Society for Integrative and Comparative Biology

with the

American Microscopical Society
Animal Behavior Society
The Crustacean Society

SICB 2009
Annual Meeting

Meeting Dates:
January 3-7, 2009

Boston, Massachusetts
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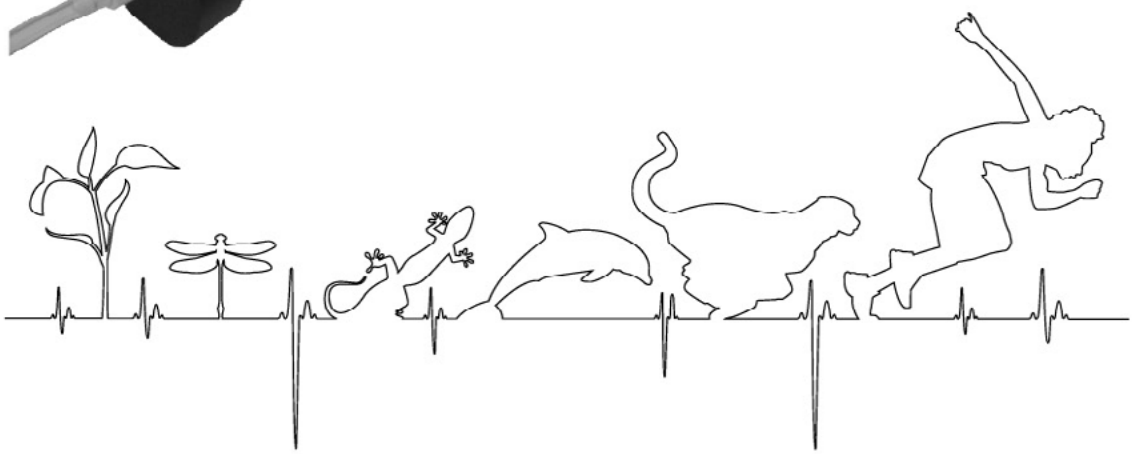

The Answer is Inside

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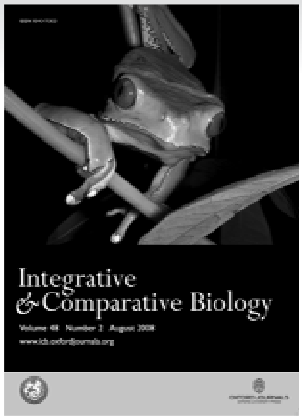
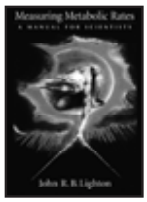


Integrative and Comparative Biology (ICB), formerly *American Zoologist*, is the official journal of the Society for Integrative and Comparative Biology and publishes 6 issues a year (from July to December). SICB membership includes a subscription to *ICB*, including access to its entire archive right back to Volume 1 Issue 1 of *American Zoologist*. Currently ranked 11/124 in *ZOOLOGY* (ISI, 2007), *ICB* is one of the most highly respected and cited journals in the field of biology. *ICB* publishes book reviews, reports, and special bulletins, and its peer-reviewed symposia provide first class syntheses of the top research in a field, perfect for classes or a quick update. Visit the journal website to find out more, view current and Advance Access content, and sign up for our electronic alerting services.
www.icb.oxfordjournals.org

Clonality
The Genetics, Ecology, and Evolution of Sexual Abstinence in Vertebrate Animals
JOHN AVISE
2008 256 pp.; 2 halftone and 68 line illus.
978-0-19-536967-0 cloth ~~$49.95~~/**$39.96**



Measuring Metabolic Rates
A Manual for Scientists
JOHN R. B. LIGHTON
2008 216 pp.; 10 halftone and 90 line illus.
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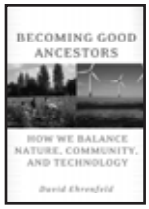
Sustaining Life
How Human Health Depends on Biodiversity
Edited by ERIC CHIVIAN and Edited by AARON BERNSTEIN
2008 568 pp.; 175 color illus.
978-0-19-517509-7 cloth ~~$34.95~~/**$27.96**



Becoming Good Ancestors
How We Balance Nature, Community, and Technology
DAVID EHRENFELD
2008 320 pp.
978-0-19-537378-3 paper ~~$19.95~~/**$15.96**

The Evolutionary Biology of Human Female Sexuality
RANDY THORNHILL and STEVEN W. GANGESTAD
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Complexity
A Guided Tour
MELANIE MITCHELL
2009 384 pp.; 60 illus.
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Ecological and Environmental Physiology of Amphibians
STAN HILLMAN, PHILIP WITHERS, ROBERT DREWES, and STAN HILLYARD
(Environmental and Ecological Physiology Series)
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2007 288 pp.; 70 screen shots
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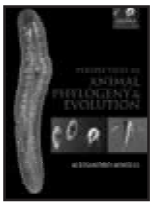

Perspectives in Animal Phylogeny and Evolution
ALESSANDRO MINELLI
2009 336 pp.; 14 line & 47 halftone illus.
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978-0-19-856621-2 paper ~~$70.00~~/**$56.00**

Animal Osmoregulation
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(Oxford Animal Biology Series)
2008 320 pp.; 20 halftone and 60 line illus.
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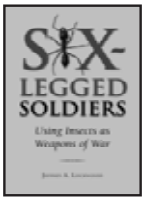

Six-Legged Soldiers
Using Insects as Weapons of War
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Society for Integrative and Comparative Biology

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Co-Sponsoring Societies

American Microscopical Society (AMS)
Animal Behavior Society (ABS)
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.

Westin Boston Waterfront Hotel

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SICB Business Office
1313 Dolley Madison Blvd
Suite 402
McLean, Virginia 22101
Phone: 800-955-1236/703-790-1745
Fax: 703-790-2672
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Message from the President - Welcome to Boston

Welcome to Boston! Sue Burk and Lori Strong have once again worked their magic with lodging and conference settings, this time on the Boston waterfront. And a bit of magic was needed to accommodate the largest meeting of our Society in memory. Your program officers have done their part again too, putting together another fantastic program. We have partnered with the Boston Regional Hub of the Coalition for the Public Understanding of Science (COPUS)—check out those cool bags—to have our meeting launch the Year of Science 2009 with a Plenary Lecture by Ira Flatow, host of National Public Radio's "Science Friday." The following 3 days feature 4 other lectures, 10 symposia, 5 workshops, and over 1,200 contributed talks and posters. I trust all these presentations will provide material for lively conversations at our varied receptions and socials.

Our meeting continues to address student needs in a multiplicity of ways. Not only are there varied symposia, presentations, and socials, but an orientation meeting for first-timers and a workshop about finding postdocs and academic jobs. In addition, many students have received travel awards and breaks in the room rates, combined with the opportunity to meet people while providing service to the meeting. And we welcome undergraduate students as well, with a time set aside for them to meet for lunch and more fully participate in our meeting. We hope students will recognize and appreciate this generous support provided by the full members of the Society, who after all, were students themselves at some time in the past (including distant past for yours truly).

Of course, meetings such as this one are the result of a lot of hard work by many people. Lori and Sue, already mentioned, and Brett Burk and other members of Burk and Associates, have done a superb job in managing our Society, working especially closely with Eduardo Rosa-Molinar and the Division Program Officers to orchestrate our meeting. Ruedi Birenheide did his usual wonders making the program and personal planning software available, as well as keeping the whole website current, working especially closely with our diligent Secretary, Lou Burnett. Be sure to thank them all when you see them.

Please also take the time to attend the Society-wide business meeting as well as your Division's meeting. These are opportunities to shape our Society to your liking through lively exchanges with your colleagues. Great meetings like this one don't just happen, but reflect an active, interactive membership. Do attend and contribute your opinions.

I look forward to seeing you over the next several days in Boston.

John Pearse, President, The Society for Integrative and Comparative Biology

Message from the Program Officer - Welcome to Boston

If this is your first Society of Integrative and Comparative Biology (SICB) meeting, I welcome you. If you have attended SICB meetings, welcome back! The SICB Society Executive Officers, Webmaster, Divisional and Associated Societies Program Officers, symposia and workshop organizers, Burk & Associates, and I have worked very hard to make your 2009 SICB meeting as productive and engaging as possible.

With 1363 presentations (this number includes only symposium and contributed talks, and poster presentations), this will be the largest SICB meeting ever! There will be ten regular symposia covering a wide and extraordinary range of topics. Each symposium has a full day of speakers and many have additional complimentary oral and poster sessions. Please check the schedule grid!

The plenary lecture this year will be by Ira Flatow, National Public Radio's Talk of The Nation: Science Friday, who will kick off the events with a presentation emphasizing the importance of public understanding of science. We have scheduled excellent society-wide lectures such as the Howard Bern lecture and the George A. Bartholomew Award lecture. This year we have reinstated the John Alexander Moore lectureship. John A. Moore's work in the fields of embryology and genetics led to his election to the National Academy of Sciences. However, he is best known as an educator and for the creation of the Science as a Way of Knowing series. The Moore lectureship was established in 1990 by the SICB Education Committee, and in 1993 Thomas E. Lovejoy III was the first Moore Lecturer. For the 2009 SICB meeting, Sean B. Carroll, University of Wisconsin-Madison, will be the Moore Lecturer.

At the 2009 SICB meeting in collaboration with COPUS, we will launch the Understanding Science Web site and its new paradigm for portraying the process of science. Ken Miller of Brown University will join forces with Natalie Kuldell of MIT to officially launch the site at the 2009 SICB meeting. We are also joining COPUS in launching their Year of Science 2009 celebration. With COPUS we will hold three Science Cafés in surrounding Boston neighborhoods to bring cutting-edge science from the 2009 SICB meeting to the Boston public. The Boston community will hear first hand about exciting new developments in science.

As usual we will have a welcoming social, coffee breaks and the end-of-meeting dessert social in honor of students and post-docs, and I hope you will join your colleagues at these events.

Finally, I want to thank all of you for your patience and your support during my first year as SICB Program Officer. Any complaints and/or concerns please let me know. It has been an honor and a privilege to have served and worked with you all. We all look forward to seeing you in Boston at the start of the New Year!.

Eduardo Rosa-Molinar
SICB Program Officer

MEETING HIGHLIGHTS/SOCIAL EVENTS

Saturday, January 3

Plenary Session - ***Grand Ballroom, 7:00-8:00 pm***

The Plenary Address will be given by veteran science correspondent and award-winning TV journalist Ira Flatow who is the host of NPR's Talk of the Nation: Science Friday®. For more than 35 years he has been reporting and hosting lively, informative discussion on science, technology, health, space and the environment.

Welcome to Boston Reception - ***Harbor Ballroom, 8:00-9:30 pm***

The Society for Integrative and Comparative Biology welcomes you to Boston with a reception on Saturday, January 3. The Welcome Reception will follow the Plenary lecture. Light snacks will be provided.

Monday, January 5

Launching Understanding Science, ***Lewis Room, Noon-12:45 pm***

Ken Miller, Brown University

Natalie Kuldell. MIT Department of Biological Engineering

See page 9 for details.

Tuesday, January 6

Society-wide Dessert Social in Honor of Students and Postdocs - ***Grand Ballroom A/B and Foyer, 8:00-9:30pm***

Join your fellow SICB members for a Society-Wide Dessert Social. Coffee, desserts and fruit will be served and a cash bar will be available.

SICB Business Meeting - ***Harbor Ballroom I, 5:15-6:15pm***

Future Meeting Date

Seattle, Washington, January 3-7, 2010

Seattle Sheraton and Washington State Convention Center

SPECIAL LECTURES

George A. Bartholomew Award/Lecture - Sunday, January 4, *Grand Ballroom A/B - 6:30-7:30 pm*
The George A. Bartholomew Award winner this year is Lynn (Marty) Martin, University of South Florida, whose presentation is titled "*Ecological immunology: an adaptationist perspective on the vertebrate immune system*."
SICB acknowledges and appreciates the support of Sable Systems for the Bartholomew Award.

Howard Bern Lecture - Monday, January 5, *Grand Ballroom A - 6:30-7:30 pm*
The Bern Lecture will feature Peter J. Sharp from the University of Edinburgh, Scotland, and the title of the talk is "*Vertebrate photoperiodic signaling*."

AMS Keynote Lecture - Monday, January 5, *Grand Ballroom C - 7:00-8:00 pm*
AMS members are invited to meet for their yearly address. The Keynote Lecture with speaker Dr. Judith Winston is, "*Life in the Colonies - the alien ways of colonial organisms*."

John A. Moore Lecture - Tuesday, January 6, *Harbor Ballroom II/III - 6:30-7:30 pm*
The Moore Lecturer is Sean Carroll from the University of Wisconsin-Madison whose topic is "*Into the jungle: great adventures in the search for evolution and what students can learn from them."*

SYMPOSIA

- S1: Sensory Biomechanics (Sunday 1/4)
- S2: The Biology of the Parasitic Crustacea (Sunday 1/4)
- S3: Hormonal Regulation of Whole-Animal Performance: Implications for Selection (Sunday 1/4)
- S4: Insect Evolution (Monday 1/5)
- S5: Cell-Cell Signaling Drives the Evolution of Complex Traits (Monday 1/5)
- S6: PharmEcology: A Pharmacological Approach to Understanding Plant-Herbivore Interactions (Monday 1/5)
- S7: Biomaterials: Properties, Variation and Evolution (Tuesday 1/6)
- S8: Genomics and Vertebrate Adaptive Radiation: A Celebration of the First Cichlid Genome (Tuesday 1/6)
- S9: Psychoneuroimmunology Meets Integrative Biology (Tuesday 1/6)
- S10: Evolution of Mechanisms Controlling Timing of Breeding in Animals (Tuesday 1/6)

The Exhibits will open on
Sunday, January 4, at 9:30 am.
The Exhibit Hall in the Galleria Room of the Westin Boston Waterfront, will be the location for coffee breaks on
Sunday, Monday and Tuesday mornings from 9:30-10:30 am and poster sessions from 3:00-5:00 pm. A cash bar will be available during the poster sessions.

Saturday, January 3

NSF panel - Funding Opportunities and Q&A, *Commonwealth Ballroom - 4:00-5:30 pm*

Grad Student/Post Docs Welcome and Meeting Orientation, "How to get the most out of your SICB meeting." *Commonwealth Ballroom - 5:30-6:30 pm*

- How to find relevant talks/posters during the meetings
- How to find everyone at the meetings
- How to approach a "big guy or gal"
- How to enter or leave a room/move between rooms
- How to plan your meeting
- How to get involved in SICB or attend business meetings and the importance of attending the meetings (exposure, recognition).

This will be followed by a lightning round of first timers' questions.

Sunday, January 4

Post Doc/Student Workshop: "How to Find a Postdoc Position; How to Apply for an Academic Job," *Harbor Ballroom I - 5:00-6:30 pm*

Okay, you have just spent last 5 or so years earning your doctorate degree or you are finishing up a post-doc, now what. This year's SPDAC workshop "How to Find a Postdoc Position; How to Apply for an Academic Job," will consist of a panel of experts that have served on several faculty search committees and young faculty that have recently completed successful post-doc. This will be a very helpful and informative workshop since we all need to further our training and eventually find a job.

Phylogenetics for Dummies Workshop, *Otis Room, Sunday, January 4, 7:30-9:30 PM and Monday, January 5, 5:00-7:00 PM*

Michael Alfaro, University of California, Los Angeles; Marguerite Butler, University of Hawaii; Luke Harmon, University of Idaho

The Division of Evolution and Systematic Biology will host the two day workshop "Intro to Phylogenetic Comparative Methods in R" as part of the Phylogenetics for Dummies series. R is a powerful, free(!), high-level statistical computing language with a number of well-developed packages that focus on tree manipulation and comparative analysis. In R it is easy to

- perform independent contrasts analysis,
- test for correlation of traits on a tree or across a distribution of tree under many different evolutionary models
- reconstruct ancestral states
- examine correlated patterns of trait evolution and lineage diversification,
- simulate character evolution.
- create publication-quality plots of trees and graphs

The first day of the workshop will be aimed towards users that are completely new to the language and will cover topics like: R language essentials, getting your data into R, manipulating trees and tip data, printing trees and figures, and calculating independent contrasts. The second session will cover a range of comparative analyses including: Brownian and OU models of character evolution, diversification analysis, ancestral reconstruction, and simulation methods.

Participants are encouraged to bring their own data sets (in nexus and/or csv format) as well as a laptop computer. If you are interested in attending please click this link so that we can better gauge the interests and experience levels of the attendees.

Monday, January 5

WKS1. Workshop on Evolution and Ontologies, *Faneuil Room, 8:00 am-Noon*

Interoperability of evolutionary and organismal databases with genetic and phenotypic databases is key to addressing many cutting edge research questions. The focus of this workshop will be on the utility of ontologies for evolutionary and organismal biologists in bridging these data. Ontologies and their structures, relationships and best practices will be introduced and speakers will provide examples of the types of interdisciplinary queries that can be made using ontologies. The utility of ontologies in integrating evolutionary and organismal biology with genetics, development, and model organism phenotypes will be emphasized.

This "Evolutionary Biology and Ontologies" workshop is being held by National Evolutionary Synthesis Center (NESCent) in collaboration with the National Center for Biomedical Ontologies (NCBO). This workshop is a joint outreach and educational workshop to promote integration of evolutionary biology with genetic, genomic, and developmental data through ontologies and is funded by a grant from NSF-DBI to Paula Mabee, Todd Vision, and Monte Westerfield.

8:00-8:05	*Todd Vision; University of North Carolina, National Evolutionary Synthesis Center.* Workshop Introduction
8:05-8:35	*Barry Smith, University of Buffalo.* Introduction to Ontologies
8:35-9:00	*Monte Westerfield, Zebrafish Information Service, zfin.org; University of Oregon.* Linking Animal Models and Human Diseases
9:00-9:20	*Paula Mabee, University of South Dakota.* The Phenoscape system for Devo-Evo Data Mining
9:20-9:40	*Wasila Dahdul, University of South Dakota; National Evolutionary Synthesis Center.* Challenges in Developing Multi-species Anatomy Ontologies
9:40-10:00	*James Balhoff, National Evolutionary Synthesis Center.* Phenex: A Curatorial Tool for Comparative Evolutionary Data
10:00-10:20	Coffee Break
10:20-10:50	*Andy Deans, North Carolina State University.* Developing a Hymenopteran ontology
10:50-11:20	*Peter Midford, University of Kansas.* Comparative Analysis of Behavior using Ontologies
11:20-11:50	*Anne Maglia, Missouri University of Science and Technology.* Developing an Amphibian Ontology
11:50-12:00	*Suzanna Lewis, Berkeley Bioinformatics and Ontology Project.* Wrap-up

Launching Understanding Science, *Lewis Room, Noon-12:45 pm*

Ken Miller, Brown University

Natalie Kuldell. MIT Department of Biological Engineering

Join Brown University professor Ken Miller and MIT professor Natalie Kuldell in launching a new educational resource to the scientific community - Understanding Science. This web resource, developed under the leadership of the University of California, Museum of Paleontology in collaboration with colleagues from across the scientific community, presents a dynamic new representation of how science really works. Presentations will highlight current antievolution strategies to influence science teaching in our public schools and how an improved understanding of the process and nature of science will help provide the tools for educators to address concerns in their classrooms and communities.

We invite you to join us in exploring the site throughout the conference by stopping at Booth 34 of the Exhibit Hall. Throughout exhibiting days and times, COPUS participants will be on site to help you explore your own personal scientific journey through the Process of Science flowchart developed by the Understanding Science project. Select journeys from the meeting will be included in the Gallery of Journeys of the Understanding Science site, and on the Year of Science 2009 Web site in early 2009.

WKS2. COPUS Workshop "Communicating Science in Year of Science 2009: Science Blogging, Science Cafe and Science Festivals," *Lewis Room, 1:00-3:00 PM*

1:00-1:40	*Carl Zimmer, Science Writer.* Off the page: blogging about science
1:40-2:20	*Ben Wiehe, Outreach Project Director, WGBH Educational Foundation.* A scientist walks into a bar: reaching new audiences with science cafes
2:20-3:00	*John Durant, MIT Museum, Executive Director, Cambridge Science Festival.* Celebrating science and technology in the community: the Cambridge Science Festival

Boston Launch Events

How To Participate…

The Year of Science 2009 official launch event will take place in Boston on January 3, 2009, in conjunction with the annual meeting of the Society for Integrative and Comparative Biology and the Boston regional hub. Events will include:

January 3, 2009 The Celebration Begins!

- 7:00 p.m. - Ira Flatow, host of NPR's *Talk Of The Nation: Science Friday*, opens the meeting with a plenary presentation emphasizing the importance of public understanding of science. Grand Ballroom, Concourse Level, Westin Boston Waterfront

- 8:00 to 9:30 p.m. - Welcome reception of the SICB annual meeting. Harbor Ballroom, Westin Boston Waterfront

January 5, 2009 The Celebration Continues!

- 12:00 to 12:45 p.m. - Launch of the Understanding Science Web site with Ken Miller and Natalie Kuldell. In concert with the Jan. 6th launch actvities, the new Understanding Science web site will be unveiled to the scientific community, introducing an exciting new paradigm for explaining the process and nature of science. Lewis Room, Westin Boston Waterfront

- 1:00 to 3:00 p.m. - "Communicating Science in Year of Science 2009: Science Blogging, Science Cafés, and Science Festivals." Lewis Room, Westin Boston Waterfront (three sessions are as follows:)
  - 1:00 p.m. "Off the Page: Blogging About Science" led by Carl Zimmer, Science Writer, *The New York Times*
  - 1:40 p.m. "A Scientist Walks Into a Bar: Reaching New Audiences with Science Cafes," led by Ben Wiehe, Outreach Project Director, WGBH Educational Foundation
  - 2:20 p.m. "Celebrating science and technology in the community: the Cambridge Science Festival" led by John Durant, Director, MIT Museum, Executive Director, Cambridge Science Festival

- 6:30 to 8:30 p.m. - YoS09 Launch Science Café and Celebration: join COPUS leadership, other regional hubs, and scientists for food, drink, and fun as we celebrate science together! We can recap the kick-off events and make plans for some of the great themes coming up in the next few months: Evolution for February and Physics and Technology in March...some big anniversaries and birthdays to engage! Location: "Cambridge, 1. Fenway" at 1381 Boylston Street, http://cambridge1.us/

January 6, 2009

- 6:30 to 7:30 p.m. - "Into The Jungle: Great Adventures in the Search for Evolution and What Students Can Learn From Them," Sean Carroll, University of Wisconsin-Madison. Harbor Ballroom, Westin Boston Waterfront

- 8:00 to 9:30 p.m. Dessert Social in Honor of Students and Postdocs. Grand Ballroom A/B, Westin Boston Waterfront

GENERAL INFORMATION

Final 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/abstract issue.

Speaker Ready Room

We strongly encourage each presenter to visit the Ready Room, Quincy Room, at least one half day prior to his/her session time. It is highly recommended that you preview your presentation prior to your presentation 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 twenty 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:

Day	Date	Time
Saturday	1/3	Noon-7 pm
Sunday-Tuesday	1/4-1/6	7 am-5 pm
Wednesday	1/7	7 am-Noon

Business Center

If you need to use a fax, use a computer, make photocopies or require office supplies, there is a Business Center located in the Westin on the Lobby Level. The use of the business center is at your own expense.

Coffee Breaks

Coffee break service is available each day of the Meeting. There will be a morning service from 9:30-10:30 am and an afternoon service from 3:30-4:30 pm. The coffee breaks will be located in the Exhibit Hall/Poster Area - the Galleria - on Sunday-Tuesday and near the session rooms on Wednesday.

Committee Meetings/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 Board is located in the SICB Registration area. The Employment Board provides a place for attendees to post "Positions Wanted" and learn about "Positions Available" and to schedule possible interviews. If you would like to schedule an interview in a private room, please ask SICB Registration Desk personnel for a room assignment.

Future Meeting Dates

Seattle, Washington, January 3-7, 2010 Annual Meeting, Sheraton Seattle and Washington State Convention Center

Session Chairs

Contributed session chairs are listed at the beginning of each of the time periods for the morning sessions and afternoon sessions.

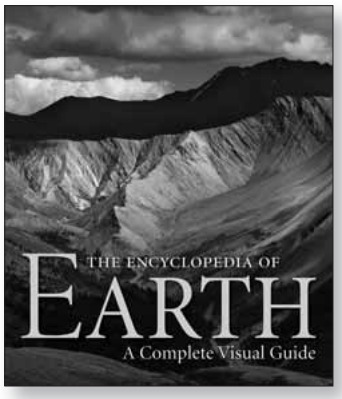
Keyword Index

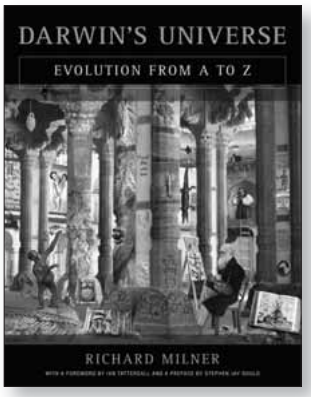
Refer to the keyword index located at the end of this program for easy access when looking up a specific subject matter. Each author who is presenting an abstract has supplied up to three keywords for your reference.

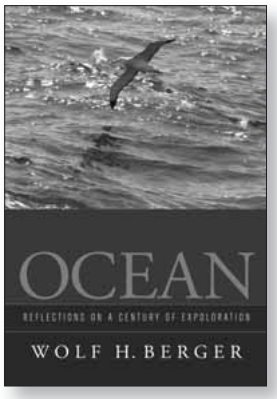
Registration

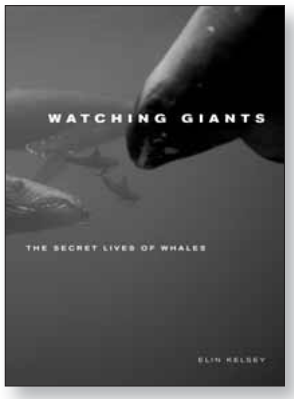
The SICB Registration area is located in the Harbor Ballroom Foyer. The Registration Desk will be open during the following hours:

Saturday, January 3	3:00-8:30 pm
Sunday, January 4	7:00 am-5:00 pm
Monday, January 5	7:30 am-5:00 pm
Tuesday, January 6	7:30 am-2:00 pm
Wednesday, January 7	7:30 am-Noon









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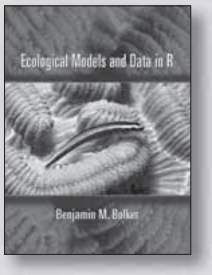

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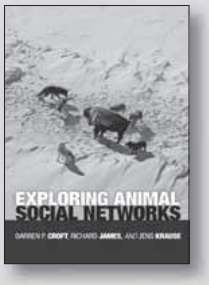

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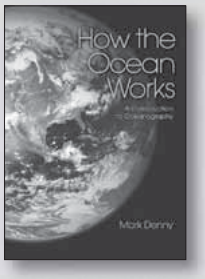

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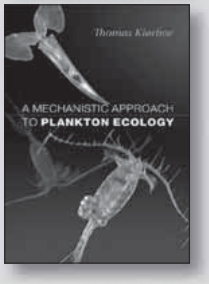

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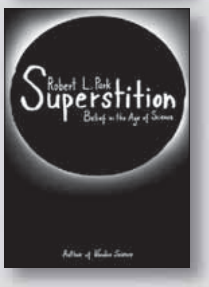

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EVENT	TIME	LOCATION
Registration	3-8:30 PM	Harbor Ballroom Foyer
Exhibitor Set-up	Noon-8 PM	Galleria
Poster Session 1 Setup	5:30-8 PM	Galleria
SPECIAL LECTURE		
Plenary Session	7:00-8:00 PM	Grand Ballroom
COMMITTEE & BOARD MEETINGS		
Executive Committee	2:30-5:30 PM	Otis Room
WORKSHOPS AND PROGRAMS		
NSF Panel	4:00-5:30 PM	Commonwealth Ballroom
Student First Timer/Student Worker Orientation	5:30-6:30 PM	Commonwealth Ballroom
SOCIAL EVENTS		
Welcome Reception	8:00-9:30 PM	Harbor Ballroom

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Sunday Schedule of Events

EVENT	TIME	LOCATION
Registration	7:00 AM-5 PM	Harbor Ballroom Foyer
Exhibit Hall	9:30 AM-6 PM	Galleria
Poster Session 1 Even Numbers Viewing	3:00-4:00 PM	Galleria
Poster Session 1 Odd Numbers Viewing	4:00-5:00 PM	Galleria
Poster Session 1 Teardown	5:00-5:30 PM	Galleria
Poster Session 2 Setup	5:30-6:30 PM	Galleria
Coffee Breaks	9:30-10:30AM; 3:30-4:30PM	Galleria
SPECIAL LECTURE		
Bartholomew Award Lecture	6:30-7:30 PM	Grand Ballroom A/B
SYMPOSIA ORAL PRESENTATIONS		
S1: Sensory Biomechanics	8:10 AM-3:00 PM	Harbor 1
S2: The Biology of the Parasitic Crustacea	8:00 AM-3:00 PM	Harbor 2
S3: Hormonal Regulation of Whole-Animal Performance...	8:20 AM-3:00 PM	Harbor 3
CONTRIBUTED PAPER ORAL PRESENTATIONS		
Session 1: Predation and Predator Avoidance	8:00-11:40 AM	Grand Ballroom C
Session 2: Life History Evolution	8:00-10:00 AM	Commonwealth A
Session 3: Evolutionary Morphology - Morphology	10:20 AM-Noon	Commonwealth A
Session 4: Evolutionary Ecology - Behavior and Adaptation I	8:00-9:40 AM	Commonwealth B
Session 5: Evolutionary Ecology - Behavior and Adaptation II	10:00 AM-Noon	Commonwealth B
Session 6: Community Ecology - Coral Reefs	8:00-10:00 AM	Commonwealth C
Session 7: Community Ecology - Community Processes	10:20 AM-Noon	Commonwealth C
Session 8: Physical & Chemical Ecology	8:00 - 11:40 AM	Grand Ballroom D
Session 9: Stress	8:00 AM-Noon	Grand Ballroom E
Session 10: Feeding Functional Morphology	8:00-11:40 AM	Otis
Session 11: Population Genetics and Biogeography	8:00 AM-Noon	Stone
Session 12: EVO-DEVO - Limb Development	8:00-10:00 AM	Webster
Session 13: EVO-DEVO - Morphogenesis	10:20 AM-Noon	Webster
Session 14: Ecological Endocrinology	1:00-3:00 PM	Grand Ballroom C
Session 15: Swimming II - Low Reynolds Numbers	1:00-3:00 PM	Commonwealth A
Session 16: Guts, Hearts & Lungs I	1:00-3:00 PM	Commonwealth B
Session 17: Muscle Environmental Physiology	1:00-2:40 PM	Commonwealth C
Session 18: Comparative Genomics	1:00-3:00 PM	Grand Ballroom D
Session 19: Vertebrate Neurobiology	1:00-3:00 PM	Grand Ballroom E
Session 20: Locomotion - Muscle -- Neural Control	1:00-2:40 PM	Otis
Session 21: Locomotion-Flight -- Insect Maneuvering	1:00-3:00 PM	Stone
Session 22: Evolutionary Morphology - Modularity and Integration	1:00-3:00 PM	Webster
COMMITTEE & BOARD MEETINGS		
AMS IB Editors	7:00-8:00 AM	Hale
SICB Nominating Comm	7:00-8:00AM	Alcott
DPOs and Symposium Organizers for Seattle	Noon-1:00 PM	Douglas
Division Chair Presidents/Presidents-Elect	Noon-1PM	Alcott
Advisory Comm	7:45 PM	Pearse Suite
AMS Executive Committee	8:00-11:00 PM	Alcott
BUSINESS MEETINGS		
DAB Bus Mtg/Social	5:15-5:45 PM	Stone
DCPB Business Mtg	5:15-6:15 PM	Commonwealth B
DCB Business Mtg	5:15-6:15 PM	Otis
DEDB Business Mtg	5:15-6:15 PM	Commonwealth C
DIZ Business Mtg	5:15-6:15 PM	Webster
DNB Business Mtg	5:15-6:15 PM	Commonwealth A
DSEB Business Mtg	6:15-7:15 PM	Harbor 3
WORKSHOPS AND PROGRAMS		
Diversity Breakfast	7:00-8:00 AM	Douglas
Undergraduate Student Lunch	Noon	Faneuil
Post Doc/Student Workshop	5:00-6:30 PM	Harbor 1
Phylogenetics for Dummies Workshop	7:30-9:30 PM	Otis
SOCIAL EVENTS		
Companion Orientation Program/Continental Breakfast	9:00-10:00 AM	Faneuil
Sinauer Publication Reception	3:15-5:00 PM	Booth #14 Galleria Exhibit Hall
DAB/Hormonal Regulation Symposium Social	5:45-7:15 PM	Faneuil
DCPB Social	7:30-8:30 PM	Grand Foyer
Sensory Biomechanics Dessert Social	7:30-10:00 PM	Douglas

8:10 AM-3:00 PM
Harbor 1

Symposium S1: Sensory Biomechanics

Supported by: The Journal of Experimental Biology, The Company of Biologists, Fastec Imaging, National Science Foundation, DCB, DVM and DNB

Organized by: Matt McHenry and Sanjay Sane

8:10 AM		MCHENRY, MJ, SANE, SP; University of California, Irvine, National Center for Biological Sciences	Introduction

Part One: Environment and Behavior

8:20 AM	S1.1	NARINS, PM; University of California, Los Angeles	Influence of environmental noise on the evolution of communication systems
9:00 AM	S1.2	GRIDI-PAPP, M, FENG, AS, SHEN, J-X, YU, Z-L, ROSOWSKI, JJ, NARINS, PM; University of California, Los Angeles, University of Illinois, Urbana, Chinese Academy of Sciences, Beijing, Harvard Medical School, Boston	High frequency hearing and behavioral tuning of the ear in frogs
9:20 AM DCB	S1.3	WINDSOR, S; University of Auckland	Hydrodynamic imaging in blind Mexican cave fish
9:40 AM	COFFEE BREAK - GALLERIA		

Part Two: Behavior, Sensory Organs, and Cells

10:00 AM	S1.4	BARTH, FG; University of Vienna, Vienna	Computational biomechanics, spiders, and the sense of senses
10:40 AM	S1.5	MACIVER, MA, SHIRGAONKAR, AA, PATANKAR, NA*; Northwestern University	Biomechanical constraints on sensory acquisition in weakly electric fish
11:00 AM DNB	S1.6	SANE, SP; National Center for Biological Sciences	The tale of two mechanosensors: antennal role in insect flight
11:20 AM	S1.7	HARTMANN, MJZ; Northwestern University	Mechanical and behavioral constraints on neural encoding in the rat vibrissal/trigeminal pathway
11:40 AM DCB	S1.8	MCHENRY, MJ, STROTHER, JA, VAN TRUMP, WJ; University of California, Irvine	Fluid-structure interaction in lateral line receptors
NOON	LUNCH BREAK		

Part Three: Cells and Transduction

1:40 PM	S1.9	COREY, DP, KARAVITAKI, D, SOTOMAYOR, M; Harvard Medical School	Macro- and micro-mechanics of hair-cell transduction
2:20 PM	S1.10	GOODMAN, MB; Stanford University	Mechano-electrical transduction channels in two classes of *C. elegans* mechanoreceptor neurons
2:40 PM	S1.11	GOPFERT, MC; University of Gottingen, Germany	Auditory transduction in Drosophila

8:00 AM-3:00 PM
Harbor 2

Symposium S2: The Biology of the Parasitic Crustacea

Supported by: The Crustacean Society, American Microscopical Society, DEE, DIZ and DSEB
Organized by: Jeffrey D. Shields and Christopher B. Boyko

8:00 AM	S2.1	BOYKO, CB; American Museum of Natural History	Bopyrids of the thalassinidean transition: first phylogenetic data and evolutionary implications
8:30 AM	S2.2	HO, J-S; California State University, Long Beach	The five wonders of the parasitic Copepoda
9:00 AM	S2.3	BOXSHALL, GA; The Natural History Museum, London	The comparative biology of Copepoda parasitic on three host taxa: fishes, polychaetes and crustaceans
9:30 AM	S2.4	COSTELLO, MJ; University of Auckland	Progress in understanding the ecology of sea lice, copepod parasites of wild and farmed salmonids
10:00 AM	COFFEE BREAK - GALLERIA		
10:30 AM	S2.5	HEUCH, PA, BJORN, PA, FINSTAD, B, ASPLIN, L, HOLST, JC; National Veterinary Institute, Norway, Norwegian Institute for Fisheries and Aquaculture Research, Tromso, Norwegian Institute for Nature Research, Trondheim, Institute for Marine Research, Norway	Salmon lice infection of farmed and wild salmonids in Norway: an overview
11:00 AM	S2.6	KOLBASOV, GA; Moscow State University	Parasitic microcrustaceans of the class Tantulocarida, external and internal morphology, development and life circle
11:30 AM	S2.7	MOELLER, OS; University of Rostock	Branchiura, -parasitic crustaceans with a sting
NOON	LUNCH BREAK		
1:00 PM	S2.8	AN, J; Shanxi Normal University	A review of bopyrid isopods infesting crabs from China
1:30 PM	S2.9	HUYS, R, LLEWELLYN-HUGHES, J; British Museum	What can 18S rDNA do for copepod phylogeny and classification?
2:00 PM	S2.10	TANAKA, K; Japan Agency for Marine-Earth Science and Technology	Life history of gnathiid isopods: a brief overview
2:30 PM	S2.11	OVERSTREET, RM, JOVONOVICH, J, MA, H; University of Southern Mississippi	Parasitic crustaceans as vectors of viruses

8:20 AM-3:00 PM
Harbor 3

Symposium S3: Hormonal Regulation of Whole-Animal Performance: Implications for Selection

Supported by: DAB, DCE, DVM

Organized by: Jerry F. Husak, Duncan J. Irschick and Ignacio T. Moore

8:20 AM		HUSAK, JF; Virginia Tech	Introduction
8:30 AM DAB	S3.1	HUSAK, JF, IRSCHICK, DJ; Virginia Tech, University of Massachusetts at Amherst	Hormones as mediators of animal performance
9:00 AM DCE	S3.2	HAU, M; Max Planck Institute for Ornithology, Germany	Hormones and life history evolution
9:30 AM DAB	S3.3	KETTERSON, ED, ATWELL, JW; Indiana University	Phenotypic integration and independence: hormones, performance, and response to environmental change
10:00 AM	COFFEE BREAK - GALLERIA		
10:30 AM	S3.4	LORENZ, MW, GAEDE, G; University of Bayreuth, University of Cape Town	The role of insect adipokinetic hormones in locomotion, development and reproduction
11:00 AM DCPB	S3.5	JOHN-ALDER, HB, COX, RM, HAENEL, GJ, SMITH, LC; Rutgers University, Dartmouth College, Elon University, Richard Stockton College	Hormones and performance: insights from natural history and endocrine manipulations
11:30 AM DCE	S3.6	MCCORMICK, SD; USGS, Conte Anadromous Fish Research Center	The hormonal control of seawater performance in anadromous fish
NOON	LUNCH BREAK		
1:00 PM	S3.7	OLIVEIRA, RF; ISPA, Portugal	Social behaviour in context: how animals adjust their behaviour to the social environment
1:30 PM DCE	S3.8	MOORE, IT, HOPKINS, WA; Virginia Tech	Interactions between hormones and energetics as mediators of performance and reproductive success
2:00 PM DAB	S3.9	LEARY, CJ; University of Utah	Hormonal regulation of vocalization in anuran amphibians: insights from toads with alternative mating tactics
2:30 PM	S3.10	GOYMANN, W; Max-Planck-Institut fuer Ornithologie	Hormones, sex roles, and performance

SUNDAY PROGRAM
MORNING SESSIONS

8:00 AM - Noon
Grand Ballroom C

Session 1: Predation and Predator Avoidance

Co-Chairs: Kari Lavalli, Roger Anderson

8:00 AM	1.1	WUND, MA, FOSTER, SA, BAKER, JA; Clark University	Predation history and the evolution of antipredator behavior in threespine stickleback fish
8:20 AM	1.2	GOLUB, JL, FOSTER, SA; Clark University	Dietary cue allow embryonic threespine stickleback (*Gasterosteus aculeatus*) to learn potential predators
8:40 AM DAB	1.3	VITOUSEK, MN, TARLOW, E, WIKELSKI, M; University of Colorado, Boulder	A physiological basis for island tameness
9:00 AM	1.4	VAN UITREGT, BO, WILSON, RS; The University of Queensland	Costs and benefits of predator induced behaviour in larvae of the urban mosquito (*Aedes notoscriptus*)
9:20 AM	1.5	HUGHEY, MC, ROGGE, JR, WARKENTIN, KM; Boston University, Boston	Deciding when to hatch: predator and embryo cues in wasp-induced hatching of red-eyed treefrogs
9:40 AM	COFFEE BREAK - GALLERIA		
10:00 AM	1.6	LAVALLI, KL, HERRNKIND, WF; Boston University, Florida State University, Tallahassee	Defensive strategies of Caribbean spiny lobsters: effects of lobster and predator group size
10:20 AM	1.7	ZAMZOW, JP, AMSLER, CD, MCCLINTOCK, JB, BAKER, BJ; University of Alabama Birmingham, University of South Florida	Hiding in the bushes: structural and chemical determinants of habitat choice in Antarctic amphipods
10:40 AM DAB	1.8	ANDERSON, RA; Western Washington University	Effects of body temperature and distance to refuge on risk-taking in a lizard
11:00 AM	1.9	GILLAM, EH, MCCRACKEN, GF, WESTBROOK, JK, JENSEN, ML, BALSLEY, BB; University of Regina, Canada, University of Tennessee, Knoxville, USDA, Agricultural Research Service, CIRES, University of Colorado, Boulder	Bats aloft: variation in echolocation call structure at high altitudes
11:20 AM DAB	1.10	HANKE, W; Rostock University	Predation strategy in European pike-perch *Stizostedion lucioperca*: the role of hydrodynamic trail following
11:40 AM DEDB	1.11	STORZ, BL, HEINRICHS, J, YAZDANI, A, PHILLIPS, RD, MULVEY, BB, ARENDT, JD, MOERLAND, TS, TRAVIS, J; Florida State University, Tallahassee, University of California, Riverside, Kent State University	Reassessment of the environmental mechanisms controlling developmental polyphenism in spadefoot toad tadpoles part II

8:00-10:00 AM
Commonwealth A

Session 2: Life History Evolution

Chair: Peter Zani

8:00 AM	2.1	OLIVIER, TJ, MOON, BR, BAUER, RT; University of Louisiana at Lafayette	Nocturnal swimming patterns and speeds in the upstream juvenile migration of the amphidromous river shrimp *Macrobrachium ohione* and the potential for long distance migrations
8:20 AM DSEB	2.2	COLLIN, R; Smithsonian Tropical Research Institute	Intraspecific variation of egg size and hatching size in *Crepidula*: effects of temperature and population structure
8:40 AM	2.3	PARFREY, LW, KATZ, LA; University of Massachusetts, Amherst, Smith College	Heterogeneity of genome content through the life cycle of Foraminifera
9:00 AM DEE	2.4	ZANI, PA, ROLLYSON, ME; Lafayette College	Influences of short- and long-term climate fluctuations on ectotherm life histories revealed by biophysical modeling of lizards
9:20 AM DEE	2.5	BANET, AI, AU, AG, REZNICK, DN; University of California, Riverside	Testing an assumption of a model for the evolution of placentas
9:40 AM DEE	2.6	HORROCKS, N, HINE, K, MATSON, KD, TIELEMAN, BI; University of Groningen, The Netherlands	Antibacterial proteins in eggs as a marker of disease risk in different environments

10:00 AM COFFEE BREAK - GALLERIA

10:20 AM-Noon
Commonwealth A

Session 3: Evolutionary Morphology - Morphology

Chair: Thomas Kunz

10:20 AM DSEB	3.1	JAVONILLO, R, MALABARBA, LR, WEITZMAN, SH, BURNS, JR; George Washington University, Universidade Federal do Rio Grande do Sul, Brazil, National Museum of Natural History, Smithsonian Institution	Evolution of sexually dimorphic novelties and reproductive strategies in fishes of the family Characidae (Teleostei: Ostariophysi)
10:40 AM DEE	3.2	HOOD, WR, BOOHER, CM; Auburn University	Mineral dynamics during reproduction in insectivorous bats: skeletal integrity is favored over increased reproductive output
11:00 AM DVM	3.3	BLOB, RW, KAWANO, SM, MAIE, T, CEDIEL, RA, PTACEK, MB, BRIDGES, WC, SCHOENFUSS, HL; Clemson University, St. Cloud State University	Predator-induced selection on body shape in waterfall-climbing gobiid fish from Hawai'i
11:20 AM DEDB	3.4	KUPFER, A, KUEHNEL, S, VETTER, J, OLSSON, L*; Friedrich-Schiller-Universit Jena	Reproductive and developmental biology of caecilian amphibians
11:40 AM DEE	3.5	KUNZ, TH, MUNOZ-ROMO, M, DUMONT, ER, RISKIN, DK, SWARTZ, SM; Boston University, University of Massachusetts, Amherst, Brown University	Non-flight use of wings by bats

8:00-9:40 AM
Commonwealth B

Session 4: Evolutionary Ecology - Behavior and Adaptation I

Chair: Lisa Schwanz

8:00 AM DVM	4.1	SANTANA, SE, DUMONT, ER; University of Massachusetts Amherst	Connecting performance and behavior: the evolution of bite performance and biting behavior in bats
8:20 AM	4.2	WILSON-RICH, N, HESTER, F, STARKS, PT; Tufts University	Innate immunocompetence in *Polistes dominulus*: a critical test of the haploid susceptibility hypothesis
8:40 AM	4.3	SCHWANZ, LE, BRISSON, D, GOMES-SOLECKI, M, OSTFELD, RS; Cary Institute of Ecosystem Studies, University of Pennsylvania, New York Medical College	The impact of the spirochete *Borrelia burgdorferi* on white-footed mice: implications for the ecology of Lyme disease
9:00 AM	4.4	MARTIN, RA, PFENNIG, DW; University of North Carolina, Chapel Hill	Disruptive selection and the evolution of variation within species
9:20 AM	4.5	STUART, YE, DAPPEN, N, LOSIN, N; Harvard University, University of Miami, University of California, Los Angeles	Predator response to novel aposematic coloration in a poison dart frog

9:40 AM COFFEE BREAK - GALLERIA

10:00 AM-Noon
Commonwealth B

Session 5: Evolutionary Ecology - Behavior and Adaptation II

Chair: Tobias Landberg

10:00 AM DEE	5.1	AMARELLO, M, NOWAK, EM, TAYLOR, EN, SCHUETT, GW, REPP, RA, ROSEN, PC, HARDY, DL; Southern Illinois University, United States Geological Survey, Northern Arizona University, California Polytechnic State University, Georgia State University, National Optical Astronomy Observatory, University of Arizona	Body size variation among Arizona populations of the western diamond-backed rattlesnake (*Crotalus atrox*) is predicted by GIS-based estimates of isothermality and precipitation
10:20 AM DEE	5.2	MARTIN, SB, LEBERG, PL; University of Louisiana at Lafayette	Comparing two life history strategies in a changing environment
10:40 AM DEE	5.3	HAAK, DC, MCGINNIS, L, LEVEY, DJ, TEWKSBURY, JJ; University of Washington	Environmental heterogeneity as an agent of selection: why aren't all chilies hot?
11:00 AM	5.4	MINER, BE, KERR, B; University of Washington	Adaptation to variable ultraviolet radiation threats in alpine *Daphnia* populations

11:20 AM DVM	5.5	LANDBERG, T; University of Connecticut	Evolution of maternal effects in sister salamander species
11:40 AM DEE	5.6	LETTIERI, L, STREELMAN, JT; Georgia Institute of Technology	Colorful stripes send mixed signals from cleaner gobies to risky reef fish clients

8:00-10:00 AM
Commonwealth C

Session 6: Community Ecology - Coral Reefs

Co-Chairs: Daniel Thornhill, Joshua Idjadi

8:00 AM DSEB	6.1	THACKER, RW, GOCHFELD, DJ, OLSON, JB; University of Alabama at Birmingham, University of Mississippi, University of Alabama	*Aplysina* Red Band Syndrome: An emerging infectious disease of coral reef sponges
8:20 AM	6.2	THORNHILL, DJ, SANTOS, SR; Bowdoin College, Auburn University	Population genetic structure of symbiotic dinoflagellates associated with Caribbean reef-building corals, *Montastraea annularis* and *M. faveolata*
8:40 AM DIZ	6.3	WULFF, J; Florida State University	Context-dependency of growth rate and vulnerability to predators of Caribbean coral reef sponges
9:00 AM	6.4	PEREZ III, K, JOKIEL, PL, RODGERS, KS; Hawaii Institute of Marine Biology	Factors influencing coral recruitment: sediment and depth
9:20 AM DCPB	6.5	WATERSON, T, BARSHIS, D, STILLMAN, J; San Francisco State University, University of Hawaii, Manoa	Microarray analysis of the effects of symbiont type and microhabitat on heat stress responses in the coral *Acropora hyacinthus*
9:40 AM	6.6	IDJADI, J, KARLSON, R; New England Aquarium, University of Delaware	Spatial aggregation promotes species coexistence among corals: evidence from experiments and modeling

10:00 AM COFFEE BREAK - GALLERIA

10:20 AM-Noon
Commonwealth C

Session 7: Community Ecology - Community Processes

Co-Chairs: Daniel Thornhill, Joshua Idjadi

10:20 AM DEE	7.1	JENNINGS, DE, ROHR, JR; University of South Florida	Do carnivorous plants and spiders partition resources?
10:40 AM DIZ	7.2	MINER, BG, MULLER, E, PORTER, S, MORGAN, SG; Western Washington University, University of California, Davis	Factors that influence the strength of indirect interactions mediated by phenotypic plasticity
11:00 AM	7.3	GANNON, DP, BERENS, EJ, CAMILLERI, SA, GANNON, JG, BRUEGGEN, MK, BARLEYCORN, AB, PALUBOK, VI, KIRKPATRICK, GJ, WELLS, RS; Bowdoin College, Mote Marine Laboratory, University of Missouri-Columbia, Chicago Zoological Society	Effects of *Karenia brevis* harmful algal blooms on nearshore fish communities in southwest Florida

11:20 AM	7.4	WEINSTEIN, SB; University of California, Berkeley	Individual and population level effects of a pathogenic chytrid fungus on the terrestrial salamander *Batrachoseps attenuatus*
11:40 AM	7.5	SMITH, KG, LIPS, KR, CHASE, JM; Washington University in St. Louis, Southern Illinois University, Carbondale	Epidemic disease homogenizes amphibian communities

8:00 - 11:40 AM
Grand Ballroom D

Session 8: Physical & Chemical Ecology

Co-Chairs: Michael Sears, Luke Miller

8:00 AM DEE	8.1	SEARS, MW; Southern Illinois University	Implications of habitat selection and dispersal for the responses of small ectotherms to climate change
8:20 AM DAB	8.2	STAHLSCHMIDT, ZR, DENARDO, DF; Arizona State University - Tempe	Implications of egg-brooding induced hypoxia on the development and quality of offspring in Children's pythons (*Antaresia childreni*)
8:40 AM DCB	8.3	MILLER, LP, DENNY, MW, HARLEY, CDG; Hopkins Marine Station, Stanford University, University of British Columbia	Long-term reconstructions of limpet body temperatures allow estimation of the frequency and severity of stress events, and reveal potential consequences for small scale distributions on a rocky shore
9:00 AM	8.4	YUND, PO, KREGTING, LJ, BASS, AL, AVENI-DEFORGE, K, TILBURG, CJ, THOMAS, FIM; University New England; University Hawaii	Flow and fertilization in sea urchins: a combined flume and field approach
9:20 AM DCB	8.5	KOEHL, MAR, CRIMALDI, JP, DOMBROSKI, DE, HADFIELD, MG; University of California, Berkeley, University of Colorado, University of Hawaii	Effects of benthic community topography on water flow, dispersal of chemical cues, and hydrodynamic stresses on settling larvae
9:40 AM	COFFEE BREAK - GALLERIA		
10:00 AM DCB	8.6	HUMPHRIES, S; University of Sheffield, UK	Filter feeders and plankton increase particle encounter rates through flow regime control
10:20 AM	8.7	NISHIZAKI, MT, GRUNBAUM, D, CATTOLICO, RA; University of Washington	Predicting bloom-formation from cell-level swimming, stability & gyrotaxis in a marine alga
10:40 AM DCPB	8.8	MARTIN, KL, MCCLURE, M, BLANK, T, VANDERGON, T, RUMBLE, J, SLEDGE, J; Pepperdine University, University of North Texas	Instant fish: environmentally triggered hatching in beach spawning California grunion
11:00 AM DIZ	8.9	CASKEY, JL, WATSON, GW, BAUER, RT; University of Louisiana, Lafayette	The role of glucosamine in mate recognition of the caridean shrimp *Palaemonetes pugio*
11:20 AM DIZ	8.10	KOPLOVITZ, G, MCCLINTOCK, JB, AMSLER, CD, BAKER, BJ; University of Alabama at Birmingham, University of South Florida	Palatability and anti-predatory chemical defenses in a suite of ascidians from the Western Antarctic Peninsula

8:00 AM-Noon
Grand Ballroom E

Session 9: Stress

Co-Chairs: Creagh Breuner, Francis Bonier

8:00 AM DCE	9.1	BREUNER, CW, PATTERSON, SH, HAHN, TP; The University of Montana, University of California at Davis	A 'good' stress response? Searching for relationships between the acute glucocorticoid response and fitness
8:20 AM DCE	9.2	DURANT, SE, HEPP, GR, MOORE, IT, HOPKINS, BC, HOPKINS, WA; Virginia Tech, Blacksburg, Auburn University, Auburn	Slight changes in incubation temperature affect early growth and stress endocrinology in wood duck (*Aix sponsa*) ducklings
8:40 AM DCE	9.3	SPRAGUE, RS, SPRAGUE, JC, BREUNER, CW; University of Montana, Missoula	Glucocorticoid physiology during incubation fasts in Laysan Albatross
9:00 AM DCE	9.4	O'CONNOR, CM, YICK, CY, GILMOUR, KM, VAN DER KRAAK, G, COOKE, SJ; Carleton University, Ottawa, University of Ottawa, Ottawa, University of Guelph, Guelph	Brood value affects the endocrine response of a wild teleost fish to a standard stressor during parental care
9:20 AM DCE	9.5	FOKIDIS, HB, DEVICHE, P; Arizona State University	Sources of variation in the hypothalamic-pituitary-adrenal axis of urban and desert birds
9:40 AM DCE	9.6	PATTERSON, SH, MACDOUGALL-SHACKLETON, B, HAHN, TP, BREUNER, CW; University of Montana, University of Western Ontario, University of California at Davis	Stress reactivity and reproductive success
10:00 AM	COFFEE BREAK - GALLERIA		
10:20 AM DAB	9.7	DAVIS, JE, FOLTZ, SL, QI, X, LEI, F, WINGFIELD, JC; Radford University, University of California, Davis, Qinghai University, Chinese Academy of Sciences, Institute of Zoology	Hormones, habitats and habits up on the roof: stress modulation across species and life history stages in the passerines of the Tibetan plateau
10:40 AM	9.8	PARSONS, RL, VLECK, CM; Iowa State University, Ames	Effects of brood size on chick-feeding rates, growth and corticosterone in nestling tree swallows
11:00 AM	9.9	MERRILL, L, ROTHSTEIN, SI, O'LOGHLEN, A; University of California, Santa Barbara	Divergent response of the innate immune system to acute stress in male and female brown-headed cowbirds (*Molothrus ater*)
11:20 AM	9.10	MALISCH, JL, SATTERLEE, DG, COCKREM, JF, WADA, H, BREUNER, CW; University of Montana, Louisiana State University, Massey University, Virginia Polytechnic Institute	Corticosteroid-binding globulin levels decrease 24 hours after an acute stressor in Japanese quial
11:40 AM DCE	9.11	BONIER, F, MARTIN, PR, MOORE, IT, ROBERTSON, RJ, WINGFIELD, JC; Queen's University, Virginia Tech, University of California, Davis	Interpreting baseline corticosteroid measures: are they useful predictors of fitness?

8:00-11:40 AM
Otis

Session 10: Feeding Functional Morphology

Chair: TE Higham

8:00 AM DCB	10.1	PENG, J, DABIRI, J; California Institute of Technology, Pasadena	A fluid mechanical model for current-generating-feeding of jellyfish and the effect of prey size and escape forces
8:20 AM DCB	10.2	KOT, BW; University of California, Los Angeles	New minke whale (*Balaenoptera acutorostrata*) lunge-feeding processes and behaviors
8:40 AM DCB	10.3	RYERSON, WG, DEBAN, SM; University of South Florida, Tampa	Scaling of suspension feeding in tadpoles
9:00 AM DVM	10.4	HAMPTON, PM; University of Louisiana, Lafayette	Morphological and anatomical correlates to prey shape in snakes
9:20 AM DCB	10.5	VAN WASSENBERGH, S, BRECKO, J, HERREL, A, VAN DAMME, R, AERTS, P; University Antwerpen, Belgium	Hydrodynamics of prey capture in forward striking piscivorous snakes
9:40 AM		COFFEE BREAK - GALLERIA	
10:00 AM DVM	10.7	DAWSON, MM, METZGER, KA, BAIER, DB, BRAINERD, EL; Brown University, Touro University College of Medicine	Kinematics of the quadrate bone during feeding in mallard ducks
10:20 AM DCB	10.8	DAVIS, JS, NICOLAY, CW; Ohio University, University of North Carolina, Asheville	Biomechanical and functional analysis of the jaws of vampire bats (Chiroptera: Phyllostomidae)
10:40 AM	10.9	METZGER, KA, BAIER , DB, LIN, A, HARPER, CJ, HERRING , SW, BRAINERD, EL; Touro University College of Medicine, Brown University, University of Washington	XROMM analysis of mastication in miniature pigs
11:00 AM DCB	10.10	WHITENACK, LB, MOTTA, PJ; University of South Florida	Performance of shark teeth during puncture and draw: implications for the mechanics of cutting
11:20 AM DCB	10.11	ANDERSON, PSL; University of Bristol	The effects of dental design on fracture in biological tissues

8:00 AM-Noon
Stone

Session 11: Population Genetics and Biogeography

Chair: Peter Marko (first half), Sarah Boyer and Michael McCartney (second half)

8:00 AM DSEB	11.1	COX, LN, MARKO, PB; Clemson University	Trans-Pacific phylogeography: geographic isolation and speciation in *Nucella lima*
8:20 AM DIZ	11.2	HICKMAN, CS; University of California, Berkeley	Drawing lines in Wallacea: historical biogeography meets geophysics in the deep sea
8:40 AM DSEB	11.3	HUNTER, RL, HALANYCH, K; Auburn University	Contrasting phylogeographic patterns among three Antarctic brittle star species
9:00 AM DSEB	11.4	TIMPE, EK, KOZAK, KH, BONETT, RM; University of Tulsa, University of Minnesota	Exploring the faunal connection between the Ozark Plateau and the Appalachian Mountains: a phylogeographic study of the long-tailed salamanders of the *Eurycea longicauda* complex
9:20 AM	11.5	CLOUSE, RM, GIRIBET, G; Harvard University	Ancient signals of South East Asia's history found in mite harvestmen sequence and morphological data
9:40 AM DEE	11.6	FOX, AM, SCHREY, AW, MCCOY, ED, MUSHINSKY, HR; University of South Florida	Genetic relatedness in the fossorial sand skink, *Plestiodon reynoldsi*, in the scrub of central Florida
9:40 AM	COFFEE BREAK - GALLERIA		
10:20 AM DEE	11.7	MARKO, PB, MCGOVERN, TM, EMME, SA, COX, LN, HOFFMAN, JM; Clemson University	Demographic history of the northeastern Pacific rocky shore community
10:40 AM DSEB	11.8	BOYER, SL, SZUMOWSKI, SC, HOWE, AA, HOVE, MC, HORNBACH, DJ; Macalester College	Comparative phylogeography and DNA barcoding of freshwater mussels
11:00 AM	11.9	BRANNOCK, PM, HILBISH , TJ; University of South Carolina, Columbia	Breakdown in mitochondrial inheritance within the *Mytilus edulis* complex around Hokkaido, Japan
11:20 AM DEE	11.10	MCCARTNEY, MA, LIMA, TG, YUND, PO; University of North Carolina, Wilmington, University of New England	Results from hybrid genotypes question the role of M7 lysin in blue mussel gamete recognition
11:40 AM DEE	11.11	SCHMIDT, V, MCCARTNEY, M; University of North Carolina, Wilmington	Sexual conflict and the development of gamete incompatibility in the blue mussel

8:00-10:00 AM
Webster

Session 12: EVO-DEVO - Limb Development

Chair: Kathryn Kavanagh, Lisa Noelle Cooper

8:00 AM DEDB	12.1	KAVANAGH, KD, JERNVALL, J, TABIN, C; Harvard Medical School, Stony Brook University, University of Helsinki	Developmental influence in the evolution of phalanges

8:20 AM	12.2	YOUNG, RL, CAPUTO, V, GIOVANNOTTI, M, KOHLSDORF, T, WAGNER, GP; Yale University, University of Ancona	Molecular evidence of a digit identity frameshift in the Italian Three-toed Skink (*Chalcides chalcides*)
8:40 AM	12.3	SANGER, TJ, MAHLER, DL, LOSOS, JB, ABZHANOV, A; Harvard Univeristy	The evolution of developmental patterns in the *Anolis* skeleton
9:00 AM	12.4	GRIZANTE, MB, KOHLSDORF, T; University of Sao Paulo, FFCLRP	Evolution of phalangeal formula in gymnophthalmid lizards: patterns of character states and inferences about developmental processes
9:20 AM DEDB	12.5	COOPER, LN, THEWISSEN, JGM; NEOUCOM	The role of Fgf8 in the origin of interdigital webbing in cetaceans
9:40 AM DEDB	12.6	WAGNER, GP, KOHLSDORF, T, GRIZANTE, M, KIN, K; Yale University, Universidade de S Paulo	A molecular footprint of limb development in the HoxA-13 gene: implications for the origin of urodele limb development
10:00 AM	COFFEE BREAK - GALLERIA		

10:20 AM-Noon
Webster

Session 13: EVO-DEVO - Morphogenesis

Co-Chairs: Vera Weisbecker, Christian Mitgutsch

10:20 AM	13.1	MITGUTSCH, C, WONG, B, SCHNEIDER, RA; University of Zurich, Switzerland, University of California at San Francisco	The role of the cranial neural crest during species-specific morphogenesis in quail, duck, and quail-duck chimeras
10:40 AM DEDB	13.2	MCCAULEY, DW; University of Oklahoma, Norman	Evolution of vertebrate chondrogenesis: lessons from lampreys
11:00 AM	13.3	PIEKARSKI, N, OLSSON, L; Friedrich-Schiller-Universitaet Jena, Germany	A long-term somite fate map using GFP-transgenic axolotls
11:20 AM DEDB	13.4	TULENKO, FJ, KUSAKABE, R, KURATANI, S, BURKE, AC; Wesleyan University, Kobe University, RIKEN Center for Developmental Biology	Body wall formation in lamprey
11:40 AM	13.5	MARKS, C, MICHELSON, AV*, BAGATTO, B, MOORE, FB-G; University of Akron	GxExE Whiz!: The influence of genotype and multiple environments on the developing zebrafish cardiovascular system

1:00-3:00 PM
Grand Ballroom C

Session 14: Ecological Endocrinology

Chair: Molly Jacobs

1:00 PM DCE	14.1	DICKENS, MJ, MEDDLE, SL, ROMERO, LM; Tufts University, University of Edinburgh	Mineralocorticoid and glucocorticoid receptor expression in brains of translocated chukar, *Alectoris chukar*
1:20 PM	14.2	REITZEL, AM, TARRANT, AM; Woods Hole Oceanographic Institution	Transcriptional responses by the estuarine sea anemone *Nematostella vectensis* to cadmium exposure
1:40 PM DIZ	14.3	JACOBS, MW, LAUFER, H, STUART, JS, CHEN, M, PAN, X; University of Connecticut, Kunming University of Science & Technology	Spatial and temporal patterns of contamination by endocrine-disrupting alkylphenols in the blood of the American lobster, *Homerus americanus*
2:00 PM DCE	14.4	MENG, Y, ZOU, E*; Nicholls State University, Thibodaux	Impacts of molt-inhibiting organochlorines on epidermal ecdysteroid signaling in the fiddler crab, *Uca pugilator*, in vitro
2:20 PM DCE	14.5	LYNN, SE, PRINCE, LE, SCHOOK, DE, MOORE, IT; The College of Wooster, Virginia Tech	Interactions of testosterone and paternal care in a tropically breeding sparrow
2:40 PM	14.6	CHEN, Y, SIBLE, JC, MCNABB, FMA*; Virginia Tech	Effects of pre- and post-hatching perchlorate exposure on the thyroid function and expression of thyroid-responsive genes in Japanese quail embryos and chicks

1:00-3:00 PM
Commonwealth A

Session 15: Swimming II - Low Reynolds Numbers

Chair: Laura Miller

1:00 PM	15.1	TAPPE, JT, SANTHANAKRISHNAN, A, MILLER, LA; University of North Carolina at Chapel Hill	Ciliary transport and flagellar locomotion in physical models with varying reynolds numbers
1:20 PM DCB	15.2	MIKLASZ, KA; Hopkins Marine Station	Solving a low-Reynolds number conundrum: how fast should diatoms sink?
1:40 PM	15.3	MURPHY, DW, WEBSTER, DR, KAWAGUCHI, S, KING, R, YEN, J; Georgia Institute of Technology, Australian Antarctic Division	Locomotory biomechanics of Antarctic krill
2:00 PM DCB	15.4	MILLER, LA, SANTHANAKRISHNAN, A; University of North Carolina at Chapel Hill	Diving wasps: swimming and flying at very low Reynolds numbers
2:20 PM DCB	15.5	RICHARDS, CT, BIEWENER, AA; Harvard University	Kinematics and hydrodynamics among ranid and pipid frogs

2:40 PM DCB	15.6	YEN, J, CATTON, K, WEBSTER, D; Georgia Institute of Technology	The hydrodynamic wake of two species of swimming krill

1:00-3:00 PM
Commonwealth B

Session 16: Guts, Hearts & Lungs I

Chair: Jeff Walker

1:00 PM DCPB	16.1	DERRICKSON, EM, MARINELLI, K; Loyola College	Compensatory morphological plasticity in response to low protein diets in mice (*Mus musculus*)
1:20 PM	16.2	CECILE , H, ROBERT , P, STEPHEN, S, JEAN-HERVE, L*; University Louis Pasteur, University of Alabama	Plasticity of the intestinal enterocytes of the Burmese python
1:40 PM DCPB	16.3	MCGUIRE, LP, FENTON, MB, GUGLIELMO, CG; University of Western Ontario, London	The effects of age on energy storage during pre-hibernation swarming of little brown bats (*Myotis lucifugus*)
2:00 PM DIZ	16.4	GIBBS, VK, HOFER, SC, LAWRENCE, AL, LAWRENCE, JM, WATTS, SA; University of Alabama at Birmingham, Texas A&M System, University of South Florida	The sea urchin gut: size and nutrient storage are affected by temperature
2:20 PM DVM	16.5	PISCITELLI, MA, MCLELLAN, WA, ROMMEL, SA, PABST, DA; University of North Carolina Wilmington	Comparing lung size in shallow (*Tursiops truncatus*) and deep (*Kogia* spp.) diving cetaceans
2:40 PM DEE	16.6	MODRALL, JT, KEATING, JH, MILLER, EA, POKRAS, MA; Tufts University, Tri-State Bird Rescue and Research	Syrinx of Northern Gannets (*Morus bassanus*): what are those lumps?

1:00-2:40 PM
Commonwealth C

Session 17: Muscle Environmental Physiology

Chair: Manoj Srinivasan

1:00 PM DVM	17.1	DEBAN, SM; University South Florida	Low thermal dependence of elastically-powered movement in salamanders
1:20 PM DCB	17.2	GEORGE, NT, DANIEL, TL; University of Washington, Seattle	Temperature gradients in the dorsolongitudinal flight muscles of *Manduca sexta* may yield functional gradients
1:40 PM DCPB	17.3	WOODS, Jr, WA, TRIMMER, BA; Tufts University	Effects of temperature on dynamic properties of active and passive caterpillar muscle: Q_{10} less than 1?
2:00 PM DCB	17.4	ANDERSON, CV, DEBAN, SM; University of South Florida	Chameleons maintain high-performance tongue projection at low temperature
2:20 PM DCPB	17.5	CABLE, AE, KANATOUS, SB; Colorado State University	Understanding regulation of adaptive changes in skeletal muscle physiology of Weddell seals: a proteomics approach

1:00-3:00 PM
Grand Ballroom D

Session 18: Comparative Genomics

Chair: Kirk Zigler

1:00 PM DEE	18.1	ESTES, AM, PIERSON, ElizabethA; University of Arizona	Genome size of bacteria in a variable endosymbiotic environment
1:20 PM DEE	18.2	GUERRERO-FERREIRA, R, GORMAN, C, NISHIGUCHI, M; New Mexico State University	Variation in gene expression profiles among bacterial symbionts from squids of the family Loliginidae (Mollusca: Cephalopoda)
1:40 PM DCPB	18.3	CUROLE, JP, MANAHAN, DT*; University of Southern California	Genomic analysis of genotype-dependent responses of marine larvae to temperature change
2:00 PM DCPB	18.4	FIELDS, PA, TOMANEK, L, ZUZOW, MJ, CLAUSEN, RC; Franklin and Marshall College, Cal Poly San Luis Obispo	A proteomic analysis of temperature acclimation and heat stress in blue mussel (*Mytilus*) congeners
2:20 PM DDCB	18.5	CAMPANALE, JP, TOMANEK, L, ADAMS, NL; California Polytechnic State University, San Luis Obispo	Proteomic response of the sea urchin, *Strongylocentrotus purpuratus*, early cleavage embryo to ultraviolet radiation
2:40 PM DCE	18.6	WILMOT, M, KOSUGI, T, FREAMAT, M, SCHULTZ, B, SOWER, SA; University of New Hampshire, Durham	Identification of a glycoprotein hormone alpha subunit in the sea lamprey, petromyzon marinus

1:00-3:00 PM
Grand Ballroom E

Session 19: Vertebrate Neurobiology

Chair: Duane McPherson,

1:00 PM DAB	19.1	LYNCH, KS, BALL, GF; Johns Hopkins University	Noradrenaline, receiver error and the cocktail party effect
1:20 PM DEDB	19.2	FRANSSEN, RA, COPPOLA, DM; Randolph-Macon College	The effects of naris occlusion on cilia development and protein expression
1:40 PM DSEB	19.3	PETERS, JE; University of Illinois	Brain size evolution in new and old world marsupials
2:00 PM DAB	19.4	WONG, RY, CUMMINGS, ME; University of Texas at Austin	Brain regions associated with female preference behavior in a poecillid fish, *Xiphophorus nigrensis*
2:20 PM	19.5	KLINE, RJ, HOLT, GJ, KHAN, IA; University of Texas Marine Science Institute	Neuroendocrine control of sex change in the rock hind, *Epinephelus adscensionis*
2:40 PM DNB	19.6	FRANSSEN, CL, KARSNER, S, TU, E, HYER, MM, LAMBERT, KG; Randolph-Macon College	Neuroplasticity following paternal experience in two congeneric species

1:00-2:40 PM
Otis

Session 20: Locomotion - Muscle -- Neural Control

Co-Chairs: Melinda Hale, Steve Reilly

1:00 PM	20.1	SCHILLING, N, CARRIER, DR; Friedrich-Schiller-University, Jena, University of Utah, Salt Lake City	Function of the epaxial muscles during trotting
1:20 PM DVM	20.2	REILLY, SM, MCELROY, EJ, WHITE, TD; Ohio University, College of Charleston, Buffalo State College	Abdominal motor patterns in mammalian locomotion: hypaxial muscle function with and without epipubic bones
1:40 PM DCB	20.3	REVZEN, S, GUCKENHEIMER, JM, FULL, RJ; University of California, Berkeley, Cornell University, Ithaca	Study of neuromechanical control of rhythmic behaviors by floquet analysis
2:00 PM DVM	20.4	HALE, ME, FREMONT, RT; University Chicago, Albert Einstein College of Medicine	Examining integration of new cells into neural circuits and the evolution of motor control.
2:20 PM DNB	20.5	RINEHART, MD, BELANGER, JH; West Virginia University	Similar motor pattern generators produce flexible walking behavior in juvenile and adult crayfish

1:00-3:00 PM
Stone

Session 21: Locomotion-Flight -- Insect Maneuvering

Chair: Tyson Hendrick

1:00 PM DCB	21.1	COHEN, I, RISTROPH, LG, BERMAN, GJ, BERGOU, AJ, WANG, ZJ; Cornell University	Probing insect flight stability and control by inducing aerial stumbles
1:20 PM	21.2	CHENG, B, FRY, S, HUANG, Q, DICKSON, W, DICKINSON, M, DENG, X; University of Delaware, ETH/University of Zurich, Switzerland, California Institute of Technology	Dynamics and control of turning during saccades in fruitfly drosophila
1:40 PM	21.3	BERGOU, AJ, RISTROPH, LG, COHEN, I, WANG, ZJ; Cornell University	Pitching, deformation and control in insect flight
2:00 PM DCB	21.4	HEDRICK, TL, DENG, X, CHENG, B; University of North Carolina at Chapel Hill, University of Delaware	Scaling of passive damping and maneuverability in flying animals
2:20 PM	21.5	ZHAO, L, HUANG, Q, DENG, X, SANE, S; University of Delaware, National Centre for Biological Sciences, Tata Institute of Fundamental Research, India	Aerodynamic effects of wing flexibility in flapping flight
2:40 PM DCB	21.6	MOUNTCASTLE, AM, TULL, C, DANIEL, TL; University of Washington	Wing stiffness affects mean advective flows of Manduca sexta, with wing overlap a potential contributor

1:00-3:00 PM
Webster

Session 22: Evolutionary Morphology - Modularity and Integration

Co-Chairs: Mihaela Pavlicev, Karen Sears

1:00 PM	22.1	WEISBECKER, V, SANCHEZ-VILLAGRA, MR; Cambridge University, Universitaet Zuerich	Monotreme postcranial ontogeny and the evolution of mammalian skeletal development
1:20 PM DEDB	22.2	SEARS, KE; University of Illinois	Covariation, disparity and constraints in marsupial and eutherian limb evolution
1:40 PM DEDB	22.3	DOROBA, CK, SEARS, KE; University of Illinois	The highly divergent developmental pathways of marsupial fore- and hind limbs: evidence from the AER
2:00 PM DEDB	22.4	ZELDTICH, ML, SWIDERSKI, DL, WOOD, AR; University of Michigan, Ann Arbor	Modularity and integration of mandibular size and shape
2:20 PM	22.5	HABER, A; University of Chicago	Does morphological integration have macroevolutionary implications?
2:40 PM DEDB	22.6	PAVLICEV, M, CHEVERUD, JM, WAGNER, GP; Washington University, St. Louis, Yale University, New Haven	Evolution of modularity: selection for trait disassociation

6:30-7:30 PM
Grand Ballroom A/B

George A. Bartholomew Award Lecture

	MARTIN, LM; University of South Florida	Ecological immunology: an adaptationist perspective on the vertebrate immune system

SUNDAY P1 - POSTER SESSION 1

Galleria, 3:00 - 5:00 PM
Even # Posters - Authors present from 3:00-4:00 pm
Odd # Posters - Authors present from 4:00-5:00 pm

Behavioral Ecology: Life History Tradeoffs

P1.1	HARTKE, TR, ROSENGAUS, RB; Northeastern University, Boston	Opening the black box of colony foundation in a polygamous termite
P1.2	DAVIS, JM, PAPAJ, DR; Vassar College, University of Arizona	A “Silver Ovipositor” effect in the walnut fly, *Rhagoletis juglandis*
P1.4 DAB	MOORE, JR, WALTERS, JR, MOORE, IT; Virginia Tech	Breeding behavior in Prothonotary Warblers: is food availability the key?
P1.5 DAB	ECHEVERRY-GALVIS, MA; Princeton University	Breeding and molt in Neotropical bird communities
P1.6 DAB	BRAZEAL, KR, CORNELIUS, JM, HAHN, TP; University of California, Davis	Variation in the first prebasic molt among House Finches, Red Crossbills, and other Cardueline Finches that differ in reproductive schedule
P1.7 DEE	HOOD, WR, HILL, GE; Auburn University	Dietary fat influences carotenoid-based coloration in the American GoldfinchDietary
P1.8 DEE	SCHULER, MS, LIMA, SL; Indiana State University	Why spring’s song is winter’s new friend: effects of urbanization on the American robin (*Turdus migritorius*)
P1.9 DEE	SMITH, JJ, SEARS, MW; Southern Illinois University	The implications of body size for habitat selection as a consequence of behavioral thermoregulation
P1.10 DAB	BLUMSTEIN, DT, CHMURA, HE*, WEY, T; University of California, Los Angeles, Swarthmore College	Do parasites and body condition explain variation in anti-predator vigilance?
P1.11	TORREY, KW, BAKER, PJ; Swarthmore College	Plastron redness in Red-bellied Turtles as an index for fitness
P1.12	FRANCO, LM, BARRIENTOS, K, SOTO-GAMBOA, MR; Instituto de Ecologia y Evoluci, UACh	Activity patterns and huddling behavior in the rare austral marsupial (Dromiciops gliroides)
P1.13 DAB	HO, JM, DEMAS, GE; Indiana University, Bloomington	Endocannabinoid signaling and energy balance in Siberian hamsters (*Phodopus sungorus*)
P1.14	RUIZ, M, DEMAS, GE, MARTINS, EP; Indiana University, Bloomington	Experimentally elevated testosterone suppresses immunity in food-limited sagebrush lizards
P1.15	KELLY, CD, JENNIONS, MD; Iowa State University, Australian National University	Sexually dimorphic immune response in the harem polygynous Wellington tree weta, *Hemideina crassidens*

SUNDAY P1 - POSTER SESSION 1
Galleria, 3:00 - 5:00 PM

Biodiversity/Biogeography

P1.16	GERKEN, S; University of Alaska, Anchorage	Playing in the mud: Cumacea (Crustacea) of the Comau Fjord, Chile
P1.18 DIZ	MCCLARY, M, BENTIVEGNA, CS; Fairleigh Dickinson University, Seton Hall University	Effects of a clay cap on contaminants in water, sediments and macroinvertebrates of Kearny Marsh
P1.19	ARONSEN, GP; Yale University	New photographic evidence of the African golden cat (*Profelis aurata* Temminck, 1827) at Mainaro, Kibale National Park, Uganda.
P1.20	THOMAS, NM, FRISBIE, J, SNOAP, T, BERGMAN, DA; Grand Valley State University	The distribution of crayfish species in the tributaries of the Grand River, MI
P1.21	KIMOKEO, BK, SZABO, Z, SAARMAN, NP, SIMISON, WB, MARTIN-SMITH, K, BARROWS, A, BAINE, M, LOURIE, S, TOONEN, RJ, HAMILTON, H; University of Hawaii, Manoa	Taxonomy and phylogeography of *Hippocampus kuda* in Hawaii
P1.22 DSEB	STRILEY, DS, BUDEN, AT, ARONOWSKY, A, WESTNEAT, MW; Biodiversity Synthesis Center, Field Museum	Using the encyclopedia of life for new scientific discoveries: the biodiversity synthesis center
P1.23 DIZ	PATTI, A, HOCHBERG, R, LITVAITIS, MK; University Massachusetts Lowell, University New Hampshire	Taxonomy and evolution of the *Chaetogaster limnaei* complex (Annelida: Oligochaeta)
P1.24 DIZ	PELEP, PO, HADFIELD, MG; University of Hawaii at Manoa	Distinguishing the validity of subspecies of the endangered Hawaiian tree snail *Achatinella mustelina* using a principal component analysis of shell characters
P1.25 DIZ	PATTI, A, HOCHBERG, R*, CLAMP, J; University Massachusetts Lowell, North Carolina Central University	A novel peritrich (Ciliophora) from the symbiotic community of freshwater pulmonate snails (Mollusca, Gastropoda) in Massachusetts
P1.26	BALDINGER, AJ, CHUPASKO, JM, FORD, LS, HANKEN, J, HARTEL, KE, ROSADO, J, TRIMBLE, J; Museum of Comparative Zoology, Harvard University	Recent and ongoing collections facility renovations at the Museum of Comparative Zoology (Harvard University)
P1.27 DEE	GAULKE, CA, IRWIN, JT; Central Washington University	High infection rates of the fungus *Batrachochytrium dendrobatidis* in biological supply and wild-caught frogs in central Washington State, USA
P1.28 DEE	LOGAN, ML, MONTGOMERY, CE, BOBACK, SM, REED, RN, CAMPBELL, JA; University of Texas at Arlington, Truman State University, Dickinson College, United States Geological Survey	The comparative ecology of *Norops lemurinus* (Sauria; Polychrotidae) on the islands of Cayo Menor and Cayo Mayor of the Cayos Cochinos archipelago of Honduras

SUNDAY P1 - POSTER SESSION 1
Galleria, 3:00 - 5:00 PM

P1.29	COSTELLO, MJ, BOXSHALL, GA, BOYKO, CB, HOEG, JT, MARKHAM, J, APPLETANS, W; University of Auckland, Natural History Museum, London, American Museum of Natural History, University of Copenhagen, Arch Cape Marine Laboratory, Flanders Marine Institute	Development of sustainable authoritative online species databases

Community Ecology

P1.30 DEE	MASONJONES, HD, ROSE, E; University of Tampa	Reproductive demographics of syngnathid fishes inhabiting a human-altered landscape
P1.31	VITAL, CI, MARTINS, EP; Indiana Univeristy, Bloomington	Effects of different individuals on information transfer in zebrafish groups
P1.32 DIZ	MCCLINTOCK, JB, ANGUS, RA, MCDONALD , MR, AMSLER, CD; University of Alabama at Birmingham	Ocean acidification and calcified Antarctic seafloor macroorganisms: the perfect storm
P1.33	ENG, AE, CONNELLY, SJ; Rochester Institute of Technology	Effects of multiple abiotic stressors on microcrustaceans, *Gammarus* spp. and *Artemia* spp., in light of ozone depletion
P1.34	LINDSAY, SM; University of Maine, Orono	Ecology of injury in marine soft sediment communities: methyl green staining improves identification of regenerating spionid polychaetes
P1.37	RIVERA, GJ, TURNER, T, WALTERS, LJ; University of the Virgin Islands, University of Central Florida	Feeding behavior of juvenile *Diadema antillarum*, the long-spined black sea urchin
P1.38 DEE	WALTERS, LJ, TURNER, T, KUFFNER, IB, PAUL, VJ, RITSON-WILLIAMS, R, GRABLOW, K, SETTAR, C, RIVERA, G, HICKEY, TD; University of Central Florida, University of the Virgin Islands, US Geological Service, Smithsonian Inst.	Coral-Algal-Urchin interactions in Caribbean waters

Basal Phyla Development

P1.39	WINDSOR, PJ, LEYS, SP; University of Alberta	Multipolar sponges: a putative role for Wnt signaling in the most basal metazoans
P1.40	WIJESENA, N, KUMBUREGAMA, NS, WIKRAMANAYAKE, A; University of Miami	Investigating the role of Wnt/PCP signaling in the evolution of embryonic polarity in metazoans
P1.41	KUMBUREGAMA, S, WIKRAMANAYAKE, A; University of Hawaii at Manoa, University of Miami	Evolution of germ layers: insight from early Wnt signaling in a cnidarian
P1.42 DIZ	SAWYER, SJ, AVERY, T*; Glenville State College, Southern Illinois University Edwardsville	Investigation of integrins during pedal lacerate development in *Aiptasia pallida*
P1.43	HAIGLER, B, ECKERD, MS, MARTIN, VJ*; Appalachian State University, North Carolina	Determination of the optimal housing conditions for box jellyfish

P1.44	BOLANOS, DM, LITVAITIS, MK*; University of New Hampshire	Embryonic muscle development in direct and indirect developing marine flatworms (Platyhelminthes, Polycladida)

Feeding Biomechanics

P1.45	STEWART, WJ, MCHENRY, MJ; University of California, Irvine	The unsteady flow sensed by larval zebrafish
P1.46 DCE	O'CONNOR, JL, MCBRAYER, LD, ROSTAL, DC; Georgia Southern University	Effects of testosterone on bite force and locomotor performance in the six-lined racerunner
P1.47 DVM	PEIFFER, EK, FORD, S, WILLIAMS, SH; Ohio University	Gape and bite force in the northern grasshopper mouse (*Onychomys leucogaster*) and the deer mouse (*Peromyscus maniculatus*)
P1.48	GERSTNER, GE; University of Michigan	Chewing rate allometry requires natural selection
P1.49	BRIGHT, JA; University of Bristol	Modelling cranial sutures in Finite Element Analysis: a validation study using the domestic pig
P1.50 DVM	STOVER, KK, WILLIAMS, SH*; Ohio University	Ontogeny and fusion of the mandibular symphysis in camelids
P1.51 DCB	MARSHALL, CD, MOSS, AL, GUZMAN, A; Texas A & M University at Galveston	Loggerhead Sea Turtle (*Caretta caretta*) feeding on mackerel-baited longline hooks
P1.52 DVM	GERRY, SP, SCOTT, AJ; Arcadia University, University of Rhode Island	Prey selection by two species of sharks
P1.53 DCB	KANE, EA, MARSHALL, CD; Department of Wildlife and Fisheries Science, Texas A & M University, Texas A & M University at Galveston	Suction and ram feeding kinematics in two divergent odontocetes
P1.54	BEN-ADERET, NJ, DEAN, MN; Bar-Ilan University, University of California, Irvine	Ontogeny of morphology and feeding kinematics in Lingcod (*Ophiodon elongatus*)
P1.55	KUSHNER, SA, GIBB, AC, ARENA, A, FERRY-GRAHAM, LA; Mansfield University of Pennsylvania, Northern Arizona University, Moss Landing Marine Laboratory	Four-eyed fish (*Anableps anableps*) use the same jaw-opening movements to produce a distinct prey-capture behavior across environments
P1.56 DVM	STAAB, KL, FERRY-GRAHAM, LA, HERNANDEZ, LP; George Washington University, Moss Landing Marine Labs	Morphological and kinematic variation in upper jaw protrusion of four species of cyprinid fishes
P1.57 DVM	GIBB, A, MELVILLE, B*, WALSH, K, FERRY-GRAHAM, L; Northern Arizona University, Moss Landing Marine Laboratory	Why don't kissing gourami capture prey from the water column?
P1.58 DAB	MULVANY, SL, MOTTA, PJ; University of South Florida, Tampa	Feeding kinematics of the Atlantic stingray (*Dasyatis sabina*) and yellow stingray (*Urobatis jamaicensis*)

SUNDAY P1 - POSTER SESSION 1
Galleria, 3:00 - 5:00 PM

P1.59 DVM	LEYSEN, H, DUMONT, ER, ADRIAENS, D; Ghent University, Belgium, University of Massachusetts, Amherst	Stress distribution and morphological specializations in the feeding apparatus of a seahorse (Syngnathidae: *Hippocampus reidi*)
P1.60	SCOTT, AJ, GERRY, SP, RAMSAY, J, WILGA, CD; University of Rhode Island, Arcadia University	Coordination of muscle activity between ventilation and feeding in spiny dogfish
P1.61	STOEHR, AS, WILGA, CD; University of Rhode Island	Prey processing in elasmobranchs
P1.62 DVM	O'NEILL, MW, GIBB, AC; Northern Arizona University	Scraping and sucking: does morphology determine performance in two species of suckers?

Muscle Physiology

P1.63 DCB	MONROY, JA, UYENO, TA*, NISHIKAWA, KC; Northern Arizona University	Muscle architecture and spring properties during active shortening
P1.64 DVM	UCHIDA, AM, GREEN, J, AHMAD, S, GOLLER, F, MEYERS, RA; Weber State University, Ogden, University of Utah, Salt Lake City	Sexual dimorphism of syringeal muscles in song-birds
P1.65 DVM	HERNANDEZ, LP, MORGAN, RJ; George Washington University	Size and distribution of muscle fiber types within chondrichthyan muscles
P1.66 DCB	BERNAL, D, SYME, D, MCGILLIVRAY, D, DONLEY, J, SEPULVEDA, C; University Massachusetts Dartmouth, University Calgary, MiraCosta College, Pfleger Institute of Environmental Research	The effect of temperature on the muscle contractile properties in the common thresher shark

Evolutionary Physiology

P1.67 DCPB	ERICKSON, PA, NICHOLS, KS, MITCHELL, GW, MAUCK, RA, HAUSS-MANN, MF; Kenyon College, Gambier, Bowdoin College, Brunswick, University of Guelph, Canada, Bucknell University, Lewisburg	Don't put all your eggs in one basket: growth, self-maintenance, and fledgling survival in Savannah sparrow (*Passerculus sandwichensis*) chicks raised in experimentally manipulated broods
P1.68	STRACHAN, LA, TARNOWSKI, HE, SIN-CLAIR, BJ; University of Western Ontario, Canada	The evolution of insect cold tolerance: a *Drosophila* model
P1.69	LINVILLE, BJ, STEWART, JR, ECAY, TW, HERBERT, JF, THOMPSON, MB; East Tennessee State University, University Sydney	Placental calcium provision in a lizard with pro-longed oviductal egg retention
P1.70 DCPB	BRASHEARS, JA, DENARDO, DF; Arizona State University, Tempe	Metabolic rate, clutch oxygen concentration, temper-ature and dial patterns of contraction in brooding Burmese pythons (*Python molurus bivittatus*)
P1.71 DCPB	CHAMPAGNE, AM, MUNOZ-GARCIA, A, WILLIAMS, JB; The Ohio State University	Cutaneous water loss and lipids in the stratum corneum of mesic horned larks (*Eremophila alpestris praticola*) and five species of desert larks

P1.72 DCPB	PRENTICE, NE, WIKELSKI, M, ROMERO, LM, FLORANT, GL; Colorado State University, Princeton University, Tufts University	Non-esterified fatty acid concentrations in Galápagos marine iguanas during a mild El Niño year
P1.73	CLEMENT, ME, MUNOZ-GARCIA, A, WILLIAMS, JB; Ohio State University	Cutaneous water loss and lipids covalently bound to corneocytes in house sparrows after acclimation to high and low humidity
P1.74 DAB	MOORE, AM, BARRY, BD, MENAKER, M; University of Virginia	Photic niche and photosensitivity of the pineal oscillator in *Anolis* species

Growth (Regulation of)/Metamorphosis

P1.75 DNB	WASSMER, G; Bloomsburg University of Pennsylvania	Characterization of a photoperiodically regulated protein from a woodroach
P1.76 DCE	GROSS, TN, MANZON, RG*; University of Regina, Biology	Identification and characterization of developmentally regulated serum thyroid hormone distributor proteins in sea lamprey, *Petromyzon marinus*
P1.77 DCE	DUNCAN, CA, JOHN-ALDER, HB; Rutgers University, New Brunswick	Food restriction inhibits growth rate but not expression of hepatic igf-i message in Yarrows spiny lizard, *Sceloporus jarrovii*
P1.78	WOLFF, SW, ELY, TE, CHANTAROJ-WONG, TM, HELBING, CC, PROPPER, CR; Northern Arizona University, University of Victoria	Effects of 4-tert-octylphenol on amphibian metamorphosis
P1.79	BRASCHAYKO, EB, GALT, NJ*, BIGA, PR; North Dakota State University	A novel down-stream target of myostatin: important in muscle growth and regulation?
P1.82 DNB	CARY, G, CUTTLER, A, KUSEMA, E, MYERS, J, DUDA, K, TILDEN, A*; University of Washington, Colby College	Neuroprotective and neuritogenic effects of melatonin on crustacean x-organ cells

Macroevolution, Adaptation and Speciation

P1.83	CHURCHILL, MM, CLEMENTZ, M; University of Wyoming	Stable isotope analysis of pinniped fossils from the San Diego Formation (Late Pliocene, California)
P1.84	MCCORMICK, SK, WILLIAMS, L, AYERS, T*; Arizona Western College, Northern Arizona University	Investigating the species boundaries between *Platanthera zothecina* and *Platanthera sparsiflora*
P1.85 DEE	SCHULER, MS, STORM, JJ, SEARS, MW, COOPER, BS*, WILLIAMS, BH, ANGILLETTA, MJ; Indiana State University, University of South Carolina - Upstate, Southern Illinois University	Acclimation of thermal physiology in predictable and stochastic environments: a test of optimality theory
P1.86	ST. LOUIS, J, SANGER, TJ, HSIEH, T; Harvard University, University of Florida	How the development and microstructure of toe pad morphology reflect habitat specialization in *Anolis* lizards

SUNDAY P1 - POSTER SESSION 1
Galleria, 3:00 - 5:00 PM

P1.87 DIZ	ZIGLER, KS, RAFF, RA, BYRNE, M, RAFF, EC, LESSIOS, HA; Sewanee: University of the South, Indiana University, University of Sydney, Smithsonian Tropical Research Institute	Gamete compatibility and genetic divergence between the echinoids *Pseudoboletia maculata* and *P. indiana*
P1.88	RIVERA, FM, SOTO, W, NISHIGUCHI, MK; New Mexico State Univeristy, Las Cruces	Allelopathy in the symbiotic bacterium *Vibrio fischeri*; competitive exclusion prior to or during host infection?
P1.89 DIZ	DECONINCK, A, PERNET, B*; California State University, Long Beach	Molecular markers for studying the distributions of the intertidal ghost shrimp *Neotrypaea californiensis* and *N. gigas*
P1.90	MONSON, E, GERKEN, S; University of Alaska Anchorage	The presence of penial lobes in two new Lampropid species (Crustacea: Cumacea), Lampropenis sp. A and Lampropenis sp. B, from the shores of the Pribilof Islands, Alaska
P1.91 DVM	DEWAR, EW; Suffolk University	Durophagivores vs. mixed feeders: niche differentiation using stereoscopic dental microwear
P1.92 DAB	IGIC, B, GRIM, T, CASSEY, P, MOSKAT, C, RUTILA, J, HAUBER, ME; University of Auckland, New Zealand, Palacky University, Czech Republic, University of Birmingham, UK, Hungarian Academy of Sciences, Budapest, University of Joensuu, Finland	Perceptual modeling of egg color mimicry in cuckoo-host coevolutionary arms races

Mechanisms of Behavior: Movement

P1.93	LOUDON, SJ, ALDWORTH, ZN, DANIEL, TL; University of Washington	Perturbing flight paths in Lepidoptera by inducing abdominal flexion
P1.94 DAB	TSE, JC, JONG, P, HINTERWIRTH, AJ, DANIEL, TL; University of Washington	Stimulating antennal muscles leads to path changes in a moths flight trajectory
P1.95 DNB	GASSER, BA, PANESSITI, M*, YAGER, DD; University of Maryland, College Park	Sudden shadow triggers a short-latency behavioral response in flying praying mantises
P1.96 DAB	BIER, R, TANKERSLEY, R, LOPEZ, P, BRODIE, R; University of Georgia, Florida Institute of Technology, Scripps Institute of Oceanography, Mount Holyoke College	Fiddler crab locomotion: are tide-related rhythms the same in lab and field studies?
P1.97	RAMBERG PIHL, NC, WATSON, WH, CHABOT, CC; Plymouth State University, University of New Hampshire	Do circatidal or circalunidian clocks control locomotor rhythms in the american horseshoe crab?
P1.98 DIZ	CAMPOS, EO, CALDWELL, RL; University of California, Berkeley	Quick forward escape swimming in the stomatopod crustacean *Odontodactylus havanensis*
P1.99 DAB	WORTHAM, JL, MCRAE, LK; University of Tampa	A comparison of grooming behaviors in smasher and spearer mantis shrimp

SUNDAY P1 - POSTER SESSION 1
Galleria, 3:00 - 5:00 PM

Mechanisms of Behavior: Sensory Biology

P1.100 DAB	NAVA, SS; Indiana University and the Center for the Integrative Study of Animal Behavior	Population divergence and sexual asymmetry of visual performance in *Sceloporus undulatus* lizards at the White Sands Ecotone
P1.101	MORENO, L, NAVA, SS, WANG, D, MARTINS, EP; Indiana University and the Center for the Integrative Study of Animal Behavior, Bloomington	Visual laterality and sexual asymmetry of signal detection in *Sceloporus undulatus* lizards
P1.102	WANG, D, NAVA, SS, MORENO, L, MARTINS, EP; Indiana University and The Center for the Integrative Study of Animal Behavior, Bloomington	Visual performance is lateralized in male and flemale *Sceloporus undulatus* lizards
P1.103 DNB	JONES, AJ, MURRAY, JA, CAIN, SD, WYETH, RC; University of Montana, California State University East Bay, Eastern Oregon University, St. Francis Xavier University	The influence of odor cues, water flow, & magnetic fields on the orientation of the sea slug *Tritonia diomedea*
P1.104	WEEDMAN, JM, NAVA, SS, MARTINS, EP; Indiana University and the Center for the Integrative Study of Animal Behavior	Short-term environmental experience alters the visual acuity of adult zebrafish
P1.105 DAB	STREETS, A, SOARES, D; University of Maryland	Hunting strategies of the Mexican tetra fish Astyanax mexicanus larva
P1.106 DCPB	HUNTER-SMITH, S, HUANG, L, HIEBERT, SM*; Monell Chemical Senses Center, Swarthmore College	Fatty acid taste receptor expression during cold-induced changes in dietary lipid preference in *Mus musculus*

Metabolism/Energetics I

P1.107	WEINER, SA, BAUTISTA, GM, SANDERS, DB, RYAN, J, WOODS, WA, STARKS, PT; Tufts University, Morehouse College, Northern Essex Community College	Reproductive roles in *Polistes dominulus*: the cost of maintaining ovarian development
P1.108 DCPB	SCHOLNICK, DA, MANIVANH, RV, SAVENKOVA, OD; Pacific University, Oregon	The physiological consequence of malaria infection in the western fence lizard, *sceloporus occidentalis*
P1.109 DCPB	AAMIDOR, SE, BAUCHINGER, U, PINSHOW, B; Ben-Gurion University of the Negev	Does dietary protein limit mass gain in migrating blackcaps refueling at stopovers?
P1.110	AMITAI, O, BAUCHINGER, U, MCCUE, MD, PINSHOW, B; Ben-Gurion University of the Negev	The effects of dietary (n-3) and (n-6) oils on basal metabolic rate in zebra finches
P1.111 DCE	CARUSO, MA, KITTILSON, JD, BLAUFUS, PC, SHERIDAN, MA; North Dakota State University	Rainbow trout insulin receptors: cloning, patterns of mRNA expression, and regulation by fasting
P1.112 DCPB	CONEJO, MS, HOFFMAN, GG*, ELLINGTON, WR; Florida State University	Cytoplasmic and mitochondrial arginine kinase isoforms in a choanoflagellate protozoan

SUNDAY P1 - POSTER SESSION 1
Galleria, 3:00 - 5:00 PM

P1.113 DCB	CRAWFORD, S, SADDLER, C, CARROLL, MA, CATAPANE, EJ; Medgar Evers College, Kingsborough Community College	Effects of chelating agents, calcium disodium edta and diaminocyclohexanetetraacetic acid, on manganese disruption of mitochondrial respiration in *Crassostrea virginica*
P1.114 DEE	FRIESEN, CR, POWERS, DR*, MASON, RT; Oregon State University, George Fox University	Cost of male courtship: using whole group metabolic rate to assess cost of courtship
P1.115	GALINDO, J, GALINDO, G, IRWIN, JT; Central Washington University	The effects of temperature on metabolic rate, venom synthesis and potency in *Peucetia viridans* (Araneae: Oxyopidae)
P1.116 DCPB	GERSON, AR, GUGLIELMO, CG; University of Western Ontario, Canada	Evidence for increased protein catabolism as a result of water-restriction in house sparrows

Muscle Physiology I

P1.117 DCPB	ALVINE, T, CROSSLEY II, DA; University of North Dakota	Chorioallantoic membrane vascular function of the embryonic domestic chicken (*Gallus gallus*)
P1.118 DCPB	AXTMAN, LM, CHAO, E, HJELMFELT, SH, STRATTON, MS, IMAN, JD, COVI, JA, MYKLES, DL; Colorado State University, Fort Collins	Cloning of a cDNA encoding a myostatin-like factor from lobster skeletal muscle
P1.119 DCPB	BADER, BD, COVI, JA, CHANG, ES, MYKLES, DL; Colorado State University, Fort Collins, University of California, Davis Bodega Marine Lab, Bodega Bay	Molting down-regulates myostatin expression in the land crab, *Gecarcinus lateralis*: implications for the regulation of claw muscle atrophy
P1.120 DCPB	CHAO, E, KIM, H-W, THOMPSON, MD, MYKLES, DL; Colorado State University	Troponin-C cloning and tissue expression in the American lobster, *Homarus americanus*
P1.121 DCPB	CHO, I, COVI, JA, BADER, BD, MYKLES, DL; Colorado State University	Expression of a myostatin transcript in *Carcinus maenas*: response to ecdysteroid levels
P1.122 DCPB	COVI, JA, MYKLES, DL; Colorado State University	Novel splicing variation of a myostatin-like gene in the decapod crustacean, *Gecarcinus lateralis*
P1.123 DCB	BROCIA, S, DING, Z*, ROOT, RG; Lafayette College	An improved model of vertebrate muscle force generation
P1.124 DDCB	CUPP, CS, THOMPSON, KE, WEIGAND, KL, DEAROLF, JL; Hendrix College, Conway	Effects of betamethasone on the fetal rectus abdominus of the guinea pig (*Cavia porcellus*)
P1.125 DDCB	DORNHOFFER, TM, WEIGAND, KL, DEAROLF, JL; Hendrix College, Conway	Does fetal betamethasone exposure increase the potential for fatigue in the scalenus muscle of guinea pigs (*Cavia porcellus*)?
P1.126 DCPB	GROVE, TJ, SMITH, SB, FORT, TJ; Valdosta State University	Sequence comparison of the calcium-binding protein calsequestrin from poikilothermic killifish species

SUNDAY P1 - POSTER SESSION 1
Galleria, 3:00 - 5:00 PM

Neurobiology I

P1.127	SAMUEL, D, LAGARES, E, CARROLL, MA, CATAPANE, EJ; Medgar Evers College	Identification and distribution of octopamine in ganglia and innervated organs of *Crassostrea virginica*
P1.128 DNB	ELLIS, IR, KEMPF, SC; Auburn University, Alabama	Histological and SCP-like neuropeptide investigations in the larval oyster *Crassostrea virginica*
P1.129 DCB	MURRAY, S, PERDOMO, Y, CARROLL, MA, CATAPANE, EJ; Kingsborough Community College, Medgar Evers College	Effects of chelating agents on manganese accumulations in gill of the eastern oyster, *Crassostrea virginica*
P1.130 DNB	KLOHR, RC, KRAJNIAK, KG*; Southern Illinois University Edwardsville	The systematic effects of neurochemicals on the alimenry canal of the earthworm *Lumbricus terrestris*
P1.131	LAGARES, E, DAHNIEL, S, CARROLL, MA, CATAPANE, EJ; Medgar Evers College	Effects of calcium disodium EDTA on the neurotoxicity of manganese on biogenic amines in the nervous system and innervated organs of *Crassostrea virginica*
P1.132 DNB	BERGMAN, DA, SAMMETA, N, MCCLINTOCK, TS; Grand Valley State University, University of Kentucky	Growth factors and receptors in the olfactory epithelium
P1.133	NELSON, M, CARROLL, MA, CATAPANE, EJ; Medgar Evers College	Effects of p-Aminosalicylic Acid on the neurotoxic effects of manganese on the dopaminergic innervation of the gill of the bivalve mollusc, *Crassostrea virginica*
P1.134 DNB	MEREDITH, AM, KRAJNIAK, KG; Southern Illinois University Edwardsville	The cholinergic receptor transduction system in the earthworm gizzard
P1.135 DCB	HUGGINS, T, LICORISH, R, CARROLL, MA, CATAPANE, EJ; Medgar Evers College, Kingsborough Community College	p-Aminosalicylic acid blocks manganese from impairing the dopaminergic innervation of the gill of the bivalve mollusc, *Crassostrea virginica*
P1.136 DNB	LEE, J-Y, BHATT, D, BHATT, D, CHUNG, W-Y, COOPER, RL; University of KY, Lexington, Army, Daejun, Republic of Korea, Korea Military Academy, Republic of Korea	Pre- & post-synaptic actions of kainate: negative feedback at glutamatergic nerve terminals
P1.137	PATTEN, SB, NESTLER, JR; Walla Walla University, College Place	Detection and localization of a possible photoreceptive pigment in temperate holothurians (Echinodermata)

Osmoregulation I

P1.138 DCPB	BODINIER, C, BOULO, V, CHARMANTIER, G*; University of Montpellier 2	Localization and expression of the CFTR chloride channel in the ionocytes of the European sea-bass *Dicentrarchus labrax* according to salinity during ontogeny
P1.139	BOSWELL, LC, MENZE, MA, HAND, SC; Louisiana State University, Baton Rouge	Multiple isoforms of late embryogenesis abundant proteins in *Artemia franciscana* embryos

SUNDAY P1 - POSTER SESSION 1
Galleria, 3:00 - 5:00 PM

P1.140 DAB	LEMA, SC; University of North Carolina, Wilmington	Isolation and expression patterns of cDNAs for three vasotocin receptors and an isotocin receptor from a teleost, the Amargosa pupfish
P1.141 DEE	FINKLER, MS, MYGRANT, MS, JACKSON, AL; Indiana University, Kokomo	Dehydration tolerance in the rusty crayfish (*Orconectes rusticus*)
P1.142 DCPB	HENRY, RP; Auburn University	A carbonic anhydrase repressor found in the sinus gland acts at the level of mRNA expression in the euryhaline green crab, Carcinus maenas
P1.143 DCPB	KOBEY, RL, HOSHIZAKI, DK, GIBBS, AG; University of Nevada, Las Vegas, NIDDK, National Institutes of Health	The effect of melanization on desiccation resistance and thermotolerance in *Drosophila melanogaster*
P1.144 DCB	HOLM, C, KEACH, S, BETKA, M, HARRIS, HW, JURY, SH*; MariCal Inc.	Cloning and characterization of crustacean calcium-sensing receptors (CaSRs)
P1.145 DCPB	KAPPER, MA, DEPAOLO, C; Central Connecticut State University, New Britain	Immunofluorescence localization of aquaporin during salinity adaptation
P1.146 DCE	MCCORMICK, SD, CHRISTENSEN, AK, REGISH, A; USGS, Conte Anadromous Fish Research Center, Turners Falls, University of Massachusetts, Amherst	Presence of a freshwater and a seawater isoform of Na+,K+-ATPase in the gills of a teleost fish
P1.147 DCPB	MIZRAHY, O, BAUCHINGER, U, PINSHOW, B; Ben-Gurion University	Water availability is not a bottle-neck to rebuilding fat stores in insect-eating, migrating blackcaps

Regulation of Development

P1.148	MOSKALIK, CL, BUCHHOLZ, DR; University of Cincinnati	Two cytosolic thyroid-hormone binding proteins (CTHBPs) show tissue-specific mRNA expression patterns across organs throughout frog metamorphosis
P1.149 DEE	LEDON-RETTIG, CC, CRESPI, EJ, PFENNIG, DW; University of North Carolina, Chapel Hill, Vassar College	Hormonal regulation and the evolution of novel feeding strategies
P1.151 DEE	WIDDER, PD; Virginia Tech	Early testosterone exposure in amphibian eggs: no effects on development, growth, or behavior
P1.152 DCPB	CEASE, A, HAO, S, ELSER, J, KANG, L, HARRISON, J; Arizona State University, Chinese Academy of Sciences	High density and high nitrogen: a dual stressor for grasshoppers?

Stress Response I

P1.153	RATHBURN, CK, BURNETT, L, GROSS, P, BEAL, M, VELOSO, A, COOK, M, BURNETT, K; College of Charleston, Medical University of South Carolina, Charleston, Hollings Marine Laboratory, Charleston	Transcriptional profile of the penaeid shrimp *Litopenaeus vannamei* to hypoxia and hypercapnic hypoxia

P1.154 DCPB	MARTIN, JT, DEFUR, PL; Virginia Commonwealth University	Responses of blue crabs to hypoxia in fresh water
P1.155	ALAM, JL, LIEBL, AL, MARTIN, LB, FOKIDIS, HB; University of South Florida, Arizona State University	Are the immune systems of tropical birds glucocorticoid resistant?
P1.156	CHUNG, JS, SHI, Q; University of Maryland Biotechnology Institute, Baltimore	Trehalose 6-phosphate synthase genes of the blue crab, Callinectes sapidus: the molecular structure, the expression, its enzyme activity and relationship to hemolymph trehalose levels
P1.157	DREBITKO, H, MORRIS, R, VATNICK, I, BRODKIN, M; Widener University	A microarry investigation of genes involved in pollutant-mediated immunosuppression in *Rana pipiens*
P1.158 DCPB	EUBANKS, HB, ISAAK, S, KIRKTON, SD, LEE, WK, GREENLEE, KJ*; Mississippi Valley State University, North Dakota State University, Union College, Argonne National Laboratory	Synchrotron x-ray imaging reveals tracheal system response to hypoxia in the tobacco hornworm, *Manduca sexta*
P1.159 DCPB	HUBB, AJ, KLOK, CJ, HARRISON, JF; Arizona State University	Phenotypic placticity of body size in response to atmospheric oxygen in *Drosophila melanogaster*
P1.160	JOHNSTON, GH, SHAFFERY, HM, MOORE, MC; Arizona State University	Does maternal stress alter egg composition?
P1.161 DCPB	KAISER, A, LACAZE, M, WALKER, A; Midwestern University, Glendale	Effects of hyperoxia and intubation of spiracles on oxidative stress in pupae of the moth *Antheraea polyphemus*
P1.162 DCPB	MATOZEL, M, MARKS, C*, MOORE, FB-G, BAGATTO, B; University of Akron, Ohio	Effects of hypoxia on the development of the digestive system and metabolism of the zebrafish

Symposium Related: Sensory Biomechanics

P1.163 DEE	WALGUARNERY, J, SCHROEDER, R, BUTLER, MA; University of Hawaii	Optical geometry, perch orientation, and microhabitat selection in a sit-and-wait aerial predator, *Megalagrion xanthomelas*
P1.164	CHE, J, DORGAN, KM; University of California, Berkeley	It's tough to be small: dependence of burrowing kinematics on body size
P1.165 DCB	STICKLES, EM, SAKHTAH, H, DOORLY, N, LIEW, C-W, ROOT, RG, LONG, JH; Vassar College, Case Western University, Lafayette College	Modeling swimming behavior with perception-action feedback loops in autonomous biorobotic fish
P1.166 DCB	VAN TRUMP, WJ, STROTHER, JA, FEITL, KE, MCHENRY, MJ; University of California, Irvine	The mechanical sensitivity of lateral line receptors in the Mexican cave fish (*Astyanax mexicanus*)

SUNDAY P1 - POSTER SESSION 1
Galleria, 3:00 - 5:00 PM

P1.167 DVM	SWIDERSKI, DL, BASU, I, ZELDITCH, ML; University of Michigan	Modularity and integration of the stapes: analysis of variation in the guinea pig
P1.168 DVM	HAMILTON, RA, JAYNE, BC; University of Cincinnati	Arboreal habitat structure affects the choice of routes by rat snakes
P1.169 DIZ	DAVIS-BERG, EC; Columbia College Chicago	Trail following and tentacle movements in the carnivorous rosy wolf snail, *Euglandina rosea*

Monday Schedule of Events

EVENT	TIME	LOCATION
Registration	7:30 AM-5 PM	Harbor Ballroom Foyer
Exhibit Hall	9:30 AM-6 PM	Galleria
Poster Session 2 Even Numbers Viewing	3:00-4:00 PM	Galleria
Poster Session 2 Odd Numbers Viewing	4:00-5:00 PM	Galleria
Poster Session 2 Teardown	5:00-5:30 PM	Galleria
Poster Session 3 Setup	5:30-6:30 PM	Galleria
Coffee Breaks	9:30-10:30 AM; 3:30-4:30 PM	Galleria
SPECIAL LECTURE		
Howard Bern Lecture	6:30-7:30 PM	Grand Ballroom A
AMS Keynote Lecture	7:00-8:00 PM	Grand BallroomC
SYMPOSIA ORAL PRESENTATIONS		
S4: Insect Evolution	8:00 AM-2:00 PM	Harbor III
S5: Cell-Cell Signaling Drives the Evolution of Complex Traits	8:00 AM-3:00 PM	Stone
S6: PharmEcology: A Pharmacological Approach to ...	7:40 AM-3:00 PM	Webster
CONTRIBUTED PAPER ORAL PRESENTATIONS		
Session 23: Adhesion	8:00-9:40 AM	Grand Ballroom C
Session 24:Guts, Hearts & Lungs II	10:00 AM-Noon	Grand Ballroom C
Session 25: Evolutionary Morphology	8:20 AM-Noon	Commonwealth A
Session 26: Molecular Evolution	8:00 AM-Noon	Commonwealth B
Session 27: Biodiversity & Biogeography - Biodiversity	8:00-9:40 AM	Commonwealth C
Session 28: Biodiversity & Biogeography - Biogeography	10:00-11:40 AM	Commonwealth C
Session 29: Comp Session: Evolution of Mechanisms ...	8:00-10:00 AM	Burroughs
Session 30: Comp Session: Psychoneuroimmunology ...	10:20 AM-Noon	Burroughs
Session 31: Immunology/Chemical Signaling - Immunology	8:00-9:00 AM	Carlton
Session 32: Immunology/Chemical Signaling ...	9:00-9:40 AM	Carlton
Session 33: Comp Session: Sensory Biomechanics ...	10:00 AM-Noon	Carlton
Session 34: Comp Session: Genomics & Vertebrate Adaptive ...	8:20-9:20 AM	Grand Ballroom D
Session 35: Comp Session: Genomics & Vertebrate Adaptive ...	10:00 AM-Noon	Grand Ballroom D
Session 36: Animal Communication	8:20 AM-Noon	Grand Ballroom E
Session 37: Comp Session: Sensory Biomechanics ...	8:00-10:00 AM	Harbor I
Session 38: Comp Session: Sensory Biomechanics ...	10:20 AM-Noon	Harbor I
Session 39: Locomotion-Swimming - Fish	8:00-9:40 AM	Harbor II
Session 40: Locomotion-Swimming - Paired Fins	10:00 AM-Noon	Harbor II
Session 41: Comp Session: Biology of the Parasitic Crustacea	8:20-10:00 AM	Otis
Session 42: Evolutionary Physiology - Performance & ...	10:20 AM-Noon	Otis
Session 43: Locomotion - Flight - Gliding and Flight Morhology	1:00-3:00 PM	Grand Ballroom C
Session 44: Adaptation & Variation	1:00-3:00 PM	Commonwealth A
Session 45: Invertebrate Neurobiology	1:00-2:40 PM	Commonwealth B
Session 46: Bioindicators & Pollution	1:00-2:40 PM	Commonwealth C
Session 47: Comp Session: Hormonal Regulation ...	1:00-3:00 PM	Burroughs
Session 48: Comp Session: Biomaterials: Properties, Variation ...	1:00-3:00 PM	Carlton
Session 49: Comp Session: Genomics & Vertebrate Adaptive ...	1:00-3:00 PM	Grand Ballroom D
Session 50: Temperature Response - Cold	1:00-3:00 PM	Grand Ballroom E
Session 51: Comp Session: Sensory Biomechanics ...	1:00-3:00 PM	Harbor I
Session 52: Locomotion - Seed & Larval Settlement	1:00-2:20 PM	Harbor II
Session 53: Evolutionary Physiology - Energetics & Oxygen	1:00-3:00 PM	Otis
COMMITTEE & BOARD MEETINGS		
SICB Division Secretaries	Noon-1:00 PM	Alcott
Educational Council/DLAB	Noon-1 PM	Douglas
Student Support Committee	7:30-10:00 PM	Alcott
Editorial Board	5:00-6:30 PM	Adams
BUSINESS MEETINGS		
DCE Business Mtg	5:15-6:15 PM	Commonwealth A
DEE Business Mtg	5:15-6:15 PM	Commonwealth B
DVM Business Mtg	5:15-6:15 PM	Commonwealth C
TCS Business Mtg	5:15-6:15 PM	Stone
DDCB Business Mtg	5:15-6:15 PM	Webster
WORKSHOPS AND PROGRAMS		
WKS1 Workshop on Evolution and Ontologies	8:00 AM-Noon	Faneuil
Understanding Science Launch	Noon-12:45 PM	Lewis
WKS2 COPUS Communicating Science Workshop	1:00-3:00 PM	Lewis
Phylogenetics for Dummies Workshop	5:00-7:00 PM	Otis
SOCIAL EVENTS		
SRC Breakfast	6:30-8:00 AM	Saucity Restaurant
DVM/DCB Social	6:30-8:00 PM	Harbor 1
DCE/Psychoneuroimmunology Symposium Social	7:30-10:00 PM	Douglas
DIZ/DEE/DSEB/TCS Social and Hyman Auction	7:30-10:30 PM	Grand B
DEDB/DDCB Social	8:00-10:00 PM	Harbor III
DNB Social	8:30-10:00 PM	Faneuil

8:00 AM-2:00 PM
Harbor III

Symposium S4: Insect Evolution

Supported by: DCPB

Organized by: Tim Bradley and Adriana Briscoe

8:00 AM	S4.1	GRIMALDI, D; American Museum of Natural History, New York	Main episodes in insect evolution and the importance of stem groups
9:00 AM	S4.3	GORB, SN; Zoological Institute, University of Kiel, Kiel, Germany	Convergent evolution of hairy attachment devices
9:30 AM DCB	S4.4	DUDLEY, R, YANOVIAK, SP; University of California, Berkeley, University of Arkansas, Little Rock	Arthropod aloft: the origins and functional diversification of insect flight
10:00 AM	COFFEE BREAK - GALLERIA		
10:30 AM DCPB	S4.5	CONTRERAS, HL, BRADLEY, TJ; University of California, Irvine	Osmoregulation in insects
11:00 AM DEDB	S4.6	VANDENBROOKS, JM, KAISER, A, HARRISON, JF; Arizona State University, Midwestern University	Tracheal systems and the evolution of insects
11:30 AM DCPB	S4.7	BRISCOE, AD; University of California, Irvine	Evolution of color vision in insects
NOON	LUNCH BREAK		
1:00 PM	S4.8	MERLIN, C, REPPERT, SM; UMass Medical School	The evolution of circadian clocks in insects
1:30 PM	S4.9	BRADY, SG, DANFORTH, BN, CARDINAL, S; Smithsonian Institution, Cornell University	Phylogeny and evolution of eusocial insects: a comparison of origins and losses in ants and bees

8:00 AM-3:00 PM
Stone

Symposium S5: Cell-Cell Signaling Drives the Evolution of Complex Traits

Supported by: DCE, DEDB, DIZ

Organized by: John Torday

8:00 AM DEDB	S5.1	TORDAY, JS, REHAN, VK; Harbor-University of California, Los Angeles Medical Center	Cell-cell signaling drives the evolution of complex traits: introduction- lung evo-devo
8:30 AM DEDB	S5.2	CROCKFORD, SJ; University of Victoria, BC	Thyroid hormones and iodine in the evolutionary history of cell-cell signalling
9:00 AM	S5.3	LEYS, SP; University of Alberta	Evolution of animal body plans evidence for early sophistication in sponge physiology and morphology
9:30 AM DEDB	S5.4	NICHOLS, SA; University of California, Berkeley	The ancestry of animal cell signaling genes

10:00 AM	COFFEE BREAK - GALLERIA		
10:30 AM	S5.5	MEZENTSEVA, NV, KUMARTILAKE, J, NEWMAN, S; New York Medical College, Valhalla, The University of Adelaide, Australia	Brown adipocyte differentiation pathway in birds: an evolutionary road not taken
11:00 AM	S5.6	ZHANG, GJ, COHN, MJ; Koch Institute, MIT, Zoology Department, University of Florida	Molecular identification of a sclerotome in lampreys and sharks: implications for the origin of the vertebral column
11:30 AM DCB	S5.7	ABZHANOV, A; Harvard University, Cambridge	Pecking at the origin of vertebrate diversity
NOON	LUNCH BREAK		
1:00 PM DEDB	S5.8	DAVIDSON, B, SWEENEY, S, ZHEN, Y, RAGKOUSI, K; University of Arizona	Exploring the role of cell fate specification in chordate heart evolution
1:30 PM	S5.9	CANNON, JP, LITMAN, GW; University of South Florida	Plasticity of the immunoglobulin domain in the evolution of immunity
2:00 PM DVM	S5.10	OWERKOWICZ, T, HICKS, JW; UC Irvine	Evolution of the vertebrate cardiopulmonary system under varying atmospheric oxygen supply
2:30 PM DCPB	S5.11	HICKS, JW; University of California, Irvine	How to integrate cell-mol evolution

7:40 AM-3:00 PM
Webster

Symposium S6: PharmEcology: A Pharmacological Approach to Understanding Plant-Herbivore Interactions

Supported by: National Science Foundation, Integrative Organismal Systems (IOS), Agilent Technologies, SICB

Organized by: Jennifer Sorensen-Forbey

Herbivore Offenses

7:40 AM	S6.1	SORENSEN-FORBEY, JS; Boise State University	Pharmacological principles and approaches for ecologists
8:10 AM	S6.2	FINK-GREMMELS, J; Utrecht University, The Netherlands	Genetic links? Comparing metabolizing enzymes and efflux transporters in domestic animals
8:40 AM	S6.3	SOTKA, EE; College of Charleston	The emerging role for pharmacology in understanding marine plant-herbivore interactions
09:10 DCPB	S6.4	WHALEN, K, HOFMANN, G, STEINBERG, P; University New South Wales, University of California, Santa Barbara, University of New South Wales, Australia	Transcriptome profiling in the sea urchin: understanding allelochemical modes of action and marine herbivore cellular defenses

Biological Activity and Exploitation of Plant Toxins

9:40 AM	S6.5	SULLIVAN, RJ; California State University, Sacramento, University of California, Davis	The evolutionary mechanism of action of neurotoxins: punishment or reward?

MONDAY PROGRAM
SYMPOSIA

10:10 AM	COFFEE BREAK - GALLERIA		
10:30 AM	S6.6	HUFFMAN, MA; Kyoto University, Primate Research Institute, Inuyama	Primate self-medication
11:00 AM	S6.7	PROVENZA, FD, VILLALBA, JJ; Utah State University	Self-medication in domestic herbivores
11:30 AM	S6.8	TASDEMIR, D; University of London, London	From secondary metabolites to drugs: rationale, purification and biological screening
NOON	LUNCH BREAK		
1:00 PM	S6.9	HARVEY, AL; University of Strathclyde	Bilogical screening assays for plant secondary metabolites

Transformative Directions in PharmEcology

1:30 PM DEE	S6.10	DEARING, MD, MAGNANOU, E, MALENKE, J, SKOPEC, MS; University of Utah, CNRS – University P et M Curie, Weber State	Functional genomics of mammalian herbivores
2:00 PM	S6.11	FOLEY, WJ, MORAN, GF, KESZEI, A, KULHEIM, C; Australian National University	Chemicogenomics of plants
2:30 PM	S6.12	RAUBENHEIMER, D; Massey University, Auckland	Nutritional PharmEcology

MONDAY PROGRAM
MORNING SESSIONS

8:00-9:40 AM
Grand Ballroom C

Session 23: Adhesion

Chair: Anne Peattie

8:00 AM DCB	23.1	PEATTIE, AM, FEDERLE, W; University of Cambridge	Attachment forces of single adhesive setae from tarantula feet
8:20 AM	23.2	BULLOCK, JMR, FEDERLE, W; University of Cambridge	Comparison of attachment performance in the hairy and smooth adhesive pads of insects
8:40 AM	23.3	CRANDELL, KE, HERREL, A, LOSOS, JB, SASA, M, AUTUMN, KA; Lewis & Clark College, Harvard University, Universidad de Costa Rica, San Jose	A comparative analysis of claw and toe morphology and clinging performance in mainland and island *Anolis*
9:00 AM DVM	23.4	MAIE, T, SUMMERS, AP; Clemson University, University of California, Irvine	The adhesive disc and its functional capacity in nortern clingfish *Gobiesox maeandricus*: Gobiesocidae) and tidepool snailfish (*Liparis florae*: Liparidae): scaling of morphology and suction force
9:20 AM DCB	23.5	DIRKS, JH, CLEMENTE, CJ, FEDERLE, W; University of Cambridge	Smart foot secretion - insects dont slip!
9:40 AM	COFFEE BREAK - GALLERIA		

10:00 AM-Noon
Grand Ballroom C

Session 24:Guts, Hearts & Lungs II

Chair: Don Munson

10:00 AM	24.1	GUNDERSON, JA, SANTHANAKRISHNAN, A, MILLER, LA; University of North Carolina, Chapel Hill	Fluid flow in physical models of the endothelial surface layer
10:20 AM	24.2	NGUYEN, NP, MILLER, L, SANTHANAKRISHNAN, A, GUNDERSON, J; University of North Carolina, Chapel Hill	Flow within physical models of the vertebrate embryonic heart
10:40 AM DCB	24.3	HAMLET, CL, MILLER, LA; The University of North Carolina at Chapel Hill	Modeling blood flow through amphibian hearts using flow visualization and the immersed boundary method
11:00 AM DCB	24.4	STROTHER, JA; University of California, Irvine	The hydrodynamics of gill ventilation in teleost fishes
11:20 AM DVM	24.5	WYNEKEN, J; Florida Atlantic University	Structure and function of the turtle heart through *In Vivo* imaging of blood flow
11:40 AM DCB	24.6	LEE, W-K, SOCHA, JJ*; Argonne National Laboratory, Virginia Tech	Direct visualization of hemolymph flow in the heart of a grasshopper

8:20 AM-Noon
Commonwealth A

Session 25: Evolutionary Morphology

Co-Chairs: Tobin Hieronymus, Steven Vogel

8:20 AM DVM	25.1	HIERONYMUS, TL, WITMER, LM; Ohio University Department of Biological Science, Ohio University College of Osteopathic Medicine	Evolution of avian compound rhamphothecae: homology of simple and compound horny beaks in birds
8:40 AM DVM	25.2	BOSTWICK, KS, ELIAS, D, MASON, A, MONTEALEGRE-Z, F; Cornell University, University of British Columbia, University of Toronto Scarborough, University of Bristol	Resonant feathers enable sound production in *Machaeropterus deliciosus* (Aves)
9:00 AM DVM	25.4	OSBORN, ML, HOMBERGER, DG; Louisana State University, Baton Rouge	Asymmetry in the human cranio-cervico-omo-clavicular complex suggests connection with bipedalism
9:20 AM DVM	25.5	MARA, KR, MOTTA, PJ, PFEIFFENBERGER, JA; University of South Florida, Tampa	Constructional constraints in sphyrnid sharks: shape change and space utilization through phylogeny
9:40 AM DVM	25.6	IDE, C, DE SCHEPPER, N, DUMONT, B, HERREL, A, ADRIAENS, D; Ghent University	Divergent head shape variation in European eel: how well does skeletal morphology reflect functional demands?

10:00 AM COFFEE BREAK - GALLERIA

10:20 AM DEE	25.7	DEVRIES, MS; University of California, Berkeley	Stable isotope analysis: a quantitative approach to linking diet and morphological specialization in mantis shrimp
10:40 AM	25.8	BYWATER, CL, WHITE, C, WILSON, RS; University of Queensland	Geographic variation in weapon size, strength and colouration among populations of the two-toned fiddler crab (*Uca vomeris*)
11:00 AM DEE	25.9	WILSON, RS, OLIVER, J, GOLDIZEN, A, BLOMBERG, S; University of Queensland	Unreliable signals of strength in male slender crayfish (*Cherax dispar*): costs of enlarged claws and the importance of resources during disputes
11:20 AM DIZ	25.10	SPEISER, DI, JOHNSEN, S; Duke University	The optics and evolution of scallop eyes
11:40 AM DCB	25.11	VOGEL, S; Duke University	A heat-conserving ventilator for buildings based on nasal countercurrent exchangers

8:00 AM-Noon
Commonwealth B

Session 26: Molecular Evolution

Co-Chairs: Elizabeth Borda (first half), Jessica Garb (second half)

8:00 AM DEDB	26.1	MARLOW, HQ, SPEISER, DI, SEAVER, EC, MARTINDALE, MQ; University of Hawaii at Manoa, Duke University	Opsin diversity and extra-ocular photorecepion in the Metazoa
8:20 AM DEE	26.2	PLACHETZKI, DC, OAKLEY, TH; University of California, Santa Barbara	The origins and evolution of metazoan phototransduction pathways: a history of paraphyly and derivation
8:40 AM DIZ	26.3	PANKEY, MS, MCFALL-NGAI, MN, OAKLEY, TH; University of California, Santa Barbara, University of Wisconsin	Molecular evolution of light detection in a bioluminescent squid
9:00 AM	26.4	CONNELLY, SJ, TAYLOR, DJ; Rochester Institute of Technology, University at Buffalo	Accelerated mtDNA evolution in microcrustaceans (Daphniidae) that lack an ultraviolet-radiation refugium
9:20 AM DSEB	26.5	BORDA, E, HALANYCH, KM; Auburn University	Mitochondrial genome evolution of Amphinomidae (Annelida: Amphinomida)
9:40 AM	COFFEE BREAK - GALLERIA		
10:00 AM	26.6	GARB, JE, HAYASHI, CY, ZINSMAIER, KE; University of Arizona, University of California, Riverside	Comparative transcriptome profiling provides novel insights into the evolutionary genetics of black widow spider venom.
10:20 AM	26.7	RORICK, MM, WAGNER, GP; Yale University	The origin of conserved protein domains and amino acid repeats via adaptive competition
10:40 AM DCE	26.8	REITZEL, AR, TARRANT, AM*; Woods Hole Oceanographic Institution	The nuclear receptor complement of the cnidarian *Nematostella vectensis*

11:00 AM DCE	26.9	FREAMAT, M, SOWER, SA; University of New Hampshire Durham	Evolution of glycoprotein hormone/glycoprotein hormone receptor systems in vertebrates from a sea lamprey perspective
11:20 AM DEDB	26.10	LYNCH, VJ, WAGNER, GP; Yale University	Domestication and adaptation of a transposable element in to a tissue-specific enhancer of prolactin (PRL) was an essential step in the origin of pregnancy in placental mammals
11:40 AM	26.11	BRAYER, KJ, LYNCH, VJ, WAGNER, GP; Yale University, New Haven	Evolution of physical interactions among the transcription factors HoxA-11 and FOXO1a during the evolution of pregnancy in mammals

8:00-9:40 AM
Commonwealth C

Session 27: Biodiversity & Biogeography - Biodiversity

Co-Chairs: Mark Costello, Amy Moran

8:00 AM DIZ	27.1	PADILLA, DK, KARATAYEV, AY, BURLAKOVA, LE, MASTITSKY, S, OLENIN, S; Stony Brook University, Great Lakes Center, Buffalo State College, Belarusian State University, Belarus, Klaipeda University, Lithuania	Are aquatic invertebrate invaders a random selection of species?
8:20 AM DEE	27.2	CATENAZZI, A, KUPFERBERG, S; University of California, Berkeley	Growth and development of stream tadpoles in relation to drainage network position
8:40 AM	27.3	OSBORN, KJ, ROUSE, GW; Scripps Institution of Oceanography, UCSD	Fantastic pelagic diversity within Acrocirridae (Polychaeta)
9:00 AM	27.4	COSTELLO, MJ, BOXSHALL, GA, BOYKO, CB, HOEG, JT, MARKHAM, J, APPLETANS, W; University of Auckland, Natural History Museum, London, American Museum of Natural History, University of Copenhagen, Arch Cape Marine Laboratory, Flanders Marine Institute	How can we best make authoritative biological information available online?
9:20 AM DIZ	27.5	RHYNE, AL, TORRES-PRATTS, H, LADO-INSUA, T, RODRIGUEZ, L, SCHIZAS, N; Roger Williams University, University of Puerto Rico, Mayaguez, University of Vigo, Spain, University of Puerto Rico, Ponce	Patterns of genetic variation of the corallimorpharian *Ricordea florida*
9:40 AM	COFFEE BREAK - GALLERIA		

10:00-11:40 AM
Commonwealth C

Session 28: Biodiversity & Biogeography - Biogeography

Co-Chairs: Mark Costello, Amy Moran

10:00 AM DEE	28.1	MCGOVERN, TM, KEEVER, CC, HART, MW, SASKI, CA, COX, LN, EMME, SA, HOFFMAN, JM, MARKO, PB; Clemson University, Simon Fraser University	Vicariance or pseudocongruence? Evidence from a multi-species break in the northeastern Pacific
10:20 AM DIZ	28.2	JONES, SJ, WETHEY, DS; University of South Carolina, Columbia	Large scale shrinkage: climate change and distributional contractions of *Mytilus*
10:40 AM DSEB	28.3	JANOSIK, AM, MAHON, AR, HALANYCH, KM; Auburn University, Auburn, AL, University of Notre Dame	Molecular phylogeography of three Southern Ocean species in the genus, *Odontaster* (Odontasteridae; Asteroidea) separated by the Drake Passage
11:00 AM DEE	28.4	CHANEY, NL, DEMAINTENON, MJ; University of Hawaii, Hilo	Connectivity patterns of two Hawaiian marine gastropods posessing nonpelagic development
11:20 AM DIZ	28.5	MORAN, AL, WOODS, HA; Clemson University, University of Montana, Missoula	Polar gigantism in Antarctic invertebrates: sizing up the role of temperature-oxygen interactions

8:00-10:00 AM
Burroughs

Session 29: Complementary Session: Evolution of Mechanisms Controlling Timing of Breeding in Animals

Chair: Ned Place

8:00 AM DVM	29.1	LANDRY, SO,; State University of New York, Binghamton	Why are there no giant teleosts?
8:20 AM DCE	29.2	WACKER, DW, WINGFIELD, JC, DAVIS, JE, MEDDLE, SL; University of Edinburgh, University of California, Davis, Radford University	Seasonal differences in aromatase (cyp19) mRNA expression in the brain of the free-living male song sparrow, *Melospiza melodia morphna*
8:40 AM	29.3	STEVENSON, TJ, BERNARD, DJ, BALL, GF; Johns Hopkins University, McGill University	Photic and non-photic regulation of GnRH-I in male European starlings (*Sturnus vulgaris*)
9:00 AM DCE	29.4	LUTTERSCHMIDT, DI, MASON, RT; Georgia State University, Atlanta, Oregon State University, Corvallis	Endocrine mechanisms mediating temperature-induced reproductive behavior in garter snakes (*Thamnophis sirtalis*)
9:20 AM DCE	29.5	PLACE, NJ; Cornell University	Graded inhibition of reproductive physiology by short photoperiod and aging outcomes in female Siberian hamsters, *Phodopus sungorus*

9:40 AM DAB	29.6	GREIVES, TJ, KRIEGSFELD, LJ, DEMAS, GE; Indiana University, University of California, Berkeley	A springtime KiSS?: Uncovering a role for the neuropeptide kisspeptin in seasonal reproduction

10:00 AM COFFEE BREAK - GALLERIA

10:20 AM-Noon
Burroughs

Session 30: Complementary Session: Psychoneuroimmunology Meets Integrative Biology

Chair: Ellen Ketterson

10:20 AM DCPB	30.1	O'NEAL, DM, SWANGER, L, KETTERSON, ED; Indiana University	Latitudinal variation in winter immune function in a differential migrant
10:40 AM DEE	30.2	PALACIOS, MG, WINKLER, DW, VLECK, CM; Iowa State University, Ames, Cornell University, Ithaca	Consequences of immunosenescence in the wild: a field experiment in tree swallows
11:00 AM DCPB	30.3	ADELMAN, JS, WIKELSKI, MC, HAU, M; Princeton University, Max Planck Institute for Ornithology	Sickness behavior and fever vary among free-living sparrows along a life history gradient
11:20 AM	30.4	BUEHLER, DM, TIELEMAN, BI, PIERSMA, T; University of Groningen; Royal Netherlands Institute for Sea Research	Bottlenecks, budgets and immunity: the possibility of immune strategies in long distance migrant birds
11:40 AM DAB	30.5	CHESTER, EM, FRENCH, SS, DEMAS, GE; Indiana University, Bloomington	Evidence for a trade-off between immunity and reproduction in the pregnant Siberian hamster?

8:00-900 AM
Carlton

Session 31: Immunology/Chemical Signaling - Immunology

Chair: Kevin Matson

8:00 AM	31.1	MATSON, KD, HORROCKS, NPC, VERSTEEGH, MA, TIELEMAN, BI; University of Groningen	Understanding the role of lysozyme in birds: physiological interactions between experimental immune enhancement and challenge
8:20 AM	31.2	PROESTOU, DA, SALGER, S, VAUGHN, C, GOMEZ-CHIARRI, M; University of Rhode Island	Form and function of a novel metalloproteinase from the Eastern Oyster, *Crassostrea virginica*
8:40 AM DCPB	31.3	VERSTEEGH, MA, HELM, B, GOYMANN, W, TIELEMAN, BI; University of Groningen, Max Planck Institute for Ornithology	Energetics, immunology and corticosterone response of four subspecies of stonechats in winter

9:00-9:40 AM
Carlton

Session 32: Immunology/Chemical Signaling - Chemical Signaling

Chair: Kevin Matson

9:00 AM DIZ	32.1	ELLIOTT, GRD, LEYS, SP; University of Alberta	Evidence for chemical signalling systems (Glutamate, GABA and Nitric Oxide) involved in coordinated body contractions of *Ephydatia muelleri*
9:20 AM DCE	32.2	MASON, RT, ERICKSON, SM, HALPERN, M; Oregon State University, SUNY Downstate Medical Center, Brooklyn	Sexual dimorphism and seasonal variation in the harderian gland of the red-sided garter snake

9:40 AM COFFEE BREAK - GALLERIA

10:00 AM-Noon
Carlton

Session 33: Complementary Session: Sensory Biomechanics - Sensory Physiology

Chair: Stephen Kajiura

10:00 AM DNB	33.1	WYETH, RC, CROLL, RP; St. Francis Xavier University, Dalhousie University	Peripheral sensory cells in the cephalic sensory organs of the pond snail *Lymnaea stagnalis*
10:20 AM DNB	33.2	SATTERLIE, R; University of North Carolina Wilmington	Two types of mechanoreceptors in the wings of a pteropod mollusc
10:40 AM	33.3	ALDWORTH, ZN, DANIEL, TL; University of Washington, Seattle	Wing mechanosensors can transmit bending information at high bit rates
11:00 AM DNB	33.4	FOX, JL, DANIEL, TL; University of Washington	Estimation of information transfer rates in highly precise sensory afferents
11:20 AM	33.5	SHIRGAONKAR, AA, CURET, OM, PATANKAR, NA, MACIVER, MA*; Northwestern University	How ribbon-fin swimmers swim
11:40 AM DVM	33.6	KAJIURA, SM; Florida Atlantic University	Lanthanide metals as shark repellants

8:20-9:20 AM
Grand Ballroom D

Session 34: Complementary Session: Genomics and Vertebrate Adaptive Radiation: A Celebration of the First Cichlid Genome - Functional Morphology

Chair: Patrick Danley

8:20 AM	34.1	COOPER, WJ, MCINTYRE, AM, MCGEE-MOORE, AC, KERN, BS, ALBERTSON, RC; Syracuse University	Comparative evolution of trophic morphology among the East African cichlids of Lakes Malawi, Victoria, and Tanganyika
8:40 AM	34.2	STEWART, TA, ALBERTSON, RC; Syracuse University	The evolution, development, and genetics of jaw asymmetry in Lake Tanganyika scale eating cichlids

9:00 AM DEDB	34.3	JACKMAN, WR, STOCK, DW; Bowdoin College, University of Colorado	Ectopic expression of Fgf ligands results in supernumerary and fused teeth in zebrafish larvae

9:20 AM COFFEE BREAK - GALLERIA

10:00 AM-Noon
Grand Ballroom D

Session 35: Complementary Session: Genomics and Vertebrate Adaptive Radiation: A Celebration of the First Cichlid Genome - Evo Devo

Co-Chairs: Gareth Fraser, Patrick Danley

10:00 AM DSEB	35.1	SANTINI, F, CARNEVALE, G, HARMON, LJ, ALFARO, ME; University of California, Los Angeles, University of Pisa, University of Idaho	Explaining patterns of diversity within ray-finned fish
10:20 AM	35.2	SALZBURGER, W; University of Basel, Switzerland	The interaction of sexually and naturally selected traits in the adaptive radiations of cichlid fishes
10:40 AM DEDB	35.3	SYLVESTER, JB, RICH, CA, LOH, YE, FRASER, GJ, STREELMAN, JT; Georgia Institute of Technology	Brain diversity develops at the boundaries
11:00 AM	35.4	HOFMANN, CM, SEEHAUSEN, O, CARLETON, KL; University of Maryland	Light environment limits gene expression in rapidly evolving cichlid radiations
11:20 AM	35.5	PARNELL, NF, STREELMAN, JT; Georgia Institute of Technology	The presence of community structure varies with spatial scale in Lake Malawi cichlid fishes
11:40 AM DEE	35.6	DANLEY, PD; Baylor University	Aggression and the diversification of Lake Malawi's rock-dwelling cichlids

8:20 AM-Noon
Grand Ballroom E

Session 36: Animal Communication

Co-Chairs: Sarah Humfeld, J. Schwartz

8:20 AM	36.2	LATTIN, C; Eastern Kentucky University	Is song length an important signal of aggression in blue grosbeaks?
8:40 AM DAB	36.3	SOCKMAN, KW, SALVANTE, KG; University of North Carolina, Chapel Hill	How song competition changes the brain and behavior of a male songbird
9:00 AM DAB	36.4	CORCORAN, AJ, BARBER, JR, CULLEN, MA, CONNER, WE*; Wake Forest University, Colorado State University	Sound strategies: acoustic aposematism, mimicry, and sonar jamming in the bat-moth arms race

9:20 AM DAB	36.5	STAATERMAN, ER, CLAVERIE, T, PATEK, SN; University of California, Berkeley	Antipredator startle signal of the California spiny lobster (*Panulirus interruptus*)
9:40 AM	COFFEE BREAK - GALLERIA		
10:00 AM	36.6	CRATSLEY, CK, POULIOT, A, BASINSKY, G, WADDINGTON, J, GODIN, T; Fitchburg State College	*Photinus ignitus* flash signal patterns and preferences: evidence for selection through mate choice and *Photuris* predation
10:20 AM	36.7	ORD, TJ, STAMPS, JA; Harvard University, University of California, Davis	Studying cues for species identification using robotic lizards in the field
10:40 AM DVM	36.8	KAATZ, IM, STEWART, DJ; SUNY College of Env.Sci.Forestry	Phylogenetic variation of swimbladder disturbance sounds and morphology for twenty genera of doradoid catfishes with outgroup comparisons
11:00 AM	36.9	HOBBS, NJ, AVEN, AM, FERKIN, MH; University of Memphis	Self-grooming response of meadow voles to the odor of opposite-sex conspecifics in relation to the dietary protein content of both sexes
11:20 AM DVM	36.10	EITING, TP, DUMONT, ER; University of Massachusetts Amherst	A comparative analysis of olfactory communication in bats
11:40 AM	36.11	CRAWFORD, JC, CHARPENTIER, MJE, BOULET, M, DREA, CM; Duke University, CEFE-CNRS	Lemurs discriminate the scent of conspecifics based on individual heterozygosity and pairwise relatedness

8:00-10:00 AM
Harbor I

Session 37: Complementary Session: Sensory Biomechanics - Locomotion & Neurobiology

Chair: Marc Weissburg

8:00 AM DCB	37.1	DORGAN, KM, ARWADE, SR, JUMARS, PA; University of California, Berkeley, University of Massachusetts, Amherst, University of Maine	Worms as wedges: effects of sediment mechanics on burrowing behavior
8:20 AM DNB	37.2	HINTERWIRTH, AJ, DANIEL, TL; University of Washington	Antennae mediate an abdominal flexion response to body rotations in the hawkmoth *Manduca sexta*
8:40 AM DCB	37.3	WEISSBURG, MJ, DICKMAN, DB, PAGE, JL, WEBSTER, DR; Georgia Institutes of Technology	Simultaneous correlation of odor-plume structure and behavior: II. Signal contrast at walking legs elicits steering in tracking blue crabs
9:00 AM DCB	37.4	DALEY, MA; Royal Veterinary College	Integration of sensory feedback with central pattern generation in the neuromuscular control of running
9:20 AM DCB	37.5	TYTELL, ED, COHEN, AH; University of Maryland, College Park	Nonlinear integration of proprioceptive inputs to the lamprey central pattern generator for locomotion
9:40 AM DEDB	37.6	DANOS, N; Harvard University	Sensory input for routine turns in larval zebrafish
10:00 AM	COFFEE BREAK - GALLERIA		

10:20 AM-Noon
Harbor I

Session 38: Complementary Session: Sensory Biomechanics - Functional Morphology

Chair: Matthew Reidenback

10:20 AM DCB	38.1	REIDENBACH, MA, KOEHL, MAR; University of Virginia, University of California, Berkeley	The spatial and temporal patterns of odors sampled by lobsters and crabs in a turbulent plume
10:40 AM DCB	38.2	SPONBERG, S, MONGEAU, JM, MILLER, JP, FULL, RJ; University of CA, Berkeley, Montana St. University	Decoding cockroach antennal tactile navigation using naturalistic and white noise stimuli in a control theoretic framework
11:00 AM DVM	38.3	FERRY-GRAHAM, LA, SUMMERS, AP, DEAN, M, GROGAN, E; Moss Landing Marine Labs	Under pressure: ventilatory and suction feeding mechanics of ratfishes (Chimaeroidea)
11:20 AM DEE	38.4	COLAYORI, SE, BAKKEN, GS; Indiana State University, Terre Haute	Optics of an alternative imaging system, the facial pits of Pitvipers (Viperidae: Crotalinae)
11:40 AM	38.5	GEORGI, JA; Midwestern University	Semicircular canal morphology as evidence of sensory adaptation to locomotor environment in amniotes

8:00-9:40 AM
Harbor II

Session 39: Locomotion-Swimming - Fish

Co-Chairs: Marianne Porter, Brooke Flammang

8:00 AM	39.1	MCGEE, MD; University of California, Davis	Gravidity degrades escape performance in three-spine stickleback
8:20 AM DVM	39.2	DICKSON, J, MAIA, A, DOMENICI, P; University of Rhode Island, CNR-IAMC	Three dimensional excape response of white spotted ratfis, *Hydrolagus colliei*
8:40 AM DCB	39.3	FLAMMANG, BE, LAUDER, GV; Museum of Comparative Zoology, Harvard University	Caudal fin shape modulation and control during acceleration, braking, and backing maneuvers in bluegill sunfish, *Lepomis macrochirus*
9:00 AM DCB	39.4	FISH, FE, LEGAC, P, WILLIAMS, TM, WEI, T; West Chester University, Rensselaer Polytechnic Institute, University of California, Santa Cruz	Exceptional force generation is behind dolphins swimming prowess
9:20 AM DCB	39.5	PORTER, ME, LONG, JH; Vassar College	Cartilaginous vertebral columns: mechanical responses to external loads and internal joint pressurization

9:40 AM COFFEE BREAK - GALLERIA

10:00 AM-Noon
Harbor II

Session 40: Locomotion-Swimming - Paired Fins

Co-Chairs: Marianne Porter, Brooke Flammang

10:00 AM DCB	40.1	BLEVINS, E, LAUDER, GV; Harvard University	Stingray swimming in 3D: pectoral fin locomotion
10:20 AM	40.2	PERLMAN, BM, FERRY-GRAHAM, LA; Moss Landing Marine Laboratories	Interspecific variation of pectoral fin morphology of surfperches (Embiotocidae) along Central California
10:40 AM DVM	40.3	TAFT, NK; University of Massachusetts Amherst	A new twist on bending: properties of the pectoral fin rays of the benthic longhorn sculpin, *Myoxocephalus octodecimspinosus*
11:00 AM DVM	40.4	TANGORRA, JT, GOTTLIEB, J, ESPOSITO, C, LAUDER, GV*; Drexel University, Harvard University	Biorobotic analyses of fish fin function
11:20 AM DCB	40.5	SZYMIK, BG, SATTERLIE, RA; Eastern Connecticut State University, University of North Carolina Wilmington	Changes in wingstroke kinematics associated with an increase in swimming speed in a pteropod mollusk, *Clione limacina*
11:40 AM	40.6	KING, HM, HALE, ME; University Chicago	Paired fin-based locomotion in the lungfish

8:20-10:00 AM
Otis

Session 41: Complementary Session: Biology of the Parasitic Crustacea

Chair: Jeffrey Shields

8:20 AM	41.1	SHIELDS, JD, MILLER, TL, BOYKO, CB; VIMS, Molloy College	A first look at the phylogeny of the entoniscidae
8:40 AM	41.2	ASAKURA, A, IMAZU, M; Natural History Museum Institute, Japan, Toho University, Japan	Occurrence of the rhizocephalan and isopod parasites on three intertidal hermit crabs in Japan
9:00 AM	41.3	O'BRIEN, JJ; University of South Alabama	Factors affecting the distribution and infection success of two North American Sacculinids (Rhizocephala)
9:20 AM	41.5	WILLIAMS, JD, AN, J; Hofstra University, New York	First report of *Orthione griffenis* Markham, 2004 (Isopoda: Bopyridae: Pseudioninae) from China and comparison with types specimens and collections from the west coast of the United States
9:40 AM DIZ	41.6	MCDERMOTT, JJ; Franklin and Marshall College	Hypersymbioses in the pinnotherid crabs (Decapoda: Brachyura: Pinnotheridae): a review

10:00 AM COFFEE BREAK - GALLERIA

10:20 AM-Noon
Otis

Session 42: Evolutionary Physiology - Performance and Comparative Analysis

Co-Chairs: Sonke Johnsen, William Buttemer

10:20 AM DCPB	42.1	MOSTMAN-LIWANAG, HE, BERTA, A, COSTA, DP, BUDGE, SM, ABNEY, M, ARNOULD, JPY, WILLIAMS, TM; UC Santa Cruz, San Diego State University, California, Dalhousie University, Nova Scotia, University of California, Santa Barbara, Deakin University, Victoria, Australia	Morphological and thermal properties of mammalian insulation: implications for the evolutionary transition to an aquatic lifestyle
10:40 AM	42.2	VAN SANT, MJ, OUFIERO, CE, HAMMOND, KA; University of California, Riverside	A comparative analysis of evaporative water loss in mammals
11:00 AM DCPB	42.3	MUNOZ-GARCIA, A, WILLIAMS, JB; Ohio State University, Columbus	Developmental plasticity of cutaneous water loss and lipid composition in stratum corneum of desert and mesic nestling house sparrows
11:20 AM DEE	42.4	MEEK, TH, EISENMANN, JC, KEENEY, BK, HANNON, RM, GARLAND, T,Jr; University of California, Riverside, Michigan State University	High fat diet increases wheel running in mice selectively bred for high voluntary wheel running
11:40 AM DEE	42.5	MCMILLAN, DM, REES, B, IRSCHICK, D; University of Massachusetts Amherst, University of New Orleans	The role of HSP70 expression in locomotion - reduced sprint speeds after heat stress in *Sceloporus occidentalis*

1:00-3:00 PM
Grand Ballroom C

Session 43: Locomotion - Flight - Gliding and Flight Morphology

Chair: Matthew Propert

1:00 PM	43.1	BYRNES, G, LIM, N, SPENCE, AJ; University of California, Berkeley, National University of Singapore, Royal Veterinary College	Integrating locomotor mechanics and transport costs in a free-ranging gliding mammal
1:20 PM DVM	43.2	BAHLMAN, JW, RISKIN, DK, IRIARTE-DIAZ, J, SWARTZ, S; Brown University, University of Chicago	Aerodynamics of the northern flying squirrel (*Glaucomys sabrinus*)
1:40 PM DCB	43.3	JUSUFI, A, GAO, P, FULL, RJ, DUDLEY, R; University of California, Berkeley	Gliding geckos actively use tails for turning.
2:00 PM DVM	43.4	SIMONS, ELR, O'CONNOR, PM; Ohio University, Athens	Cross-sectional geometry of the forelimb skeleton and flight mode in pelecaniform birds

2:20 PM DVM	43.5	BAIER, DB, GATESY, SM, DIAL, KP; Brown University, Montana State University	Forelimb skeletal kinematics of chukar partridges (*Alectoris chukar*) during wing-assisted incline running and ascending flight
2:40 PM	43.6	PEEK, MY, DICKSON, WB, DICKINSON, MH; California Institute of Technology	The aerodynamic body drag of *Drosophila melanogaster*

1:00-3:00 PM
Commonwealth A

Session 44: Adaptation & Variation

Chair: Tracy Langkilde

1:00 PM	44.1	LANGKILDE, T; Penn State University	Surviving in the face of invasion: native lizards modify their behavior and morphology following the introduction of fire ants
1:20 PM	44.2	FRANK, HK, MAHLER, DL, REVELL, LJ, LOSOS, JB; Harvard University, Cambridge, MA	Adaptive radiation in toepad characteristics in mainland and Caribbean *Anolis* communities
1:40 PM	44.3	CRAWFORD, NG, SCHNEIDER, CJ, LOSOS, JB, HOEKSTRA, HE; Boston University, Harvard University	Evolution of dewlap pigmentation in anoline lizards
2:00 PM DVM	44.4	HERREL, A, VELASCO, J, SASA, M, CAMPBELL-STATON, S, CRANDELL, K, FENSTERMACHER, K, FRANK, H, MAHLER, L, MUNOZ, M, VAN MIDDLESWORTH, P, LOSOS, J; Harvard University, Wildlife Conservation Society, University de Costa Rica, Rochester University, Lewis and Clark College	Why are mainland anoles different? An ecomorphological perspective
2:20 PM	44.5	PIENAAR, J, SCALES, JA, WIENS, JJ, BUTLER, MA; University of Hawaii	Lizard body form evolution as adaptations for optimal locomotion in different habitats
2:40 PM DVM	44.6	SCALES, JA, KING, AA, BUTLER, MA; University of Hawaii, Manoa, University of Michigan	Evolution of fiber type composition in a lizard locomotor muscle

1:00-2:40 PM
Commonwealth B

Session 45: Invertebrate Neurobiology

Chair: Shaun Cain

1:00 PM	45.1	COHEN, JH, FORWARD, JR., RB, CRONIN, TW; Eckerd College, Duke University Marine Laboratory, University of Maryland, Baltimore County	Visual spectral sensitivity underlying orientation and rhythmic behaviors in the talitrid amphipod *Talorchestia longicornis*
1:20 PM DNB	45.2	WILLIS, MA, AVONDET, JL; Case Western Reserve University	Behavioral context modulates the loss of local feedback sensors on flight in the moth *Manduca sexta*

1:40 PM	45.3	ROTH, E, REISER, MB, COWAN, NJ; Johns Hopkins University, Howard Hughes Medical Institute	Reconciling open- and closed-loop experiments in sensorimotor control of *Drosophila*
2:00 PM DNB	45.4	BALTZLEY, MJ, GAUDRY, Q, KRISTAN, JR., WB; St. Mary's College of Maryland, University of California, San Diego	Changes in synaptic connections between mechanosensory neurons in leeches mediates species-specific behavior patterns.
2:20 PM DNB	45.5	CAIN, SD, OHMES, LB, TRUMAN, GA; Eastern Oregon University	Nervous control of cilia during sniffing behavior of *Tritonia diomedea*

1:00-2:40 PM
Commonwealth C

Session 46: Bioindicators & Pollution

Chair: Nicole Palenske

1:00 PM	46.1	DORSEY, JP, GEORGE, M, ANDERSON, S, SWANSON, BO; Gonzaga University	Effects of heavy metal pollution on fish feeding and escape performance
1:20 PM DIZ	46.2	BOETTGER, SA, ROWLEY, BD, WALKER, CW; West Chester University, University of New Hampshire	Chronic occurrence of disseminated neoplasia in different populations of Mya arenaria in New England
1:40 PM DEE	46.3	RAUT, S, ANGUS, R; University of Alabama at Birmingham	Assessment of short-term and long-term exposures of non-steroidal estrogen, triclosan in western male mosquitofish, *Gambusia affinis*
2:00 PM DCPB	46.4	PALENSKE, NM, DZIALOWSKI, EM; University of North Texas, Denton	Acute effects of triclosan and triclocarban exposure on the physiology of four tadpole species
2:20 PM	46.5	HITT, LR, TOMANEK, L; California Polytechnic State University, San Luis Obispo	Proteomic response of the Pacific oyster, *Crassostrea gigas*, to nitrate and salinity fluctuations

1:00-3:00 PM
Burroughs

Session 47: Complementary Session: Hormonal Regulation of Whole-Animal Performance: Implications for Selection

Chair: Henry John-Alder

1:00 PM DCE	47.1	GOLINSKI, A, KUBICKA, L, KRATOCHVIL, L, JOHN-ALDER, H; Rutgers University, New Brunswick, Charles University, Prague	Hormonal regulation of sexual dimorphisms in Lichtenfelderi's gecko (*Goniurosaurus lichtenfelderi*): expanding the comparative story of eublepharid lizards
1:20 PM	47.2	DUFFY, TA, PICHA, ME, WON, ET, BORSKI, RJ, CONOVER, DO; Stony Brook University, North Carolina State University	Early ontogenetic aromatase expression in two locally adapted populations of Atlantic silverside (*Menidia menidia*) with different forms of sex determination
1:40 PM DCE	47.3	MIRANDA, RA, SEARCY, BT, PROPPER, CR; Northern Arizona University	Arginine vasotocin induces calling behavior in *Xenopus tropicalis*

2:00 PM DEE	47.4	HUYGHE, K, HUSAK, JF, VANHOOYDONCK, B, HERREL, A, MOORE, IT, VAN DAMME, R; University of Antwerp, Belgium, Virginia Tech University, Harvard University	Testosterone and performance in a population of color polymorphic lizards
2:20 PM DCE	47.5	ATWELL, JW, WHITTAKER, DJ, KETTERSON, ED; Indiana University	Testosterone, social behavior, and ornaments in two recently diverged dark-eyed junco populations
2:40 PM DAB	47.6	CAIN, KE, AINSWOTH, KL, KETTERSON, ED; Indiana University, Spelman College	Is testosterone a mediator for aggressive behavior in female dark-eyed juncos?

1:00-3:00 PM
Carlton

Session 48: Complementary Session: Biomaterials: Properties, Variation and Evolution - Biomarkers

Chair: Alison Sweeney

1:00 PM DCB	48.1	ANDREW, J, GEORGE, M, PATEK, S, SWANSON, B; Gonzaga University, University of California, Berkeley	Morphological and biomechanical variation in the stomatpod cuticle
1:20 PM DIZ	48.2	SWEENEY, AM, MATZ, MV, MORSE, DE, JOHNSEN, S; University of California, Santa Barbara, University of Texas, Austin, Duke University	Patterns of S-crystallin evolution are correlated with optical acuity in cephalopods
1:40 PM DCB	48.3	SENSENIG, AT, AGNARSSON, I, BLACKLEDGE, TA; University of Akron	Co-evolution of silk material properties with spider webs
2:00 PM	48.4	BLACKLEDGE, T, DHINOJWALA, A, SAHNI, V, AGNARSSON, I; University of Akron	Spider silk as a novel humidity-driven biomimetic muscle
2:20 PM	48.5	BOUTRY, C, BLACKLEDGE, TA; University of Akron	Evolution of supercontraction in spider silk
2:40 PM DVM	48.6	SUMMERS, AP, GORB, S; University of California, Irvine, University of Kiehl	Underwater gecko feet - how clingfish and snailfish adhere to wet surfaces

1:00-3:00 PM
Grand Ballroom D

Session 49: Complementary Session: Genomics and Vertebrate Adaptive Radiation: A Celebration of the First Cichlid Genome - Molecular Evolution

Co-Chairs: Reade Roberts, Wei-Jen Chen

1:00 PM	49.1	ROBERTS, RB, KOCHER, TD; University of Maryland, College Park	Single origin of a lake-wide pigmentation locus in the rock-dwelling cichlids of Lake Malawi.
1:20 PM DEE	49.2	O'QUIN, KE, MARSHALL, J, CRONIN, T, CARLETON, KL; University of Maryland, College Park, University of Queensland, University of Maryland Baltimore County	Rapid visual system evolution within the cichlid species flock of Lake Malawi

1:40 PM	49.3	RAKOTOMANGA, M, AZZOUZI, N, SENGER, F, GUYON, R, HITTE, C, BAROILLER, JF, D COTTA, H, OZOUF-COSTAZ, C, GALIBERT, F*; CNRS UMR6061, Universite de Rennes, France , CIRAD-EMVT, UPR20, France, CNRS UMR7138, MNHN, Paris, France	A radiation hybrid map of the genome of Nile tilapia (*Oreochromis niloticus*)
2:00 PM	49.4	WAGNER, CE, MCCUNE, AR; Cornell University	Contrasting effects of substrate on population genetic structure in sympatric rock-dwelling cichlids
2:20 PM	49.5	LOH, Y-HE, STREELMAN, JT; Georgia Institute of Technology	MicroRNAs from cichlid genomes
2:40 PM	49.6	CHEN, W-J, MAYDEN, RL; Saint Louis University	In search of evolutionary origin of cichlids among percomorph fishes

1:00-3:00 PM
Grand Ballroom E

Session 50: Temperature Response - Cold

Chair: Charles Booth

1:00 PM DCPB	50.1	CORRIGAN, ST, IRWIN, J; Central Washington University	Supercool social wasps: lower lethal limits to cold tolerance
1:20 PM DCPB	50.2	LEE, TN, BUCK, CL, BARNES, BM, O'BRIEN, DM; University of Alaska, Fairbanks, University of Alaska, Anchorage	Using stable isotopes to track tissue catabolism during hibernation in an extreme arctic hibernator, *Spermophilus parryii*
1:40 PM	50.3	SFORMO, T, KOHL, F, MCINTYRE, J, KERR, P, DUMAN, J, BARNES, B; University Alaska Fairbanks, California Department of Food and Agriculture, University of Notre Dame	Simultaneous freeze tolerance and avoidance in individual fungus gnats, *Exechia nugatoria*
2:00 PM	50.4	MINEO, PM, ROBERTS, ME, SCHAEFFER, PJ; Miami University	Skeletal muscle energetics following cold acclimation in a brown adipose tissue deficient mouse
2:20 PM DCPB	50.5	HEALY, JE, DIAZ, Y, FLORANT, GL; Colorado State University, New Mexico State University	Expression and phosphorylation of AMPK and ACC in fed and fasted golden-mantled ground squirrels (GMGS)
2:40 PM	50.6	BURNS, DJ, BAUCHINGER, U, MUKHERJEE, S, PINSHOW, B; Ben-Gurion University of the Negev	Physiological and behavioral responses of molting house sparrows to protein stress

1:00-3:00 PM
Harbor I

Session 51: Complementary Session: Sensory Biomechanics - Hair Cells & Flow Detection

Chair: Roi Holzman

1:00 PM	51.1	PAGE, JL, DICKMAN, BD, WEBSTER, DR, WEISSBURG, MJ; Georgia Institute of Technology, Atlanta	Simultaneous correlation of odor-plume structure and behavior: I. Three-dimensional plume structure at antennules affects speed and sensor height in tracking blue crabs
1:20 PM	51.2	DICKINSON, BT, SWARTZ, SM, BATTEN, BA; Oregon State University	A mathematical model of the detection of unsteady flow separation by hairs on a bat wing
1:40 PM DCB	51.3	JIANG, H, GROSENBAUGH, MA, JANSSEN, J, STRICKLER, JR; Woods Hole Oceanographic Institution, Great Lakes WATER Institute	Hydrodynamic imaging of a self-propelling zooplankton prey by the lateral line system of a fish: a computational fluid dynamics study
2:00 PM DVM	51.4	BASSETT, DK, WEBB, JF*; University of Rhode Island	Lateral line-mediated prey detection in the Lake Malawi cichlid, *Aulonocara hansbaenchi*
2:20 PM DVM	51.5	HOLZMAN, R, WAINWRIGHT, P; University of California, Davis	Tuned to the right signal: suction feeding interactions with bow wave increase detection distance of fish by aquatic prey
2:40 PM DVM	51.6	JORDAN, LK, KAJIURA, SM, GORDON, MS; University of California, Los Angeles, Florida Atlantic University	Performance differences in stingrays with varying electrosensory system morphology

1:00-2:20 PM
Harbor II

Session 52: Locomotion - Seed & Larval Settlement

Chair: Jonathan Fingerut

1:00 PM DCB	52.1	FINGERUT, J, SCHAMEL, L, FAUGNO, A, MESTRINARO, M, HABDAS, P; Saint Joseph's University	Silk filaments facilitate larval dispersal through freshwater stream pools
1:20 PM DCB	52.2	KREFT, JK, WALDROP, LD, KOEHL, MAR; University of California, Berkeley	Low landings lead to lofty living: forces on newly settled invertebrate larvae in realistic flow environments
1:40 PM	52.3	LENTINK, D, DICKSON, WB, VAN LEEUWEN, JL, DICKINSON, MH; Wageningen University, California Institute of Technology	Leading edge vortices elevate lift of autorotating plant seeds
2:00 PM	52.4	REYSSAT, E, MAHADEVAN, L; Harvard University	Hygromorphs

1:00-3:00 PM
Otis

Session 53: Evolutionary Physiology - Energetics & Oxygen

Co-Chairs: Sonke Johnsen, William Buttemer

1:00 PM DCPB	53.1	DLUGOSZ, EM, CHAPPELL, MA, MEEK, TH, SZAFRANSKA, P, ZUB, K, KONARZEWSKI, M, JONES, JH, BICUDO, E, GARLAND, Jr, T; University of California, Riverside, Mammal Research Institute, Polish Academy of Sciences, University of Bialystok, Poland, University of California, Davis, University of Sao Paolo, Brazil	Phylogenetic analysis of mammalian maximal oxygen consumption
1:20 PM DCPB	53.2	JOHNSEN, S, KIER, WM; Duke University, University of North Carolina, Chapel Hill	You can hide, but you can't run: trade-offs between muscle activation and transparency in glass catfish
1:40 PM	53.3	GEBCZYNSKI, AK, KONARZEWSKI, M; Institute of Biology, University of Bialystok	Cross-test of the aerobic capacity model of the evolution of endothermy
2:00 PM DCPB	53.4	BUTTEMER, WA, O'DWYER, TW, HOYE, BJ, KLASING, KC, ASTHEIMER, LB; University of Wollongong, Australia, University of California, Davis, Netherlands Institute for Ecology, The Netherlands	Interactive effects of testosterone and immune challenge on aerobic performance in House Sparrows
2:20 PM	53.5	WIERSMA, P, RO, J, WILLIAMS, JB*; Ohio State University	Small organ size contributes to the slow pace of life in tropical birds
2:40 PM	53.6	HICE, LA, CONOVER, DO; Stony Brook University	On the adaptive significance of Jordan's Rule: comparing the temperature-dependence of critical swimming speed among latitudinal populations of the Atlantic silverside, *Menidia menidia*

6:30-7:30 PM
Grand Ballroom A

Howard Bern Lecture

	SHARP, PJ; Edinburgh University	Vertebrate photoperiodic signalling

7:00-8:00 PM
Grand Ballroom C

AMS Keynote Lecture

	WINSTON, JE; Virginia Museum of Natural History	Life in the Colonies: learning the foreign ways of colonial organisms

MONDAY P2 - POSTER SESSION 2

Galleria, 3:00 - 5:00 PM

Even # Posters - Authors present from 3:00-4:00 pm

Odd # Posters - Authors present from 4:00-5:00 pm

Animal Communication

P2.1	GRUNERT, B, HUMFELD, S, GERHARDT, C; University of Missouri	Temperature-dependent preferences for advertisement-call frequency in females of *Hyla versicolor*
P2.2 DAB	HUMFELD, SC, WELCH, AM, SMITH, MJ, GERHARDT, HC; University of Missouri, Columbia, College of Charleston, Arthur Rylah Institute, Australia	Phenotypic and genetic variation in season-long calling performance in gray treefrogs
P2.3	FEARS, BC, MAGLIA, AM; Missouri University of Science and Technology	Evolution of hyoid morphology and call structure in North American hylids
P2.4 DNB	LEININGER, EC, KITAYAMA, K, KELLEY, DB; Columbia University, New York , NY	The evolution of neuromuscular systems for vocal behavior in the African clawed frog *Xenopus*
P2.5	SCHWARTZ, JJ; Pace University	The effect of anomalous pulse timing on call discrimination by females of the gray treefrog: behavioral correlates of neurobiology
P2.6	TUCKER, M, HUMFELD, SC, GERHARDT, HC; University of Missouri, Columbia	Effects of polyploidy on female call preference in gray treefrogs, *Hyla chrysoscelis*
P2.7	REBAR, D, ZUK, M; University of California, Riverside	The importance of courtship song in female mate choice in the Pacific field cricket, *Teleogryllus oceanicus*
P2.8	PARKER, SD, SEWALL, KB, HAHN, TP; University of California Davis, University of North Carolina, Chapel Hill	Heterospecific vocal mimicry in Cassin's finch (*Carpodacus cassinii*)
P2.9 DAB	SEWALL, KB, SOCKMAN, KW; University of North Carolina, Chapel Hill	Context-dependent modulation of song effort in a territorial songbird, the Lincoln's sparrow
P2.10	FORMBY, KJ, HO, WW, TURNER, CR, SMITH, GT; University of Wisconsin - Whitewater, Indiana University	Sexually dimorphic communication behaviors in *Sternarchogiton nattereri*
P2.11	RACK, JM, HO, WW, SMITH, GT; Slippery Rock University, PA, Indiana University, Bloomington	Sexual dimorphism of electrocommunication signals across populations of the weakly electric fish *Apteronotus albifrons*
P2.12 DCE	WACK, CL, SCHUBERT, SN, WOODLEY, SK; Duquesne University	Endocrine sensitivity to pheromonal signals in a terrestrial salamander, *Plethodon shermani*
P2.13	VACCARO, EA, HOUCK, LD; Oregon State University	Courtship pheromones modulate female behavior in a plethodontid salamander
P2.14	LEMASTER, MP, UHRIG, E, MASON, RT; Western Oregon University, Oregon State University	Temporal variation in the female sexual attractiveness pheromone of the red-sided garter snake, *Thamnophis sirtalis parietalis*

P2.15 DAB	O'MALLEY, PW, POPE, DS; Trinity University, Mount Holyoke College	Male field crickets discriminate between pheromones of adult and juvenile females

Autoecology

P2.16 DEE	CATENAZZI, A, LEHR, E; University of California, Berkeley, Staatliche Naturhistorische Sammlungen Dresden	Ecotones as biodiversity hotspots for high-Andean anurans
P2.17 DIZ	SMITH, M, DAVIS, M, WOLCOTT, TG, SHAWL, AL; N.C. State University, Raleigh, Harbor Branch Oceanographic Inst., Fort Pierce, FL, North Carolina State University, Raleigh	Seagrass epiphytes and turbulence as settlement cues for conch (Strombus alatus) larvae
P2.18 DCPB	FIELMAN, KT, UEDA, N; Auburn University	Skeletons out of the closet: insight to food resource related phenotypic plasticity in the sea urchin, *Strongylocentrotus purpuratus*, via multiplex gene expression profiling
P2.19 DEE	GONZALES, VA, TSUKIMURA, B; California State University, Fresno	*Eriocheir sinensis* megalopae abundance in regions of the San Francisco Bay Estuary
P2.20	MCDONALD, MR, MCCLINTOCK, JB, AMSLER, CD, RITTSCHOF, D, ANGUS, RA, ORIHUELA, B; University of Alabama at Birmingham, Duke University Marine Laboratory	Effects of ocean acidification on larval development and settlement of the common intertidal barnacle *Amphibalanus amphitrite*
P2.21 DEE	YUAN, W, WALTERS, LJ, HOFFMAN, EA, SCHNEIDER, KR; University of Central Florida	Limits on survival: examining salinity tolerance in the non-native charru mussel, *Mytella charruana*
P2.22	GAO, S, BENFORD, R, SHUSTER, SM, BALDA, RP; The College of New Jersey, Ewing, Northern Arizona University, Flagstaff	Temporal changes in population dynamics of the pinyon jay
P2.23 DAB	LAWLER, RR, CASWELL, H; Boston University, Woods Hole Oceanographic Institution	Conservation biology of Verreaux's sifaka (*Propithecus verreauxi verreauxi*): Prospective and retrospective perturbation analyses
P2.24	LONGORIA, A, AGUIERRE, P, FREDENSBORG, BL; University of Texas-Pan American	Living on the edge: a field study on the effect of salinity and parasitism on an intertidal gastropod
P2.25	CAZAMEA-CATALAN, D, BONNET, D, CHARMANTIER, G, CHARMANTIER-DAURES, M*; University Montpellier 2, France	Biological cycle of *Sphaeroma serratum* (Crustacea, Isopoda) in the Thau lagoon (Mediterranean coast, France): impact of global change from 1972 to 2006
P2.26 DEE	CLARK, M, BOONSTRA, TA, REED, WL; North Dakota State University, United States Fish and Wildlife Service	Intraclutch variation in egg characteristics facilitating hatching synchrony in Canada geese

P2.27 DCE	ADDIS, EA, CLARK, AD, VASQUEZ, R, WINGFIELD, JC; University of Washington, Seattle, Universidad de Santiago, Chile, University of California, Davis	Breeding variation of testosterone in the high latitude Rufous-collared sparrow, *Zonotrichia capensis australis*
P2.28 DCE	ZOU, E; Nicholls State University, Thibodaux	Effects of hypoxia and sedimentary naphthalene on the activity of N-acetyl-beta-glucosaminidase in the epidermis of the brown shrimp, *Penaeus aztecus*
P2.29 DVM	TODD, NE, MONTELLO, M; Manhattanville College	The potential for disruption of aggressive behavior in female by environmental estrogens
P2.30 DCE	BERGEON BURNS, CM, CAIN, KE, KETTERSON, ED; Center for the Integrative Study of Animal Behavior, Indiana University, Bloomington	Phenotypic integration of testosterone-mediated characters across distinct subspecies of the dark-eyed junco

Comparative Genomics

P2.31	JOHNSON, SE, TOMANEK, L; California Polytechnic State University	Linking organic pollutants to tumor growth in arrow goby, *Clevelandia ios*, in Morro Bay: proteomics as a tool for biomarker discovery
P2.32 DCE	DURICA, DS, JOHNSON, JB, DAS, S, LEE, K, HOPKINS, PM; University of Oklahoma	Structure and expression of the *Uca pugilator E75* nuclear receptor: a primary ecdysteroid response gene
P2.32A DCPB	WILLIAMS, SA, COVI, JA, MCDONALD, AA, CHANG, SA, CHANG, ES, MYKLES, DL; Colorado State University, Fort Collins, University of California Davis Bodega Marine Lab, Bodega Bay	A comparative study of MIH signaling in the brachyuran molting gland
P2.32B DCPB	MCDONALD, AA, ATCHISON, LA, CHANG, ES, COVI, JA, MYKLES, DL; Colorado State University, Fort Collins, University of California, Davis Bodega Marine Lab, Bodega Bay	Comparative analysis of NOS signaling in the crustacean molting gland
P2.33	HARRISON, JS, BURTON, RS; Georgia Southern University, Statesboro, Scripps Institution of Oceanography, La Jolla, California	Sex-biased gene expression in the intertidal copepod *Tigriopus californicus*
P2.34	VALENZUELA, JJ, TOMANEK, L; Montana State University, Bozeman, California Polytechnic University, San Luis Obispo	The acute and chronic heat stress response in the purple sea urchin, *Strongylocentrotus purpuratus*: a proteomics approach
P2.35 DCPB	CLAUSEN, RC, FIELDS, PA, TOMANEK, L; Franklin and Marshall College, California Polytechnic University, San Luis Obispo	Temperature acclimation has a greater effect than heat shock on gill protein expression patterns in two congeners of blue mussel (genus *Mytilus*)

P2.36 DCPB	JIMENEZ, AG, KINSEY, ST, DILLAMAN, R, KAPRAUN, DF; University of North Carolina Wilmington	Nuclear DNA content variation in decapod crustaceans: does hypertrophic growth affect genome size in muscle fibers?
P2.37 DCPB	SHAFER, TH, KNAPP, WE, GOLUS, JM; University of North Carolina, Wilmington	A new family of crustacean cuticle proteins possibly related to mineralization of pre-exuvial cuticle
P2.38	SERAFINI, L, TOMANEK, L; California Polytechnic State University, San Luis Obispo	Environmental proteomics: the response of the marine model organism *Ciona savignyi* to acute temperature stress
P2.39	TRAYLOR-KNOWLES, NG, HANSEN, U, KAUFMAN, L, FINNERTY, JR; Boston University	The evolutionary diversification of LSF and grainyhead transcription factors preceded the cnidarian-bilaterian split
P2.39A	KOSKI, M, AYERS, T, SCOTT, R; University of Michigan, Ann Arbor, Northern Arizona University, Flagstaff	Genetic and morphological analysis of Hanging Garden Endemic, *Anticlea vaginata* and Widespread Montane Species, *A. elegans*

Chordate Development

P2.40 DEDB	OBERG, F, HERNANDEZ, LP; George Washington University	Untangling the palatal organ: investigating the embryological origin of a novel structure
P2.41	SOLEM, RC, EAMES, BF, TOKITA, M, SCHNEIDER, RA; Harvard University, University of Oregon, Kyoto Univeristy, University of California, San Francisco	Mechanical and mesenchymal mechanisms of secondary chondrogenesis
P2.42 DDCB	VON DASSOW, M, DAVIDSON, LA; University of Pittsburgh	Slicing, shocking, and sucking on embryos to differentiate active and passive mechanical behaviors of developing tissues
P2.43	LEE, EM, MCCAULEY, DW; University of Oklahoma, Norman	Cartilage rescue in a zebrafish mutant following heterospecific expression of a lamprey SoxE gene

Larval Development

P2.44 DCE	YAP, A, VAN GURP, J, MENON, J*; William Paterson University	Nitric oxide synthase isoforms in metamorphosis of anuran tadpoles, *Xenopus laevis*
P2.45 DIZ	TRAN, C, HADFIELD, MG; University of Hawaii at Manoa	The receptor and signal-transduction pathway that mediate planular settlement of the coral *Pocillopora damicornis*
P2.46	RUIZ-JONES, GJ, HADFIELD, MG; Chaminade University of Honolulu, Honolulu	The dissociation of the apical sensory organ of *Phestilla sibogae* during metamorphosis
P2.47 DEE	PEROTTI, EA, TRAN, C, HUANG, Y, CAMERON, RA, HADFIELD, MG; University of Hawai'i, Manoa, California Institute of Technology	Developing cDNA libraries for analysis of receptors involved in the settlement and metamorphosis of a dominant biofouling tubeworm, *Hydroides elegans*

P2.48 DIZ	MCHUGH, D, SCHULT, N, PERNET, B; Colgate University, California State University, Long Beach	Poecilogony as a window on larval evolution: Comparative analyses of gut development in *Streblospio benedicti* (Spionidae, Annelida)
P2.49 DIZ	LANGSTON, J, PIRES, A*; Dickinson College	Regulation of metamorphosis by catecholamines in larvae of the polychaete *Capitella sp. I*
P2.50 DIZ	PULEO, A, O'BRIEN, S, HOCHBERG, R; University Massachusetts Lowell	Metamorphic transformation of the corona in the predatory rotifer, *Acyclus inquietus* (Monogononta): the fate of the muscular system
P2.51 DEDB	RIVERA, A, OAKLEY, T*; University of California, Santa Barbara	Eye development in a sexually dimorphic species of ostracod (Crustacea)

Functional and Evolutionary Morphology

P2.52	KEMP, AD, THORINGTON, RW; Mount Holyoke College, National Museum of Natural History	Osteology as a predictor of ecology in the *Marmotini*
P2.53 DVM	SOU, E, HERNANDEZ, LP; George Washington University	Investigating the mechanisms responsible for the evolutionary origin of a greatly hypertrophied cypriniform ceratobranchial 5
P2.54	MOSTAFIZ, W, GIDMARK, N*, SWARTZ, S; Harvard School of Dental Medicine, Brown University	Histology and morphology of cyprinid pharyngeal dentition in relation to diet
P2.55 DCPB	MARKLEY, JS, GOLLER, F, CARRIER, DR; University of Utah, Salt Lake	Estimating the cost of ventilation in zebra finches by increasing mechanical work
P2.56	FOSHA, KR, DZIALOWSKI, EM; University of North Texas, Denton	Developmental physiology of the gut as an air breathing organ during hypoxia-rearing in the suckermouth catfish, *Hypostomus plecostomus*
P2.57 DVM	HOPKINS, BA, HOMBERGER, DG; Louisiana State University, Baton Rouge	The gular glands of *Alligator mississippiensis* condition the interscale skin of the intermandibular and gular regions
P2.58 DVM	HORTON, JM, GOSLINE, JM; University of California, Irvine, University of British Columbia	Fish have *GUTS* too: The material properties of the intestinal tissues in teleost fishes
P2.59	POCKLINGTON, EM, ZALISKO, EJ, MAXSON, KA, BROWN, L; Blackburn College	A new, non-lethal phenotype, the Blackburn College floater (BC-Floater), in the Axolotl (*Ambystoma mexicanum*)
P2.60	BONIN, JA, HOSSEIN, I, HAM, K, OGUNBAKIN, T, HOPKINS, BA, OSBORN, ML, BARNETT, HA, MATTHEWS II, KL, BUTLER, LG, BRAGULLA, HH, HOMBERGER, DG; Louisiana St. University, Baton Rouge	The complex morphology of the cat claw as revealed through virtual dissection by x-ray computed tomography and software-assisted visualization

MONDAY P2 - POSTER SESSION 2
Galleria, 3:00 - 5:00 PM

Locomotion – Water and Air

P2.61 DVM	MULLER, UK, WASIM, A, FONTAINE, E, LENTINK, D, KRANENBARG, S, SCHULTE-MERKER, S, VAN LEEUWEN, JL; California State University, Wageningen University, California Institute of Technology, Hubrecht Institute	Increased body-axial stiffness reduces escape performance in larval zebrafish
P2.62 DVM	MACESIC, LJ, SUMMERS, AP, KAJIURA, SM; Florida Atlantic University, University of California, Irvine	Flexural stiffness and composition of the propterygia of punting and non-punting batoids.
P2.63 DCB	PARSON, JM, FISH, FE, NICASTRO, AJ; West Chester University	Turning performance of batoid rays: limitations of a rigid body
P2.64	GREEN, MH, AHN, D-g, HO, RK, HALE, ME; University of Chicago	Assessing the function of larval zebrafish pectoral fins during slow swimming
P2.65	KING, HM, NEUBARTH, N*, HALE, ME; University Chicago	Gait diversity in juvenile labroid fishes
P2.66 DCB	REBECCA, VW, PORTER, M, LONG, JH,Jr, ROOT, RG; Lafayette College, Vassar College	Comparative harmonic analysis of the swimming of an electric ray (*Narcine brasiliensis*) and a biomimetic robot
P2.67 DCB	RIVERA, ARV, BENNETT, NL*, RIVERA, G, WYNEKEN, J, BLOB, RW; Clemson University, Florida Atlantic University	Whole-body acceleration during swimming in the green sea turtle (*Chelonia mydas*): a comparison of upstroke and downstroke
P2.68 DVM	GINTER, CC, FISH, FE, MARSHALL, CD; West Chester University, Texas A&M University Galvestron	Morphology of the bumpy profile of phocid vibrissae
P2.69 DCB	FISH, FE, TIMM, LL, MURRAY, MM, HOWLE, LE; West Chester University, US Naval Academy, Duke University	Ecological morphology of the flippers of cetaceans based on two-dimensional geometry
P2.70 DVM	ALUCK, RJ, WARD, AB; Adelphi University	Use of contact points during aquatic and terrestrial locomotion in polypteriform fishes
P2.71 DAB	HANKE, W, LAUDER, GV; Harvard University	Fish schooling: measurements of flow, school structure, and tail beat frequency
P2.72 DVM	RIVERA, ARV, WYNEKEN, J, BLOB, RW; Clemson University, Florida Atlantic University	Conservation of muscle activation patterns in the forelimbs of swimming turtles: a comparison of three lineages (Trionychidae, Emydidae, Cheloniidae)
P2.73 DVM	MAIA, A; University of Rhode Island, Kigston	Escape responses early in life: are young of the year spiny dogfish doing well?
P2.74	BAILEY, IB, GREEN, MH, HALE, ME; University of Chicago	Diversity in startle behavior of larval zebrafish
P2.75 DCB	CHI, K-J, CHANG, C-T, TSAI, F-Y, SHIH, M-C; National Chung-Hsing University	Pterostigma regulates the dynamic properties of dragonfly wings

P2.76 DCB	HAYASHI, M, FEILICH, KL, ELLERBY, DJ; Wellesley College	The mechanics of explosive seed dispersal in orange jewelweed
P2.77 DVM	MIDDLETON, KM, CONNERS, M, SWARTZ, SM; California State University, San Bernardino, Brown University	Variation in rachis cross-sectional geometry within and among flight feathers in the barn owl (*Tyto alba*)
P2.78	ZHUANG, K, ROTH, E, FORTUNE, ES, COWAN, NJ; Johns Hopkins University	Linear modeling of tracking behavior in weakly electric fish
P2.80 DVM	CARR, JA, MARSH, RL; Northeastern University	A swimming muscle with a novel function

Evolutionary Ecology and Sexual Selection

P2.81 DEE	HOLGERSSON, MCN, NICHOLS, WA, PAITZ, RT, BOWDEN, RM; Illinois State University	Turtle gut microflora: initial acquisition
P2.82	PORTIS, LM, MINER, BG; Colby College, Western Washington University, Bellingham, WA	The effect of sea star predators on the retractability of the whelk *Nucella lamellosa*
P2.83	DWYER, LA, LANDBERG, T; University of Connecticut	Predator induced plasticity in spotted salamanders
P2.84	BRANDON, CS, DUDYCHA, JL; Northeastern Illinois University, University of South Carolina	Genetic variation of resource exploitation in the freshwater crustacean *Daphnia*
P2.85 DEE	NEUFELD, CJ, EDGELL, TC; University of Alberta	The role of shifting detection thresholds and associative learning determine prey responses to the European green crab on the west coast of North America
P2.86 DEE	GUTIERREZ, J, SOTO, W, NISHIGUCHI, MK; New Mexico State University	Genetic temporal change in the bacterial symbiont *Vibrio fischeri* isolated from natural host squid populations of *Euprymna tasmanica* (Mollusca: Cephalopoda)
P2.87	POWERS, SD, ANDERSON, RA; Western Washington University	How does spatial variation in climate cause spatiotemporal patterns in lizard energetics?
P2.88 DEE	REED, WL; North Dakota State University	Mechanisms of maternal yolk corticosterone action in developing Japanese quail
P2.89 DEE	BANET, AI, SVENDSEN, JC, ENG, KJ; University of California, Riverside, University of Copenhagen, Denmark	Linking reproduction, swimming performance, and habitat use in the Trinidadian guppy, *Poecilia reticulata*
P2.90	MARSHALL, KE, SINCLAIR, BJ; University of Western Ontario	The sublethal effects of multiple acute cold exposure: lessons from *Drosophila*

P2.91 DEE	OUFIERO, CE, POLLUX, BJA, BANET, AI, ARNOLD, S, GARLAND, JR, T; University of California, Riverside	Does a primary sex character vary with the degree of female-biased sexual size dimorphism: a test in the *Poeciliidae*
P2.92	ROGERS, NL, CARRIER, DR; University of Utah, Salt Lake City	Sexual dimorphism in skeletal proportions of California voles
P2.93	WILLIAMS, AS, GERHARDT, HC, WELCH, AM; University of Missouri, College of Charleston, SC	Nonlinear growth patterns in tadpoles based on parental call length
P2.94	TIGREROS, N, LEWIS, S; Tufts University	Using artificial selection to determine how sexual size dimorphism affects within-sex size variation
P2.95	COPUS, JM, REAVIS, RH, SHUSTER, SM; Northern Arizona University, Glendale Community College	The Tahitian butterflyfish: a bay specialist and territorial omnivore
P2.96A	MING, QL, TIGREROS, N, FEDINA, T, LEWIS, SM; Tufts University	Genetic and nutritional influences on male reproductive performance in tribolium flour beetles
P2.96B	BELL, TM, WARES, JP; University of Georgia	Genetic diversity and feeding preferences in the North Atlantic marine isopod, *Idotea balthica*

Evolutionary Morphology

P2.97 DEDB	CARRENO, CA, SMITH, KK; Duke University, Durham, NC	Limb specification and growth initiation in *Xenopus laevis*: possible heterochronic mechanisms
P2.98	HAUGHEY, MD, GREEN, S, LOGAN, M, BOBACK, S, MONTGOMERY, C; Salem State College, University of Kent, Canterbury, University of Texas, Arlington, Dickinson College, Truman State University	A comparison of body size and condition of *Boa constrictor imperator* on the cayos cochinos archipelago
P2.99	RADE, CM, CIUMMO, EM, WARD, AB; Adelphi University	The evolution of fin reduction and loss in fishes
P2.100 DVM	RIVERA, G, MCGILL, RT, RIVERA, ARV, BLOB, RW; Clemson University, South Carolina Governor's School for Science and Mathematics	Variation in shell shape of flattened and loggerhead musk turtles
P2.101	BHAT, A, MARTINS, E; Indiana University, Bloomington	Morphological divergences among wild populations of zebrafish, Danio rerio
P2.102	LAKE, DT, FRICK, MG, RAWSON, PD, ZARDUS, JD; The Citadel, Charleston, SC, Caretta Research Project, Savannah, University of Maine, Orono	Host-specific morphological plasticity obscures species boundaries in a commensal barnacle
P2.103 DVM	LARSON, PM, RAABIS, S, BRICK, A, CORRIVEAU, J, HALL, H, LENIHAN, P, MAY, S; St. Anselm College	Intraspecific variation in chondrocranial morphology of wood frog tadpoles (*Rana sylvatica*)

P2.104	COOPER, JM, MARCOT, JD; University of Illinois	The evolutionary response of tooth-row morphology to habitat shifts in artiodactyl mammals
P2.105	KAJI, T; Shizuoka University, Japan	Functional change of appendage in ostracode ontogeny
P2.106 DVM	FILORAMO, NI, SCHWENK, K, KLEY, N; Clark University, University of Connecticut	The presence of numerous cilia and goblet cells in the mouths of snakes - a derived condition within squamates
P2.107	MORGAN, M, CARRIER, D; University of Utah, Salt Lake City	The evolution of the human hand: making a fist.
P2.108 DVM	CLAESSENS, LP, EDWARDS, SV, MARTINEZ, R, KRZYZAK, M, ECKARDT, M, LESLIE, G, MARCUCCI, M, NEABORE, S, VRCEK, I, MOSS, S, GRASSI, K; College of the Holy Cross, Worcester, Harvard University	Aves 3D: a new online resource for avian skeletal anatomy
P2.109 DIZ	BERTRAM, DF, PHILLIPS, NE, STRATHMANN, RR*; Environment Canada, Victoria University Wellington, University of Washington	Doubling egg volume to test for reversible evolution of larval form and effects of eggs size on heterochrony
P2.110 DVM	HACISKI, SI, WEBB, JF; University of Rhode Island	Preliminary observations on the development of the little skate, *Leucoraja erinacea*, with reference to the mechanosensory lateral line system
P2.111	KAWANO, SM, SCHOENFUSS, HL, MAIE, T, BRIDGES, WC, BLOB, RW; Clemson University, St. Cloud State University	Comparative morphological selection: waterfall-climbing in gobiid fishes from Dominica versus Hawai'i
P2.112 DVM	ANDERSON, KE, BLACKBURN, DG*, DUNLAP, KD; Trinity College	Scanning EM of the placental membranes in the viviparous lizard *Sceloporus jarrovi*
P2.113 DCE	CHANG, JL; University of Miami	Sexual dimorphism of the second-to-fourth digit length ratio (2d:4d) in the strawberry poison dart frog (*Oophaga pumilio*) in Costa Rica
P2.114 DVM	HOLLIDAY, CM; Marshall University	New insights into the mandibular symphyses of reptiles

Foraging Behavior

P2.115 DEE	WATERS-LINDQVIST, LG, WOLCOTT, TG, KAMYKOWSKI, D; North Carolina State University, Raleigh	Seeding red tides: behavioral experiments with plankton mimics
P2.116 DIZ	STEPHENS, TA, BRITTON-SIMMONS, K; University of Washington, Friday Harbor Laboratories	Feeding preference of *Strongylocentrotus franciscanus* for aged versus fresh kelp
P2.117	SILVERI, CM, YANOVIAK, SP; University of Arkansas, Fayetteville, University of Arkansas, Little Rock	Effects of vine characteristics on foraging behavior of tropical ants

P2.118	SEPULVEDA, CA, AALBERS, SA, DONLEY, JM, SYME, DA, BERNAL, D; Pfleger institute of Environmental Research (PIER), MiraCosta College, University of Calgary, Canada, University of Massachusetts, Dartmouth	The role of the caudal fin in the feeding ecology of the common thresher shark (*Alopias vulpinus*)
P2.120 DAB	WILLIAMS, SC, MCBRAYER, LD; Georgia Southern University, Statesboro	Sources and consequences of intraspecific variation in the movement patterns of the ambush foraging lizard *Sceloporus woodi*
P2.121 DEE	NICHOLS, KS, ERICKSON, PA, MAUCK, RA, WHEELWRIGHT, NT; Bowdoin College, Kenyon College	Surf and turf: foraging choices of an island sparrow population
P2.122	IHLE, KE, PAGE, RE, Jr, FONDRK, MK, AMDAM, GV; Arizona State University, Tempe; Norwegian University of Life Sciences, Aas	Vitellogenin modulates foraging behavior in selected strains of honey bees (*Apis mellifera*)

Metabolism/Energetics II

P2.123	MINIUM, S, BASH, R, SHANBHAG, P, KERKHOFF, AJ, ITAGAKI, H; Kenyon College	The scaling of growth, nutrient assimilation and metabolism in larval hawkmoths raised on natural and artificial diets
P2.124 DCPB	MUIR, TJ, COSTANZO, JP, LEE JR, RE; Miami University	A comparative study of urea-induced hypometabolism in ectothermic animals
P2.125 DDCB	PAN, T-CF, BURGGREN, WW; University of North Texas, Denton	Cardiac, ventilatory and metabolic responses to hypoxia in developing *Xenopus laevis*
P2.126	PATIL, YN, MENZE, MA, HAND, SC; Louisiana State University, Baton Rouge	Arrest of aerobic metabolism in *Artemia franciscana* embryos during diapause
P2.127	REED, BR, BENNETT, VA*; Clarion University, Pennsylvania	Diapause regulation in *Pyrrharctia isabella*
P2.128	SCHROEDER, TP, POWERS, DR, WETHINGTON, SM, TOBALSKE, BW; George Fox University, Newberg, University of Montana, Missoula, Hummingbird Monitoring Network, Patagonia	Hovering flight performance in captive and free-living hummingbirds
P2.129	SGUEO, CE, WAGNER, DN, WALSH, PJ, SCHAEFFER, PJ; Miami University	Seasonal acclimation of energetics in northern cardinals (*Cardinalis cardinalis*)

Muscle Physiology II

P2.130 DIZ	TJIONAS, G, PATI, A, HOCHBERG, R; University Massachusetts Lowell	On the structure and function of larval muscular systems in trematodes (Platyhelminthes: Neodermata): intramolluscan stages from sporocyst to metacercaria
P2.131 DDCB	MARSHALL, SL, WEIGAND, KL, DEAROLF, JL; Hendrix College, Conway	Influence of betamethasone on the fast-twitch fibers of the external abdominal oblique in fetal guinea pigs (*Cavia porcellus*)

P2.132 DCPB	DE MIRANDA JR., MA, MAYBERRY, JK, PEARSON, LE, KANATOUS, SB; Colorado State University, University of Alaska Anchorage	Are skeletal muscle adaptations to diving in Weddell seals (*Leptonychotes weddelli*) a response to environmental stimuli?
P2.133 DCB	MOON, BR, HAMPTON, PM; University Louisiana, Lafayette	The effects of long tendons on the energetic cost of muscle contraction
P2.134	PAKALA, KP, BIGA, PR; North Dakota State University	Role of matrix metalloproteinases in activating myostatin in the skeletal muscle in response to high fat diet induced diabesity
P2.135	PATTERSON, JP, BERNAL, D, SEPULVEDA, C; University of Massachusetts Dartmouth, Pfleger Institute of Environmental Research	A comparative study of the capacity for aerobic metabolism in the locomotor muscle of the three species of thresher shark (Family Alopidae).
P2.136 DVM	REIN, R, WEIGAND, KL, DEAROLF, JL; Hendrix College, Conway	Do prenatal steroids affect maternal breathing muscles?
P2.137 DCPB	REISER, PJ, BICER, S; Ohio State University	Distinct sarcomeric protein isoform differences in mammalian fast and slow muscle fibers are associated with muscle of origin
P2.138 DDCB	TOTTEN, DC, WEIGAND, KL, DEAROLF, JL; Hendrix College, Conway	Does myosin heavy chain expression in intercostal muscles of *Cavia porcellus* vary with exposure to betamethasone?
P2.139 DDCB	WEIGAND, KL, DEAROLF, JL; Hendrix College, Conway	Prenatal steroids: altering myosin heavy chain isoform expression in guinea pig diaphragm
P2.140 DCB	WERNER, BJ, ROOT, RG; Lafayette College	Does diffusion matter? Assessing the importance of diffusion in phosphagen metabolism for a fast start
P2.141 DCB	WHITE, AJ, GILLEN, CM, NORTHCUTT, MJ, GAO, Y, WHEATLY, MG; Kenyon College, Gambier, Wright State University, Dayton	Effect of cold acclimation on the expression of sarcoplasmic calcium binding protein (pcSCP1) variants in the freshwater crayfish, *Procambarus clarkii*
P2.142 DDCB	WOO, H, WEIGAND, KL, DEAROLF, JL; Hendrix College, Conway	Development of the guinea pig (*Cavia porcellus*) diaphragm

Neurobiology II: Neurophysiology and Behavior

P2.144 DNB	WALTON, DB, PIRTLE, TJ; Abilene Christian University	The effect of cyclic nucleotide dependent protein kinase activity on swimming in *Clione limacina*
P2.145 DNB	SHERMAN, AJ, MURRAY, JA, TRAN, NB, HAMMOUDI, AH; California State University East Bay, University of Washington, University of Central Arkansas	Inactivation of an identified neuron reduces oriented turning toward the inactivated side in the sea slug *Tritonia diomedea*

P2.146 DNB	TORVUND, M, YAGER, DD; University of Maryland, College Park	Central nervous system responses to stimulation of the mesothoracic cyclopean ear of the praying mantis, *Pseudocreobotra ocellata*
P2.147 DNB	KRANS, JL, PATERSON, BA; Mount Holyoke College	Hysteresis in force production of bodywall muscle of larval *Diptera*
P2.148 DNB	WU, W-H, HILL, J, COOPER, R; University of Kentucky	Infuence of nicotine on physiology, development and behavior of Drosophila melanogaster
P2.149 DNB	COOPER, RL, BIERBOWER, SM; University of Kentucky	Effect of exercise and environment on the autonomic response in crayfish, Procambarus ClarkII
P2.150 DNB	JIMENEZ, S, FAULKES, Z; The University of Texas-Pan American	Establishment of a research colony of Marmorkrebs, a parthenogenetic crayfish species
P2.151	BEDORE, CN, KAJIURA, SM; Florida Atlantic University	Sensitivity and morphology of the cownose ray electrosensory system
P2.152 DEDB	SERRANO-VELEZ, JL, TORRES-VAZQUEZ, I, RIVERA-RIVERA, NL, FRASER, SE, YASAMURA, T, DAVIDSON, KGV, RASH, JE, LAUDER, GV, ROSA-MOLINAR, E*; University of Puerto Rico-Rio Piedras, California Institute of Technology, Colorado State University, Harvard University	Neuronal gap junction coupling may mediate a fast copulatory neuromuscular circuit
P2.153 DCE	O'BRIEN, S, MUKAI, M, BENTLEY, GE, TSUTSUI, K, WINGFIELD, JC; University of Washington, Seattle, University of California, Davis, University of California, Berkeley, Waseda University-Tokyo, Japan	Reproductive profiles of Gonadotropin-inhibitory Hormone (GnIH) gene expression in white-crowned sparrows (*Zonotrichia leucophrys*)

Osmoregulation II

P2.154	MONETTE , MY, FORBUSH, B; Yale School of Medicine and Mt. Desert Island Biological Laboratory	Phosphorylation state of Na-K-Cl cotransporter in the intestine of euryhaline teleosts in response to varying osmolality
P2.155	MONSON, SM, POWERS, DR, SCHMITT, JM, KIMBERLY, DJ; George Fox University, Newberg, OR	Distribution of aquaporin water channels in osmoregulatory tissues of the rough-skinned newt (Taricha granulosa)
P2.156	ROSENDALE, AJ, COSTANZO, JP, LEE JR., RE; Miami University	Identification of an aquaporin and a facilitative urea transporter in *Rana sylvatica* and *Rana pipiens*
P2.157	WILLIAMS, CM, SINCLAIR, BJ; University of Western Ontario, London, Ontario	The effects of continuous and discontinuous gas exchange cycles on CO_2 and H_2O production.

Regulatory Behavior

P2.158 DNB	COOPER, AS; University of Kentucky	The effects of serotonin on circadian pattern and behaviors in *Drosophila*

P2.159	KRIENGWATANA, BP, AN, Y, NEWMAN, AE, MACDOUGALL-SHACKLETON, EA, MACDOUGALL-SHACKLETON, SA; University of Western Ontario, Canada, University of British Columbia, Canada	Melatonin, aggression, and social dominance in the black-capped chickadee
P2.160 DCE	BRUBAKER, JL, SCHULKIN, J, ROMERO, LM; Tufts University, Georgetown University	Exogenous corticosterone alters behavior in house sparrows (*Passer domesticus*)
P2.161 DCE	FOKIDIS, HB, ORCHINIK, M, DEVICHE, P; Arizona State University	Increased territorial responses in urban populations of two Sonoran Desert birds: hormones or ecology?
P2.162	CHANTAROJWONG, TM, PROPPER, CR; Northern Arizona University	Gonadotropin-releasing hormone does not enhance male detection of female pheromones in *Xenopus tropicalis*

Regulatory Reproduction/Reproduction Physiology

P2.163	MUNRO, H, BONIER, F, LOCKHART, L, MOORE, I, ROBERTSON, RJ; Queen's University, Kingston, Canada, Virginia Tech, Blacksburg	Hormones and life-history trade-offs: how do parental corticosteroid levels correlate with changes in offspring sex ratio in tree swallows (*Tachycineta bicolour*)?
P2.164 DCE	MCGUIRE, NL, UBUKA, T, PERFITO, N, BENTLEY, GE; University of California, Berkeley, Helen Wills Neuroscience Institute and University of California, Berkeley	A novel neuropeptide system within the gonads: GnIH and GnIH-R in passerine songbirds
P2.165	COLEMAN, AT, WIBBELS, T, ROOSENBURG, W, MARION, K; University of Alabama at Birmingham, Ohio University	Geographic and seasonal variation of reproductive steroids in the diamondback terrapin, *Malaclemys terrapin*
P2.166 DCE	CARLISLE, SL, KNAPP, R, NEFF, BD; University of Oklahoma, University of Western Ontario	Steroidogenic enzyme activity in the three alternative male reproductive morphs of bluegill sunfish
P2.167 DCE	OKEKPE, CC, NAVARA, KJ, HILL, GE, MENDONCA, MT; Auburn University, University of Georgia, Athens	Effect of diet on periovulatory levels of steroid hormones and primary sex ratio in zebra finches
P2.168 DCE	LUTTERSCHMIDT, DI, WILCZYNSKI, W; Georgia State University, Atlanta	Melatonin alters arginine vasotocin immunoreactivity in green treefrogs (*Hyla cinerea*)
P2.169 DCE	PAITZ, RT, BOWDEN, RM, CASTO, JM*; Illinois State University	Embryonic modulation of yolk steroids in European starlings (*Sturnus vulgaris*)
P2.170 DCE	THERRIEN, C, WIBBELS, T*; University of Alabama at Birmingham	Effect of incubation temperature on the morphology and endocrinology of the reproductive tract of a turtle with temperature-dependent sex determination
P2.171 DCE	ADAMS, AL, LIGON, DB, LOVERN, MB; Oklahoma State University, Missouri State University	Reproductive and endocrine responses to breeding density in laboratory-housed green anole lizards

Stress Response II

P2.172 DCPB	MILLER, WA, TERWILLIGER, NB; University of Oregon, Charleston	Effects of molting and salinity stress on the expression of HIF, molting, and immune response genes in juvenile *Cancer magister*
P2.173 DCPB	PARK, SD, ATHALE, J, NGUYEN, TT, KANG, E, CHEN, J, CAMERON, JS*; Wellesley College	Acclimation to hypoxia alters gene expression and k_{atp} channel response to acute low oxygen in the hearts of goldfish
P2.174	REITZEL, AM, FINNERTY, JR, TARRANT, AM; Woods Hole Oceanographic Institution, Boston University	Taking the heat: organismal and molecular responses of the estuarine sea anemone Nematostella vectensis to thermal stress
P2.175 DCPB	SIMONIK, E, HENRY, RP; Ohio University, Athens, Auburn University	Physiological adaptations of the intertidal green crab, *Carcinus maenas* to emersion
P2.176 DCPB	TAPLEY, DW; Salem State College	Patterns of antioxidant defenses vary among zooxanthellate symbioses
P2.177 DIZ	ZIMMERMANN, E, DIONNE, M, FREDERICH, M, YUND, PO; University of New England	Differential response of AMP activated protein kinase (AMPK) and HSP70 to temperature stress in a gastropod

Symposium Related: Cell-Cell Signaling Drives the Evolution of Complex Traits

P2.178 DEDB	HEYLAND, A, REITZEL, A, HODIN, J; University of Guelph, Canada, WHOI, Hopkins Marine Station	Thyroid hormone signaling in echinoderms: comparative genomics, cross-kingdom signaling and life history evolution
P2.179	DESCAMPS, E, VLEMINCKX, K, ADRIAENS, D; Ghent University, Belgium, Flanders Interuniversity Institute for Biotechnology, Belgium	Inhibition of the canonical Wnt signaling pathway during craniofacial development: impact on the craniofacial phenotype of *Xenopus* tadpoles

Symposium Related: Insect Evolution

P2.180	ROCCA, KAC, GRAY, EM, BESANSKY, NJ; University of Notre Dame	Thermotolerance of alternative 2La karyotypes in *Anopheles gambiae*
P2.181	PREUSS, KM, NIJHOUT, HF; Duke University	The importance of threshold size for the initiation of metamorphosis in the insect *Tribolium castaneum*
P2.182 DIZ	DOUGLASS, JK, TOBIN, WF, WCISLO, WT; Smithsonian Tropical Research Institute, Panama, University of California, Santa Cruz	A portable microvolumeter for studies of invertebrate brain-body scaling
P2.183 DCPB	FORD, CF, VANDENBROOKS, JM, HARRISON, JF; Arizona State University	Parabolic effects of atmospheric oxygen on body size, development time, and growth rate in *Zophobas morio*, the giant mealworm

MONDAY P2 - POSTER SESSION 2
Galleria, 3:00 - 5:00 PM

Symposium Related: PharmEcology: A Pharmacological Approach to Understanding Plant-Herbivore Interactions

P2.184	WHITE, JP, ROBERTSON, IC; Boise State University	Seed predation on slickspot peppergrass, Lepidium papilliferum (Brassicaceae), by the Owyhee harvester ant, Pogonomyrmex salinus (Hymenoptera: Formicidae)
P2.185	NEBEKER, CA, SKOPEC, MM, HALEY, S, DEARING, MD; Weber State University, University of Utah	Quantification of biotransformation enzymes implicated in *Neotoma lepida's* ability to consume creoste

Thermoregulation/Temperature Response I

P2.186 DEE	JOST, JA, O'ROURKE, M, FUREY, N, DIONNE, M, FREDERICH, M; University of New England	A novel cellular marker for temperature stress in marine invertebrates
P2.187	BRODSKY, S, WALTERS, L, HOFFMAN, E, SCHNEIDER, K; University of Central Florida	Thermal tolerances of the invasive mussel *Mytella charruana*
P2.188 DCPB	BERNER, NJ, BULLOCK, JR; Sewanee:University of the South	Fatty acid composition of membranes and storage fat in the Eastern red spotted newt (*Notophthalmus viridescens viridescens*)
P2.189	BOYLES, JG, DUNBAR, MB, SCHULER, MS, STORM, JJ; Indiana State University, University of Regina, University of South Carolina Upstate	Determining metabolized fuel source during arousal from hibernation using stable isotope signatures in breath
P2.190 DCPB	BURMESTER, EM, FIELDS, PA; Franklin and Marshall College	Changes in solute composition in mussel (*Mytilus galloprovincialis*) gill extracts after exposure to high temperature
P2.191	COSTANZO, JP, LEE, RE; Miami University, Oxford	Urea loading enhances freezing survival and post-freeze recovery in a terrestrially-hibernating frog
P2.192	DOHERTY, AH, VINYARD, CJ; NEOUCOM	A cross-sectional analysis comparing woodchuck (*Marmota monax*) skeletons before and after hibernation
P2.193 DCPB	ELNITSKY, MA, BENOIT, JB, DENLINGER, DL, LEE, RE; Mercyhurst College, Ohio State University, Miami University	Desiccation tolerance and drought acclimation in the Antarctic collembolan *Cryptopygus antarcticus*
P2.194	RONGES, D, WALSH, J, STILLMAN, J, SINCLAIR , B; San Francisco State University, The University of Western Ontario London, Canada	Membrane composition and gene expression during thermal acclimation in porcelain crabs

P2.195	SFORMO, T, BARNES, B, DUMAN, J, SCHULTE, M; University Alaska Fairbanks, University of Notre Dame	Modeling ice-binding motifs in antifreeze proteins from the Alaskan beetle *Cucujus clavipes puniceus*
P2.196 DEE	ZANI, PA, COUNIHAN, JL, FRIED, B, SHERMA, J; Lafayette College	Effects of winter temperature on the energetics and hydration of lizards
P2.196A DCPB	DILLY, GF, GIRGUIS, PR; Harvard University	Exploring the boundaries of metazoan thermotolerance at hydrothermal vents: respiration and protein expression of paralvinellid worms

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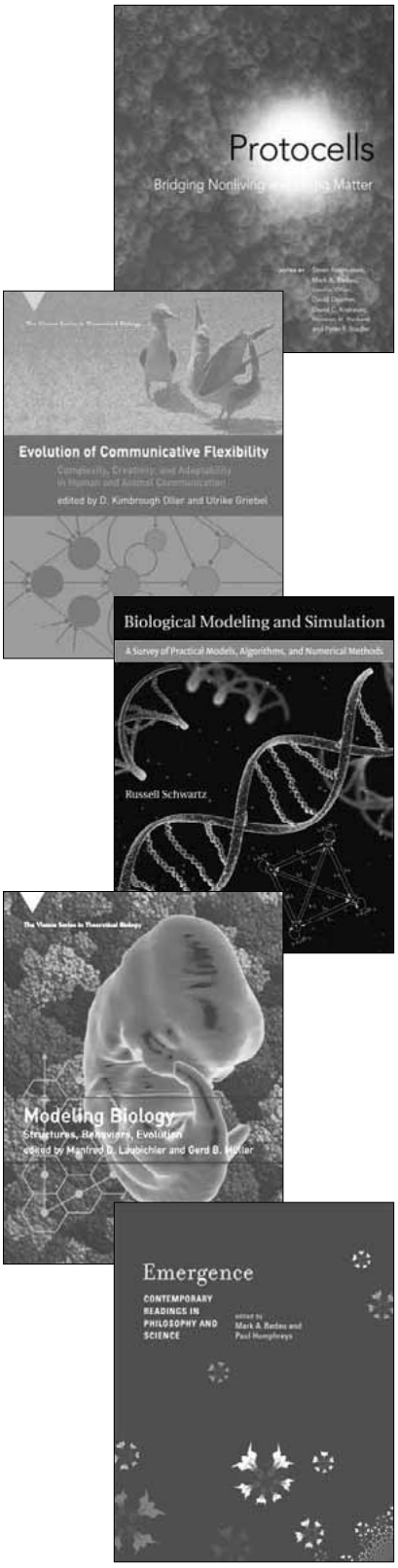

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Tuesday Schedule of Events

EVENT	TIME	LOCATION
Registration	7:30 AM-5 PM	Harbor Ballroom Foyer
Exhibit Hall	9:30 AM-5:30 PM	Galleria
Poster Session 3 Even Numbers Viewing	3:00-4:00 PM	Galleria
Poster Session 3 Odd Numbers Viewing	4:00-5:00 PM	Galleria
Poster Session 3 Teardown	5:00-5:30 PM	Galleria
Coffee Breaks	9:30-10:30 AM; 3:30-4:30 PM	Galleria
SPECIAL LECTURE		
Moore Lecture	6:30-7:30 PM	Harbor II/III
SYMPOSIA ORAL PRESENTATIONS		
S7: Biomaterials: Properties, Variation and Evolution	7:40 AM-3:00 PM	Commonwealth C
S8: Genomics and Vertebrate Adaptive Radiation: A Celebration...	8:00 AM-3:00 PM	Lewis
S9: Psychoneuroimmunology Meets Integrative Biology	8:00 AM-3:00 PM	Otis
S10: Evolution of Mechanisms Controlling Timing ...	8:00 AM-3:00 PM	Stone
CONTRIBUTED PAPER ORAL PRESENTATIONS		
Session 54: Metabolism, Part I	8:00 AM-Noon	Grand Ballroom C
Session 55: Population Ecology	8:00 AM-Noon	Commonwealth A
Session 56: Phylogenetics and Systematics - Invertebrates	8:00-9:40 AM	Commonwealth B
Session 57: Phylogenetics and Systematics - Vertebrates	10:00 AM-Noon	Commonwealth B
Session 58: Neurobiology: Neurotransmitters & Neuroanatomy	8:00-9:40 AM	Burroughs
Session 59: Complementary Session: PharmEcology ...	10:00-11:40 AM	Burroughs
Session 60: Muscle Physiology	8:20 AM-Noon	Carlton
Session 61: Develop Cell Biology - Invertebrate Embryonic ...	8:00-9:40 AM	Grand Ballroom D
Session 62: Developmental Cell Biology - Larval Development	10:00-11:20 AM	Grand Ballroom D
Session 63: Macroevolution and Paleobiology - Morphology	8:20-9:40 AM	Grand Ballroom E
Session 64: Macroevolution and Paleobiology ...	10:00 AM-Noon	Grand Ballroom E
Session 65: Environmental Endocrinology	8:20-9:40 AM	Griffin
Session 66: Complementary Session: Cell-Cell Signaling ...	10:20-11:40 AM	Griffin
Session 67: Feeding - Biteforce	8:00-9:40 AM	Harbor I
Session 68: Feeding - Fish I	10:00 AM-Noon	Harbor I
Session 69: Locomotion - Balance and Stability	8:00-9:40 AM	Harbor II
Session 70: Locomotion - Flight Bats	10:00 AM-Noon	Harbor II
Session 71: Evolutionary Morphology - Suction Feeding	8:20-9:40 AM	Harbor III
Session 72: Evolution Morphology - Novelty	10:00 AM-Noon	Harbor III
Session 73: Terrestrial Locomotion - Hopping	8:00-9:40 AM	Webster
Session 74: Terrestrial Locomotion - Running	10:00 AM-Noon	Webster
Session 75: Metabolism, Part II	1:00-3:00 PM	Grand Ballroom C
Session 76: Conservation Biology	1:00-3:00 PM	Commonwealth A
Session 77: Mechanisms of Behavior: Sensory Biology	1:00-3:00 PM	Commonwealth B
Session 78: Complementary Session: Insect Evolution	1:00-3:00 PM	Burroughs
Session 79: Regulation of Behavior	1:00-3:00 PM	Carlton
Session 80: Behavioral Ecology: Reproductive Behavior	1:00-3:00 PM	Grand Ballroom D
Session 81: Crustacean Endocrinology	1:00-2:40 PM	Grand Ballroom E
Session 82: Outreach, Education & Policy	1:00-2:40 PM	Griffin
Session 83: Fish Feeding Morphology	1:00-3:00 PM	Harbor I
Session 84: Locomotion - Flight - Insect Wing Movement	1:00-3:00 PM	Harbor II
Session 85: Sexual Selection I	1:00-3:00 PM	Harbor III
Session 86: Terrestrial Locomotion - Running	1:00-3:00 PM	Webster
COMMITTEE & BOARD MEETINGS		
Public Affairs Committee	Noon-1:00 PM	Alcott
BUSINESS MEETINGS		
AMS Business Meeting	10:45-11:45 AM	Paine
SICB Business Meeting	5:15-6:15 PM	Harbor 1
SOCIAL EVENTS		
AMS Luncheon	Noon-1:30 PM	Hancock
Society-wide Dessert Social in Honor of Students and Post Docs	8:00-9:30 PM	Grand Ballroom A/B

7:40 AM-3:00 PM
Commonwealth C

Symposium S7: Biomaterials: Properties, Variation and Evolution

Supported by: DCPB, DVM

Organized by: Brook Swanson and Mason Dean

7:40 AM DCB	S7.1	SWANSON, B, ANDERSON, S; Gonzaga University	Evolution of complex biomaterial performance: the case of spider silk
8:00 AM	S7.2	FUDGE, DS, BERIAULT, D, SZEWCIW, L, MCCUAIG, J, RUSSELL, D, LANE, EB, VOGL, AW; University of Guelph, University of Dundee, University of British Columbia	From soft cells to hard keratins - the many lives of intermediate filaments
8:30 AM	S7.3	BURGERT, I, FRATZL, P; Max-Planck-Institute of Colloids and Interfaces, Germany	The plant cell wall acts as a sophisticated mechanical device
9:00 AM	S7.4	EWOLDT, RH, HOSOI, AE, MCKINLEY, GH; Massachusetts Institute of Technology	Nonlinear viscoelastic biomaterials: meaningful characterization and engineering inspiration
9:30 AM DCPB	S7.5	SMITH, AM, BLOOM, A, GARCIA, S; Ithaca College	Multiple cross-linking mechanisms in molluscan adhesive gels
10:00 AM	COFFEE BREAK - GALLERIA		
10:30 AM	S7.6	GORB, SN; University of Kiel, Germany	Materials for reversible adhesion: from biological systems to wall-climbing robots
11:00 AM DCB	S7.7	DUDEK, DM, GOSLINE, JM, MICHAL, CA, DEPEW, TA, ELVIN, C, KIM, M, LYONS, R, DUMSDAY, G; University of British Columbia, CSIRO, Brisbane, CSIRO, Clayton	Dynamic mechanical properties of synthetic resilin
11:30 DVM	S7.8	AZIZI, E, ROBERTS, TJ; Brown University	Mechanical behavior of aponeuroses
NOON	LUNCH BREAK		
1:00 PM	S7.9	BARTHELAT, F; McGill University	Structure and properties of mineralized tissues: the deformation and fracture of nacre from mollusc shells
1:30 PM	S7.10	ORTIZ, C; Massachusetts Institute of Technology	Nanotechnological studies of native and regenerated musculoskeletal tissues
2:00 PM	S7.11	MORGAN, EF, SALISBURY PALOMARES, KT, MASON, ZD, LEONG, PL, HAYWARD, LNM, GLEASON, RE, BELLIN, D; Boston University	Mechanical regulation of skeletal healing
2:30 PM DVM	S7.12	DEAN, MN, YOUSSEFPOUR, H, EARTHMAN, J, GORB, S, SUMMERS, AP; University of California, Irvine, UCI, Max Planck Inst	Micro-mechanics and material properties of the tessellated skeleton of cartilaginous fishes

8:00 AM-3:00 PM
Lewis

Symposium S8: Genomics and Vertebrate Adaptive Radiation: A Celebration of the First Cichlid Genome

Supported by: DVM, DAB

Organized by: Darrin Hulsey and Suzy Renn

8:00 AM DVM	S8.1	HULSEY, CD; University of Tennessee	Cichlid genomics and phenotypic diversity in a comparative context
8:30 AM	S8.2	DI PALMA, F, SWOFFORD, R, GRABHERR, M, MAUCELI, E, PIRUN, M, LANDER, ES, LINDBLAD-TOH, K; Broad Institute of Harvard and Massachusetts Institute of Technology, Genome Biology	Sequencing the genome of non-traditional model organisms.
9:00 AM DEDB	S8.3	ALBERTSON, RC; Syracuse University	Integration and evolution of the cichlid feeding apparatus II: adaptations for power
9:30 AM DEDB	S8.4	STOCK, DW; University of Colorado, Boulder	Zebrafish developmental genetics and the mechanisms of dental evolution
10:00 AM	COFFEE BREAK - GALLERIA		
10:30 AM	S8.5	STREELMAN, JT; Georgia Institute of Technology	Constraint and diversification in the evolutionary development of cichlid dentitions
11:00 AM	S8.6	BOUGHMAN, JW; University of Wisconsin-Madison	Genetics and the nature of selection on reproductive isolation in sticklebacks
11:30 DEE	S8.7	CARLETON, KL; University of Maryland	The diversity of cichlid vision
NOON	LUNCH BREAK		
1:00 PM DEDB	S8.8	KOCHER, TD; University of Maryland	Evolution of sex determination in East African cichlid fishes
1:30 PM	S8.9	CHESLER, EJ, ZHANG, Y, PHILIP, VM, CULIAT, CT, LANGSTON, MA, CHURCHILL, GA, MANLY, KF, VOY, BH; Oak Ridge National Laboratory, University of Tennessee, Knoxville, The Jackson Laboratory, Bar Harbor, University of Buffalo, NY	From genome to systems genetics: the collaborative cross mouse genetic reference population
2:00 PM	S8.10	HOFMANN, HA; University of Texas, Austin	Evolution of cichlid mating systems: how social behavior sculpts brains and genomes
2:30 PM DAB	S8.11	RENN, SCP; Reed College, Portland OR	Microarrays for evolutionary models of social behavior: *Astatotilapia burtoni* and beyond

8:00 AM-3:00 PM
Otis

Symposium S9: Psychoneuroimmunology Meets Integrative Biology

Supported by: DCE

Organized by: Lynn Martin II

8:00 AM	S9.1	KELLEY, KW, DANTZER, R; University of Illinois	Inflammation: history and future of PNI and potential synergy with integrative biology
8:30 AM	S9.2	PITTMAN, QJ; University of Calgary	Postnatal inflammation programs adult physiology
9:00 AM	S9.3	DHABHAR, FS; Stanford University, Stanford, CA.	A hassle a day may keep the pathogens away: the fight-or-flight stress response and the augmentation of immune function
9:30 AM	S9.4	ADAMO, SA; Dalhousie University	The role of physiological constraints in psychoneuroimmunology
10:00 AM	COFFEE BREAK - GALLERIA		
10:30 AM DCE	S9.5	KUHLMAN, JR, MARTIN, LB; University of South Florida	Stress effects on immune activity in house sparrows (*Passer domesticus*)
10:50	S9.6	BAILEY, M; The Ohio State University	Impact of stressor exposure on intestinal microbiota
11:10	S9.7	BILBO, SD; Duke University	Early life environment influences on neuroimmune interactions and behavior in adulthood
11:30 AM DCE	S9.8	FRENCH, SS, MOORE, MC, DEMAS, GE; Indiana University, Arizona State University	Ecoimmunology: the organism in context
11:50 AM	LUNCH BREAK		
1:00 PM	S9.9	PRENDERGAST, BJ; University of Chicago	Photoperiodic regulation of reproduction and immunity
1:20 PM	S9.10	GODBOUT, JP; The Ohio State University, Columbus	Neuroinflammation and behavioral deficits in the aged: is microglial hyperactivity to blame?
1:40 PM	S9.11	WEIL, ZM, NORMAN, G, DEVRIES, AC, NELSON, RJ; Ohio State University	The injured nervous system: a Darwinian perspective
2:00 PM			Roundtable Discussion

8:00 AM-3:00 PM
Stone

Symposium S10: Evolution of Mechanisms Controlling Timing of Breeding in Animals

Supported by: DCE, DAB

Organized by: Michaela Hau and Thomas Hahn

8:00 AM	S10.1	MABRY, KE; Miami University	Ecological influences on seasonal (and aseasonal) breeding in brush mice
8:30 AM DCE	S10.2	SCHOECH, SJ; University of Memphis, TN	Food supplementation experiments: a tool to reveal mechanisms that mediate timing of reproduction

9:00 AM	S10.3	NUSSEY, DH; Institute of Evolutionary Biology, University of Edinburgh	Plasticity in breeding time in wild vertebrates: a quantitative genetic approach
9:30 AM	S10.4	COPPACK, T; University of Zurich, Switzerland	Springing ahead - the evolution and control of avian protandry
10:00 AM	COFFEE BREAK - GALLERIA		
10:30 AM	S10.5	YOSHIMURA, T; Nagoya University	Molecular and endocrine mechanisms of vertebrate photoperiodic response
11:00 AM	S10.6	KRIEGSFELD, LJ, GIBSON, EM, WILLIAMS, WP, BENTLEY, GE, TSUTSUI, K; University of California, Berkeley, Waseda University	The circadian control of neuroendocrine and ovulatory function: lessons from the young and old
11:30 DNB	S10.7	BENTLEY, GE, UBUKA, T, MCGUIRE, NL, CALISI, RM, PERFITO, MN, TSUTSUI, K, WINGFIELD, JC; University of California, Berkeley, Waseda University, Japan, University of California, Davis	Regulation of vertebrate reproduction by GnRH and GnIH
NOON	LUNCH BREAK		
1:00 PM DCE	S10.8	PERFITO, N, ZANN, RA, HAU, M, BENTLEY, GE; University of California, Berkeley, LaTrobe University, Australia, Max Planck Institute for Ornithology, Radolfzell, Germany	Physiological control of non-seasonal reproduction: opportunistic breeding
1:30 PM DAB	S10.9	HEIDEMAN, PD, PITTMAN, JT; College of William and Mary	Evolution of neuroendocrine mechanisms that regulate reproduction in white-footed mice (Peromyscus leucopus)
2:00 PM	S10.10	HELM, B; Max Planck Institute for Ornithology, Seewiesen and Andechs	Temporal coordination of life cycle stages: an avian chronobiology perspective
2:30 PM DAB	S10.11	MACDOUGALL-SHACKLETON, SA, STEVENSON, TJ, WATTS, HE, PEREYRA, ME, HAHN, TP; University Western Ontario, Johns Hopkins University, University of California, Davis, University of Tulsa	The evolution of photoperiod response systems and seasonal GnRH plasticity in birds

8:00 AM-Noon
Grand Ballroom C

Session 54: Metabolism, Part I

Co-Chairs: L. Langlois, Ione Hunt bon Herbing

8:00 AM	54.1	BAUCHINGER, U, MCWILLIAMS, SR; University of Rhode Island	Carbon turnover in tissues of a passerine bird: allometry, isotopic clocks, and phenotypic flexibility in organ size
8:20 AM	54.2	BEN-EZRA, E, HUMPHRIES, MM; McGill University	Intra-specific variation in the metabolic rate of the red squirrel (*Tamiasciurus hudsonicus*) across western Canada
8:40 AM	54.3	FLETCHER, QE, SELMAN, C, SPEAKMAN, JR, LEEUWENBURGH, C, HUMPHRIES, MM; McGill University, University of Aberdeen, University of Florida	Metabolically mediated oxidative stress and in a free-ranging mammal
9:00 AM DCPB	54.4	GRIM, JM, CROCKETT, EL, KRISKA, T, HYNDMAN, KA, ALBERT, GW; Ohio University and MDI Biological Laboratory, Medical College of Wisconsin, Medical College of Georgia	Protection of elevated membrane PUFA contents by GPx4 in marine vertebrates
9:20 AM DCPB	54.5	HUNT VON HERBING, I, CASHON, BABCOCK; University of North Texas, University of Maine, Dahl-Chase Diagnostics	Hemoglobin polymerization in fishes: a physiological antioxidant?
9:40 AM	COFFEE BREAK - GALLERIA		
10:00 AM DCPB	54.6	LEASE, HM, KLOK, CJ, KAISER, A, HARRISON, JF; University of New Mexico, Willamette University, Arizona State University, Midwestern University	The scaling of critical P_{O2} in coleoptera
10:20 AM DCPB	54.7	YEATES, LC, WILLIAMS, TM, TINKER, MT; University of California Santa Cruz	The challenge of energetic and thermal balance in aquatic environments: a simple bioenergetic-behavioral model for sea otters
10:40 AM DCPB	54.8	DUNKIN, RC, DAVIDSON, E, ROBERTS, K, HURLEY, W, WILLIAMS, TM; University of California, Santa Cruz, Dolphin Conservation Center	Longitudinal measurements of caloric intake and body condition in Atlantic bottlenose dolphins (*T. truncatus*) across three thermal environments
11:00 AM DCPB	54.9	LANGLOIS, L, MCWILLIAMS, S*; University of Rhode Island	Protein requirements of seasonally frugivorous songbirds decrease during migration
11:20 AM DCPB	54.10	GIRGUIS, PR, NYHOLM, SV, ROBIDART, JA; Harvard University, University of Connecticut	From metabolite flux to gene expression and proteomics: insights into the molecular mechanisms underlying primary productivity in hydrothermal vent tubeworms
11:40 AM	54.11	LIGHTON, JRB; University of Nevada, Las Vegas	FM, not AM: gas exchange during rest and activity in non-flying insects

8:00 AM-Noon
Commonwealth A

Session 55: Population Ecology

Co-Chairs: Sarah Berke, Lisa Belden

8:00 AM	55.1	KACENAS, SE, PODOLSKY, RD; College of Charleston	Role of parental control in the symbiotic relationship between *Melanochlamys diomedea* egg masses and photosynthetic algae
8:20 AM	55.2	DESROCHERS, DW, MCWILLIAMS, SR, SILBERNAGLE, MD, REED, JM; Tufts University, University of Rhode Island, Coastal Institute in Kingston, US Fish & Wildlife Service	Do energy and nutritional value of food influence Hawaiian moorhen (*Gallinula chloropus sandvicensis*) abundance?
8:40 AM	55.3	LAFLEUR, N, MEROW, C, RUBEGA, M, SILANDER, J; University of Connecticut	Predicting the rate of spread for a bird-dispersed invasive plant using simulation modeling
9:00 AM DEE	55.4	BERKE, SK, CRUZ, V; Smithsonian Environmental Research Center, Florida State University	Sublethal predation in an ecosystem engineering polychaete
9:20 AM	55.5	BAUMANN, H, CONOVER, DO; Stony Brook University	Contrasting latitudinal patterns of countergradient growth variation in silverside fishes (Pisces: Atherinidae) from the Pacific vs Atlantic coasts
9:40 AM DEE	55.6	MOORE, MS, JACKSON, FR, TURMELLE, AS, PANASUK, BJ, MENDONCA, MT, RUPPRECHT, CE, KUNZ, TH, MCCRACKEN, GF; Boston University, Centers for Disease Control and Prevention, Atlanta, University of Tennessee, Knoxville, Auburn University	Rabies exposure, relative immune function and life-history traits in the big brown bat, *Eptesicus fuscus*
10:00 AM	COFFEE BREAK - GALLERIA		
10:20 AM	55.7	TOUCHON, JC, WARKENTIN, KM; Boston University	Morphological responses to abiotic and biotic factors: temperature effects on predator-induced phenotypes in a neotropical treefrog tadpole
10:40 AM DEE	55.8	BELDEN, LK, WOJDAK, JM; Virginia Tech, Radford University	Combined impact of parasites and predators on wood frog tadpoles
11:00 AM DEE	55.9	MURRAY, IW, WOLF, BO; University of New Mexico, Albuquerque	Exploring the nutritional ecology of the ornate box turtle in New Mexico via stable isotope analyses
11:20 AM DEE	55.10	PEROTTI, EA, LINDBERG, DR, ESTES, JA; University of California, Berkeley, University of California, Santa Cruz	A bumpy road: the effects of surface complexity on a dominant intertidal limpet

11:40 AM DEE	55.11	BARTHELL, JF, CLEMENT, ML, WELLS, H, CROCKER, KC, BECKER, EC, LEAVITT, KD, MCCALL, BT, MILLS-NOVOA, M, WALKER, CM, PETANIDOU, T; University Central Oklahoma, University of Tulsa, Cornell University, Portland State University, Oklahoma State University, Lewis and Clark College, University of the Aegean, Lesvos	Foraging patterns of bees in response to nectar availability in populations of the invasive thistle species *Centaurea solstitialis* L. in native (Greece) and non-native (USA) island ecosystems

8:00-9:40 AM
Commonwealth B

Session 56: Phylogenetics and Systematics - Invertebrates

Chair: Jon Norenburg

8:00 AM DIZ	56.1	SCHWARTZ, ML, NORENBURG, JL; Seattle University, Smithsonian Institution, Washington, DC	Molecular phylogenetics and taxonomy of pilidiophoran nemerteans: tackling a can of worms
8:20 AM DSEB	56.2	SHIELDS, CC, MARKO, PB, WOODS, HA, MORAN, AL; Clemson University, University of Montana	Nudibranch diversity in the Ross Sea, Antarctica: they're cold, but are they old?
8:40 AM DSEB	56.3	KOCOT, KM, HALANYCH, KM; Auburn University	Molluscan phylogeny investigated using three nuclear protein-coding genes
9:00 AM DSEB	56.4	CANNON, JT, RYCHEL, AL, SWALLA, BJ, HALANYCH, KM; Auburn University, University of Washington	Hemichordate evolution: derived body plans and suspect families
9:20 AM	56.5	REVELL, LJ, COLLAR, DC, HARMON, LJ; Harvard University, University of Idaho	The measurement and interpretation of phylogenetic signal

9:40 AM COFFEE BREAK - GALLERIA

10 AM-Noon
Commonwealth B

Session 57: Phylogenetics and Systematics - Vertebrates

Co-Chairs: Marguerite Butler, Don Swiderski

10:00 AM	57.1	RIVERA, JA, BUTLER, M; University of Hawaii, Manoa	Determining phylogenetic relationships of microhylid frogs using mitochondrial and nuclear gene sequences
10:20 AM DVM	57.2	CLAESON, KM; The University of Texas at Austin	Synarcual variation in the purportedly invariable clade, rajidae
10:40 DAB	57.3	OTA, KG, KURATANI, S; RIKEN CDB	Phylogeny of early vertebrates based on evidence from developmental study of hagfish
11:00 AM	57.4	CHOINIERE, JN, CLARK, JM, XING, X, FORSTER, CA; George Washington University, Washington, Institute for Vertebrate Paleontology and Paleoanthropology, China	A dynamic approach to digital homology in Tetanura (Dinosauria: Theropoda)

11:20 AM DVM	57.5	BUTLER, MA, KING, AA; University of Hawaii, University of Michigan	Multivariate comparative analysis using OUCH
11:40 AM	57.6	BORMET, AK, MARCOT, JD, SEARS, KE; University of Illinois	Evolutionary rates and patterns of artiodactyl limb reduction

8:00-9:40 AM
Burroughs

Session 58: Neurobiology: Neurotransmitters & Neuroanatomy

Chair: Robin Cooper

8:00 AM DEE	58.1	HOEKSTRA, LA, MOROZ, LL, HEYLAND, A; Friday Harbor Labs, Indiana University, The Whitney Laboratory for Marine Bioscience, University of Florida, University of Guelph	A new perspective on the echinoderm nervous system: abundant histaminergic and FMRFaminergic-like cells in the sea cucumber *Leptosynapta clarki*
8:20 AM DNB	58.2	BIERMAN, HS, TOBIN, A-E, REHM, KJ, MARDER, E; Brandeis University, Waltham	Dye- and electrical-coupling between gastric and pyloric neurons in the stomatogastric ganglion of the lobster *Homarus americanus*
8:40 AM DNB	58.3	CHARVET, CJ, SANDOVAL, AL, STRIEDTER, GF; University of California, Irvine	The goose (*Anser anser f. d.*), a precocial species, enlarged its telencephalon before neurogenesis onset
9:00 AM	58.4	MUSCEDERE, ML, SEID, M, JOHNSON, N, WILLEY, T, GILLIS, B, TRANIELLO, JFA; Boston University, Smithsonian Tropical Research Institute, Northwestern University, Chicago	Brains, neurotransmitters, nursing, and foraging in the ant *Pheidole dentata*
9:20 AM DNB	58.5	TURNER, AC, COOPER, RL; Univ of Kentucky, Lexington	The effects of an altered dopaminergic system on behavior, development, and physiology in Drosophila melanogaster

9:40 AM COFFEE BREAK - GALLERIA

10:00-11:40 AM
Burroughs

Session 59: Complementary Session: PharmEcology: A Pharmacological Approach to Understanding Plant-Herbivore Interactions

Chair: Michele Skopic

10:00 AM	59.1	SHIPLEY, LA, FORBEY, J; Washington State University, Boise State University	Revisiting the niche: when is a mammalian herbivore a specialist?
10:20 AM	59.2	TORREGROSSA, A-M, AZZARA, AV, DEARING, MD; University of Utah, Salt Lake City, Bristol Myers Squibb, Princeton	Specialist and generalist herbivores regulate food intake on diets containing novel plant compounds
10:40 AM DEE	59.3	CRAFT, JD, PAUL, VJ, SOTKA, EE; The College of Charleston, Smithsonian Marine Station	A coevolutionary arms-race between macroalgae and herbivores: are tropical herbivores more tolerant of lipophilic secondary metabolites than temperate herbivores?

11:00 AM	59.4	POORE, AGB, SOTKA, EE; University of New South Wales, College of Charleston	Historical constraints on host use in herbivorous marine amphipods
11:20 AM DCPB	59.6	SKOPEC, MM, NEBEKER, C, DEARING, MD; Weber State University, University of Utah	Catechol-O-methyl transferase may play an important role in allowing *Neotoma stephens*: to specialize on juniper

8:20 AM-Noon
Carlton

Session 60: Muscle Physiology

Co-Chairs: David Coughlin, Steve Kinsey

8:20 AM DCPB	60.1	BURPEE, JL, KINSEY, ST; University of North Carolina Wilmington	Scaling with body mass of mitochondrial respiration in fish white muscle
8:40 AM	60.2	ENG, CM, HIGHAM, TE, BIEWENER, AA; Harvard University, Cambridge, Clemson University	Muscle fiber length operating ranges reflect disparate functions between muscles
9:00 AM	60.3	RIQUELME, CA, MAGIDA, J, SECOR, SM, LEINWAND, LA; University of Colorado, Boulder, University of Alabama, Tuscaloosa	Pro-hypertrophic factors present in post-prandial python serum: effects on neonatal rat cardiomyocytes
9:20 AM DCPB	60.5	COVI, JA, BADER, BA, WASMUNDT, NM, CHANG, ES, MYKLES, DL*; Colorado State University, University of California, Davis Bodega Marine Lab	Myostatin signaling and the regulation of a molt-induced atrophy in crustacean claw muscle
9:40 AM	COFFEE BREAK - GALLERIA		
10:00 AM DCPB	60.6	JIMENEZ, AG, KINSEY, ST; University of North Carolina Wilmington	Reduced cost of Na+-K+ pump activity in large muscle fibers of the lobster, Homarus americanus
10:20 AM DCPB	60.7	WELCH, KC, KEENEY, BK, ALTSHULER, DL; University of California, Riverside	Anatomy of the hummingbird flight motor
10:40 AM DCPB	60.8	TRUMBLE, SJ, HAWKE, TJ, PEARSON, LE, KANATOUS, SB; Baylor University, York University, University of Alaska Anchorage, Colorado State University	Skeletal muscle lipids in Weddell seals (Leptonychotes weddellii): differences in age class and possible response to resource limitations
11:00 AM	60.9	SAPIR, N, NATHAN, R, WIKELSKI, M; The Hebrew University of Jerusalem, Max Planck Institute for Ornithology	Heart-rates of European bee-eaters migrating over southern Israel
11:20 AM DCPB	60.10	JIMENEZ, AG, LOCKE, BR, KINSEY, ST*; University of North Carolina Wilmington	The influence of oxygen and high-energy phosphate diffusion on metabolic scaling in three species of tail-flipping crustaceans
11:40 AM DVM	60.11	COUGHLIN, DJ; Widener University, Chester	Does urea affect the calcium binding properties of parvalbumin and thereby alter muscle relaxation in trout?

8:00-9:40 AM
Grand Ballroom D

Session 61: Developmental Cell Biology - Invertebrate Embryonic Development

Co-Chairs: Julian Smith, Constance Rogers-Lowery

8:00 AM DDCB	61.1	FRAIRE-ZAMORA, JJ, CARDULLO, RA; University of California, Riverside	Molecular differences between male and hermaphrodite sperm in the nematode *Caenorhabditis elegans*
8:20 AM DSEB	61.2	MOOI, R, DAVID, B; California Academy of Sciences, Centre National de la Recherche Scientifique, Dijon	Axes of evol: Anterior-posterior body patterning is congruent with a disordered Hox cluster in echinoderms
8:40 AM	61.3	MERRY, JW, RUTOWSKI, RL; Arizona State University	Does body size limit eye size in *Drosophila melanogaster*?
9:00 AM	61.4	DICK, MH, GORDON, DP, LIDGARD, S*, MAWATARI, SF; Hokkaido University, Japan, National Institute of Water and Atmospheric Research, New Zealand, Field Museum, Chicago	Parallel evolution of key innovations in a phylum of modular animals
9:20 AM DIZ	61.5	SMITH III, JPS, EGGER, B, TYLER, S, LADURNER, P, ACHATZ, J, MERLIE, S; Winthrop University, University of Innsbruck, University of Maine	Neoblasts in nemertodermatida
9:40 AM	COFFEE BREAK - GALLERIA		

10:00-11:20 AM
Grand Ballroom D

Session 62: Developmental Cell Biology - Larval Development

Co-Chairs: Julian Smith, Constance Rogers-Lowery

10:00 AM	62.1	HUANG, Y, HADFIELD, MG; University of Hawaii at Manoa	Identifying genes from a marine bacterium that are involved in metamorphic induction of the tube worm *Hydroides elegans*
10:20 AM DIZ	62.2	HADFIELD, MG, HUGGETT, M; University of Hawaii at Manoa	Larval settlement, primary tube formation, and the role of the primary tube in the polychaete *Hydroides elegans*
10:40 AM DIZ	62.3	STANTON, DL, SMITH III, JPS; Winthrop University	The role of melatonin in the cellular processes in the suppression of asexual reproduction in *Stenostomum virginianum* (*Platyhelminthes, Catenulida*)
11:00 AM	62.5	LENKOWSKI, JR, MCLAUGHLIN, KM; Tufts University, Medford	Disruption of tissue morphogenesis in pesticide-exposed *Xenopus laevis* tadpoles

8:20-9:40 AM
Grand Ballroom E

Session 63: Macroevolution and Paleobiology - Morphology

Co-Chairs: Chris Organ, Richard Lund

8:20 AM DEE	63.1	ORGAN, C, MEADE, A, PAGEL, M; Harvard University	Bayesian inference of discrete character states
8:40 AM DVM	63.3	LUND, R, GROGAN, ED; Carnegie Museum, Saint Joseph's University	Tooth whorls in chondrichthyes: the edestoids, *Helicoprion*, and other nightmarish sharks of the past
9:00 AM DSEB	63.4	DEMAINTENON, M; University of Hawaii, Hilo	Body size within species groups; do snail taxa have a specific size?
9:20 AM	63.5	MAHLER, DL; Harvard University	Convergence and parallelism in the evolution of *Anolis* tail length

9:40 AM COFFEE BREAK - GALLERIA

10:00 AM-Noon
Grand Ballroom E

Session 64: Macroevolution and Paleobiology - Radiation Speciation and Parallelism

Co-Chairs: Jonathan Losos, Marshall McCue

10:00 AM	64.1	DACOSTA, JM, SHULL, HC, SEFC, KM, BALAKRISHNAN, CN, PAYNE, RB, SORENSON, MD; Boston University, University of Michigan	Recent sympatric diversification of brood parasitic indigobirds: setting an upper limit on speciation times
10:20 AM DIZ	64.2	VENDETTI, JE; University of California, Berkeley	The fossil neogastropod genus *Bruclarkia* in the Eastern Pacific: investigations of its endemism and speciation
10:40 AM	64.3	LOSOS, JB; Harvard University	Is adaptive radiation an island phenomenon? Comparison of mainland and West Indian *Anolis* lizard evolution
11:00 AM DSEB	64.4	ALFARO, ME, HARMON, LJ, CARNEVALE, G, SANTINI, F; University of California, Los Angeles, University of Idaho, University of Pisa	Did the Fish-Specific Genome Duplication (FSGD) event spawn the teleost radiation? Evidence from the analysis of actinopterygian diversification rates
11:20 AM DCPB	64.5	MCCUE, MD; Blaustein Institutes for Desert Research, Ben Gurion University	Hyperoxia reduces the costs of digestion in snakes: investigating the energetic consequences of the paleoatmosphere
11:40 AM DIZ	64.6	WARWICK, AR, HOPKINS, MJ*, BERENDZEN, PB, THURMAN, CL*; University of Northern Iowa, *University of Chicago	Morphological, physiological, and genetic variation in the red-jointed fiddler crab, *Uca minax* (*Le Conte*)

8:20-9:40 AM
Griffin

Session 65: Environmental Endocrinology

Chair: Luke Butler

8:20 AM DCE	65.1	BUTLER, LK, RIES, L, HAYDEN, TJ, BISSON, I-A, WIKELSKI, M, ROMERO, LM; Tufts University, University of Maryland, Engineering Research and Development Center, Princeton University, Max Planck Institute for Ornithology	Physiological and demographic effects of roads on an endangered, old-growth specialist and a common generalist
8:40 AM DAB	65.2	FOLTZ, SL, DAVIS, JE, LEI, F, WINGFIELD, JC; University of California, Davis, Radford University, Chinese Academy of Sciences, Institute of Zoology	Hormone levels in laying and non-laying female Eurasian tree sparrows on the Tibetan Plateau
9:00 AM DCE	65.3	CORNELIUS, JM, ZYLBERBERG, M, BREUNER, CW, HAHN, TP; University of California, Davis, University of Montana	Stress physiology and parasite burden differ during winter and summer breeding in a north-temperate zone temporal opportunist, the red crossbill *Loxia curvirostra*
9:20 AM DCE	65.4	ASTHEIMER, LB, PRYKE, SR, MAUTE, K, GRIFFITH, SC, BUTTEMER, WA; University of Wollongong, Macquarie University	Effects of diet quality on glucocorticoid characteristics in Gouldian finch: lessons for evaluating avian health
9:40 AM DCE	65.5	CHEEK, AO; Houston Baptist University	Hypoxia alters gonadal androgen synthesis in the estuarine fish *Fundulus grandis*

10:00 AM COFFEE BREAK - GALLERIA

10:20-11:40 AM
Griffin

Session 66: Complementary Session: Cell-Cell Signaling Drives the Evolution of Complex Traits - Cell-Cell Signaling

Chair: Billie Swalla

10:20 AM DEDB	66.1	MARLOW, HQ, ROETTINGER, E, MARTINDALE, MQ*; University Hawaii, Kewalo Marine Lab	Notch signaling during embryogenesis in the cnidarian *Nematostella vectensis*
10:40 AM DEDB	66.2	SWALLA, BJ; University of Washington	Development and evolution of ptychoderid hemichordates
11:00 AM DAB	66.3	BALENGER, SL, BONNEAUD, C, EDWARDS, SV, HILL, GE; Auburn University, Harvard University	Searching for good genes in the house finch
11:20 AM	66.4	HARJUNMAA, E, THESLEFF, I, JERNVALL, J; Institute of Biotechnology, University of Helsinki, Finland	Tinkering with ectodysplasin reveals the dynamic basis of tooth development and morphology

8:00-9:40 AM
Harbor I

Session 67: Feeding - Biteforce

Chair: Alice Gibb

8:00 AM DCB	67.1	GIGNAC, PM, ERICKSON, GM; Florida State University	Biomechanical modeling of bite-force generation in the America alligator (*Alligator mississippiensis*) throughout ontogeny
8:20 AM	67.2	PFALLER, JB, ERICKSON, G; Florida State University, Tallahassee	Intraspecific scaling of bite-force generation in a durophagous turtle, *Sternotherus minor minor*
8:40 AM DCB	67.3	SPAGNA, JC, PATEK, SN, SUAREZ, AV; William Paterson University, University of California, Berkeley, University of Illinois, Urbana-Champaign	Polymorphic trap-jaws: intra- and interspecific scaling of jaw forces in trap-jaw ants
9:00 AM DVM	67.4	HABEGGER, ML, MOTTA, PJ, HUBER, DR; University of South Florida, University of Tampa	Feeding biomechanics and bite force in bull sharks (*Carcharhinus leucas*) over ontogeny
9:20 AM DVM	67.5	TANNER, JB, DUMONT, ER, SAKAI, ST, LUNDRIGAN, BL, HOLEKAMP, KE; University of Massachusetts, Amherst, Michigan Sate University, East Lansing	The role of the fronto-parietal sinus during bone-cracking in spotted hyenas

9:40 AM COFFEE BREAK - GALLERIA

10:00 AM-Noon
Harbor I

Session 68: Feeding - Fish I

Chair: Alice Gibb

10:00 AM DVM	68.1	GIBB, A, PACE, C, FERRY-GRAHAM, L, ARENA, A, PORTER WOLFE, H; Northern Arizona University, Moss Landing Marine Laboratory, University of South Florida	Is there functional convergence among ray-finned fishes with a crocodilian-like morphology? Feeding behavior of the small piscivore *Belonesox belizanus*
10:20 AM	68.2	MARTIN, CH, WAINWRIGHT, PC; University of California, Davis	Divergence in trophic morphology and diet within a young radiation of *Cyprinodon* pupfishes on San Salvador Island, Bahamas
10:40 AM DVM	68.3	CLARK, AJ, MARAVILLA, EJ, SUMMERS, AP; University of California, Irvine	Biomechanics of feeding in a jawless fish
11:00 AM DVM	68.4	GIDMARK, NJ, STAAB, KL, HERNANDEZ, JP, BRAINERD, EL; Brown University, George Washington University	XROMM analysis of 3D skeletal movement during premaxillary protrusion in common carp
11:20 AM DVM	68.5	SANFORD , CPJ, DAY, S, KONOW, N; Hofstra University, Hempstead, Rochester Institute of Technology, Johns Hopkins Medical Institute, Baltimore	The role of mouth shape on the hydrodynamics of suction feeding in fishes

11:40 AM DVM	68.6	RAMSAY, JB, WILGA, CD; University of Rhode Island	Jaw depressor function during feeding in little skates, *Leucoraja erinacea*

8:00-9:40 AM
Harbor II

Session 69: Locomotion - Balance and Stability

Co-Chairs: A.C. Hitchcock, Sharon Swartz

8:00 AM DVM	69.1	NAUWELAERTS, S, MALONE, S, CLAYTON, HM; Michigan State University, East Lansing	Development of interlimb coordination in young horses
8:20 AM	69.2	TAN, H, WILSON, AM; The Royal Veterinary College, UK	Turning performance of horses
8:40 AM DVM	69.3	MORENO, CA, BIEWENER, AA; Harvard University	Quadrupedal turning behaviors: mechanics and gait preference
9:00 AM DCB	69.4	ASTLEY, HC, JAYNE, BC; Brown University, University of Cincinnati	Arboreal habitat structure affects the performance and modes of locomotion of corn snakes (*Elaphe guttata*)
9:20 AM DCB	69.5	LAMMERS, AR, ZURCHER, U; Cleveland State University	How does a small arboreal mammal use its tail to maintain its balance while traveling on tree branches?

9:40 AM COFFEE BREAK - GALLERIA

10:00 AM-Noon
Harbor II

Session 70: Locomotion - Flight Bats

Co-Chairs: A.C. Hitchcock, Sharon Swartz

10:00 AM	70.1	ARMOUR, MT; C.W. Post Campus of Long Island University	Patterns of variation in chiropteran wing folding: with special attention to differences in joint morphology
10:20 AM DCB	70.2	SWARTZ, SM, RISKIN, DK, IRIARTE, J, MIDDLETON, KM, BREUER, KS; Brown University, University of Chicago, California State University, San Bernardino	Scaling of flight characteristics in bats
10:40 AM DCB	70.3	IRIARTE-DIAZ, J, RISKIN, DK, SWARTZ, SM; Brown University	No net thrust on the upstroke: the effect of wing inertia on body accelerations of fruit bats during flight
11:00 AM	70.4	WILLIS, DJ, RISKIN, DK, SWARTZ, SM, PERAIRE, J, BREUER, KS; University Massachusetts, Lowell, Brown University, Massachusetts Institute of Technology	Computational modeling of the aeromechanics of a bat (*Cynopterus brachyotis*)
11:20 AM DVM	70.5	HUBEL, T, BREUER, K, SWARTZ, S; Brown University	Individual variability in the aerodynamics and kinematics of bat flight

11:40 AM DCB	70.6	RISKIN, DK, BAHLMAN, JWM, HUBEL, TY, RATCLIFFE, JM, KUNZ, TH, SWARTZ, SM; Brown University, University of Southern Denmark, Boston University	Oh what a feeling: the kinematics and kinetics of landing on a ceiling

8:20-9:40 AM
Harbor III

Session 71: Evolutionary Morphology - Suction Feeding

Co-Chairs: Andrew Carroll, Peter Wainwright

8:20 AM DVM	71.1	GROGAN, ED, LUND, R; Saint Joseph's University, Carnegie Museum	Heads, jaws, and feeding: in search of the basal chondrichthyan condition
8:40 AM DCB	71.3	WAINWRIGHT, PC, HOLZMAN, RA, MEHTA, RS, HULSEY, CD; University of California, Davis, University of Tennessee, Knoxville	Integrated diversification of suction feeding performance in centrarchid and cichlid fishes
9:00 AM DVM	71.4	CARROLL, AM, HUSKEY, S, WAINWRIGHT, PC; University of Evansville	Muscle mass limtis suction feeding performance among three centrarchid species
9:20 AM DVM	71.5	COLLAR, D, REVELL, L; Harvard University	Correlated evolution of feeding morphology in piscivorous *versus* non-piscivorous centrarchid fishes

9:40 AM COFFEE BREAK - GALLERIA

10:00 AM-Noon
Harbor III

Session 72: Evolution Morphology - Novelty

Co-Chairs: Patricia Hernandez, Rita Mehta

10:00 AM DEDB	72.1	HERNANDEZ, LP, STAAB, KL; George Washington University	Turning a model on its head: using zebrafish to investigate the origin and evolution of morphological novelty
10:20 AM DEDB	72.2	BIRD, NC, HERNANDEZ, LP; George Washington University	Constructing a complex morphological novelty: insights from growth, development, and genetics of the cypriniform Weberian apparatus
10:40 AM DEDB	72.3	STAAB, KL, HERNANDEZ, LP; George Washington University	Kinethmoid-mediated premaxillary protrusion: development of a complex trait provides clues to its evolution
11:00 AM DVM	72.4	MEHTA, RS, ALFARO, ME, WAINWRIGHT, PC; University of California, Davis, University of California, Los Angeles	Cranial diversity in Anguilliform fishes: does morphological disparity lead to lower levels of modular integration?
11:20 AM DSEB	72.5	DORNBURG, A, SIDLAUSKAS, BL, SORENSON, L, SANTINI, F, ALFARO, ME; Yale University, National Evolutionary Synthesis Center, Virginia Institute of Marine Science, University of California, Los Angeles	Morphological and mechanical patterns of evolution in triggerfish fins

11:40 AM DVM	72.6	ADRIAENS, D, CHRISTIAENS, J; Ghent University, Gent Belgium	Candiru catfish ... a fish with many names and many novelties

8:00-9:40 AM
Webster

Session 73: Terrestrial Locomotion - Hopping

Co-Chairs: James Wakeling, Olaf Ellers

8:00 AM DCB	73.1	GUTMANN, AK, BERTRAM, JEA, RUINA, A; University of Calgary, Cornell University	Metabolic cost of human hopping: linking mechanics and physiology of locomotion
8:20 AM DCB	73.2	YOO, EH, LEE, DV, BIEWENER, AA; Harvard University, University of Nevada Las Vegas	Actuation and compliance of goat foreleg during landing jumps
8:40 AM DCB	73.3	EVANGELISTA, DJ; University of California, Berkeley	Up, up, and away! The jump of the amphipod *Apohyale pugettensis*
9:00 AM DCB	73.4	MCGOWAN, CP; University of Texas at Austin	Could giant kangaroos hop? Scaling of tendon geometry and skeletal features
9:20 AM DCB	73.5	CHI, K-J, SCHMITT, D, ROTH, VL; Duke University, National Chung-Hsing University, Taiwan	Different functional mechanisms of foot-footpad complex for plantigrade and digitigrade mammals in the context of locomotion

9:40 AM COFFEE BREAK - GALLERIA

10:00 AM-Noon
Webster

Session 74: Terrestrial Locomotion - Running

Co-Chairs: James Wakeling, Olaf Ellers

10:00 AM DCB	74.1	ELLERS, O, YOSHIMURA, K, MOTOKAWA, T, JOHNSON, AS; Bowdoin College, Maine, Tokyo Institute of Technology	An inverted pendulum model for underwater walking
10:20 AM DCB	74.2	BIKNEVICIUS, AR, MCELROY, EJ, JOHNSON, SD, BENNETT, MB, REILLY, SM; Ohio University College of Osteopathic Medicine, Athens, College of Charleston, South Carolina, University of Queensland, Gatton, Australia, University of Queensland, Brisbane, Australia, Ohio University	Primitive, protected and pendullar: locomotor dynamics of echidnas and hedgehogs
10:40 AM DCB	74.3	BIEWENER, AA, ROS, I, LEE, DV, ANTONNEN, J, HIGGINS, T; Harvard University, University of Nevada, Las Vegas	Ground reaction force and center of mass dynamics of goats and dogs during trotting and galloping
11:00 AM DVM	74.4	WAKELING, JM, BLAKE, O; Simon Fraser University	Maximizing power and efficiency from a limb during cyclic contractions

11:20 AM DVM	74.5	CLIFFORD, AB; Brown University	The evolution of unguligrady and forefoot mechanics in even-toed ungulates
11:40 AM DCB	74.6	ROS, IG, BIEWENER, AA, LEE, DV, ANTONEN, J, HIGGINS, T; Harvard University, University of Nevada, Las Vegas	Mechanical differences between trotting and galloping in quadrupeds

1:00-3:00 PM
Grand Ballroom C

Session 75: Metabolism, Part II

Chair: Mike O'Connor

1:00 PM DEE	75.1	O'CONNOR, MP, HONARVAR, S, SOTHERLAND, PR, SPOTILA, JR; Drexel University, Kalamazoo College	Biophysical factors affecting gas exchange in sea turtle nests
1:20 PM	75.2	PRATT, KL, WILSON, RS, BLOMBERG, SP, FRANKLIN, CE; University of Queensland, Australia	Diving and digestion - the effect of an elevated metabolic rate on submergence in an aquatic ectotherm
1:40 PM DEE	75.3	SIEG, A, OCONNOR, M, AGOSTA, S, MCNAIR, J, GRANT, B, DUNHAM, A; Drexel University, University of Pennsylvania, Academy of Natural Sciences, Widener University	Orthogonal regression and phylogenetic correction applied to mammalian metabolic allometry
2:00 PM DCPB	75.4	SMIT, B, MCKECHNIE, AE*; University of Pretoria	Avian seasonal metabolic adjustments in a southern subtropical desert: winter down-regulation of basal metabolic rate
2:20 PM DCPB	75.5	TIELEMAN, BI, VERSTEEGH, MA, FRIES, A, HELM, B, DINGEMANSE, NJ, GIBBS, HL, WILLIAMS, JB; University of Groningen, Ohio State University, Max Planck Institute for Ornithology	Genetic modulation of energy metabolism in birds through mitochondrial function
2:40 PM DCB	75.6	WATERS, JS, HOLBROOK, CT, FEWELL, JH, HARRISON, JF; Arizona State University, Tempe	Allometric scaling of whole colony metabolic rate in *Pogonomyrmex californicus*

1:00-3:00 PM
Commonwealth A

Session 76: Conservation Biology

Chair: Andrew Mahon

1:00 PM DEE	76.1	ARENA, AJ, GIBB, AC; Northern Arizona University	What's for dinner? Feeding ecology of two native fish in Fossil Creek, AZ
1:20 PM	76.2	BEEKEY, MA, MATTEI, JH; Sacred Heart University	Project *Limulus*: what long term mark/recapture studies reveal about horseshoe crab population dynamics in Long Island Sound

1:40 PM	76.3	TAVERNIA, BG, REED, JM; Tufts University	Urbanization measures are not interchangeable: effects of spatial scale and habitat context
2:00 PM DSEB	76.4	MAHON, AR, SENAPATI, S, FEDER, JL, CHANG, H-C, LODGE, DM; Center for Aquatic Conservation, University of Notre Dame	Rapid detection of invasive species in ballast water using molecular methods
2:20 PM	76.5	GLENNON, KL, HILL, EA, DONALDSON, J, CHURCH, SA; George Washington University	Evaluating ecological and morphological differences between the endangered Roan Mountain bluet and its common congener, *Houstonia purpurea*
2:40 PM	76.6	DUBANSKY, BD, GALVEZ, F; Louisiana State University, Baton Rouge	The physiological costs of fish gill remodeling following infection by freshwater mussel larvae.

1:00-3:00 PM
Commonwealth B

Session 77: Mechanisms of Behavior: Sensory Biology

Chair: Sabrina Burmeister

1:00 PM	77.1	MEDINA, JM, TANKERSLEY, RA; Florida Institute of Technology	Role of chemical cues in the visual orientation of horseshoe crab larvae and juveniles
1:20 PM DAB	77.2	GARDINER, JM, ATEMA, J, HUETER, RE, MOTTA, PJ; University of South Florida, Boston University Marine Program, Mote Marine Laboratory	Internarial timing differences steer sharks
1:40 PM DNB	77.3	PURI, S, FAULKES, Z; The University of Texas-Pan American	Do crayfish like spicy foods? and other tests of crustacean nociception
2:00 PM DAB	77.4	PHILLIPS, JB, DOMMER, DH, TRAN, DQ, GNIRKE, MH, FLINT, CD, PAINTER, MS; Virginia Tech	Light-dependent magnetic compass of larval *Drosophila*
2:20 PM DAB	77.5	CUNNINGHAM, GB, STRAUSS, V; St. John Fisher College, Southern African Foundation for the Conservation of Coastal Birds	Further studies investigating the behavioral responses of African penguins (*Spheniscus demersus*) to olfactory stimuli
2:40 PM	77.6	TALLEY, JL, CHIEL, HJ, WHITE, EB, WILLIS, MA; Case Western Reserve University, Texas A&M University	Using characterized air flow to explain insect pheromone tracking behavior.

1:00-3:00 PM
Burroughs

Session 78: Complementary Session: Insect Evolution

Chair: Brent Sinclair

1:00 PM	78.1	SISON-MANGUS, MP, ZACCARDI, G, KELBER, A, BRISCOE, AD; University of California, Irvine, Lund University, Sweden	Duplicate UV opsins for co-mimicking *Heliconius* butterflies
1:20 PM DCPB	78.2	SINCLAIR, BJ, RAJAMOHAN, A; University Western Ontario	Plasticity in chilling survival of *Drosophila melanogaster* larvae

1:40 PM DCPB	78.3	GRAY, EM, ROCCA, KAC, BESANSKY, NJ; University of Notre Dame	Chromosomal inversion effects on aridity tolerance in the mosquito *Anopheles gambiae*
2:00 PM DIZ	78.4	BUCHWALTER, DB, FLIPPIN, JL, XIE, L; North Carolina State University	Mercury (II) bioaccumulation and antioxidant physiology in four aquatic insects
2:20 PM	78.5	SUZUKI, T, KURATANI, S; RIKEN CDB, Japan	Morphological integration of moth wing patterns cryptically mimicking a dead leaf
2:40 PM DEE	78.6	RAGLAND, GJ, SIM, S, FEDER, JL, HAHN, DA; University of Florida, University of Notre Dame	Divergence of diapause physiology in a speciating insect: do changes in diapause energetics accompany the evolution of seasonal timing in the apple maggot fly?

1:00-3:00 PM
Carlton

Session 79: Regulation of Behavior

Chair: Jodie Jawor

1:00 PM DAB	79.1	JAWOR, J, DEVRIES, S; University of Southern Mississippi	Response to gonadotropin-releasing hormone and behavior in female northern cardinals, (*Cardinalis cardinalis*)
1:20 PM DAB	79.2	COPELAND, DL, EARLEY, RL; University of Akron, University of Alabama	Fighting is metabolically costly for both winners and losers in the convict cichlid fish *Amatitlania nigrofasciata*
1:40 PM	79.3	MUKAI, M, REPLOGLE, K, WANG, G, WACKER, D, CLAYTON, DF, WINGFIELD, JC; University of California, Davis, University of Illinois, Urbana-Champaign, University of Washington, Seattle	Effect of season and territorial aggression on hypothalamic gene expression in song sparrows
2:00 PM DVM	79.4	TODD, NE, NEFF, M; Manhattanville College	Reduction of bubble nest frequency and size by male *Betta splendens* after exposure to 17Estradiol
2:20 PM	79.5	KIDD, MR, HOFMANN, HA; University of Texas at Austin	Sex and prostaglandin: towards a mechanistic view of mate choice
2:40 PM DCE	79.6	WILCOXEN, TE, SCHOECH, SJ, BRIDGE, ES, BOUGHTON, RK, REYNOLDS, SJ; University of Memphis, Oklahoma Biological Survey, Archbold Biological Station, University of Birmingham, UK	Changes in reproductive hormones with age in the Florida scrub-jay (*Aphelocoma coerulescens*)

1:00-3:00 PM
Grand Ballroom D

Session 80: Behavioral Ecology: Reproductive Behavior

Chair: Ryan Early

1:00 PM	80.1	ADAMS, RA; University Northern Colorado, Greeley	The dark side of climate change: warmer and drier weather patterns significantly curtail reproductive efforts for western bats

1:20 PM DEE	80.2	KIM, TW, KIM, S, CHOI, JB, CHOE, JC; Ewha Woman's University, Sungkyunkwan University	Angkor Wat on the intertidal mudflats: towers built by the manicure crab *Cleistostoma dilatatum* (de Haan) for thermo-regulated ventilation
1:40 PM	80.3	WILLIS, PM, SYMULA, RE, RYAN, MJ; University of Texas, Austin	Ecological correlates of hybridization in wood warblers (family Parulidae): a mate choice perspective
2:00 PM DAB	80.4	EARLEY, RL, CAMPBELL, JM, HSU, Y; University of Alabama, California State University Fresno, National Taiwan Normal University	Consistent behavioral and life history variation within clones of the killifish *Kryptolebias marmoratus*
2:20 PM DEE	80.5	ORR, TJ, LINDENFLORS, P, DALEN, L, ANGERBJOERN, A, GARLAND, Jr, T; University of California, Riverside, Stockholm University	Delayed implantation in carnivores, causes and consequences and reproductive effort
2:40 PM DAB	80.6	MILLER, CW, FLETCHER, RJ; University of Florida	The type and timing of social information alters offspring production in the cactus bug, *Chelinidea vittiger* (Hemiptera: Coreidae)

1:00-2:40 PM
Grand Ballroom E

Session 81: Crustacean Endocrinology

Chair: Sook Chung

1:00 PM DCE	81.1	MANOR , R, WEIL, S, ROSEN, O, GAFNI, O, GLAZER, L, AFLALO, ED, VENTURA, T, SAGI, A; Ben-Gurion University of the Negev	Identification of the protein product of an insulin-like gene uniquely expressed in the androgenic gland of crayfish
1:20 PM DCE	81.2	VENTURA, T, MANOR, R, AFLALO, ED, WEIL, S, GLAZER, L, SAGI, A; Ben-Gurion University of the Negev	Insulin-like gene in prawn sexual differentiation
1:40 PM DCPB	81.3	COVI, JA, MYKLES, DL; Colorado State University	Regulation of ecdysteroidogenesis in the decapod molting gland: a new synthesis
2:00 PM	81.4	KATAYAMA, H, CHUNG, JS*; University of Maryland Biotechnology Institute, Baltimore	Co-localization of the specific binding sites of crustacean hyperglycemic hormones (CHHs) of eyestalk and pericardial organ on multiple tissues of the blue crab, *Callinectes sapidus*
2:20 PM	81.5	ZMORA, N, TSUTSUI, N, TRANT, J, CHUNG, JS; University of Maryland Biotechnology Institute, Baltimore	An additional role for molt-inhibiting hormone in the mature female blue crab *Callinectes sapidus* as a vitellogenesis stimulating hormone

1:00-2:40 PM
Griffin

Session 82: Outreach, Education & Policy

Chair: Audrey Aronowsky

1:00 PM	82.1	WONG, GK; Quinnipiac University	Creating interactive instructional experiences by utilizing technology to enhance student learning
1:20 PM DIZ	82.2	VOLTZOW, J; University of Scranton	Back to the *Origin*: incorporating Darwin in introductory courses

1:40 PM DVM	82.3	HIEBERT, SM, MORSE, MP; Swarthmore College, University of Washington, Seattle	Undergraduate research: benefiting students and professors
2:00 PM	82.4	GRABOWSKY, G, KAHAKUI, DK, ECKART, L; Chaminade University, US Environmental Protection Agency, Kai Makana (NGO)	Service-learning and values-based discussions enhance science education and student engagement
2:20 PM DSEB	82.5	ARONOWSKY, A, ANGIELCZYK, KD; Biodiversity Synthesis Center, Field Museum, Field Museum	Teaching evolution and biology using 3D virtual worlds; the I Dig Tanzania! project

1:00-3:00 PM
Harbor I

Session 83: Fish Feeding Morphology

Chair: Cheryl Wilga

1:00 PM DCB	83.1	BISHOP, KL, WAINWRIGHT, PC, HOLZMAN, R; University of California, Davis	Anterior to posterior wave of buccal expansion in suction feeding fish is critical for optimizing fluid flow velocity profile
1:20 PM	83.2	CAMP, AL, KONOW, N, SANFORD, CP; Hofstra University, Johns Hopkins Medical Institute	Trapezoids and tongues: the evolution of prey-processing mechanics in teleost fish
1:40 PM DCB	83.3	ROOS, G, VAN WASSENBERGH, S, LEYSEN, H, HERREL, A, ADRIAENS, D, AERTS, P; University of Antwerp, Belgium, University of Ghent, Belgium, University of Harvard, Cambridge	Ontogeny of feeding kinematics in the seahorse *Hippocampus reidi* from newly born to adult
2:00 PM DVM	83.4	PAIG-TRAN, MEW, STROTHER, JA, SUMMERS, A; University of California at Irvine	Estimating the ram suspension feeding efficiency of elasmobranchs
2:20 PM DVM	83.5	KERFOOT, JR, TURINGAN, RG; Florida Institute of Technology	Similarity and disparity in prey-capture kinematics between the invasive *Belonesox belizanus* and the native *Micropterus floridanus*, with implications for the ecological interaction between invasive and native species
2:40 PM	DVM 83.6	WILGA, CD; University of Rhode Island	Hyoid and pharyngeal arch function during ventilation and feeding in elasmobranchs

1:00-3:00 PM
Harbor II

Session 84: Locomotion - Flight - Insect Wing Movement

Chair: Stephen Roberts

1:00 PM DCB	84.1	ROBERTS, SP, VANCE, JT, WILLIAMS, JB, ELEKONICH, MM; University of Nevada, Las Vegas	The effects of age and behavioral development on the flight performance of honey bees
1:20 PM DCB	84.2	COMBES, SA, PALEN, WP; Harvard University, Simon Fraser University	Flight performance and aggression in jousting orchid bees: what determines success in competitive interactions?

1:40 PM	84.3	BERMAN, G, RISTROPH, L, LYON, B, BERGOU, A, COHEN, I, WANG, ZJ; Cornell University	The ascent of freely-flying fruit flies
2:00 PM	84.4	RISTROPH, LG, BERMAN, GJ, BERGOU, AJ, WANG, ZJ, COHEN, I; Cornell University	Sideways flying by phased wing flipping
2:20 PM	84.5	HU, Z, DENG, X*; University of Delaware	Aerodynamic effect of forewing-hindwing interactions in hovering and forward flight of dragonfly
2:40 PM DCB	84.6	SANTHANAKRISHNAN, A, MILLER, L, DICKSON, W, DICKINSON, M; University of North Carolina, Chapel Hill, California Institute of Technology	Aerodynamics of small insect flight and the role of bristled wings

1:00-3:00 PM
Harbor III

Session 85: Sexual Selection I

Co-Chairs: Geoffrey Hill, Jane Brockmann

1:00 PM DAB	85.1	WELCH, AM, SMITH, MJ, GERHARDT, HC; College of Charleston, SC, Arthur Rylah Institute, Victoria, AU, University of Missouri, Columbia	Heritability and genetic correlation of call duration and condition in gray treefrogs: a test of genic-capture
1:20 PM DEE	85.2	NOH, S; University of Connecticut, Storrs	Geographical variation in female and male song preference in *Chrysoperla lucasina*
1:40 PM DEE	85.3	HILL, GE, MCGRAW, KJ, LIGON, RA; Auburn University, Arizona State University, Tempe	The evolution of carotenoid pigment systems: a biochemical and phylogenetic approach
2:00 PM DEE	85.4	BALDWIN, JL, JOHNSEN, S; Duke University	Pining for pinups: the importance of color in mate choice of the blue crab *Callinectes sapidus*
2:20 PM DEE	85.5	JOHNSON, SL, BROCKMANN, HJ; University of Florida	Do horseshoe crabs benefit from polyandry?
2:40 PM DEE	85.6	KARSTEN, KB, ANDRIAMANDIMBIARISOA, LN, FOX, SF, RAXWORTHY, CJ; Oklahoma State University, University of Antananarivo, American Museum of Natural History	Sexual selection on body size and secondary sexual characters in two closely related, sympatric chameleon species in Madagascar

1:00-3:00 PM
Webster

Session 86: Terrestrial Locomotion - Running

Chair: John Bertram

1:00 PM	86.1	USHERWOOD, JR; The Royal Veterinary College	Compass-gait mechanics constrains walking speed in bipeds
1:20 PM DVM	86.2	LIEBERMAN, DE, WERBEL, W, DAOUD, A; Harvard University	Biomechanics of foot strike in habitually barefoot versus shod runners
1:40 PM	86.3	BOWTELL, MV, TAN, H, WILSON, AM; Royal Veterinary College	Effect of varying weight and inertia on maximum attainable running speed in humans
2:00 PM	86.4	LEE, J, CHOI, JT, BASTIAN, AJ, COWAN, NJ; Johns Hopkins University	Fitting the closed-loop dynamics of human running on a split-belt treadmill
2:20 PM	86.5	LI, C, UMBANHOWAR, P, KOM-SUOGLU, H, KODITSCHEK, DE, GOLDMAN, DI; Georgia Institute of Technology, University of Pennsylvania	Enhancement of legged robot speed on granular media using kinematics which promote solidification
2:40 PM DCB	86.6	SEIPEL, JE, FULL, RJ; University of California, Berkeley	How center-of-mass dynamics of hexapedal locomotion collapses to a single leg template model

6:30-7:30 PM
Harbor II/III

John A. Moore Lecture

		CARROLL, S; University Wisconsin-Madison	Into the jungle: great adventures in the search for evolution and what students can learn from them

TUESDAY P3 - POSTER SESSION 3

Galleria, 3:00 - 5:00 PM

Even # Posters - Authors present from 3:00-4:00 pm

Odd # Posters - Authors present from 4:00-5:00 pm

Cardiovascular Physiology

P3.1	BEERS, JM, SIDELL, BD; University of Maine, Orono	Nitric oxide synthase activity correlates with hemoglobin content in Antarctic notothenioid fishes
P3.2	BORLEY, KA, SIDELL, BD; University of Maine	Nitric oxide-mediated angiogenesis in Antarctic icefish?
P3.3 DCPB	CROSSLEY II, DA, TATE, KB, EME, J; University of North Dakota, University of California, Irvine	The impact of periodic dehydration stress on cardiovascular function in the embryonic American alligator (*Alligator mississippiensis*)
P3.4 DCPB	DEATON, LE; University of Louisiana at Lafayette	FMRFamide and 5HT Increase IP3 levels in gastropod hearts
P3.5 DCPB	EME, J, CROSSLEY II, DA, HICKS, JW; University of California, Irvine, University of North Dakota	Hemodynamics of embryonic alligators
P3.6	MARSHALL, H, BERNAL, D; University of Massachusetts Dartmouth	Comparative metabolic biochemistry of shark myocardial tissue
P3.7 DCPB	MIKA, TL, REIBER, CL; University of Nevada, Las Vegas	Physiological limitations to cardiovascular function in thermally stressed grass shrimp (*Palaemonetes pugio*)
P3.8 DCPB	TATE, KB, EME, J, CROSSLEY II, DA; University of North Dakota, University of California, Irvine	Assessing the capacity for sympathetic control of cardiovascular physiology in embryonic snapping turtles (*Chelydra serpentina*)

Conservation Biology and Pollution

P3.9 DCB	YATES, M, CARROLL, MA, CATAPANE, EJ; Medgar Evers College	Effects of two forms of EDTA, on cadmium accumulations in gill of the eastern oyster, *Crassostrea virginica*
P3.10	ROMEO, MR, FURIMSKY, M; Westminster College, Pennsylvania	Teratogenic effects of ethylene glycol and 5-methyl-1h-benzotriazole on zebrafish central nervous system development
P3.11	PERRAULT, J, WYNEKEN, J, JOHNSON, C, THOMPSON, LJ, MILLER, DL; Florida Atlantic University, FAU, Loggerhead Marinelife Center, Nestle Purina PetCare, VDIL, University of Georgia	Why is nest success low? Hg, Se, and blood parameters in nesting leatherback sea turtles (*Dermochelys coriacea*) and their young
P3.12 DEE	HOANG, LK, MCCOY, KA, ST MARY, CM, GUILLETTE, LJ; University of Florida, Smithsonian Tropical Research Institute	Renal pathologies in giant toads (Bufo marinus) vary across land-use practices
P3.13	YOUSSEF, SK, FISCHER-DROWOS, S, MORRIS, RW*, VATNICK, I, NAGENGAST, AA; Widener University, Chester	The effect of perfluorooctane sulfonate exposure on gene expression and WBC in mouse
P3.14 DCPB	BAGWE, R, SOKOLOVA, IM*; University of North Carolina, Charlotte	Effect of cadmium exposure on critical temperatures and energy metabolism of the eastern oysters Crassostrea virginica
P3.15 DCPB	JOHNSON, SR, MAUTZ, WJ, DOHM, MR*; Chaminade University, Honolulu, University of Hawaii at Hilo	Effects of ozone exposure on the specific dynamic action of the cane toad, *Bufo marinus*

P3.16	IVANINA, A, KUROCHKIN, I, EILERS, S, SOKOLOVA, I; University of North Carolina, Charlotte, Hochschule Bremen, Bremen, Germany	Effect of cadmium and environmental anoxia and re-oxygenation on metabolism of eastern oysters (Crassostrea virginica)
P3.17	THOMSON, A, VATNICK, I, BAKER, P; Widener University, Swarthmore College	Estimate of survival time of diamondback terrapins caught in crab traps based on voluntary dive times and metabolic rates
P3.18 DCPB	HAZARD, LC, KWASEK, KM; Montclair State University	Effects of road deicers on survival and behavior of larval and adult wood frogs
P3.19 DEE	BIRD, SE, ZAPUT, EP, MUSTA, EJ, BENENATI, E, BENENATI, J; Los Rios College, Salt River Pima-Maricopa Community High School, Flagstaff High School, Northern Arizona University, Department of Biological Sciences	Developing a riparian zone measurement protocol for perennial streams in North Central Arizona
P3.20 DEE	ESTES LAYTON , J, WIBBELS, T, TUCKER, T, WYNEKEN, J, EHRHART, L, CARTHY, R, MARTIN, ER, ERNEST, R, BRESETT, M, JOHNSON, C, FOURNIER, S, SCHMID, J; University of Alabama Birmingham, Mote Marine Laboratory, Florida Atlantic University, University of Central Florida, University of Florida , Ecological Associates , Quantum Resources , Loggerhead Marinelife Center, Florida DEP	Developing a comprehensive long-term database on nesting beach temperatures of the loggerhead sea turtle in the Southeastern U.S: applications and implications for global climate change
P3.22	NUNEZ, CMV, ADELMAN, JS, MASON, C, RUBENSTEIN, DI; Princeton University, Foundation for Shackleford Horses, Inc.	Behavioral effects of contraception management; the use of porcine zona pellucida on wild horses
P3.23 DEE	MORTENSEN, JL, CURRY, RL; Villanova University	Conservation ecology and social organization of the white-breasted thrasher on St. Lucia
P3.24	CORBETT, AH, REED, JM; Tufts University	Adam and Eve events: is successful population establishment from small introductions a myth?
P3.25 DEE	PENALVA-ARANA, DC, ROBERTSON, H, LYNCH, M; Indiana University, Bloomington, University of Illinois, Urbana-Champaign	Can you smell that? Using genomics to demystify *Daphnia*'s (Crustacea) chemical senses
P3.26 DCPB	KUROCHKIN, IO, IVANINA, AV, EILERS, S, SOKOLOVA, IM; University of North Carolina at Charlotte, Hochschule Bremen, Germany	Effects of cadmium exposure on mitochondrial response to environmental anoxia and re-oxygenation in eastern oysters (*Crassostrea virginica*)

Environment, Growth and Form

P3.27 DDCB	TAYLOR, KN, WEIGAND, KL, BAATZ, JE, DEAROLF, JL; Hendrix College, Conway, the Medical University of South Carolina, Charleston	Can the maternal weight of a guinea pig be used to determine the glucocorticoid steroid dose to its fetuses?

P3.28 DVM	REHOREK, SJ, HILLENIUS, WJ*, LEIGH, C, FIRTH, BT; Slippery Rock University, College of Charleston, University of Adelaide	The anterior orbital glands in Sminthopsis crassicaudatis: a nomenclatural conundrum
P3.29 DCPB	REESE, SA, BLACK, P*, ADAIR, E, KOETHER, M; Kennesaw State University	Hatchling shell content and growth in an anoxia-intolerant species of turtle, Red-eared slider turtles (*Trachemys scripta*)
P3.30	HEINRICH, EC, HARRISON, JF; Arizona State University	Critical periods for oxygen effects on adult size in *Drosophila melanogaster*
P3.31 DNB	FRUTIGER, AE, HOLDENER, JA, ITAGAKI, H; Kenyon College	The calculation of the body surface areas of *Manduca sexta* larvae using serial sections followed by image reconstruction and the creation of parametric body surface models

Functional Morphology—Invertebrates

P3.33 DCPB	NEWEL, MS, MARTIN, KMF, BOURNE, GB*; University of Calgary, Alberta, Canada	Observations on the functional morphology of the Pacific geoduck clam, *Panopea abrupta* (Conrad, 1849)
P3.34 DCB	CROFTS, SC, GOSLINE, J; University of California, Irvine, University of British Columbia	An investigation of the mechanics of ventilation and sliming in *Pteraster tesselatus*
P3.35 DCB	MENDOZA BLANCO, MA, PATEK, SN; University of California, Berkeley	Muscle mechanics in mantis shrimp
P3.36 DCB	CLAFLIN, SB, PIEN, CL, RANGEL, EN, UTZ, KE, WALTHER, HV, WRIGHT, AN, ELLERBY, DJ*; Wellesley College	The effects of feeding on medicinal leech swimming performance
P3.37	LIN, H, TRIMMER, BA; Tufts University	Soft dynamics —- ground reaction forces in a crawling caterpillar
P3.39 DCB	RAKOW SUTHERLAND, K, MADIN, L; MIT/WHOI Joint Program in Oceanography, Woods Hole Oceanographic Institution	*In situ* filtration rates of pelagic tunicates: results from morphometric measurements
P3.40	BROWN, JW; University of Illinois at Urbana-Champaign	Directionally mediated escape swimming in the scallop

Life History and Growth

P3.41	CARRUTH, WC, ENTZ, JW, MARLEY, PH, ROSTAL, DC; Georgia Southern University	The relationship between egg size, clutch size, pelvis size & body size in *Gopherus polyphemus*
P3.42	ELDERBROCK, EK, KERN, MD, LYNN, SE; The College of Wooster	Feather growth bars do not predict nutritional status in nestling eastern bluebirds
P3.43 DDCB	BREWINGTON, AK, WEIGAND, KL, DEAROLF, JL; Hendrix College, Conway	Prenatal steroids: effects of betamethasone on the guinea pig (*Cavia porcellus*) rectus thoracis muscle
P3.44	FLAUTO, ML, WARD, AB; Adelphi University	Impact of temperature during early development on startle responses in adult zebrafish (*Danio rerio*)

TUESDAY P3 - POSTER SESSION 3
Galleria, 3:00 - 5:00 PM

Nervous System

P3.45 DNB	JOHNSON, JI, MORRIS, JA, FOBBS, AJ; Michigan State University, National Museum of Health and Medicine, Armed Forces Institute of Pathology	A map of sensory projections to the insular cerebral cortex
P3.46 DIZ	HANSEN, H, SCHWARTZ, ML; Seattle University	Fine structure of pigment cup ocelli in *Micrura verrilli* (Nemertea)

Terrestrial Locomotion

P3.47 DCB	ROSENBLUM, HG, GUTIERREZ, A, ROBERTS, S, HIROKAWA, J, PORTER, M, LONG, JH; Vassar College	Character evolution in robotic fish
P3.48	MORRILL, M, BRONIKOWSKI, A; Iowa State University	Evolution of life histories in garter snakes: correlations among performance, morphology, and behavior
P3.49 DCB	OCOBOCK, CJ, PONTZER, H, MAKI, J; Washington University in St. Louis	Modification of limb inertial properties leads to persistent changes in neural control of walking in humans
P3.50 DVM	SCHOENFUSS, HL, ROOS, JD, RIVERA, ARV, BLOB, RW*; St. Cloud State University, MN, Clemson University	Motor patterns of distal hindlimb muscles in walking turtles: implications for models of limb bone loading
P3.51 DVM	NAUWELAERTS, S, MALONE, S, CLAYTON, HM; Michigan State University, East Lansing	Development of postural stability in horses from newborn to one month old
P3.52 DVM	WILSON, MP, SIMS, EL, SCHMITT, D; Duke University	Ankle flexion and foot clearance during flexed hip and knee walking
P3.53	HITCHCOCK, AC, PROPERT, MWG, MARSH, RL; Northeastern University	Stability despite rapid large fluctuations in calculated net muscle moment at the knee during normal level running in guinea fowl
P3.54 DVM	MARSH, RL, HANSEN, E, WATSON, R, PROPERT, MWG; Northeastern University	Net joint work as a function of speed in a small running bird, the chukar
P3.55 DVM	MCELROY, E; College of Charleston	Limb morphology and ground reaction forces in lizards: forelimbs vs. hindlimbs
P3.56	BURCH, SH; Stony Brook University	The relationship between muscle attachment site size and function in the avian hind limb
P3.57 DVM	ESPINOZA, NR, BLOB, RW; Clemson University	Correlations of bone strain, jump performance and limb kinematics in frogs and toads
P3.58 DCB	BUTCHER, MT, PARRISH, JHA, BLOB, RW; Youngstown State University, Clemson University	Loading patterns of the femur in opossum (*Didelphis virginianis*) during terrestrial locomotion
P3.59 DCB	WIKTOROWICZ CONROY, A, DOUBE, M, SHEFELBINE, S, HUTCHINSON, JR; The Royal Veterinary College, Structure and Motion Laboratory, University of London	Scaling of the appendicular skeleton: CT scan-based analysis of whole-bone geometry for clades Proboscidea and Felidae

P3.60 DCB	STOVER, KK, BIKNEVICIUS, AR; Ohio University Honors Tutorial College, Ohio University College of Osteopathic Medicine	Limb function during gait initiation in dogs
P3.61	ABBOTT, EM, ROBERTS, TJ; Brown University	Elastic mechanisms as a determinant of anuran jumping performance: do toads bounce?
P3.62	QUITT, MA, KANG, JK, DAVIDSON, BC, NGUYEN, CT, ADOLPH, SC, AHN, AN; Harvey Mudd College, Claremont	Variability of walking in humans
P3.63	BAUMGARTNER, RE, WUNDERLICH, RE*, SCHMITT, D; Duke University, James Madison University	Collisional mechanics during sifaka bipedalism
P3.64 DVM	DEMES, B, CARLSON, KJ; Stony Brook University, New York College of Osteopathic Medicine	Bending regimes of capuchin limb bones
P3.65	KIVELL, TL, KRAMER, EM, WUNDERLICH, RE; Duke University, James Madison University	Aye-aye hand posture and loading of their specialised digits during quadrupedal locomotion
P3.66	PROPERT, MWG, TRUONG, R, HITCHCOCK, AC, MARSH, RL; Northeastern University	Fibularis longus function varies with joint angle due to tendon architecture during legged locomotion and jumping in birds
P3.67 DVM	SRINIVASAN, M; Princeton University	Energy optimal walking and trotting quadrupedal gaits
P3.68 DCB	BERTRAM, JEA, SZARKO, MJ, PREBEAU-MENEZES, L; University of Calgary, Canada	Function and fatigue: changes over a marathon race in recreational athletes
P3.69 DCB	SZARKO, MJ, BERTRAM, JEA; University of Calgary	Some tissues like it fast: dynamic, low magnitude, high frequency analysis of viscoelastic tissues
P3.70	VENKADESAN, M, MAHADEVAN, L; School of Engineering & Applied Sciences, Harvard University	How to throw accurately

Environmental Endocrinology: Environmental

P3.71	KOMAN, JS, TOMANEK, L; California Polytechnic University, San Luis Obispo	Environmental proteomics: acute salinity stress in the marine model organism Ciona savignyi
P3.72	LOCKHART, L, BONIER, F, MUNRO, H, MOORE, I, ROBERTSON, R; Queen's University, Canada, Virginia Tech	The relationship between parasitemia and resource allocation in Tachycineta bicolor
P3.73 DCPB	GAINEY, LF,JR, GREENERG, MJ; University of Southern Maine, Portland, C.V. Whitney Laboratory, University of Florida, St. Augustine	Nitric oxide is the agent of seasonal temperature compensation of clearance rates in isolated gills of *Mercenaria mercenaria*
P3.74 DCPB	LONDRAVILLE, RL, HEMLEPP, L, COPELAND, C, SCARBOROUGH, J; University of Akron	Response of leptin I and II to cold acclimation in carp

P3.75	KULKARNI, SB, MOSKALIK, CL, GOMEZ-MESTRE, I, BUCHHOLZ, DR; University of Cincinnati, Cincinnati, Estacion Biologica de Donana, Spain	Decreased phenotypic plasticity in a trait undergoing extreme selection
P3.76 DCE	KNUTIE, SA, PEREYRA, ME; University of Tulsa	The relationship between stress hormones and life history strategies during the non-breeding season in three species of cardueline finches
P3.77 DCE	TAMONE, SL, CHUNG, JS; University of Alaska Southeast, UMBI-Center of Marine Biotechnology	Sequence analysis of crustacean hyperglycemic hormone from tanner crab *chionoecetes bairdi*

Evolutionary Genetics

P3.78	CLAREMONT, M, REID, DG, WILLIAMS, S; Natural History Museum, London, Imperial College London	The evolution of coral feeding in the muricid gastropods
P3.79 DSEB	CHOJNOWSKI, JL, BRAUN, EL; University of Florida	Candidate genes in a turtle with temperature-dependent sex determination
P3.80	EMERA, D, WAGNER, GP; Yale University	Molecular evolution of MER-39 and consequences on the evolution of menstruation in primates
P3.81	JANANANDA, BG, WIKRAMANAYAKE, A, BUTLER, M; University of Miami, University of Hawaii at Manoa	Molecular evolution of damselfly opsin genes
P3.82	CUI, J, SHEN, X, KOCHER, TD, NAGAHAMA, Y; University of Maryland	Forkhead gene family in medaka: a view on gene evolution and embryonic expression
P3.83 DEE	HRANITZ, JM, SAVITSKI, AN, BARTHELL, JF, CLEMENT, ML, SONG, DS, PETANIDOU, T; Bloomsburg University of Pennsylvania, University of Central Oklahoma, Edmond, University of California, Berkeley, University of Aegean, Mytilene, Lesvos, Greece	Nucleotide diversity in native and invasive island populations of the leafcutting bee (*Megachile apicalis*)
P3.84	HUTCHISON, NL, HARRISON, JS, ROSTAL, DC; Georgia Southern University, Statesboro	Population and conservation genetics of two Georgia populations of the gopher tortoise (*Gopherus polyphemus*)
P3.85 DSEB	SZUMOWSKI, SC, BOYER, SL, HORNBACH, DJ, HOVE, MC; Macalester College	A comparison of genetic variation between populations of pocketbook and pimpleback mussels above and below the St. Croix Falls dam (Minnesota/ Wisconsin, USA)

Feeding and Digestion

P3.87	BASTON, JI, CHEDIACK, JG, CID, FD, KARASOV, WH, CAVIEDES-VIDAL, E; University Nac. San Luis, San Luis, Argentina, University Nac. San Luis, IMIBIO-SL, San Luis, Argentina, University of Wisconsin, Madison	Daily expression modulation of SGLT1 in rat jejunum during ontogeny

P3.88 DCPB	CURTIS, DL, MCGAW, IJ; University Nevada, Las Vegas and Bamfield Marine Sciences Centre	Digestive enzyme activity following feeding in low salinity in the blue crab, *Callinectes sapidus*, and the Dungeness crab, *Cancer magister*
P3.89 DCPB	GATICA SOSA, C, CHEDIACK, JG, JURI AYUB, M, KARASOV, WH*, CAVIEDES-VIDAL, E; University Nac. San Luis, IMIBIO-SL, San Luis, Argentina, Inst. Leloir, Argentina, University of Wisconsin, Madison	Expression of the intestinal brush border disaccharidases and Na+/glucose cotransporter genes of zebra finch (*Taeniopygia guttata*)
P3.90	GIAMBRONE, TP, LIGNOT, J-H, SECOR, SM, FREDERICK, J*; University of Alabama, CNRS, DEPE, Strasbourg	Maintenance of digestive performance is ontogenetically stable for the American alligator
P3.91 DVM	HAMPTON, PM; University of Louisiana, Lafayette	Does prey envenomation improve digestive performance in *Agkistrodon piscivorus*?
P3.92	TEW, WY, SECOR, SM; University of Alabama	Actin polymerization underlies the postprandial lengthening of the pythons microvilli
P3.93	WOODS, KM, DOWNER, AN, COWGILL, JA, GILLEN, CM, HARTLAUB, BA; Kenyon College, Gambier	Statistical modeling of real time PCR data for membrane transporter expression in *Manduca sexta* larvae

Immunology

P3.94 DCPB	ELLISON, JA, TURMELLE, AS, MENDONCA, MT, MCCRACKEN, GF, RUPPRECHT, CE; Auburn University, University of Tennessee, Centers for Disease Control and Prevention	Interleukin 2 expression in the big brown bat *Eptesicus fuscus*
P3.95	GRAHAM, SP, SEWELL, LM; Auburn University	The effect of temperature and reproductive condition on snake complement activity
P3.96 DCPB	GREENLEE, KJ, VISHNUVARDHAN, S, TOTH, A; North Dakota State University, University of Wisconsin, Superior	Identification of matrix metalloproteinases in the tobacco hornworm, *Manduca sexta*
P3.97 DCE	KUHLMAN, JR, SZEKERES, K, MARTIN, LB; University of South Florida	Leukocyte identification using flow cytometry in house sparrows (*Passer domesticus*)
P3.98	MATSON, KD, CARLTON, ED*, HOWARD, JL, HUDAK, CA, LYNN, SE, MAUCK, RA; University of Groningen, Kenyon College, The College of Wooster	Effects of an experimental immune enhancement, rather than an immune challenge, in a wild bird
P3.99 DEE	MOORE, MS, BUCKLES, EL, KUNZ, TH; Boston University, Cornell University, Ithaca	Are hibernating bats capable of mounting an effective immune response? Histological evaluation of a cellular response to Phytohemagglutinin (PHA) injections in the little brown myotis (*Myotis lucifugus*) and the big brown bat (*Eptesicus fuscus*)
P3.100	PELUC, SI, REED, WL*; North Dakota State University	Differential allocation of carotenoids and testosterone into egg yolks affects the immune performance of Japanese quail chicks

P3.101 DCPB	SCHOLNICK, DA, HAYNES, VN*, SCHWEITZER, KI; Pacific University, Oregon	Hypoxia impairs antibacterial defense in the dungeness crab, *cancer magister*
P3.102	SMITH, LC, MENDONCA, MT, RICHARDSON, CS, WIDMAIER, EP, HOHMANN, MG; Auburn University, Boston University, US Army ERDC-CERL	Neutrophil/lymphocyte ratio and stress in three species of myotis: effects of sex, reproductive stage, size-corrected mass and site
P3.103 DCPB	VISHNUVARDHAN, S, GREENLEE, KJ; North Dakota State University, Fargo	Tracheal system expression of a matrix metalloproteinase varies throughout development in the tobacco hornworm, *Manduca sexta*
P3.104	WAGNER, ND, FROST, PC, RAFFERY, SP; Environmental and Life Science Graduate Program Trent University Peterborough, Ontario, Canada	Nutritional constraints on the innate immune system of the rusty crayfish *Orconectes rusticus*

Life History Evolution and Evo-devo

P3.105 DEE	ENTZ, JE, ROSTAL, DC; Georgia Southern University	Effects of habitat quality on maternal investment in two Georgia populations of *Gopherus polyphemus*
P3.106 DEE	KRUMM, JL; Widener University	Evidence of senescence in a branchiopod crustacean, *Branchinecta lindahli*, living in a highly unpredictable environment
P3.107	GOVINDARAJAN, AF, BUCKLIN, A, MADIN, LP; Woods Hole Oceanographic Institution, University of Connecticut, Avery Point	The evolution of the thaliacea and its significance for tunicate phylogeny
P3.108 DEDB	HARMON, S, VICK, M, TRITLE, B, BURTON, P*; Wabash College	Cell death and division during regeneration in the sea anemone *Nematostella*
P3.109	WARD, WT, KRISTAN, D; California State University San Marcos	Tapeworm co-infection alters life history and distribution of the nematode *Heligmosomoides bakeri*
P3.110 DEDB	SRINIVASAN, DG, ANO, L, DAVIS, GK, STERN, DL; Princeton University, Macalester College, Bryn Mawr College	Molecular basis of facultative asexuality in aphids
P3.111	WOZNICA, SA, ZHEN, Y, HARTZELL, A, RAGKOUSI, K, SWEENEY, S, DAVIDSON, B; University of Arizona	Analysis of FGF/Ets target genes in the basal chordate *Ciona intestinalis*
P3.112 DEDB	BIRD, NC, HERNANDEZ, LP; George Washington University	Is the Weberian apparatus a key innovation: causal versus permissive evolutionary factors?
P3.113	ARMFIELD, BA, THEWISSEN, JGM, VINYARD, CJ; NEOUCOM; Rootstown, Ohio	Diversity in gene expression patterns during mammalian early tooth development
P3.114	ADAMS, EDM, LEYS, SP; University of Alberta	Skin deep: examining transepithelial resistance and epithelial morphology in sponges
P3.115 DDCB	SCULLY, TA, CARROLL, KN, BROWN, KM; The George Washington University	A serotonin-mediated signaling mechanism initiates cell movements during sea urchin gastrulation

P3.116 DDCB	CARROLL, KN, SCULLY, TA, BROWN, KM, CHENG, Y, MATEER, E, DZIRLO-AYVAZ, M, ANITOLE-MISLEH, K; The George Washington University	A preneuronal serotonergic system drives morphogenesis in sea urchin embryos

Outreach, Education and Policy

P3.117 DEE	NADELSON, LS, WALTERS, LJ, WATERMAN, JM, SACKS, P*; Boise State University, University of Central Florida	What works best? Classroom undergraduate research experiences with different levels of inquiry
P3.119	WONG, GK, CHABOT, CC; Quinnipiac University, Plymouth State University	The Bioscience Education Network (BEN) digital library portal and collaborative
P3.120 DCPB	CARROLL, MA, SKEETE, D, CATAPANE, EJ; Medgar Evers College/CUNY	It's time to *STEP into Science* at Medgar Evers College
P3.121 DIZ	TANKERSLEY, RA, LOPEZ-DUARTE, PC*; Florida Institute of Technology, Scripps Institution of Oceanography	Exorcising Statistical Demons: Interactive Tutorial (StatTA) promotes statistical literacy and supports inquiry-based instruction in biology
P3.122 DCE	WOODLEY, SK; Duquesne University	Assessing students beliefs and knowledge regarding animal research
P3.123	HODIN, J, MILLER, P, HUANG-VOSS, C, EPEL, D; Hopkins Marine Station, Stanford University	Inquiry-based web curricula in development, microscopy, physiology and environmental science
P3.124 DEE	CLEMENT, ML, LEA, JM, PHAM, LL, SMITH, BR, SMITH, DC, WAGNER, NA, SIMMONS, CK, BARTHELL, JF; University of Central Oklahoma	Hypatia of Alexandria: a comparative perspective on her role in history
P3.125 DSEB	MOOI, R; California Academy of Sciences	The Summer Systematics Institute: hands-on, collections-based undergraduate research at the California Academy of Sciences
P3.126A DAB	WILSON, RS, NIEHAUS, AC, WHITE, J, RASMUSSEN, A, KUCHEL, L; University of Queensland	Using video documentary-making to enhance learning in large first year biology classes
P3.126 DIZ	TANKERSLEY, RA, WINDSOR, JG; Florida Institute of Technology	Taking it to the streets: SEAS mobile laboratory exposes students to the excitement of ocean science research

Parental Care

P3.127 DAB	STAHLSCHMIDT, ZR, DENARDO, DF; Arizona State University, Tempe	Effect of nest temperature on egg-brooding behavior, metabolism, and clutch-nest thermal relations in Children's pythons (*Antaresia childreni*)
P3.128 DAB	HARN, LJ, HAUSSMANN, MF, MAUCK, RA; Kenyon College, Gambier, Bucknell University, Lewisburg	Don't count your chicks before they hatch: an experimental manipulation of incubation effort in Leach's storm-petrel (*Oceanodroma leucorhoa*)
P3.129	ABDU, RW, ABATE, ME, KAUFMAN, L; Boston University, Massachusetts	A test for the influence of offspring behavior on parental care in the convict cichlid (*Archocentrus nigrofasciatus*)

P3.130 DIZ	BERESIC-PERRINS, RK, SHUSTER, SM; Northern Arizona University	Parental care in leeches: brood size, gestation duration, juvenile survival, and parent/offspring interactions in two Arizona populations of *Helobdella stagnalis* (Hirudinea: Glossiphoniidae)
P3.131	CARLETON, JB, MORGENSTERN, N, PARKER, C, RENN, SCP; Reed College	One bad mother: maternal aggression in the African cichlid Astatotilapia burtoni

Predation and Predator Avoidance

P3.132	OZEL, LD, CHANG, JL; University of Miami, Coral Gables	Differences in escape behavior between a cryptic and an aposematic litter frog
P3.133	KENISON, EK, SAPORITO, RA; Skidmore College, Old Dominion University	Further studies of predation and aposematism in the dendrobatid frog, *Oophaga pumilio*, from northeastern Costa Rica
P3.134	BOCKOVEN, A, AMARELLO, M, SEARS, MW; Southern Illinois University	Implications of tradeoffs between crypsis and thermoregulation for the evolution of animal coloration
P3.135	GONYER, KM, MCCOY, MW, VONESH, JR, WARKENTIN, KM; Reed College, Boston University, Virginia Commonwealth University	Effects of habitat structure on predation of *Agalychnis callidryas* tadpoles by giant water bugs (Belostomatidae)
P3.136 DEE	SEARS, MW, POLNASZEK, T, ARTITA, KS; Southern Illinois University	Optimal decision rules for dispersal under activity-mortality tradeoffs for small ectotherms in thermally-structured landscapes
P3.137 DAB	POLNASZEK, T, ARTITA, KS, SEARS, MW; Southern Illinois University	Should I stay or should I go? Optimal decisions for attack and flight during predator-prey interactions
P3.138 DAB	ARTITA, KS, POLNASZEK, T, SEARS, MW; Southern Illinois University	Strategies for optimization in behavioral and ecological research using evolutionary computation
P3.139	PETCHLER, EM, IYENGAR, EV; Muhlenberg College, Allentown	Eat and run: predator preference for and escape responses by potential hosts of the snail *Crepidula adunca* (Mollusca, Gastropoda)
P3.140 DVM	MCGEE, MR, SCHOENFUSS, HL*; St. Cloud State University	Anthropogenic chemicals adversely affect predator avoidance behavior of larval fish
P3.141 DIZ	BRABY, CE, PEARSE, VB*, VRIJENHOEK, RC, BAIN, BA; Monterey Bay Aquarium Research Institute, Moss Landing, University of California, Santa Cruz, Southern Utah University, Cedar City	Pycnogonid-cnidarian interactions in the deep Monterey Submarine Canyon

Regeneration and Budding

P3.142 DIZ	MERLIE, SA, RYAN, KA*, SMITH III, JP; Winthrop University	Neoblasts in Catenulida
P3.143	LIN-YE, A, PANTAZATOS, S, GEDDIS, MS, AMBRON, RT, GOODMAN, RM*; Columbia University, BMCC-CUNY	Electromagnetic fields promote regeneration following injury: induction of increased hsp70 levels and binding of injury-specific factors in the MAPK Cascade

P3.144 DIZ	TEMKIN, MH, MISERCOLA, B, SONAGERE, M, DIXON, E; St. Lawrence University	Homebox gene characterization and expression in developing zooids of the marine bryozoan *Membranipora membranacea*

Reproductive Physiology

P3.145 DCPB	JENSEN, BH, CASEY, A; The College of Saint Rose	Mummichog (*Fundulus heteroclitus*) from Cape Cod have a lower frequency of spontaneous ovarian contractions than has been reported from a Delaware population
P3.146 DCPB	KORINE, C, DANIEL, S, PINSHOW, B*; Ben-Gurion University of the Negev	Frugal energy use by Hemprichs long-eared bats (*Otonycteris hemprichii*) during pregnancy and nursing
P3.147 DEE	BOOHER, CM, HOOD, WR; Auburn University, Alabama	Calcium intake, bone metabolism and reproductive output of white-footed mice (*Peromyscus leucopus*)
P3.148 DCE	CLAIRARDIN, SG, GRIFFIN, AM, HOLGERSSON, MCN, PAITZ, RT, BOWDEN, RM; Illinois State University	Nest temperatures and offspring phenotype in the painted turtle: does the magnitude of temperature fluctuations matter?
P3.149 DCE	GAM, AE, MENDON, MT, NAVARA, KJ; University of Georgia, Auburn University	Effects of progesterone and corticosterone administration on offspring primary sex ratio in the zebra finch (Taeniopygia guttata)
P3.150 DVM	KHAMBATY, M, ECAY, TW*, STEWART, JR; East Tennessee State University	Carbonic anhydrase II expression in the chorioallantois of the corn snake, *Pantherophis guttatus*
P3.151	KLEIN, TA, ROSTAL, DC, WILLIAMS, KL, FRICK, MG, PAIGE, JI; Georgia Southern University, Caretta Research Project, US Fish and Wildlife Service	Seasonal variation and maternal investment of the loggerhead sea turtle *Caretta caretta*
P3.152 DCE	LEBLANC, AM, WIBBELS, T; University of Alabama, Birmingham	Effect of fluctuating temperature on a turtle with temperature-dependent sex determination
P3.153 DDCB	MCGINN, NA, CHERR, GN; University of California, Davis	Comparative physiology of multidrug resistance in marine invertebrate oocytes and embryos
P3.154 DCPB	REYNA, KS; University of North Texas	Acoustic signaling and temperature variations: their effects on the physiology and hatching synchrony of the developing avian embryo
P3.155	RYCROFT, N, WELLS, S, MCCONAUGHA, J; Old Dominion University	Correlation between female size and egg quality in the Chesapeake Bay population of blue crab, *Callinectes Sapidus*
P3.156 DCE	TEARE, A, ROSTAL, D, MARLEY, P, MOSS, A; Georgia Southern University	Reproductive biology of the alligator snapping turtle (*Macrochelys temminckii*)

Social Behavior

P3.157	AN, Y, KRIENGWATANA, BP, NEWMAN, AEM, MACDOUGALL-SHACKLETON, EA, MACDOUGALL-SHACKLETON, SA; University Western Ontario, University British Columbia	The relationship between social rank, neophobia and observational learning in black-capped chickadees (*Poecile atricapillus*)

P3.158 DAB	FAN, J; University of Maryland	Mathmatical analysis of Betta Splendens display behavior
P3.159 DAB	LOUNSBERRY, Z, SOARES, D; University of Maryland	Female choice of Betta splendens using a socially complex paradigm
P3.160	WOOD, KJ, ZERO, VH, RENN, SCP; Reed College	Plasticity of gender-biased behavior in the *Julidochromis* cichlid
P3.161 DCPB	FENN, AM, WRIGHT, A, RICHTER, MM, BUCK, CL; Colorado State University, University of Alaska Fairbanks, University of Alaska Anchorage	Behavior and home range of the Arctic ground squirrel

Stress

P3.162	AWERMAN, JL, ROMERO, LM; Tufts University	The effect of chronic psychological stress on blood chemistry in European starlings
P3.163	PHILLIPS, MM, LYNN, SE; The College of Wooster	Repeated handling does not affect hypothalamo-pituitary-adrenal development in eastern bluebird nestlings (*Sialia sialis*)
P3.164	SCHMIDT, KL, CHIN, EH, SHAH, AH, SOMA, KK; University of British Columbia, Trent University, Michigan State University	Cortisol and corticosterone in the avian immune and nervous systems during development
P3.165 DCE	DICKENS, MJ, ROMERO, LM; Tufts University	Transient disruption in corticosterone negative feedback resulting from captivity
P3.166	GLASSMAN, LW, BUTLER, LK, ROMERO, LM; Tufts University	Behavioral responses of an endangered and a common bird to disturbances at the nest
P3.167	KOSTELANETZ, SA, DICKENS, MJ, BUTLER, LK, ROMERO, LM; Tufts University	Effects of chronic stress during molt on the heart rate and heart rate variability of European starlings
P3.168 DCE	ALLEN, LC, BISSON, IA, KUNZ, TH; Boston University, Princeton University, Princeton	Assessing the fight-or-flight response in the Brazilian free-tailed bat (*Tadarida brasiliensis*) using heart rate telemetry
P3.169 DCE	BUTLER, LK, ROMERO, LM; Tufts University	Relationships between corticosterone concentrations and the onset, progression, intensity, and rate of molt in two free-living birds
P3.170 DCE	SVANCARA, K, BOORSE, G*; Arizona State University, West Campus	Evolution of the vertebrate CRF system: molecular cloning and characterization of CRF-like peptides, receptors and binding protein in the lizard, *Anolis carolinensis*

Symbiosis

P3.171 DIZ	MERZ, RA, HUSSAIN, FN, STOCKBOWER, KA, TASCHUK, FO, YARETT, IR, SANTOS, SR, XIANG, Y, VALLEN, EA; Swarthmore College, Auburn University	The patchy distribution of zooxanthellae in the gastrodermal landscape of symbiotic anemones

P3.172	HUSSAIN, FN, MERZ, RA, VALLEN, EA; Swarthmore College	How does the cell morphology of the sea anemone, *Aiptasia pallida*, change as a result of its symbiosis with intracellular zooxanthellae?
P3.173 DDCB	HANES, SD, KEMPF, SC; Auburn University	Investigations of structural dynamics during bleaching in two species of anemone, *Aiptasia pallida* and *A. pulchella*
P3.174	IYENGAR, EV, PETCHLER, E, HUTCHINSON, KA; Muhlenberg College	He is heavy & he ain't my brother: marine snails catching a ride
P3.175 DIZ	MAZZILLO, MJ, KEMPF, SC; Auburn University	Mucilage antigenicity and composition in different zooxanthella strains

Symposium Related: Biomaterials: Properties,Variation and Evolution

P3.176 DCB	ZACK, TI, CLAVERIE, T, PATEK, SN*; University of California, Berkeley	Elastic energy storage and the mantis shrimps powerful predatory strike
P3.177	GORB, EV, HOSODA, N, GORB, SN; MPI for Metals Research, Stuttgart, Germany, NIMS, Tsukuba, Japan, University of Kiel, Germany	Absorption hypothesis: attachment of beetles to nano-porous substrates

Symposium Related: Evolution of Mechanisms Controlling Timing of Breeding in Animals

P3.178	YI, SY, GORDON, NM, WELCH, AM; University of Missouri, College of Charleston	Sources of variation in female preference for long mating calls in gray treefrogs (*Hyla versicolor*)
P3.179	ANSON, JY, RICHMOND, RH, MARTINEZ, JA; Kewalo Marine Laboratory, Honolulu	Effects of anthropogenic stressors on larval recruitment in the reef coral *Porites hawaiiensis*

Symposium Related: Genomics and Vertebrate Adaptive Radiation: A Celebration of the First Cichlid Genome

P3.180	YOSHIDA, K, KUROIWA, A, TERAI, Y, MIZOIRI, S, AIBARA, M, KOBAYASHI, N, MATSUDA, Y, OKADA, N; Tokyo Institute of Technology, Yokohama, Hokkaido University, Sapporo	Chromosome evolution of the cichlid fishes from Lake Victoria
P3.181	BEZAULT, E, MWAIKO, S, SEEHAUSEN, O; EAWAG and University of Bern, Switzerland, Tanzania Fisheries Research Institute and EAWAG, Switzerland	Investigating the evolutionary mechanisms in the adaptive radiation of cichlid fishes of Lake Victoria basin
P3.183	MIYAGI, R, TERAI, Y, AIBARA, M, MIZOIRI, S, SUGAWARA, T, IMAI, H, WACHI, N, TACHIDA, H, OKADA, N; Tokyo Institute of Technology, Yokohama, Kyoto University, Inuyama, Kyusyu University, Fukuoka	The diversity of visual perception in sympatric Lake Victoria cichlids
P3.184	FUJIMURA, K, OKADA, N; Tokyo Institute of Tech, Yokohama, JAPAN	The developmental basis for craniofacial morphology of cichlid fishes

TUESDAY P3 - POSTER SESSION 3
Galleria, 3:00 - 5:00 PM

P3.185	MCINTYRE, A, MCGEE-MOORE, A, COOPER, WJ, ALBERTSON, RC; Syracuse University	The evolution of skull form and trophic ecology among the cichlid fishes of Lake Malawi
P3.186	SMITH, AR, CARLETON, KL; University of Maryland	Intrageneric sequence diversity in cichlid opsin arrays
P3.187	ABATE, ME, GRACEY, AY, MALAVASI, S, TORRICELLI, P; Boston University, Massachusetts, University of Southern California, Los Angeles, University Ca' Foscari of Venice, Italy	A comparison of brain gene expression from black goby (*Gobius niger*) females and males with alternate mating phenotypes
P3.188	DALTON, BE, CARLETON, KL, MARSHALL, NJ, CRONIN, TW; University of Maryland, Baltimore County, University of Maryland, College Park, University of Queensland	Male cichlid colors as conspicuous signals in Lake Malawi: the fish's perspective
P3.189	DAB SCHUMER, ME, RENN, SCP; Reed College, Portland	hCGH detects genomic architecture among African cichlids species of the genus *Julidochromis*
P3.190	SWOFFORD, RW, LOH, YHE, STREELMAN, JT, DI PALMA, F, LINDBLAD-TOH, K; Tilapia Sequencing Consortium, Broad Institute of MIT and Harvard, Georgia Institute of Technology	Deep segregation of single nucleotide polymorphisms (SNPs) in East African cichlids
P3.191	KIDD, MR, HOFMANN, HA; University of Texas at Austin	Hormonal regulation of female sexual behavior in a cichlid fish
P3.192 DAB	KIDD, CE, KIDD, MR, HOFMANN, HA*; University of Texas at Austin	A technique for measuring multiple hormones from individual water samples using commercial enzyme immunoassays

<u>Symposium Related: Phychoneuroimmunology Meets Integrative Biology</u>

P3.193	GARCIA, NW, GREIVES, TJ, DEMAS, GE; Indiana University	Insulin affects immune responses differentially in reproductive and non-reproductive Siberian hamsters (*Phodopus sungorus*)
P3.194 DEE	COON, CA, ADELMAN, J, LIEBL, AL, MARTIN, LB; University of South Florida, Tampa, Princeton University	Development of a simple assay to measure an integral pro-inflammatory cytokine in songbird blood
P3.195	LIEBL, AL, ALAM, JL, MARTIN, LB; University of South Florida	Rapid quantification of the bactericidal capacity of avian plasma
P3.196	JANKOWSKI, MD, FRANSON, JC, HOFMEISTER, E; Los Alamos National Laboratory	How might changes in corticosterone levels in breeding greater-sage grouse affect immunity?
P3.197 DEE	ZIMMERMAN, LM, PAITZ, RT, VOGEL, LA, BOWDEN, RM; Illinois State University	Seasonal variation in innate and adaptive immunity of adult red-eared sliders, *Trachemys scripta*

TUESDAY P3 - POSTER SESSION 3
Galleria, 3:00 - 5:00 PM

Systematics

P3.198 DEE	WRIGHT, ML, SWINSTROM, K, CALDWELL, RL; University of California, Berkeley, Santa Rosa Junior College	A phylogenetic examination of social monogamy in stomatopod crustaceans
P3.199 DIZ	CHU, KH, TSANG , LM, LAI, JCY, AHYONG, S, NG, PKL; Chinese University of Hong Kong, China, National University of Singapore, National Inst. of Water and Atmospheric Research, Wellington, New Zealand, National University of Singapore	Molecular phylogeny of the true crabs (Crustacea: Decapoda: Brachyura) with an estimation of divergence time for the major lineages
P3.200	RODRIGUEZ, EI, SAUNDERS, K, DAVIS, G, SHUSTER, SM, AYERS, TJ; Northern Arizona University, University of Florida, University of Maryland, Baltimore Medical School	A molecular phylogeny for the thermosphaeroma species complex
P3.201 DCE	KULLEPERUMA, K, JIMENEZ, L, DOOLEY, JK; Adelphi University, Mt. Sinai Cytogenetics Lab	Preliminary cladistic analyses of the tilefishes, percoidea: malacanthidae and branchiostegidae, based on the mitochondrial genes 16s and cyt.b genes
P3.202 DSEB	ZIMKUS, BM; Harvard University	A new species of *Phrynobatrachus* (Anura: Phrynobatrachidae) endemic to Mount Oku, Cameroon, with discussion of puddle frog biogeography across the Cameroon Volcanic Line
P3.204	COX, CL, MAKOWSKY, R, ROELKE, CE; University of Texas at Arlington	Determining an optimal sequence divergence for phylogenetic analyses

Thermoregulation/Temperature Response II

P3.205 DCPB	GUTOWSKI, J, WOJCIECHOWSKI, MS*; Nicolaus Copernicus University, Poland	Energy metabolism, body temperature and non-shivering thermogenesis in bats acclimating to simulated winter conditions
P3.206	HOUGEN, HY, HIEBERT, SM; Swarthmore College	Effect of diets rich in saturated and polyunsaturated fatty acids on performance of *Mus musculus* in warm and cold environments
P3.207	KAWARASAKI, Y, YI, S-X, LEE; Miami University, Oxford, Ohio	Rapid cold-hardening protects against cold-induced apoptosis: role of Bcl-2 protein
P3.208	MACMILLAN, HA, SINCLAIR, BJ; University of Western Ontario	Membrane remodeling, glucose and *Drosophila melanogaster* cold tolerance: a test of chilling injury protection hypotheses
P3.209 DCPB	MCCORKLE, AM, LOOMIS, SH; Connecticut College	Natural ice nucleating bacteria increase the freezing tolerance of the intertidal bivalve *Geukensia demissa*
P3.210 DEE	MURRAY, IW, SMITH, FA; University of New Mexico, Albuquerque	Life in an extreme environment: the effects of heat on foraging and survival of woodrats (*Neotoma*) in Death Valley, California

TUESDAY P3 - POSTER SESSION 3
Galleria, 3:00 - 5:00 PM

P3.211 DCPB	OLSON, JR, SWANSON, DL, COOPER, SJ, BRAUN, MJ, WILLIAMS, JB; Ohio State University, Columbus, University of South Dakota, Vermillion, University of Wisconsin-Oshkosh, Smithsonian Institution, Suitland, MD	Metabolic performance and latitudinal distribution of black-capped and Carolina chickadees
P3.212 DCPB	PETERSEN, AM, ELLERBY, DJ, FEILICH, K*; Wellesley College	Thermoregulatory and metabolic response to feeding in the medicinal leech *Hirudo verbana*
P3.213 DCPB	PHILIP, BN, LEE, RE*; Miami University, Oxford, Ohio	Aquaporin-3 expression correlates with seasonal acquisition of freeze tolerance in the goldenrod gall fly, *Eurosta solidaginis*
P3.214 DCPB	PRICE, ER, ARMSTRONG, C, STAPLES, JF, GUGLIELMO, CG; University of Western Ontario	Norepinephrine stimulated fatty acid mobilization in hibernating ground squirrels (Spermophilus tridecemlineatus)
P3.215 DCPB	PRUITT, NL, ARNOLD, A, ESPINAL, NA, JOO, YJ; Colgate University, Hamilton, NY	Dehydrin-like proteins in freeze-tolerant larvae of the goldenrod gall fly *Eurosta solidaginis*
P3.216 DEE	REICHARD, JD, FELLOWS, SR, KUNZ, TH; Boston University	Thermoregulation during flight in the Brazilian free-tailed bat

Wednesday Schedule of Events

EVENT	TIME	LOCATION
Registration	7:30 AM-5 PM	Harbor Ballroom Foyer
Coffee Break	9:30-10:30 AM	Outside of Meeting Rooms
CONTRIBUTED PAPER ORAL PRESENTATIONS		
Session 87: Functional Morphology - Locomotion	7:40-9:40 AM	Grand Ballroom C
Session 88: Functional Morphology - Solid Mechanics	10:00 AM-Noon	Grand Ballroom C
Session 89: Sexual Selection II	8:20-10:00 AM	Commonwealth A
Session 90: Ontogeny and Morphology	8:00-11:20 AM	Commonwealth B
Session 91: Thermoregulation/Temperature Response	8:00 AM-Noon	Commonwealth C
Session 92: Regulation of Growth	8:00-11:40 AM	Carlton
Session 93: Behavioral Ecology: Disease & Immunity	8:00-9:40 AM	Grand Ballroom D
Session 94: Behavioral Ecology: Habitat Use	10:00 AM-Noon	Grand Ballroom D
Session 95: Evolutionary Ecology - Adaptation and Variation	8:00-9:40 AM	Grand Ballroom E
Session 96: Evolution Ecology - Growth and Size	10:00-11:20 AM	Grand Ballroom E
Session 97: Osmoregulation	8:00-11:20 AM	Harbor I
Session 98: Locomotion - Muscle - Muscle Dynamics	8:00 AM-Noon	Harbor II
Session 99: Regulation of Development	8:00-9:20 AM	Harbor III
Session 100: Feeding and Digestion	8:00-11:20 AM	Lewis
Session 101: Larval Ecology	8:00 AM-Noon	Otis
Session 102: Evolutionary Morphology - Morphogenesis I	8:00-9:40 AM	Stone
Session 103: Evolutionary Morphology - Morphogenesis II	10:00-11:40 AM	Stone
Session 104: Locomotion - Elongate Movement	8:00-9:40 AM	Webster
Session 105: Locomotion - Hummingbird Flight	10:00-11:40 AM	Webster
COMMITTEE & BOARD MEETINGS		
Executive Committee	7:00-9:00 AM	Douglas

7:40-9:40 AM
Grand Ballroom C

Session 87: Functional Morphology - Locomotion

Chair: Russell Main, Rick Blob

7:40 AM	87.1	SCHULTZ, ET, BLOB, RW, PTACEK, MB; University of Connecticut, Clemson University	Copulation kinematics in *Poecilia*, a genus of live-bearing fish
8:00 AM	87.2	CHEN, J, RISKIN, DK, BREUER, KS, SWARTZ, SM, LAIDLAW, DH; Brown University	Bookstein coordinate-based shape analysis of bat wing kinematics
8:20 AM DCB	87.3	BUCHWALD, R, DUDLEY, R; University of California, Berkeley	Maximum accelerations during takeoff in the bumblebee (*Bombus impatiens*)
8:40 AM	87.4	KOHLSDORF, T, NAVAS, CA; University of Sao Paulo, FFCLRP, University of Sao Paulo, IB	Evolutionary relationships between locomotion and morpho-physiology in Tropidurinae lizards
9:00 AM DVM	87.5	CUNNINGHAM, C, SCHILLING, N, ANDERS, C, CARRIER, D*; University of Utah, Salt Lake City, Friedrich-Schiller-University Jena, University Hospital Jena	Plantigrade foot posture increases locomotor economy in walking but not in running humans
9:20 AM	87.6	FEITL, KE, STROTHER, JA, VAN TRUMP, WJ, MCHENRY, MJ; University of California, Irvine	Larval fish sense predators by detecting rapid water flow
9:40 AM	COFFEE BREAK		

10:00 AM-Noon
Grand Ballroom C

Session 88: Functional Morphology - Solid Mechanics

Co-Chairs: Russell Main, Rick Blob

10:00 AM DVM	88.1	MAIN, RP, LYNCH, ME, SCHMICKER, TL, VAN DER MEULEN, MCH; Cornell University	Changes in cortical bone stiffness and geometry in response to applied load vary with age in female mice
10:20 AM DVM	88.2	DUMONT, ER, GROSSE, IR, SLATER, GJ; University of Massachusetts, Amherst, University of California, Los Angeles	Comparing the performance of finite element models of biological structures
10:40 AM	88.3	ROSS, CF, STRAIT, D, DECHOW, PC, RICHMOND, B, SPENCER, M, SCHREIN, C, WEBER, G, SLICE, D; University of Chicago, University at Albany , Baylor College of Dentistry, George Washington University, Arizona State University, University of Vienna	*In vivo* bone strain and finite-element modeling of the craniofacial haft in catarrhine primates

11:00 AM DVM	88.4	BEATTY, B, WERTH, A, WOOD, CB; New York College of Osteopathic Medicine, Hampden-Sydney College, Providence College	Aprismatic enamel microstructure and tooth sharpness in odontocetes: economy or adaptation?
11:20 AM	88.5	ZINK (DUNCAN), KD, LIEBERMAN, DE; Harvard University	Food for thought: the effects of roasting and mechanical tenderization on food material properties, masticatory force production and comminution
11:40 AM	88.6	CARMODY, RN, CONE, E, WRANGHAM, RW, SECOR, SM; Harvard University, University of Alabama	Cooking and the net energy value of meat: implications for human evolution

8:20-10:00 AM
Commonwealth A

Session 89: Sexual Selection II

Co-Chairs: Herman Pontzer, Joanna Rutkowska

8:20 AM	89.2	SOUTH, A, STANGER-HALL, K, LEWIS, SM; Tufts University, University of Georgia	Evolutionary origins and functions of nuptial gifts in fireflies
8:40 AM DEE	89.3	OUFIERO, CE, GARLAND, JR, T; University of California, Riverside	The cost of bearing a sword: an examination of the locomotor costs associated with a sexually selected trait in *Xiphophorus*
9:00 AM DEE	89.4	LAILVAUX, SP, HALL, MD, BROOKS, RC; University of New South Wales	Does whole-organism performance indicate genetic quality? A test using the black field cricket (*Teleogryllus commodus*)
9:20 AM	89.5	RUTKOWSKA, J, MARTYKA , R, CICHON, M; Institute of Environmental Sciences, Jagiellonian University	Trade-off between maternal immunocompetence and offspring viability in zebra finches
9:40 AM DVM	89.6	PONTZER, H, KAMILAR, J; Washington University	Greater ranging associated with greater reproductive investment in mammals: a new perspective on foraging economics

10:00 AM COFFEE BREAK

8:00-11:20 AM
Commonwealth B

Session 90: Ontogeny and Morphology

Chair: Brandon Jackson

8:00 AM DCB	90.1	JACKSON, BE, DIAL, KP; University of Montana	Ontogeny of locomotor performance in a ground bird
8:20 AM DVM	90.2	SLATER, GJ; University of California, Los Angeles	Quantifying the influence of allometry on mechanical performance: a study of the evolution of felid cranial form

8:40 AM DVM	90.3	BRAKORA, K, KHUC, K; University of California, Berkeley	Ontogenetic convergence in ventral skull shape between males and females of a sexually dimorphic antelope
9:00 AM DVM	90.4	O'QUIN, CT, HERNANDEZ, LP; The George Washington University	Development of a functional complex: ontogeny of the zebrafish pharyngeal jaw apparatus
9:20 AM	90.5	CAMPAS, O, MAHADEVAN, L; Harvard University	Tip growth of pollen tubes
9:40 AM	COFFEE BREAK		
10:00 AM	90.6	LIANG, H, MAHADEVAN, L; Harvard University	The undulating shape of growing surfaces
10:20 AM DCB	90.7	KILBOURNE, BM; University of Chicago	Ontogenetic allometry of long bones in mammals and dinosaurs and its use as a predictor of life history traits
10:40 AM	90.8	CURTIN, AJ, MACDOWELL, AA, SCHAIBLE, EG, ROTH, VL; Duke University, Advanced Light Source, Lawrence Berkeley National Laboratory	Non-invasive histological comparison of bone growth patterns among fossil and extant neonatal elephantids using synchrotron radiation X-ray microtomography
11:00 AM DVM	90.9	OWERKOWICZ, T, TSAI, HP, BLANK, JM, EME, J, GWALTHNEY, JW, HICKS, JW; University of California, Irvine	Effects of exercise on skeletal growth and bone microstructure of the American alligator with and without the cardiac shunt

8:00 AM-Noon
Commonwealth C

Session 91: Thermoregulation/Temperature Response

Co-Chairs: Greg Florant, Michael Angilletta

8:00 AM DCPB	91.1	WOJCIECHOWSKI, MS, JEFIMOW, M, PINSHOW, B; Nicolaus Copernicus University, Torun, Poland, Jacob Blaustein Institutes for Desert Research, Ben-Gurion University, Israel	Blackcaps use torpor and huddle while resting at a stopover site during migration
8:20 AM DCPB	91.2	FENN, AM, FLORANT, GL, ZERVANOS, S; Colorado State University, Penn State University	Genetics vs. environment: variance in torpor patterns of woodchucks along latitudinal gradients
8:40 AM	91.3	WOODS, SB, BARNES, BM, HUMPHRIES, MM; Natural Resource Sciences, McGill University, Institute of Arctic Biology, University of Alaska Fairbanks	Resource-dependent cold climate heterothermy in free-ranging red squirrels
9:00 AM DEE	91.4	ANGILLETTA, MJ, SEARS, MW, SCHULER, MS, RUSCH, TW, MITCHELL, WA; Indiana State University, Terre Haute, Southern Illinois University, Carbondale, University of Wisconsin, Stevens Point	Testing models of behavioral thermoregulation in a spatially-explicit context: a large-scale field experiment

9:20 AM	91.5	FILL, JF, KLUG, P, SANDERCOCK, BK; University of Massachusetts Amherst, Kansas State University	The influence of habitat variation on snake body temperature and behavior on Konza Prairie
9:40 AM	COFFEE BREAK		
10:00 AM	91.6	SCHORR, RA, FLORANT, GL; Colorado State University	Do polyunsaturated fatty acids play a role in mammalian hibernator overwinter survival?
10:20 AM DCPB	91.7	BOILY, P; Western Connecitcut State University	Voluntary motor activity contributes to the increase in body temperature caused by menthol application to the skin of gerbils
10:40 AM DCPB	91.8	BEN-HAMO, M, BAUCHINGER, U, PINSHOW, B; Ben-Gurion University of the Negev	A reassessment of proximate factors that trigger hypothermia in Japanese quail
11:00 AM	91.9	AMIEL, JJ, WASSERSUG, RJ; Dalhousie University, Halifax, Nova Scotia, Canada	Physiological and behavioral adaptations of the ribbonsnake (*Thamnophis sauritus*) to cold climates
11:20 AM	91.10	CONDON, CH, CHENOWETH, SF, WILSON, RS; The University of Queensland	Mixed signals: thermal performance of zebrafish *Danio rerio* in uncertain environments
11:40 AM DCPB	91.11	SOKOLOVA, IM; University of North Carolina at Charlotte	Surviving global change in polluted environments: metal-temperature interactions in metabolic physiology of a marine ectotherm

8:00-11:40 AM
Carlton

Session 92: Regulation of Growth

Co-Chairs: Peggy Biga, Mark Sheridan

8:00 AM DCB	92.1	CHEN, M, JOCOBS, MW, LAUFER, H; University of Connecticut	Competition of tyrosine with alkylphenols during shell hardening in new cuticle of lobsters
8:20 AM DCE	92.2	WALKER, AA, DEVADI, R, RILEY JR, LG*; California State University, Fresno	Temperature and fasting differentially regulate glucose metabolism and ghrelin levels in the tilapia (*Oreochromis mossambicus*)
8:40 AM DCPB	92.3	BIGA, PR, BRASCHAYKO, E, GALT, N, PAKALA, KP, JENSEN, J; North Dakota State University, Fargo	Does myostatin play a regulatory role outside of muscle growth and metabolism?
9:00 AM DCE	92.4	GLAZER, L, SHECHTER, A, BERMAN, A, WEIL, S, AFLALO, ED, YUDKOVSKI, Y, TOM, M, SAGI, A; Ben-Gurion University of the Negev, Israel Oceanographic and Limnological Research	A novel molt-related protein with a possible role in the formation of crayfish calcium storage deposits
9:20 AM DEE	92.5	HELM, BR, DAVIDOWITZ, G; University of Arizona	On the physiological determination of body size in *Manduca sex*: what is the critical weight?

9:40 AM	92.6	DAS, S, HOPKINS, PM, DURICA, DS; University of Oklahoma	Expression of ecdysteroid responsive genes in response to hormonal induction and RNAi mediated gene silencing in *Uca pugilator*
10:00 AM	COFFEE BREAK		
10:20 AM	92.7	WON, ET, BALTZEGAR, DA, PICHA, ME, BORSKI, RJ; North Carolina State University	Cloning and regulation of hepatic leptin mRNA expression by nutritional status in hybrid striped bass (Genus *Morone*)
10:40 AM DCE	92.8	REINDL, KM, KITTILSON, JD, SHERIDAN, MA*; North Dakota State University, Fargo	Ligand binding, agonist-induced regulation, and signaling characteristics of trout growth hormone receptors in transfected cells
11:00 AM DCE	92.9	KEOGH, MJ, MANISCALCO, JM, ATKINSON, S; University of Alaska Fairbanks, Alaska SeaLife Center	Development of endocrine and immune function in endangered steller sea lion pups (*Eumetopias jubatus*)
11:20 AM DCE	92.10	BAKER, DM, MCCORMICK, SD; University of Mary Washington, USGS, Conte Anadromous Fish Research Center	Seasonal and developmental expression of growth hormone regulatory neuropeptides in Atlantic salmon (*Salmo salar*)

8:00-9:40 AM
Grand Ballroom D

Session 93: Behavioral Ecology: Disease & Immunity

Chair: M. Sears

8:00 AM	93.1	POSTAVA-DAVIGNON, MA, FULLER, CA, STILLER, JW, WADDLE, E, ROSENGAUS, RB; Northeastern University, Murray State University, East Carolina University	Fungal pressures within and surrounding nests of the arboreal termite species *Nasutitermes acajutlae*
8:20 AM	93.2	SCHULTHEIS, KF, ROSENGAUS, RB, BULMER, MS; Northeastern University, Towson University	Symbiont-mediated immunocompetence in the dampwood termite (*Zootermopsis angusticollis*)
8:40 AM	93.3	HAMILTON, C, ROSENGAUS, RB; Northeastern University	Social transmission of immunity in the carpenter ant *Camponotus pennsylvanicus*
9:00 AM	93.4	ROSENGAUS, R, AVULOVA, S, REICHHELD, L; Northeastern University	Losing the battle against fungal infection: suppression of termite immune defenses during mycosis
9:20 AM	93.5	VENESKY, MD, PARRIS, MJ; The University of Memphis	Effects of *Batrachochytrium dendrobatidis* infections on larval foraging performance
9:40 AM	COFFEE BREAK		

10:00 AM-Noon
Grand Ballroom D

Session 94: Behavioral Ecology: Habitat Use

Chair: Randi Rotjan

10:00 AM DCPB	94.1	ENGEL, S, HYDE , T, WOLF, BO; University of New Mexico, Albuquerque	Is avian migration in the American Southwest timed to the bloom of columnar cacti?
10:20 AM	94.2	ROTJAN, R, CHABOT, JR, LEWIS, S; Harvard University, New England Aquarium, Pfizer, Inc., Tufts University	Vacancy chains in different social contexts determine resource acquisition by *Coenobita clypeatus* terrestrial hermit crabs
10:40 AM	94.3	CHAPPLE, TK, JORGENSEN, SJ, ANDERSON, SD, VAN SOMMERAN, S, KLIMLEY, AP, BOTSFORD, LW, BLOCK, BA; University of California, Davis, Stanford University, Inverness, Pelagic Shark Research Foundation	A comparison of spatial and temporal habitat use by male and female migrating great white sharks (*Carcharodon carcharias*) in the eastern Pacific
11:00 AM DAB	94.4	PARKER, EL, KYNARD, B, PARKER, TK, KYNARD, BE; USGS, Conte Anadromous Fish Research Center, BK-Riverfish, LLC	Effect of rearing temperature on the onset and duration of dispersal of early life stages of shortnose sturgeon
11:20 AM DCPB	94.5	BARNES, BM; University of Alaska, Fairbanks	Circadian rhythms in free-living Arctic ground squirrels
11:40 AM	94.6	KROCHMAL, AR, BAKKEN, GS, LADUC, TJ; Washington College, Chestertown	Phylogenetic perspectives on learning in pitvipers (Viperidae: Crotalinae) with comments on one-trial learning in rattlesnakes

8:00-9:40 AM
Grand Ballroom E

Session 95: Evolutionary Ecology - Adaptation and Variation

Chair: Ivan Gomez-Mestre

8:00 AM DEE	95.1	GOMEZ-MESTRE, I, TOUCHON, JC, SACCOCCIO, VL, WARKENTIN, KM; Donana Biological Station, CSIC, Spain, Boston University	Quantitative genetic analyses of risk-induced hatching reveal limits to plasticity of inducible defenses
8:20 AM DEE	95.2	BOURDEAU, PE; Stony Brook University	Stuck between a rock crab and a hard place: phenotypic responses to multiple predators in a marine snail
8:40 AM DIZ	95.3	JOHNSON, AS, SELDEN, R, ELLERS, O; Bowdoin College, Maine	Crab scent induces thicker skeletons, smaller gonads and size-specific adjustments in growth rate in sea urchins
9:00 AM DEE	95.4	HOCH, JM; Stony Brook University	Sex allocation and reproductive success in simultaneously hermaphroditic acorn barnacles
9:20 AM	95.5	LYONS, PJ; Stony Brook University	Dynamics of shrimp goby mutualism in the Caribbean
9:40 AM	COFFEE BREAK		

10:00-11:20 AM
Grand Ballroom E

Session 96: Evolution Ecology - Growth and Size

Co-Chairs: James Stewart, Robert Cox

10:00 AM DVM	96.1	CUNNINGHAM, CB, CARRIER, DR; University of Utah	Male-male competition's influence on primate brain size
10:20 AM	96.2	MUNOZ, MM, HERREL, A, SASA, M, LOSOS, J; Harvard University	How similar are aquatic Anolis lizards: a detailed ecological and behavioral analysis of two Costa Rican species (A. oxylophus and A. aquaticus)
10:40 AM DVM	96.3	STEWART, JR, ECAY, TW, HEULIN, B; East Tennessee State University, Station Biologique de Paimpont	Calcium provision to embryos of the reproductively bimodal lizard, *Lacerta vivipara*
11:00 AM DCE	96.4	COX, R, STENQUIST, D, CALSBEEK, R; Dartmouth College	Testosterone stimulates growth in a lizard (*Anolis sagrei*) with extreme male-biased sexual size dimorphism

8:00-11:20 AM
Harbor I

Session 97: Osmoregulation

Co-Chairs: Donald Powers, Lars Tomanek

8:00 AM	97.1	BALTZEGAR, DA, OZDEN, O, BORSKI, RJ; North Carolina State University, Raleigh	Claudin mRNA expression in Mozambique tilapia (Oreochromis mossambicus) gill tissue: implications for osmoregulation and salinity adaptation
8:20 AM	97.2	PHILLIPS, MB, DIAMANDUROS, AW, HYNDMAN, KA, EDWARDS, SL, CLAIBORNE, JB; Georgia Southern University, Medical College of Georgia, Appalachian State University	Rh glycoprotein as an ammonia transport molecule in the longhorn sculpin (*Myoxocephalus octodecemspinosus*) gill
8:40 AM DCPB	97.3	POWERS, DR, GETSINGER, PW, WETHINGTON, SM, TOBALSKE, BW; George Fox University, Newberg, Hummingbird Monitoring Network, Patagonia, University of Montana, Missoula	Respiratory evaporative water loss during hovering flight in hummingbirds
9:00 AM DCPB	97.4	RO, J, WILLIAMS, JB; Ohio State University	Cutaneous water loss and lipids of the skin of tropical and temperater birds
9:20 AM	97.5	SPRAGUE, JC, SMITH, JN, WOODS, HA; University Montana	Waiting to exhale: tracheal air-filling in embryos of *Manduca sexta*
9:40 AM	COFFEE BREAK		
10:00 AM DCPB	97.6	TOMANEK, L, VALENZUELA, JJ, HITT, LR; California Polytechnic State University, San Luis Obispo	The proteome response of *Mytilus* congeners to salinity stress
10:20 AM DEE	97.7	TRACY, CR, BETTS, G, CHRISTIAN, KA; Charles Darwin University	Condensation onto the skin as a means of water gain by tree frogs in tropical Australia

10:40 AM	97.8	JOHNSTONE III, WM, BALTZEGAR, DA, BORSKI, RJ; North Carolina State University, Raleigh	Characterization of serum and glucocorticoid induced kinases (SGK) in a teleost fish, the Mozambique tilapia (*Oreochromis mossambicus*)
11:00 AM DCPB	97.10	HYNDMAN, KA, EDWARDS, SL, KRATOCHVILOVA, H, CLAIBOREN, JB, EVANS, DH; Medical College of Georgia, Vascular Biology Center, Augusta Appalachian State University, Boone, Georgia Southern University, Statesboro Georgia Southern University, University of Florida, Gainesville	The effect of short-term, low-salinity acclimation on gill NHE, AE1 and HAT expression in the longhorn sculpin, *Myoxocephalus octodecemspinosus*

8:00 AM-Noon
Harbor II

Session 98: Locomotion - Muscle - Muscle Dynamics

Co-Chairs: Richard Marsh, Duncan Irschick

8:00 AM DVM	98.1	CARR, JA, MARSH, RL; Northeastern University	Muscle function in a complex muscle during terrestrial and aquatic locomotion
8:20 AM DCB	98.2	HORNER, AM, RUSS, DW, BIKNEVICIUS, AR; Ohio University, Athens, Ohio University School of Physical Therapy, Athens, Ohio University College of Osteopathic Medicine, Athens, OH	Effects of aging on locomotor dynamics and hindlimb muscle force production in the rat
8:40 AM DVM	98.3	MORITZ, S; Friedrich-Schiller-Universitaet Jena	Adaptations of the perivertebral musculature to different locomotor behaviours in lizards
9:00 AM DVM	98.4	HIGHAM, TE, BIEWENER, AA; Clemson University, Harvard University	Fatigue fiddles with fowl function: altered muscle function during locomotion
9:20 AM DVM	98.5	MARSH, RL, HITCHCOCK, AC, TRUONG, R, PROPERT, MWG; Northeastern University	Cost of muscle force production during legged locomotion in guinea fowl
9:40 AM	COFFEE BREAK		
10:00 AM DVM	98.6	IRSCHICK, DJ, HENNINGSEN, J; University of Massachusetts at Amherst	Trade-offs between force and accuracy in human performance
10:20 AM	98.7	ALMEDIA, S, IRSCHICK, D; University of Massachusetts at Amherst	The kinetics and kinematics of human performance: trade-offs between force and accuracy
10:40 AM DVM	98.8	NOYES, N, GILLIS, GB; Mount Holyoke College	Flexor vs. extensor activity during jumping and swimming in *Rana pipiens*
11:00 AM DVM	98.9	ROBERTS, TJ, AZIZI, E; Brown University	The series elastic shock absorber: tendon elasticity reduces peak muscle forces during active lengthening
11:20 AM DVM	98.10	AZIZI, E, ROBERTS, TJ; Brown University	Muscle performance during frog jumping: influence of series elasticity on muscle length-tension behavior
11:40 AM	98.11	CLAVERIE, T, PATEK, SN; University of California, Berkeley	Force transmission versus speed amplification in a four bar linkage mechanism: counterintuitive results in the mantis shrimps strike

8:00-9:20 AM
Harbor III

Session 99: Regulation of Development

Chair: Gregory Handrigan

8:00 AM DEDB	99.1	SUZUKI, Y, SQUIRES, DC, RIDDIFORD, LM; Wellesley College, University of Washington, Seattle, Janelia Farms, Howard Hughes Medical Institute, Ashburn	*Distal-less* regulates developmental stability in the flour beetle, *Tribolium castaneum*
8:20 AM DCE	99.2	PAITZ, RT, BOWDEN, RM; Illinois St. University	Characterizing the biological activity of estradiol sulfate during embryonic development: inactive steroid metabolite or precursor for steroid production?
8:40 AM DEDB	99.5	HANDRIGAN, GR, BUCHTOVA, M, LEUNG, KJ, RICHMAN, JM; University of British Columbia, Vancouver, Canada, Academy of Sciences, Brno, Czech Republic	How snakes and lizards replace their teeth: molecular and embryological scrutiny of tooth cycling in squamates
9:00 AM	99.6	STILBORN, SSM, MANZON, LA, SCHAUENBERG, JD, MANZON, RG; University of Regina, Biology	Expression of sea lamprey, *Petromyzon marinus*, Deiodinase type II throughout metamorphosis and following a thyroid challenge
9:20 AM	COFFEE BREAK		

8:00-11:20 AM
Lewis

Session 100: Feeding and Digestion

Co-Chairs: Stephen Secor, Pawel Brzek

8:00 AM DCPB	100.1	BESSLER, SM, SECOR, SM; University of Alabama	To regulate or not to regulate; stomach acid production in amphibians and reptiles
8:20 AM DCPB	100.2	BRZEK, P, CAVIEDES-VIDAL, E, KARASOV, WH; University of Wisconsin, Madison, Universidad Nacional de San Luis-CONICET, Argentina	Paracellular and total glucose absorption increase with age in nestling house sparrows
8:40 AM DCPB	100.3	BRZEK, P, KOHL, K, CAVIEDES-VIDAL, E, KARASOV, WH*; University of Wisconsin, Madison, Universidad Nacional de San Luis-CONICET, Argentina	Activity of intestinal carbohydrases responds to multiple dietary signals in nestling house sparrows
9:00 AM	100.4	DIAMOND, SE, KINGSOLVER, JG; University of North Carolina, Chapel Hill	Does diet quality alter the temperature-size rule?
9:20 AM DCPB	100.5	KOHL, K, BRZEK, P, CAVIEDES-VIDAL, E, KARASOV, WH; University of Wisconsin, Madison, Universidad Nacional de San Luis-CONICET, Argentina	Phenotypic plasticity of intestinal dissacharidase activity is fully reversible in young house sparrows
9:40 AM	COFFEE BREAK		

10:00 AM DVM	100.6	KONOW, N, THEXTON, A, CROMPTON, AW, GERMAN, RZ; Johns Hopkins University, Physical Medicine and Rehabilitation, Kings College, Guy's Campus, Museum of Comparative Zoology, Harvard University	Regional specialization in the mammalian sternohyoideus
10:20 AM DCPB	100.7	PARSONS, JL, BALDWIN, BS, OUELLETTE, JR, KOUBA, A, RUDE, BJ; Mississippi State University, Memphis Zoo	Temporal effects on bamboo nutritional quality for specialist foragers
10:40 AM	100.8	GINTOF, CM, KONOW, NZ, ROSS, CF, SANFORD, CP; Hofstra University	Variability of prey processing in teleost fishes with a comparison to amniotes
11:00 AM DCPB	100.9	SECOR, SM, LIGNOT, J-H; University of Alabama, CNRS, DEPE, Strasbourg	Impact of meal fat content on the postprandial responses of the Burmese python

8:00 AM-Noon
Otis

Session 101: Larval Ecology

Chair: Jonathan Allen

8:00 AM	101.1	LOPEZ-DUARTE, PC, TANKERSLEY, RA; Scripps Institution of Oceanography, Florida Institute of Technology	Where did you get that rhythm? Plasticity in the circatidal swimming behavior of fiddler crab larvae
8:20 AM DIZ	101.2	PODOLSKY, RD; College of Charleston	Reproductive correlates of exposure to ultraviolet light in an intertidal gastropod
8:40 AM	101.3	MCFARLANE, WJ, DEBLASIO, H; Manhattanville College, Purchase	Turbidity may provide a protective barrier against ultraviolet (uv) light exposure in zebrafish (*Danio rerio*) embryos
9:00 AM DIZ	101.4	GEHMAN, AM; Western Washington University	Maternal diet and juvenile quality in the sea star *Leptasterias aequalis*
9:20 AM DEE	101.5	MCCOY, MW, WARKENTIN, K, VONESH, JR; Boston University, Virginia Commonwealth University	Phenotypic plasticity in metamorphic timing: understanding the roles of size- and density-dependent processes
9:40 AM	COFFEE BREAK		
10:00 AM DIZ	101.6	VAUGHN, D; University of Washington	Sand dolly: the adaptive significance of predator-induced cloning and size reduction in *Dendraster excentricus* plutei
10:20 AM DIZ	101.7	ALLEN, JD; Randolph-Macon College	Predator-induced changes in maternal investment in an intertidal snail
10:40 AM DIZ	101.8	LE CAM, S, VIARD, F, CAGNON, M, PECHENIK, JA; Station Biologique de Roscoff, Tufts University	Role of multiple paternity in causing variation in larval growth rates in the gastropod *Crepidula fornicata*
11:00 AM	101.9	ROMERO, MR, KELSTRUP, HCP, STRATHMANN, RR; California State University, Los Angeles, University of Washington	High-speed video reveals capture of particles by direct interception by cilia during feeding of a gastropod veliger

11:20 AM	101.10	O'DONNELL, MJ, TODGHAM, AE, SEWELL, MA, HAMMOND, LM, RUGGIERO, K, FANGUE, NA, ZIPPAY, ML, HOFMANN, GE; University of Washington Friday Harbor Labs, University of California, Santa Barbara, University of Aukland	Ocean acidification alters skeletogenisis in larvae of the sea urchin *Lytechinus pictus*: evidence from morphometric and microarray data
11:40 AM DIZ	101.11	MCALISTER, JS, MORAN, AL; Clemson University	Unscrambling the relationship between egg size and egg composition using geminate species pairs

8:00-9:40 AM
Stone

Session 102: Evolutionary Morphology - Morphogenesis I

Co-Chairs: Anne Maglia, Janet Vaglia

8:00 AM	102.1	HAVENS, SB, MAGLIA, AM; Missouri University of Science and Technology	Larval developmental patterns in *Acris crepitans blanchardi* (Anura: Hylidae) and their implications
8:20 AM DVM	102.2	JORGENSEN, ME; Ohio University	Comparative locomotor morphology of hyloid and non-neobatrachian anurans
8:40 AM DSEB	102.3	PUGENER, LA, MAGLIA, AM*; Missouri University of Science and Technology, Rolla	Developmental evolution of the Anuran Sacrourostylic Region and its locomotory implications
9:00 AM DDCB	102.4	VAGLIA, JL, BABCOCK, SK, WHITE, K, CASE, A, SMITH, K; DePauw University	Tail elongation and patterns of regional growth in salamanders
9:20 AM DDCB	102.5	CRAWFORD, K; St. Mary's College of Maryland, MD	Growth factor initiated intercalary regeneration in salamanders
9:40 AM	COFFEE BREAK		

10:00-11:40 AM
Stone

Session 103: Evolutionary Morphology - Morphogenesis II

Co-Chairs: Nathan Young, Bieke Vanhooydonck

10:00 AM DVM	103.1	SADLEIR, RW, LEE, S; Field Museum, University of Chicago, University of Illinois, Chicago	Phenotypic plasticity in alligatorinae evolution & visualizing 3-D shape change
10:20 AM DVM	103.2	YOUNG, NM, FONDON III, JW; University of California, San Francisco, University of Texas at Arlington	Artificial selection, developmental constraints, and craniofacial variation in the feral and domesticated pigeon (*Columba livia*)
10:40 AM DVM	103.3	SWIDERSKI, DL, ZELDITCH, ML; University of Michigan, Ann Arbor	Evolution of jaw size and shape in New World tree squirrels
11:00 AM	103.5	VANHOOYDONCK, B, HERREL, A, GABELA, A, PODOS, J; University of Antwerp, Harvard University, University Massachusetts, Amherst	Beyond the beak: wing shape variation in Darwins finches
11:20 AM	103.6	RICO-G., A; University of Connecticut	Evolutionary insights about hummingbirds' serrate tomia

8:00-9:40 AM
Webster

Session 104: Locomotion - Elongate Movement

C0-Chairs: Michael Simon, Brett Tobalske

8:00 AM DVM	104.1	BERGMANN, PJ, IRSCHICK, DJ; University of Arizona, University of Massachusetts Amherst	Alternate pathways in the evolution of body elongation, locomotor performance and kinematics in two clades of lizards
8:20 AM DNB	104.2	SIMON, MA, SMITH, D, TRIMMER, BA; Tufts University, Medford	Visualizing internal structural movements during soft-bodied crawling using phase-contrast X-ray microvideography
8:40 AM DVM	104.3	YOUNG, BA; University of Massachusetts at Lowell	Anaconda locomotion: gait transitions and a novel form of terrestrial locomotion
9:00 AM DCB	104.4	MALADEN, RD, GOLDMAN, DI; Georgia Institute of Technology	X-ray study of subsurface locomotion of a sand swimming lizard: the effect of material preparation
9:20 AM DEE	104.5	HENNINGSEN, J, HERMAN, R, IRSCHICK, D; University of Massachusetts Amherst	Tail autotomy and escape performance in a stream side salamander
9:40 AM	COFFEE BREAK		

10:00-11:40 AM
Webster

Session 105: Locomotion - Hummingbird Flight

Co-Chairs: Michael Simon, Brett Tobalske

10:00 AM DCB	105.1	FERNANDEZ, MJ, DUDLEY, R; University of California, Berkeley	Elevational variation in flight mechanics and energetics of the giant Andean hummingbird
10:20 AM DCB	105.2	TOBALSKE, BW, WARRICK, DR; University of Montana, Missoula	Where's the LEV? Aerodynamics of the hummingbird wing during hovering
10:40 AM DCPB	105.3	ALTSHULER, DL, PRINCEVAC, M, PAN, H, LOZANO, J; University of California, Riverside	Wake patterns of the wings and tail of hovering hummingbirds
11:00 AM DCB	105.4	CLARK, CJ; University of California Berkeley	Hummingbird courtship displays reveal limits to avian flight performance
11:20 AM DCB	105.5	BERG, AM, BIEWENER, AA; Harvard University	Flight muscle function during takeoff, landing, and mid-flight, in the pigeon *Columba livia*

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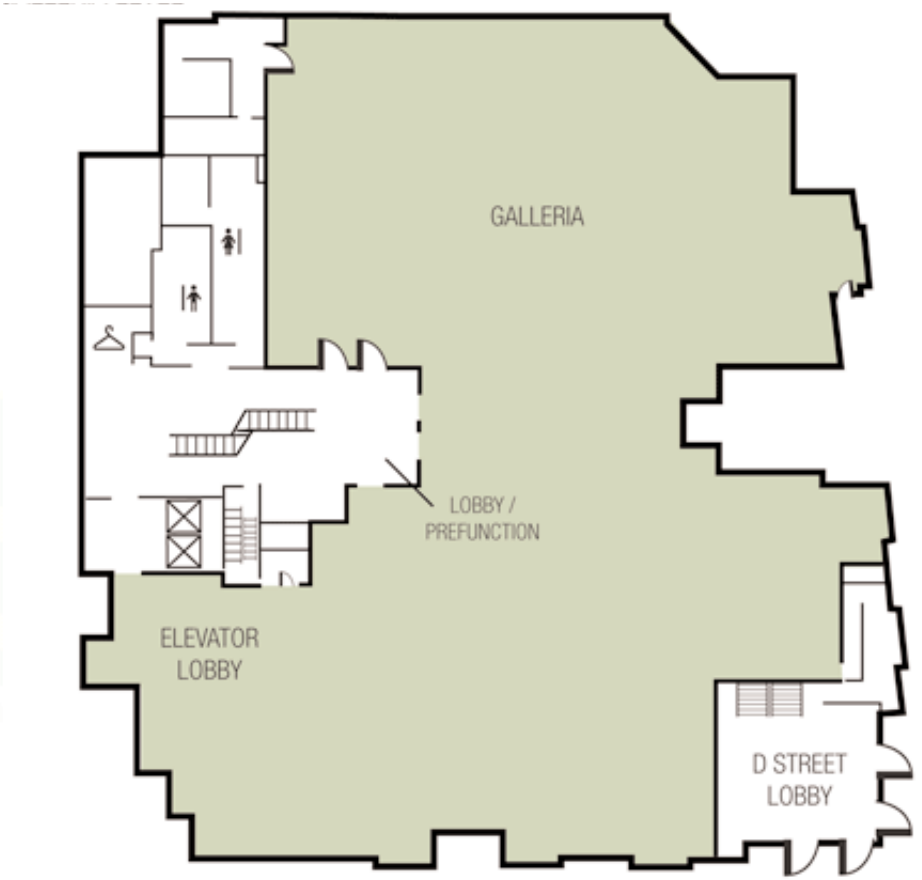
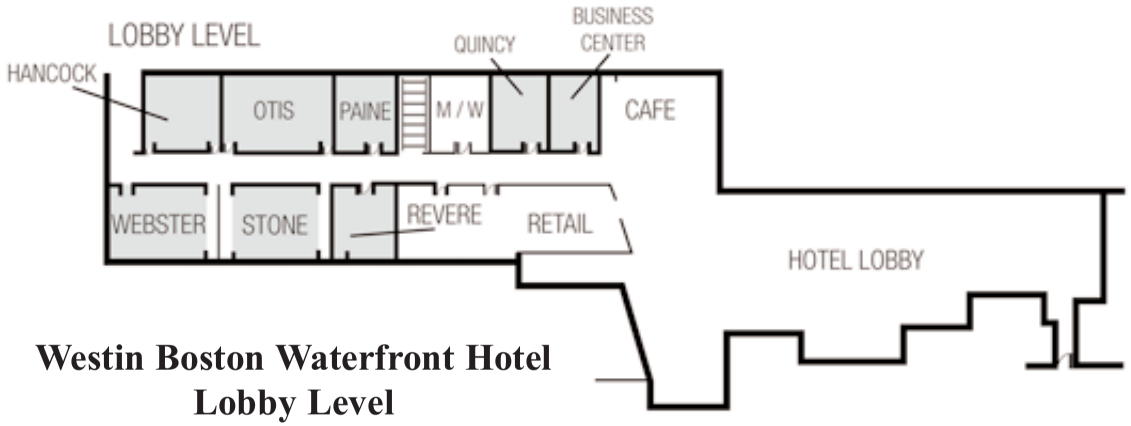
Keyword Index

Westin Boston Waterfront Hotel
Concourse Level



Westin Boston Waterfront Hotel
Galleria Level



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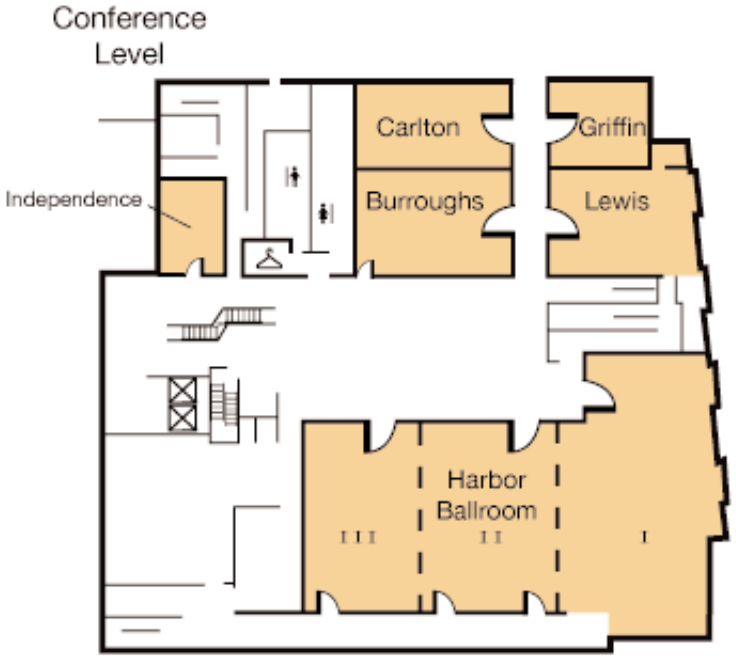
Lobby Level



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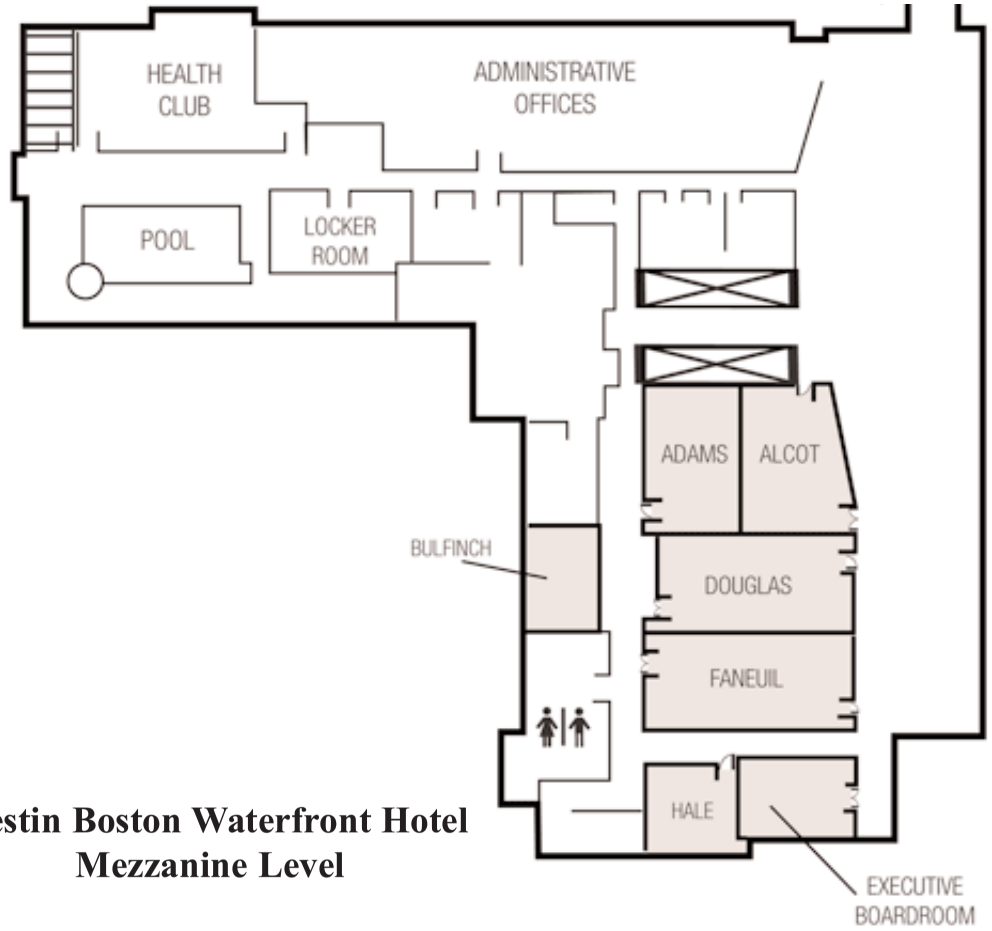
Conference Level



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Mezzanine Level

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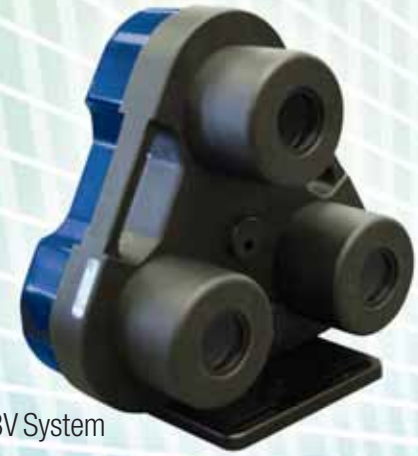
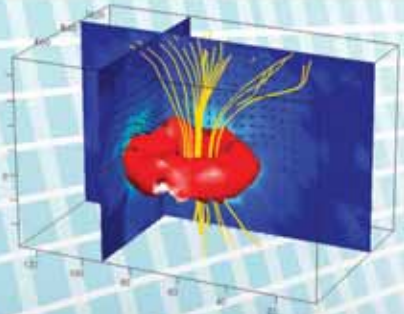
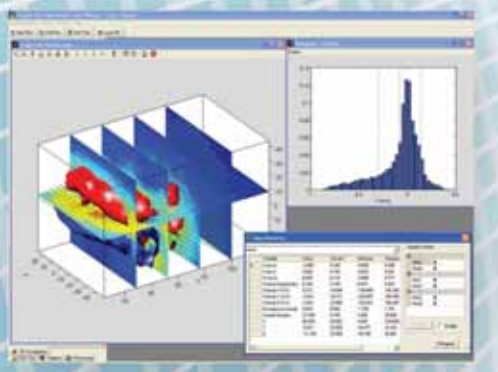


V3V System





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