deep Time**  
  8:00 AM – 9:30 AM | Lonestar E
- **Fluids**  
  8:00 AM – 9:30 AM | Lonestar H
- **Ecology and Evolution of Body Morphology**  
  8:00 AM – 10:45 AM | Lonestar D
- **Complementary to S6: Large-Scale Biological Phenomena Arising From Small-Scale Biophysical Processes**  
  8:45 AM – 10:30 AM | Rooms 301-302
- **Complementary to S5: Pathways to Adulthood: Environmental, Developmental, and Evolutionary Influences on the Ontogeny of Form and Function**  
  9:00 AM – 10:30 AM | Rooms 203-204
- **Metabolism**  
  9:00 AM – 10:45 AM | Rooms 303-304
- **Neuroanatomy and Neuroethology**  
  9:15 AM – 10:30 AM | Lonestar A
- **Foraging Behavior I: Bees, Bats and Rewards**  
  9:15 AM – 10:45 AM | Lonestar C
- **Neuroethology I**  
  9:15 AM – 10:30 AM | Rooms 201-202
- **Parental Behavior**  
  9:30 AM – 10:45 AM | Lonestar G
- **Sensory Ecology, Communication, and Cognition**  
  9:15 AM – 10:30 AM | Lonestar F
- **A Transcriptomic Lens on Ecology and Evolution**  
  9:30 AM – 10:45 AM | Lonestar E
- **Life in Urban or Near-Urban Environments**  
  9:30 AM – 11:00 AM | Lonestar B
AFTERNOON
Complementary to S7: Biology at Birth: The Role of Infancy in Providing the Foundation for Lifetime Success  1:30 PM – 3:15 PM  Rooms 203-204
Development of Behavior  1:30 PM – 3:00 PM  Lonestar F
Evolutionary Morphology  1:30 PM – 3:00 PM  Lonestar H
Phylogenetics and Macroevolution  1:30 PM – 3:00 PM  Lonestar D
Reproduction: Evolutionary Morphology & Genetic Control  1:30 PM – 2:30 PM  Lonestar G
Body Kinematics During Aquatic Locomotion  1:30 PM – 3:15 PM  Lonestar B
Neuroethology II  1:30 PM – 3:15 PM  Rooms 201-202
Biomaterials, Structure & Mechanics II  1:30 PM – 3:30 PM  Lonestar C
From Populations to the Evolution of New Species  2:00 PM – 3:15 PM  Rooms 303-304
Modeling & Computational Approaches II  1:30 PM – 3:15 PM  Rooms 301-302
Stress Impacts  1:30 PM – 3:30 PM  Lonestar A
The Ecology and Evolution of Coloration  1:30 PM – 3:30 PM  Lonestar E

COMMITTEE AND BOARD MEETINGS
Executive Committee Meeting  7:00 AM – 8:00 AM  Brazos
Broadening Participation Committee Meeting  7:30 AM – 8:30 AM  Rooms 402-403
Public Affairs Committee  7:30 AM – 8:30 AM  Room 201
Student Postdoc Affairs Committee  8:00 AM – 9:00 AM  Boardroom

SOCIAL EVENTS
Morning 5K Run  6:00 AM – 7:00 AM  JW Marriott Lobby
End of Meeting Celebration  6:00 PM – 8:00 PM  Terrace Deck
Saturday Program Morning Sessions

Note: Presenter is first author unless noted by an asterisk (*).

7:45 AM – 9:15 AM  Lonestar F

My Microbial Friends
Chair: Aki Ohdera

7:45 am Michele Nishiguchi, Brian Pipes* Your genes or mine? Regulation of competence and transformation in the Squid-Vibrio symbiosis

8:00 am Perla Gonzalez-Moreno, Quan Tran, Michele Nishiguchi How to get rid of your neighbor: Type VI secretion system (T6SS) between conspecific V. fischeri

8:15 am Pedro Antonio Perez, Michele Nishiguchi Crossing communication barriers: Autoinducer production between symbiotic Vibrio from Sepiola

8:30 am Aki Ohdera, Maille Mansbridge, Matthew Wang, Changhua Yu, Goenotoro Lea Modulating the microbiome enhances limb regeneration

8:45 am Jake Pawley, Scott Nichols Investigating antibacterial immune responses in a sponge

9:00 am Daravuth Cheam, Justin Yeakel, Michele Nishiguchi Model behavior: Predicting how bacterial biofilms respond to predatory protozoans

7:45 AM – 9:00 AM  Lonestar C

Pathogen Dynamics
Chair: Michael Ellison

7:45 am Bryon Tuthill, Isabela Velasquez-Gutierrez, Mary Campbell, Leilani Santo Domingo, Michael Sastny, Jessica Hua Predation, Pesticide and Pathogens: Stressor effects on population, organismal, and genome metrics

8:00 am Ashley Aguilar, Oscar Hernandez-Reyes, Megan Wise-de-Valdez Mosquito species diversity at the San Antonio Zoo

8:15 am Kayla Fast, Matthew Scott, Alex Rakestraw, Magdalene Dogbe, Heather Jordan, Sophie Picq, Joseph Receveur, Alexandra Bauer, Christine Chevillon, Jean-François Guegan, Jennifer Pechal, Eric Benbow, Michael Sandel Assessing the effects of nonindigenous aquatic species on freshwater microbial communities

8:30 am Yash Raka, Trevor Fox, Jon Harrison Mesocosm approach towards understanding Poleward Expansion of the Zika-carrying Aedes aegypti

8:45 am Isabela Velasquez-Gutierrez, Jessica Hua, Obed Hernandez-Gomez, Bryon Tuthill, Mary Campbell, Karin Sauer, Eve Milusich Evolutionary responses of bacteria to antibiotics affect their ability to inhibit a fungal pathogen

7:45 AM – 9:30 AM  Lonestar B

New Approaches in Comparative Genomics and Proteomics
Chair: Samantha A. Price

7:45 am Jacob Daane, H. William Detrich, Matthew Harris, Andres Aguilar, Michael Sandel Using ‘replicate’ radiations of perciform fishes to understand the genetic basis of trait evolution

8:00 am Samantha Price Are evolutionary regression slopes shallower at lower taxonomic levels? A study usingteleost fishes

8:15 am Jorge Pérez-Moreno, Mihika Kozma, Danielle DeLeo, Heather Bracken-Grisom, David Durica, Donald Mykles CrusTome: A transcriptome database resource for large-scale analyses across Crustacea

8:30 am Holly Gothard, Carla Hurt Genomic Resources for Conservation of the Imperiled Hardin Crayfish (Faxonius wrighti)

8:45 am Ryan Weaver, Justin Havird How to test temporal predictions of the nuclear compensation mechanism of mitonuclear coevolution
<table>
<thead>
<tr>
<th>Time</th>
<th>Speaker</th>
<th>Title</th>
</tr>
</thead>
<tbody>
<tr>
<td>9:00 am</td>
<td>Jeffrey Streicher, Anjali Goswami, Ashwini Venkatanarayana-Mohan</td>
<td>How does chromosome evolution influence landmark-based estimates of genomic disparity?</td>
</tr>
<tr>
<td>9:15 am</td>
<td>Noor White, Zachary Bats, Edward Braun, Michael Braun, Karen Carleton, Rebecca Kimball, Anand Swaroop</td>
<td>A novel exome probe set captures phototransduction genes across birds (Aves)</td>
</tr>
</tbody>
</table>

### 8:15 AM – 8:45 AM Rooms 301-302

**Complementary to S4: Daily Torpor Across Birds and Mammals: Recent Progress and How do we Advance the Field?**  
Chairs: Anusha Shankar, Kenneth Welch

<table>
<thead>
<tr>
<th>Time</th>
<th>Speaker</th>
<th>Title</th>
</tr>
</thead>
<tbody>
<tr>
<td>8:15 am</td>
<td>Cole Wolf, Zachary Cheviron</td>
<td>Variation in phenotypic flexibility of metabolic traits along an elevational gradient</td>
</tr>
<tr>
<td>8:30 am</td>
<td>Blair Wolf, Shayne Halter</td>
<td>Energy Allocation Strategies Of Migrating Hummingbirds</td>
</tr>
</tbody>
</table>

### 8:00 AM – 8:45 AM Rooms 203-204

**Complementary to S2: Neuroethology in the Age of Gene Editing: New Tools and Novel Insights into the Molecular and Neural Basis of Behavior**  
Chairs: Beau Alward, Scott Juntti

<table>
<thead>
<tr>
<th>Time</th>
<th>Speaker</th>
<th>Title</th>
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<tbody>
<tr>
<td>8:00 am</td>
<td>Benjamin Matthews</td>
<td>Molecular genetics of egg-laying behaviour in mosquitoes</td>
</tr>
<tr>
<td>8:15 am</td>
<td>Richard Meisel, Alexander Mai, Pablo Delclos</td>
<td>Identifying the regulatory architecture underlying mating behavior using CRISPRa</td>
</tr>
<tr>
<td>8:30 am</td>
<td>Yiting Ter, Erica Westerman</td>
<td>Dynamic gene expression during a social learning event in a butterfly</td>
</tr>
</tbody>
</table>

### 8:00 AM – 9:00 AM Rooms 303-304

**Complementary to S8: The Role of Mechanosensation in Robust Locomotion**  
Chairs: Hilary Rose Katz, Kathryn E. Stanchak

<table>
<thead>
<tr>
<th>Time</th>
<th>Speaker</th>
<th>Title</th>
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</thead>
<tbody>
<tr>
<td>8:00 am</td>
<td>Sweta Agrawal, Chris Dallmann, Su-Yee Lee, John Tuthill</td>
<td>Neural architecture of leg mechanosensory circuits in Drosophila</td>
</tr>
<tr>
<td>8:15 am</td>
<td>Jasmin Wong, Shane Windsor</td>
<td>Flight feathers as structural filters for aerodynamic sensory signals</td>
</tr>
<tr>
<td>8:30 am</td>
<td>Eric Tytell, Lauren Cooper, Luna Lin, Pedro Reis</td>
<td>Regulation of the swimming kinematics of lampreys Petromyzon marinus when viscosity increases</td>
</tr>
<tr>
<td>8:45 am</td>
<td>Brooke Quinn, Kenneth Breuer, Alberto Bortoni, Sharon Swartz</td>
<td>Sensing on the fly: sensory hairs help bats battle turbulence</td>
</tr>
</tbody>
</table>

### 8:00 AM – 9:15 AM Lonestar G

**Communication III: Signal Production and Detection**  
Chairs: Kelsi Marie Rutledge, Lindsay Waldrop

<table>
<thead>
<tr>
<th>Time</th>
<th>Speaker</th>
<th>Title</th>
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<tbody>
<tr>
<td>8:00 am</td>
<td>Samantha Smith, Steven Phelps</td>
<td>The Cricothyroid Muscle’s Role in Frequency Modulation of Whistle-based Sounds in a Singing Mouse.</td>
</tr>
<tr>
<td>8:15 am</td>
<td>Todd Green, Tamar Goldblatt, Jeffrey Ng, Saqib Chariwala, Paul Gignac, Akinobu Watanabe</td>
<td>Do the cranial casques of cassowaries function as vocal resonators?</td>
</tr>
<tr>
<td>8:30 am</td>
<td>Loranzie Rogers, Nicholas Lozier, Yulia Sapochnikova, Kelly Diamond, Joseph Sisneros</td>
<td>Functional plasticity of the swim bladder in a vocal fish</td>
</tr>
<tr>
<td>8:45 am</td>
<td>Lindsay Waldrop, Shilpa Khatri, Yanyan He</td>
<td>Flash or Sniff: Testing the evolutionary divergence of firefly antennae due to selection</td>
</tr>
<tr>
<td>9:00 am</td>
<td>Kelsi Rutledge, Malcolm Gordon, John Dabiri</td>
<td>Fluid dynamics of chemical scent detection in stingrays</td>
</tr>
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</table>
### Saturday 7 January 2023

#### 8:00 AM – 9:15 AM | Rooms 201-202

**Epigenetics**  
*Chair: Benjamin Parrott*

<table>
<thead>
<tr>
<th>Time</th>
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<th>Topic</th>
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<tbody>
<tr>
<td>8:00 am</td>
<td>Benjamin Parrott, Ethan Shealy, Emily Bertucci</td>
<td>Age-dependent disorder of DNA methylation in epigenetic aging, development, and rejuvenation</td>
</tr>
<tr>
<td>8:15 am</td>
<td>Charles Voirin, Toshi Tsunekage, Yujie Liu, Kate Alexy, Iris Levin</td>
<td>Brood size and growth rate affect telomere length and dynamics in nestling barn swallows</td>
</tr>
<tr>
<td>8:30 am</td>
<td>Ryan Hardin, Tonia Schwartz</td>
<td>Telomere dynamics across early life stages in brown anole lizards</td>
</tr>
<tr>
<td>8:45 am</td>
<td>Christopher Peterson, Mikhail Matz</td>
<td>Inheritance of DNA methylation in hybridized Acropora corals</td>
</tr>
<tr>
<td>9:00 am</td>
<td>Evelyn Abbott, Mikhail Matz</td>
<td>Gene body methylation and gene expression plasticity do not correlate in a reef-building coral</td>
</tr>
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#### 8:00 AM – 9:15 AM | Lonestar A

**Neuroanatomy and Physiology**  
*Chair: Lauren Eve Simonitis*

<table>
<thead>
<tr>
<th>Time</th>
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<tbody>
<tr>
<td>8:00 am</td>
<td>Lauren Simonitis, Adam Summers, Amani Webber-Schultz, Aubrey Clark</td>
<td>Nosy About Noses: using biovisualization techniques to study Chondrichthyan nasal morphology</td>
</tr>
<tr>
<td>8:15 am</td>
<td>Desmond Ramirez, Thi Bui, Paul Katz</td>
<td>Neuronal mapping in the head ganglia of a gastropod mollusc using single cell transcriptomics</td>
</tr>
<tr>
<td>8:30 am</td>
<td>Kelsey Stilson, Zhe-Xi Luo, Callum Ross</td>
<td>Hemimandibular Mastication in Didelphis virginiana: bilateral control through periodontal feedback</td>
</tr>
<tr>
<td>8:45 am</td>
<td>Lainy Day, Derrick Thornton</td>
<td>Relative Sexual Size Dimorphism, Endocranial Volume, and Display in Manakins (Aves, Pipridae).</td>
</tr>
<tr>
<td>9:00 am</td>
<td>Agnish Prusty, Payel Chatterjee, Sanjay Sane</td>
<td>The sensorimotor apparatus for head stabilization in the Oleander hawkmoth Daphnis nerii</td>
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</table>

#### 8:00 AM – 9:15 AM | Lonestar E

**Evolution Across Deep Time**  
*Chair: Sara J. ElShafie*

<table>
<thead>
<tr>
<th>Time</th>
<th>Speaker(s)</th>
<th>Topic</th>
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</thead>
<tbody>
<tr>
<td>8:00 am</td>
<td>Elizabeth Sibert, Monica Marion, Jacob Licht, Immanuel Bissell, Karly Cohen</td>
<td>Tiny Tooth Tales: A record of fish evolution from microfossil teeth preserved in deep sea sediments</td>
</tr>
<tr>
<td>8:15 am</td>
<td>Phillip Sternes, Lars Schmitz, Timothy Higham</td>
<td>Cretaceous origin of pelagic sharks coincides with major shifts in pectoral fin morphology</td>
</tr>
<tr>
<td>8:30 am</td>
<td>J. Andres Marquez, Kyra Anderson, Murray Duncan, Erik Sperling, Richard Stockey, Thomas Boag</td>
<td>Comparing the Hypoxia Tolerance and Temperature Sensitivities of Paleozoic and Modern Marine Fauna</td>
</tr>
<tr>
<td>8:45 am</td>
<td>Sara ElShafie</td>
<td>Body size tracks precipitation in crocodyliforms and local temperature in lizards over deep time</td>
</tr>
<tr>
<td>9:00 am</td>
<td>Nicole Barber, Christophe Soligo, Anjali Goswami</td>
<td>Morphological disparity and rates of evolution in the primate astragalus and calcaneus</td>
</tr>
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</table>

#### 8:00 AM – 9:30 AM | Lonestar H

**Fluids**  
*Chair: Elio Challita*

<table>
<thead>
<tr>
<th>Time</th>
<th>Speaker(s)</th>
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<tbody>
<tr>
<td>8:00 am</td>
<td>Michael Calicchia, Rui Ni, Rajat Mittal, Jung-Hee Seo</td>
<td>Reconstructing the pressure field around an undulating body using a physics-informed neural network</td>
</tr>
<tr>
<td>8:15 am</td>
<td>Sara Oliveira-Pedro-dos-Santos, Monica Wilhelmus</td>
<td>Leakiness at intermediate Reynolds number in metachronal drag-based swimming</td>
</tr>
<tr>
<td>8:30 am</td>
<td>Yunxing Su, Rose Weinbaum, Eckart Meiburg, Darcy Taniguchi, Dustin Carroll, Tihomir Kostadinov, Monica Wilhelmus</td>
<td>Quantifying large-scale transport by diel vertical migrations of mesozooplankton</td>
</tr>
</tbody>
</table>
8:45 am  Elio Challita, Prateek Sehgal, Pankaj Rohilla, Saad Bhamla  
Viscoelastic spitting of conehead termites

9:00 am  Siavash Ahrar  
SPIM-Flow: Integrated light-sheet and microfluidics to study hydrodynamics of Hydra

9:15 am  Dwight Whitaker, Guido Dominguez, Andrew Estrada, Amiri Rivers-David, Larry Liu, Aiden Karpf  
A numerical analysis of peat moss vortex rings

8:00 AM – 10:45 AM  
Lonestar D  
Ecology and Evolution of Body Morphology  
Chairs: Philip J. Bergmann, Josef Stiegler  

8:00 am  Alexa Wimberly  
Predicting body mass in ruminant artiodactyls using multiple regression

8:15 am  Dale Stevens, Anna Gilmartin, Sydney Macedo, Isabella Reichel, Matthew Wund, Kaitlyn Mathis  
Testing for evolved morphological plasticity in stickleback fish following northern pike invasion

8:30 am  Elianna Zack, Stephanie Smith, Kenneth Angielczyk  
From Fairies to Giants: impacts of body size and ecology on trabecular bone of Xenarthran vertebrae

8:45 am  Philip Bergmann, Maxwell Olson  
Diversification of salamander body form, as mediated by the evolution of the number of vertebrae

9:00 am  Matthew Kolmann, Richard Harrington, Matt Friedman  
In a rush to catch their breath? Body shape diversification in the labyrinth fishes and their allies

9:15 am  Stephanie Smith, Kenneth Angielczyk, Lawrence Heaney  
Multi-scale morphological effects of body size in an arboreal rodent clade (Muridae: Phloeomyini)

9:30 am  Alec Wilken, Julia Schultz, Callum Ross, Zhe-Xi Luo  
The effect of trabecular bone on force transfer in the jaws of mammals

9:45 am  Jennifer McCann, Travis Hagey  
Early Burst of Parallel Evolution in Gecko Toe Pad Morphology

10:00 am  Josef Steiger, Andrew Moore, Shuo Wang, Elena Cuesta, John Scannella, Xing Xu, James Clark  
Exceptional fossils and juvenile birds resolve dinosaurian digit dilemma

10:15 am  Christopher Griffin, Neil Pezzoni, Romain Pintore, Randall Irmis, Nathan Smith, Adam Marsh, Sterling Nesbitt  
Early theropod hindlimb morphology evolved via shifts in ontogenetic timing

8:45 AM – 10:30 AM  
Rooms 301-302  
Complementary to S6: Large-Scale Biological Phenomena Arising From Small-Scale Biophysical Processes  
Chairs: Kit Yu Karen Chan, SJeanette D. Wheeler  

8:45 am  Melissa Ruszczyn, Donald Webster, Jeannette Yen  
A freshwater copepod’s response to dissipation-scale turbulent flow structure

9:00 am  Piotr Jablonski, Jinseok Park, Jong-Yool Moon, Hongsup Shin, Changku Kang, Jeongeol Park, Gyihyun Cho, Minyoung Son, Nicholas Strausfeld, Ronald Mumme, Hyungpil Moon, Sang-im Lee, Yuong-Nam Lee  
Simple neural circuits in prey and large scale phenomena in predators: flush-pursue foraging

9:15 am  Emily Kaufman, Harry Tuazon, Darshan Chudasama, Saad Bhamla  
Thigmotactic Clumping of Substrate by Aquatic Worms

9:30 am  Dakota Piorkowski, Andrew Lowe, Doug Fudge*  
Micro-scale mechanics of hagfish defensive slime deployment

9:45 am  Laura Miller  
Multiscale flow between the branches and polyps of gorgonians

10:00 am  Lance Davidson  
Invasive or adaptive? Robust development in the face of extreme temperatures.

10:15 am  Christopher Strickland, Laura Miller, Nick Battista  
Planktos: An agent-based framework for small organisms in fluid and around structures at the m scale
Complementary to S5: Pathways to Adulthood: Environmental, Developmental, and Evolutionary Influences on the Ontogeny of Form and Function

Chairs: Terry Dial, Ashley M. Heers, Mark C. Mainwaring

9:00 am Richard Hoover, Olivia Hawkins, Jack Rosen, Conrad Wilson, Callie Crawford, Meghan Holst, Jonathan Huie, Adam Summers, Cassandra Donatelli, Karly Cohen

The hydrodynamic cost of armor and its tradeoff with adhesion across ontogeny in E. orbis

9:30 am John Majoris, Fritz Francisco, Corinne Burns, Simon Brandl, Karen Warkentin, Peter Buston

Paternal care regulates hatching time and hatching morphology in a coral reef fish

9:45 am Jack Little, Emily Carrington

An Integrative Assessment of Life-Stage Specific Thermotolerance in a Variable Environment

10:00 am Ione Hunt-von-Herbing, Francis Pan

Multiple Stressors, Allostasis and Metabolic Scaling in Developing Zebrafish.

10:15 am Ella Nicklin, Gareth Fraser

A deep dive into elasmobranch denticle diversity and development

Metabolism

Chair: Sara Wilmsen

9:00 am Jerrica Jamison, Kenneth Welch

Sugar Transporter Evolution in Bats Specializing in High Sugar Diets

9:15 am Noah DeFino, Goggy Davidowitz

Crop-emptying rate and nectar resource allocation of a nectivorous pollinator

9:30 am Alana Robinson, Emma Elliott-Smith, Alexi Besser, Martin Tinker, Seth Newsome

Amino acid metabolism in southern sea otters

9:45 am Craig Perl, James Haas, Jon Harrison

Causal mechanisms for variation in resting metabolic rates

10:00 am Sara Wilmsen, Edward Dzialowski

Phenotypic plasticity of the respiratory physiology of Manduca sexta in response to altered oxygen

10:15 am Sara Wilmsen, Edward Dzialowski

Phenotypic plasticity of the respiratory physiology of Manduca sexta in response to altered oxygen

10:30 am Catherine Ivy, Christopher Guglielmo

Seasonal flexibility in the oxygen cascade of migratory songbirds

Neuroanatomy and Neuroethology

Chair: Julia C. Notar

9:15 am Julia Notar, Madeline Go, Sönke Johnsen

No Brain? No Problem! Brittle Stars Are Capable of Associative Learning

9:30 am Kate Otter, Paul Katz

Dopaminergic and octopaminergic neurons in the nudibranch, Berghia stephanieae

9:45 am Meagan Simons, Deibert Green

Seasonal plasticity and population specific adult brain development in monarchs

10:00 am Chinmayee Mukunda, Sanjay Sane

Position and velocity encoding by Johnston’s organs in the hawkmoth, Daphnis nerii

10:15 am Christopher Seng, Robyn Crook

Descending inhibitory modulation of nociception in the cephalopod nervous system

Foraging Behavior II: Bees, Bats and Rewards

Chair: Avery Russell

9:15 am Smruti Pimplikar, Felicity Muth, Jessica Buelow

A comparative test of reversal learning in queen and worker bumblebees
### Saturday 7 January 2023

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<thead>
<tr>
<th>Time</th>
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<tbody>
<tr>
<td>9:30 am</td>
<td>Avery Russell, Tia-Lynn Ashman, Parker Campbell</td>
<td>Microbes on the mind: effects on learning in a generalist bumble bee</td>
</tr>
<tr>
<td>9:45 am</td>
<td>Felicity Muth, Claire Hemingway</td>
<td>Reward perception and decision making in bumblebees</td>
</tr>
<tr>
<td>10:15 am</td>
<td>Kord Dicke, Dhruba Naug</td>
<td>Slow-fast differences in physiology, behavior, and life history in honeybees</td>
</tr>
<tr>
<td>10:30 am</td>
<td>Brandi Christiano, Michael Ryan</td>
<td>Hungry for pests? The diet diversity of the Brazilian free-tailed bat in Austin, Texas.</td>
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**9:15 AM – 10:30 AM**

#### Neuroethology I
Chair: Daniel I. Speiser

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<tbody>
<tr>
<td>9:15 am</td>
<td>Cheng-Yu Li, Jessica Bowers, Theresa Alexander, Scott Juntti</td>
<td>Identification of an olfactory receptor for the reproductive pheromone in an African cichlid fish</td>
</tr>
<tr>
<td>9:30 am</td>
<td>Hazel Havens, Julia Notar, Brian Taylor, Kenneth Lohmann</td>
<td>A role for the central complex in magnetoreception</td>
</tr>
<tr>
<td>9:45 am</td>
<td>Daniel Chappell, Daniel Speiser</td>
<td>Contending With Too Much Information: The Visual Neuroethology of Scallops</td>
</tr>
<tr>
<td>10:00 am</td>
<td>Daniel Speiser, Alexandra Kingston, Daniel Chappell</td>
<td>Few Eyes, More Eyes, Fast Eyes, Slow Eyes: Metabolic Constraints on Distributed Visual Systems</td>
</tr>
<tr>
<td>10:15 am</td>
<td>Daniel Shaykevich, Daniela Pareja-Moja, Lauren O’Connell</td>
<td>Spatial cognition in the cane toad (Rhinella marina)</td>
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**9:30 AM – 10:45 AM**

#### Parental Behavior
Chairs: Ryleigh Dennis, Jennifer Hellmann

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<tbody>
<tr>
<td>9:30 am</td>
<td>Ryleigh Dennis, Andrew Anderson, Suzy Renn</td>
<td>Sex Role Plasticity and Aggression in the Cichlid Fish J. marlier</td>
</tr>
<tr>
<td>9:45 am</td>
<td>Lindsey Chiesl, Heather Mathewson, Gabrielle Names, Britt Heidinger</td>
<td>House Sparrow Parental Provisioning Across Varying Temperature Gradients</td>
</tr>
<tr>
<td>10:00 am</td>
<td>Sarah Foltz, Nolen Miller</td>
<td>Fighter-pilot parents: relationships between offspring age, quality, and parental nest defense</td>
</tr>
<tr>
<td>10:15 am</td>
<td>Marcelle Gray, Sarah Foltz</td>
<td>Interactions Between Land Use Type, Nest Predators, and Parental Behavior in Cavity Nesting Birds</td>
</tr>
<tr>
<td>10:30 am</td>
<td>Christopher Marshall, Timothy DellaPenna, Justin Wilson, Eliza Perez, Kari Howard, Theresa Morris, Donna Shaver</td>
<td>Assessment of Optimal Sea Turtle Nesting Habitat On the Upper Texas Coast</td>
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**9:15 AM – 10:30 AM**

#### Sensory Ecology, Communication, and Cognition
Chair: Sierra Dee Rodriguez

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<td>9:15 am</td>
<td>Sarah McKay Strobel, Molly Womack</td>
<td>Evolution of signaler and receiver: assessing matched filters in anuran acoustic communication</td>
</tr>
<tr>
<td>9:30 am</td>
<td>Daniel Hanley, Casey Greenberg</td>
<td>Green light enhances egg recognition in the gray catbird Dumetella carolinensis</td>
</tr>
<tr>
<td>9:45 am</td>
<td>Sierra Rodriguez, Jennifer Phillips</td>
<td>The Effects of Sensory Pollution on Insect Diversity and Pollinator Behavior</td>
</tr>
<tr>
<td>10:00 am</td>
<td>Samuel Stratton, Delbert Green</td>
<td>Decoupling the induction mechanisms of migratory orientation and reproductive diapause in monarchs</td>
</tr>
<tr>
<td>10:15 am</td>
<td>Carlos Ruiz, Jamie Theobald</td>
<td>Habitat structure and natural history shape stabilizing responses in three species of fruit flies</td>
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A Transcriptomic Lens on Ecology and Evolution
Chair: Joseph Heras

9:30 am  Joseph Heras, Michelle Herrera, Sara Kelley, Alicia Huang, Donovan German
Comparative Transcriptomics of Marine Intertidal (Family Stichaeidae) Prickleback Fishes

9:45 am  Tyler Boggs, Joshua Gross
Adaptation to subterranean hypoxia: Insights from the blood transcriptomes of blind Mexican cavefish

10:00 am  Daniel Nondorf, Matthew Hale, Christopher Robinson, Henry John-Alder, Christian Cox, Robert Cox*
Evolutionary implications of sex, age, and tissue differences in fence lizard transcriptomes

10:15 am  Miles Whedbee, Eva Fischer, Laura Stein, Tai Montgomery, Kim Hoke
The evolution of miRNA expression in the Trinitadian guppy

10:30 am  Danielle Bragg, Elizabeth Borda
Transcriptomes and Aquifers: How do anchialine cave shrimp respond to salinity change?

9:30 AM – 11:00 AM  Lonestar B

Life in Urban or Near-Urban Environments
Chair: Kristin Winchell

9:30 am  Jennifer Phillips, Todd Jones, Clinton Francis
Nesting near noise and light-filled nights: The fitness consequences of combined sensory pollutants

9:45 am  Alfredo Llamas, Todd Jones, Jennifer Phillips
How does sensory pollution and urban vegetation affect avian diversity and nesting success?

10:00 am  Isaac VanDiest, Samuel Lane, Korin Jones, Taylor Fossett, Kendra Sewall
How Similar are Urban and Rural Arthropod Communities?

10:15 am  Andrew Cronin, Judith Smit, Wouter Halfwerk, Jacintha Ellers
Effects of urbanization on early life stages and potential for local adaptation

10:30 am  Samantha Wolfe, Alan Kneidel, Paula Cinprich, Shiloh Schulte, Stephen Brown, Rob Clay
Defining Whimbrel migration staging sites on the US Gulf Coast

10:45 am  Kristin Winchell, Shane Campbell-Staton, Jonathan Losos, Liam Revell, Brian Verrell, Anthony Geneva
Genome-wide parallelism underlies urban morphological adaptation

11:00 AM – 12:00 PM  Lonestar Ballroom

Past-President Address: Dr. Beth Brainerd
XROMM yields new insights into musculoskeletal structure, function, and evolution

Saturday Program Afternoon Sessions
Note: Presenter is first author unless noted by an asterisk (*).

1:30 PM – 3:15 PM  Rooms 203-204

Complementary to S7: Biology at Birth: The Role of Infancy in Providing the Foundation for Lifetime Success
Chairs: Rebecca Z. German, Christopher J. Mayerl

1:30 pm  Taylor McKibben, Tonia Schwartz, Kaitlyn Murphy
Does Maternal Transfer or Early Life Diet Affect the Gut Microbiome in Brown Anole Lizards

1:45 pm  Chloe Edmonds, Kaitlyn Robbins, Stephen Howe, Kree Kerkvliet, Rebecca German, Christopher Mayerl
Rhythmic oral stimulation alters rates of feeding behaviors in infant pigs

2:00 pm  Courtney Miller, Ashley Steele, Rex Mitchell, Jason Organ, Rachel Menegaz
Craniomandibular morphological variance decreases with age in mice with a COL1A2 mutation

2:15 pm  Chase Kinsey, Richard Blob, Danielle Adams, Caleb Ratz
Bone density and mechanical properties across development in generalist and aquatic frogs
Saturday 7 January 2023

2:30 pm  
Masaya Iijima, Jim Darlington, Kent Vliet, Richard Blob  
Terrestrial locomotion of American alligators across body size ranging three orders of magnitude

2:45 pm  
Mateusz Wosik, Megan Whitney, Jessie Atterholt, Ashley Poust, David Evans  
Point Zero: Osteohistological Indicators for Body Size at Birth/ Hatching

3:00 pm  
Sam Patterson  
Early life adversity increases mortality risk across the lifespan in free-ranging rhesus macaques

1:30 PM – 3:00 PM  
Lonestar F

Development of Behavior  
Chair: Mathieu Videlier

1:30 pm  
Laura Stein, Faith Leri  
Disentangling mechanisms of predator-induced parental effects in Poecilia reticulata

1:45 pm  
Madison Rittinger, Rafael Rodriguez  
How Pholcus phalangioides Cellar Spiders (Araneae: Pholcidae) Solve Prey Capture Problems

2:00 pm  
Rindy Anderson, Charlie Daria, Morgan Slevin  
Effects of anthropogenic noise on cognition and growth in the zebra finch (Taeniopygia guttata)

2:15 pm  
Kathryn Chenard, Goran Dzudza, Emely Inzunza, Ryan Paitz, Renee Duckworth  
Maternal stress influences brain structural development and personality in a passerine bird

2:30 pm  
Kyndal Irwin, Caitlin Gabor  
Role of diversity and environmental complexity on cognitive performance and behavior in mosquitofish

2:45 pm  
Mathieu Videlier, Pierre-Olivier Montiglio, Francois Dumont  
Sex-and period-specific genetic (co)variance matrix of behaviour and body mass in Lygus lineolaris

1:30 PM – 3:00 PM  
Lonestar H

Evolutionary Morphology  
Chair: Leigha M. Lynch

1:30 pm  
Nick Peoples, Peter Wainwright  
Patterns of tooth diversity in the cichlid fishes of Lake Tanganyika

1:45 pm  
Miriam Zelditch, Donald Swiderski  
Modularity of mandible shape, part I: Methodological considerations

2:00 pm  
Donald Swiderski, Miriam Zelditch  
Modularity of mandible shape, part II: Empirical analyses of squirrels

2:15 pm  
Keiffer Williams, Samantha Price  
Resolving a dental dilemma: quantifying tooth variation along the jaws in polyphodont vertebrates

2:30 pm  
Jennifer Hodge, Danielle Adams, Laura Alencar, Benjamin Camper, Olivier Lerouche, Mason Thurman, Keiffer Williams, Katerina Zapfe, Samantha Price  
Effects of history on ecomorphological convergence across marine acanthomorph fishes

2:45 pm  
Dave Angelini, Devin O’Brien, Ye Jin Lee, Qifan Wen  
Testing the canalization of scaling in bumblebee mouthparts

1:30 PM – 3:00 PM  
Lonestar D

Phylogenetics and Macroevolution  
Chair: Ke Cao

1:30 pm  
Avery Hiley, Greg Rouse  
Phylogenetics of Lepidopteropodinae and mitochondrial gene order rearrangement in deep-sea scaleworms

1:45 pm  
Ke Cao, Marguerite Butler, Ethan Hill, Allison Fisher  
Phylogenetic Analysis of genus Aphantophryne

2:00 pm  
Siddharth Kulkarni, Carlos Santibañez-Lopez, Prashant Sharma  
Nailing the horseshoe: Reconciliation of Xiphosura gene tree-species tree reveals ancient hybridization

2:15 pm  
Anjali Goswami, Eve Noirault, Ellen Coombs, Julien Clavel, Anne-Claire Fabre, Thomas Halliday, Morgan Churchill, Abigail Curtis, Akinobu Watanabe, Nancy Simmons, Brian Beatty, Jonathan Geisler, David Fox, Ryan Felice  
Attenuated evolution of mammals through the Cenozoic
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<th>Title</th>
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<td>Allison Fisher, Ke Cao, Ethan Hill, Allen Allison, Marguerite Butler</td>
<td>Taxonomic resolution of the paraphyletic Oreophryne</td>
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<tr>
<td>2:45 pm</td>
<td>Sarah Friedman, Martha Munoz</td>
<td>A latitudinal gradient of deep-sea invasions for marine fishes</td>
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<td>1:30 PM – 2:30 PM</td>
<td><strong>Lonestar G</strong></td>
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<td><strong>Reproduction: Evolutionary Morphology &amp; Genetic Control</strong></td>
<td>Chairs: John Jacisin, Tal Perevolotsky</td>
<td></td>
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<tr>
<td>1:30 pm</td>
<td>John Jacisin, Antonio Meza, Tianyi Xu, Melissa Kemp</td>
<td>Interspecific and ecomorphological variation in the mandibular elements of Greater Antillean anoles.</td>
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<td>1:45 pm</td>
<td>Rachel Keeffe, Dylan Maag, Brandon Hedrick, Rulon Clark, Patricia Brennan</td>
<td>Shape differences in the hemipenes of rattlesnakes in a hybrid zone.</td>
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<tr>
<td>2:00 pm</td>
<td>Matthew Hale, Daniel Nondorf, Christopher Robinson, Henry John-Alder, Christian Cox, Robert Cox</td>
<td>Widespread Dosage Imbalances Reveal Facets of Sex Chromosome Evolution in Phrynosomatid Lizards</td>
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<tr>
<td>2:15 pm</td>
<td>Matthew Hale, Daniel Nondorf, Christopher Robinson, Henry John-Alder, Christian Cox, Robert Cox</td>
<td>Evolutionary reversals in sex-biased expression of gene networks underlying growth in spiny lizards</td>
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<td>1:30 PM – 3:15 PM</td>
<td><strong>Lonestar B</strong></td>
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<td><strong>Body Kinematics During Aquatic Locomotion</strong></td>
<td>Chairs: Kaelyn Mykel Gamel, Diego Sustaita</td>
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<tr>
<td>1:30 pm</td>
<td>Kaelyn Gamel, Henry Astley</td>
<td>Using Inverse Dynamics to Quantify Joint Mechanics of Underwater Walking in Axolotls</td>
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<td>2:00 pm</td>
<td>Gabriel Antoniak, Enric Xargay, Joaquin Gabaldon, Kira Barton, Bogdan-Ioan Popa, Alex Shorter</td>
<td>Estimating Whole-Body Kinematics and Kinetics of Swimming Bottlenose Dolphins</td>
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<td>2:15 pm</td>
<td>Kelimar Diaz, Steven Tarr, Baxi Zhong, Daniel Goldman</td>
<td>Water surface swimming via continuous contact in a centipede</td>
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<td>2:30 pm</td>
<td>Diego Sustaita, Arianna Ramirez</td>
<td>The mouse’s tale: the role of the tail during swimming in the salt marsh harvest mouse</td>
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<td>2:45 pm</td>
<td>Amandine Gillet, Katrina Jones, Eric Parmentier, Stephanie Pierce</td>
<td>Detecting backbone regionalization patterns in extant cetaceans</td>
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<td>3:00 pm</td>
<td>Keegan Lutek, Emily Standen</td>
<td>Locomotor transitions in Polypterus senegalensis</td>
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<td>1:30 PM – 3:15 PM</td>
<td><strong>Rooms 201-202</strong></td>
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<tr>
<td><strong>Neuroethology II</strong></td>
<td>Chair: Tracy A. Larson</td>
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<td>1:30 pm</td>
<td>Jeremy Didion, Jessica Fox</td>
<td>Central complex neuron responses to haltere input from multiple behaviors in Sarcophaga bullata</td>
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<tr>
<td>1:45 pm</td>
<td>Nicole Wynne, Gabriella Wolff, Clément Vinauger</td>
<td>Identification of a Giant Fiber Neuron system mediating mosquitoes’ responses to visual</td>
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<td>2:00 pm</td>
<td>Ibrahima Seck, Jessica Fox</td>
<td>Mechanosensory haltere input structures non-flight wing movements in the black scavenger fly, Sepsis</td>
</tr>
<tr>
<td>2:15 pm</td>
<td>Tracy Larson, Will Tucker, Susanna Shepard, John Boyd</td>
<td>Astrocyte plasticity in a sensorimotor nucleus controlling singing: a role in future plasticity</td>
</tr>
<tr>
<td>2:30 pm</td>
<td>Maitri Manjunath, Sanjay Sane</td>
<td>Mechanosensory feedback from cephalic hair coordinates flight initiation reflexes in hawkmoths</td>
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<tr>
<td>2:45 pm</td>
<td>Seth Shirazi, Timothy Highman</td>
<td>Why do fish miss? Attack strategies of threespine stickleback capturing non-evasive prey</td>
</tr>
<tr>
<td>3:00 pm</td>
<td>Benjamin Cellini, Jean-Michel Mongeau</td>
<td>Hierarchical integration of visual and mechanosensory feedback during control of gaze in Drosophila</td>
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<th>Time</th>
<th>Room</th>
<th>Title</th>
<th>Chairs</th>
<th>Abstract</th>
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<td>1:30 PM</td>
<td>Lonestar C</td>
<td><strong>Biomaterials, Structure &amp; Mechanics II</strong></td>
<td>Cailin Casey, Mark Jankauski</td>
<td>Structure-property relationships of the energy absorbing horncore velar bone of bighorn sheep rams.</td>
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<td>1:30 pm                Luca Fuller, Kourosh Kariny, Paige Ruschke, Meredith Taghon, Alfred Crosby, Seth Donahue</td>
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<td>Biophysical aspects underlying the swarm to biofilm transition.</td>
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<td>2:00 pm                Avraham Beer</td>
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<td>Multiscale functional morphology of a plant motor organ.</td>
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<td></td>
<td></td>
<td>2:15 pm                David Sleboda, Anja Geitmann, Reza Sharif-Naeini</td>
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<td>Flying insects with asynchronous muscles have stiffer thoraxes than insects with synchronous muscles.</td>
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<tr>
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<td></td>
<td>2:30 pm                Cailin Casey, Chelsea Heveran, Mark Jankauski</td>
<td></td>
<td>Buzzing Bees and Bending Flowers: Investigating the Mechanics of Buzz Pollination.</td>
</tr>
<tr>
<td></td>
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<td>3:00 pm                Mark Jankauski, Avery Russell, Stephen Buchmann</td>
<td></td>
<td>Cortical bone distribution in the hominoid clavicle through ontogeny.</td>
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<td>3:15 pm                Hannah Farrell, Callum Ross, Zeresenay Alemseged</td>
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<td>2:00 PM</td>
<td>Rooms 303-304</td>
<td><strong>From Populations to the Evolution of New Species</strong></td>
<td>Justin Havird</td>
<td>Mitonuclear discordance, population genomics, and thermal adaptation in the Hawaiian volcano shrimp.</td>
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<tr>
<td></td>
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<td>2:00 pm                Justin Havird, Chase Smith, Jess Sterling</td>
<td></td>
<td>Impacts of an extreme coral bleaching event on population connectivity and genetic variation.</td>
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<td>2:15 pm                James Fifer, Sarah Davies, Kelly Speare, Megan Maloney, Marie Strader</td>
<td></td>
<td>Molecular ecology of the federally endangered freshwater mussel Cumberlandia monodonta.</td>
</tr>
<tr>
<td></td>
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<td>2:30 pm                Nathan Whelan, Austin Hannah, Kentaro Inoue, David Berg</td>
<td></td>
<td>Is Genetic Differentiation of Symbiotic Beetles Tied to Their Host Ant?</td>
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<td>2:45 pm                Sheila Kitchen, Robert Hall, Julian Wagner, Thomas Naragon, David Miller, Caltech Bi160 Class, Joseph Parker</td>
<td></td>
<td>Population Genetics and Distribution of Typhlatya Species of the Yucatán Peninsula.</td>
</tr>
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<td>3:00 pm                Gabrielle Vaughn, Lauren Ballou, Thomas Iliffe, Elizabeth Borda</td>
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<tr>
<td>1:30 PM</td>
<td>Rooms 301-302</td>
<td><strong>Modeling &amp; Computational Approaches II</strong></td>
<td>Shirel R. Kahane-Rapport, Ashley Nichole Peterson</td>
<td>Vigilance is more important than speed for the survival of prey fish.</td>
</tr>
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<td></td>
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<td>1:30 pm                Ashley Peterson, Matt McHenry</td>
<td></td>
<td>Is More Data Worth It?: Creating lifelike finite element models for paleobiological studies.</td>
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<td>1:45 pm                Emily Bogner, Z. Jack Tseng</td>
<td></td>
<td>Introducing the Non-Clinical Tomography Users Research Network (NoCTURN).</td>
</tr>
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<td>2:00 pm                Morgan Chase, Jessica Maisano, Edward Stanley, Amanda Krause, Paul Gignac*</td>
<td></td>
<td>Individual muscle contributions to jumping by kangaroo rats using forward dynamics simulation.</td>
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<td>2:30 pm                Jordan Cannon, Craig McGowan</td>
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<td>Using biologically accurate models of manta ray filters to determine flow patterns.</td>
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<td>2:45 pm                Shirel Kahane-Rapport, Julia Teeple, James Strother, Misty Paig-Tran</td>
<td></td>
<td>A novel workflow for quantifying 3D skeletal anatomy of living humans for morpho-functional analysis.</td>
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<td>3:00 pm                Austin Lawrence, Kevin Middleton, Jamie Hall, Jacob Thomas, Trent Guess, Carol Ward</td>
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Stress Impacts

1:30 PM – 3:30 PM

**Lonestar A**

**Chairs:** Z Morgan Benowitz-Fredericks, Jennifer Jean Uehling

1:30 pm  **Sierra Pete, Alexander Kitaysky, Scott Hatch, Z Morgan Benowitz-Fredericks**

Baseline corticosterone levels neither reflect nor predict behavior, stress-induced levels do

1:45 pm  **Paul Jerem, Michaela Hau, L. Michael Romero**

Body surface temperature as a biomarker of sympathetic nervous system activation during acute stress

2:00 pm  **Sarah Westrick, Ryan Paitz, Eve Fischer**

¿Por qué no los dos? Measuring both cortisol and corticosterone in poison frogs

2:15 pm  **Sarah Wolf, Elizabeth George, Jess Dong, Kimberly Rosvall**

How social competition changes ageing-related gene expression in the ovary

2:30 pm  **Jennifer Uehling, Jennifer Houtz, Allison Injaian, Conor Taff, David Winkler, Maren Vitousek**

Do glucocorticoids predict movement? Observational and experimental studies in a free-living bird

3:00 pm  **Michael Deutsch, David Adams, Lorin Neuman-Lee, Matthew Gifford**

Abiotic and biotic stressors influence physiological and life history traits in a lizard

3:15 pm  **Jennifer Houtz, Maren Vitousek, Monique Pipkin, David Chang-van-Oordt, Kelly Allinger, Jennifer Uehling, Cédric Zimmer, Conor Taff**

Experimental cold exposure increases glucocorticoid sensitivity to future stressors in a wild bird

The Ecology and Evolution of Coloration

1:30 PM – 3:30 PM

**Lonestar E**

**Chair:** Alex Mauro

1:30 pm  **Silu Wang, Qin Li, Dahong Chen**

Tinamou egg color displacement at ecoregion co-partitioning

1:45 pm  **Geoffrey Hill, Matthew Powers, Ryan Weaver**

Color displays produced by metabolized red carotenoids are inherently honest signals

2:00 pm  **Rebecca Koch, Geoffrey Hill, Yufeng Zhang, Matthew Toomey**

House finches use an alternate pathway for red carotenoid pigmentation

2:15 pm  **Lynette Strickland**

The genomic basis of color variation in a polymorphic Neotropical tortoise beetle

2:30 pm  **Megan Maloney, Katherine Buckley, Marie Strader**

Temperature acclimation and color influence Cassiopea xamachana thermal tolerance

2:45 pm  **Sarah Britton, Goggy Davidowitz**

Context Dependent Benefits of Melanism Explain Pigmentation Plasticity

3:00 pm  **Bethany Williams, Lauren Pintor, Matthew Toomey, Suzanne Gray**

Male Nuptial Coloration is Influenced by Plastic and Population Effects in an African Cichlid

3:15 pm  **Alex Mauro, Erica Rosenblum**

Color, Aggression, and Correlations in Colonizing Fence Lizards

4:30 PM – 5:30 PM

**Lonestar D**

**John A. Moore Lectureship: Dr. Kimberly Tanner**

Talk matters: Investigating the nature of non-content classroom language – instructor talk – that may mediate student inclusion, engagement, and learning
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The Society for Integrative and Comparative Biology

2024 Annual Meeting
2-6 January 2024 · Seattle, WA

SAVE THE DATE

Joint Meeting of Ichthyologists and Herpetologists
Norfolk Waterside Marriott Hotel and Convention Center
July 12-16, 2023 · Norfolk, VA
JW Marriott Austin Floorplan
= Stairwell Doors will be open on Levels 2, 3, 4
Sable Systems Congratulates

**DR. ERIC RIDDELL**

Assistant Professor, Department of Ecology, Evolution, and Organismal Biology • Iowa State University

The 2023 Winner of the George A. Bartholomew Award

We look forward to his presentation “Organismal physiology as a lens into the fundamental niche and beyond.” The lecture will be 7:30-8:30 PM on Wednesday, January 4, 2023.

---

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*Dr. Katy Heath, University of Illinois*

_It is encouraging us to do more with data because we know the students can handle it! Students are pretty comfortable and that takes away a lot of the stress._

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