

**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
Westin Boston Waterfront Hotel



Qubit

www.qubitsystems.com

700 Gardiners Rd. Suite 105
Kingston, ON, K7M 4Y4
CANADA

Phone - 613-384-1977
Fax - 613-384-9118

Biological Instrumentation for Research & Teaching

The best service I have ever received from a company.

Dr. Diane Robertson, Grinnel College, Iowa, USA

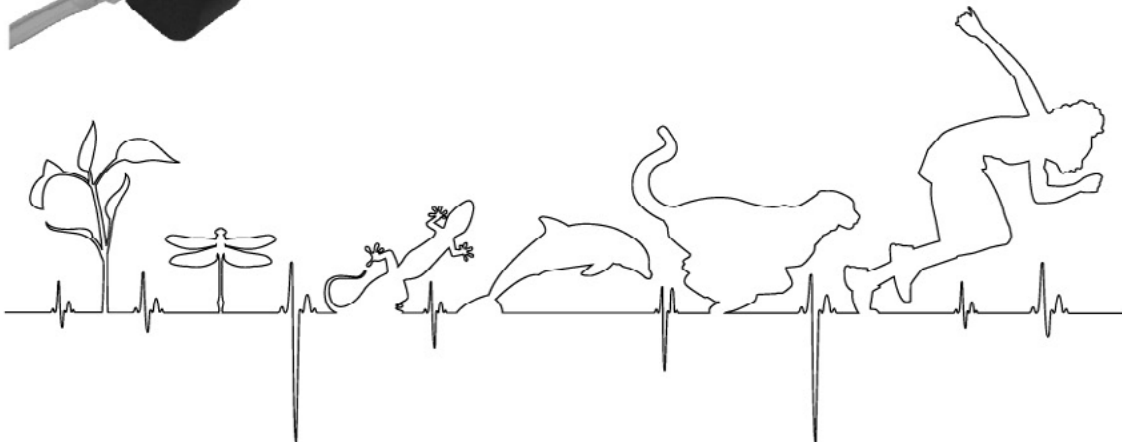


- **Respirometry**
- **Aquatic Biology**
- **Video Tracking**
- **Human Physiology**
- **Animal / Plant Interactions**
- **Environmental Monitoring**
- **Integrated Teaching Packages**
- **Custom Designs & Manufacturing**



The Qubit staff were a pleasure to work with - enthusiastic, knowledgeable and inventive. The product exceeded our expectations at a very attractive price.

Stuart Naylor, Managing Director, Roylan Developments Ltd., UK



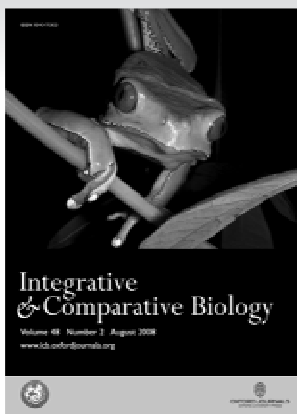
The Answer is Inside

Table of Contents

Officers/Co-Sponsoring Societies	3
Meeting Highlights/Social Events	6
Special Lectures/List of Symposia	7
Workshops and Programs	8
General Information	11
Speaker Ready Room	11
Business Center	11
Coffee Breaks	11
Committee and Business Meetings	11
Employment Opportunities	11
Future Meeting Date	11
Registration Location/Hours	11
Exhibitor Listing	13
Scientific Program	20
Author Index	144
Keyword Index	160
Floor Plans	167

New and Bestselling Titles from Oxford

Visit our booth to Save 20% on these titles and many more!



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

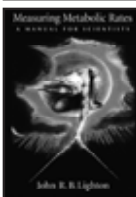


Clonality

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.
978-0-19-531061-0 cloth \$59.95/\$47.96



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

2008 424 pp.; 3 BW halftone and 21 BW line illus.
978-0-19-534098-3 cloth \$125.00/\$100.00
978-0-19-534099-0 paper \$49.95/\$39.96

Complexity

A Guided Tour

MELANIE MITCHELL

2009 384 pp.; 60 illus.
978-0-19-512441-5 cloth \$29.95/\$23.96



Ecological and Environmental Physiology of Amphibians

STAN HILLMAN, PHILIP WITHERS, ROBERT DREWES, and STAN HILLYARD

(Environmental and Ecological Physiology Series)
2008 464 pp.; 55 halftone and 105 line illus.
978-0-19-857031-8 cloth \$130.00/\$104.00
978-0-19-857032-5 paper \$55.00/\$44.00



Perl for Exploring DNA

MARK D. LEBLANC and BETSEY DEXTER DYER

2007 288 pp.; 70 screen shots
978-0-19-532757-1 cloth \$125.00/\$100.00
978-0-19-530589-0 paper \$29.95/\$23.96



Perspectives in Animal Phylogeny and Evolution

ALESSANDRO MINELLI

2009 336 pp.; 14 line & 47 halftone illus.
978-0-19-856620-5 cloth \$150.00/\$120.00
978-0-19-856621-2 paper \$70.00/\$56.00



Animal Osmoregulation

TIM BRADLEY

(Oxford Animal Biology Series)
2008 320 pp.; 20 halftone and 60 line illus.
978-0-19-856996-1 paper \$60.00/\$48.00



Six-Legged Soldiers

Using Insects as Weapons of War

JEFFREY A. LOCKWOOD

2008 400 pp.; 49 halftone & 1 line illus.
978-0-19-533305-3 cloth \$27.95/\$22.36

Responsible Conduct of Research

Second Edition

ADIL E. SHAMOO and DAVID B. RESNIK

2009 464 pp.; 1 BW line illus.
978-0-19-536824-6 paper \$39.95/\$31.96

OXFORD
UNIVERSITY PRESS

Prices are subject to change and apply only in the U.S. To order, please call 1-800-451-7556. In Canada, call 1-800-387-8020. Visit our website at www.oup.com/us.

Society for Integrative and Comparative Biology

2009 Officers

John S. Pearse, President
Richard A. Satterlie, President-Elect
Sarah A. Woodin, Past President
Ronald V. Dimock, Treasurer
Eduardo Rosa-Molinar, Program Officer
Linda J. Walters, Past Program Officer
Louis E. Burnett, Secretary
Harold F. Heatwole, Editor-in-Chief, Integrative and Comparative Biology
Brett J. Burk, Executive Director

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

425 Summer Street, Boston, MA 02210
617-532-4600

SICB Business Office

1313 Dolley Madison Blvd
Suite 402
McLean, Virginia 22101
Phone: 800-955-1236/703-790-1745
Fax: 703-790-2672
sicb@BurkInc.com; www.sicb.org

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*

<p>Future Meeting Date</p>

<p>Seattle, Washington, January 3-7, 2010</p>

<p>Seattle Sheraton and Washington State Convention Center</p>
--

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.

WORKSHOPS AND PROGRAMS

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.

WORKSHOPS AND PROGRAMS

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 Phenoscope 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 activities, 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:

<u>Day</u>	<u>Date</u>	<u>Time</u>
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.

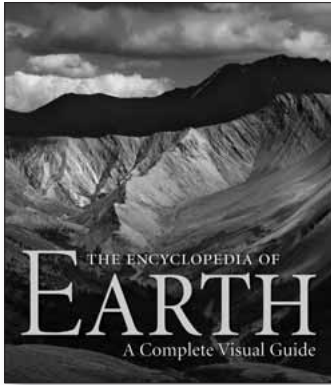
Keyword Index

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



Michael Allaby, Robert Coenraads,
Stephen Hutchinson, Karen McGhee,
John O'Byrne and Ken Rubin
The Encyclopedia of Earth
A Complete Visual Guide
\$39.95 cloth

Raphael D. Sagarin and Terence Taylor,
Editors
Natural Security
A Darwinian Approach to a Dangerous World
\$49.95 cloth

Michael Lannoo
Malformed Frogs
The Collapse of Aquatic Ecosystems
\$65.00 cloth

David L. Strayer
Freshwater Mussel Ecology
A Multifactor Approach to
Distribution and Abundance
Freshwater Ecology Series
\$45.00 cloth

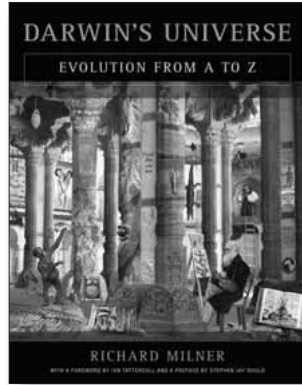
Patrick Trotter
Cutthroat
Native Trout of the American West
Second Edition, Revised and Updated
\$34.95 cloth

NEW IN PAPERBACK

Nina G. Jablonski
Skin
A Natural History
\$16.95 paper

William F. Loomis
Life as It Is
Biology for the Public Sphere
\$15.95 paper

Richard Mackay
The Atlas of Endangered Species
Revised and Updated Edition
\$19.95 paper



Richard Milner
Darwin's Universe
Evolution from A to Z
Foreword by Ian Tattersall
Preface by Stephen Jay Gould
\$39.95 cloth

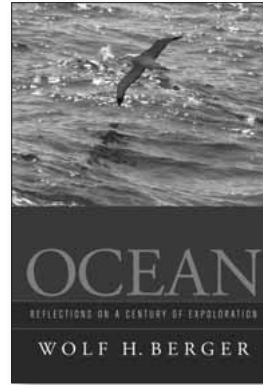
Linda L. McCabe and
Edward R.B. McCabe, MD
DNA
Promise and Peril
Foreword by Victor A. McKusick
\$39.95 cloth

W. Henry Gilbert and Berhane Asfaw,
Editors
Homo erectus
Pleistocene Evidence from
the Middle Awash, Ethiopia
The Middle Awash Series
\$75.00 cloth

Yohannes Haile-Selassie and
Giday WoldeGabriel, Editors
Ardipithecus kadabba
Late Miocene Evidence from
the Middle Awash, Ethiopia
The Middle Awash Series
\$80.00 cloth

Seth Shulman
Undermining Science
Suppression and Distortion in the Bush
Administration
Updated Edition with a New Preface
\$16.95 paper

David Rains Wallace
Neptune's Ark
From Ichthyosaurs to Orcas
Illustrated by Ken Kirkland
\$18.95 paper



Wolf H. Berger
Ocean
Reflections on a Century of Exploration
With Contributions by E. N. Shor
\$59.95 cloth

Elin Kelsey
Watching Giants
The Secret Lives of Whales
Photographs by Doc White
\$24.95 cloth

Theodore W. Pietsch
Oceanic Anglerfishes
Extraordinary Diversity in the Deep Sea
\$85.00 cloth

Winston F. Ponder and David R. Lindberg,
Editors
**Phylogeny and Evolution
of the Mollusca**
\$49.95 cloth

J. G. M. Thewissen
and Sirpa Nummela, Editors
Sensory Evolution on the Threshold
Adaptations in Secondarily Aquatic Vertebrates
\$75.00 cloth

Stefan Helmreich
Alien Ocean
Anthropological Voyages in Microbial Seas
\$24.95 paper, \$60.00 cloth

**Please visit booth #15 for the
special meeting discount**

Order toll-free (800) 822-6657 • www.ucpress.edu



UNIVERSITY OF CALIFORNIA PRESS

2009 Exhibitors

Academia Book Exhibits

3512 Willow Green Court
Oakton, VA 22124 USA
Phone: 703-716-5537; Fax: 703-620-3676
www.acadbkex.com

Academia exhibits professional books and journals in a multi-publisher display.

ADInstruments, Inc.

2205 Executive Circle
Colorado Springs, CO 80906 USA
Phone: 719-576-3970; Fax: 719-576-3971
www.adinstruments.com

PowerLab data acquisition systems for life science research & student laboratories. Superior turnkey hardware/software solutions. Lab Chart v6 for Mac OS 10.5 & Windows XP/Vista now available.

AEI Technologies

520 East Ogden Avenue
Naperville, IL 60563 USA
Phone: 800-793-7751; Fax: 630-548-3546
www.aeitechnologies.com

AEI Technologies is the leading manufacturer of single and multi-channel respirometry systems and system components. The AEI MOXAR Modular Animal Respirometry System uses O_2 and CO_2 analyzers, recognized worldwide as the Gold Standard for laboratory analysis for over 30 years. AEI's fast response time analyzers are used for accurate repeatable, and exceptionally stable measurement for animals, insects, and plants.

Allen Press Publishing Services

810 E. 10th St.
Lawrence, KS 66044 USA
Phone: 800-627-0326; Fax: 785-843-1853
www.publishing.allenpress.com

Allen Press Publishing Services co-publishes over 30 journals, working with 21 societies and organizations to present original research from international scholars in the fields of medicine, zoology, sports science, botany, ecology and environmental sciences.

Booth: 23

American Microscopical Society

Dept of Biology, Bryn Mawr Col, 101 N Merion
Bryn Mawr, PA 19010-2899 USA
Phone: 610-526-5094; Fax: 610-526-5086

Featuring the AMS Buchsbaum Photomicrography contest, and society publications and fellowships.

American Physiological Society

9650 Rockville Pike
Rockville, MD 20814 USA
Phone: 301-634-7015; Fax: 301-634-7241
www.the-aps.org

Complimentary copies of Advances in Physiology Education Physiology, American Journal of Physiology-Regulatory, Integrative and Comparative Physiology; and The Physiologist. Other Society information.

Biodiversity Synthesis Center

The Field Museum, 1400 S Lake Shore Dr
Chicago, IL 60605 USA
Phone: 312-665-7512; Fax: 312-665-7516
www.fieldmuseum.org/biosync

The Biodiversity Syntheses Center promotes the integration of phylogenetics, biogeography, conservation, and information on megadiverse clades into the Encyclopedia of Life, and is funded by the MacArthur Foundation. Visit us and discuss ways that the EOL might accelerate your science.

BIOPAC Systems Inc.

42 Aero Camino
Goleta, CA 93117 USA
Phone: 805-685-0066; Fax: 805-865-0067
www.biopac.com

BIOPAC provides complete systems for life science education with integrated systems of hardware, software and curriculum. Students learn real world skills with industry-standard data acquisition transducers & electrodes and powerful software & automated analysis tools.

Booth: 22A

Booth: 5

Brill

153 Milk Street, 6th Floor
 Boston, MA 02109 USA
 Phone: 617-263-2323; Fax: 617-263-2324
www.brill.nl/bookseries/bio

Founded in 1683, Brill is a scholarly publishing house with a strong international focus. Brill's Biology portfolio includes the journals Behavior, Crustaceana, three new entomology journals and several book series. For publishing opportunities, contact Michiel Thijssen at thijssen@brill.nl. Go to www.brill.nl/Bookseries/BIO for more information about our Biology book series.

CRC Press - Taylor & Francis Booth: 13

6000 Broken Sound Parkway NW, Suite 300
 Boca Raton, FL 33487 USA
 Phone: 561-994-0555; Fax: 561-361-6018
www.crcpress.com

We are a premier publisher of scientific and technical books, journals, and electronic databases. Please visit our booth to browse our convention discount specials on new and best-selling titles in zoology and evolutionary biology.

Darling Marine Center, University of Maine Booth: 7

193 Clarks Cove Road
 Walpole, ME 04573 USA
 Phone: 207-563-3146; Fax: 207-563-3119
www.dmc.maine.edu

The DMC functions year round as a field station for marine research and education. We invite visiting investigators and students to use our facilities. Stop by our booth for information on our educational programs and research facilities, as well as graduate degrees offered at the UMaine's School of Marine Sciences.

Booth: 33**Defend Science/Institute for the Study of Natural and Cultural Resources Booth: 6**

2124 Kittridge Street
 Berkeley, CA 94704 USA
 Phone: 808-271-7688; Fax: 808-599-4817
www.defendscience.org

Offers information and discussion of the Defend Science effort (www.defendscience.org) in light of the 2008 election and the necessity to mobilize opposition to anti-science policies of the Bush administration.

Fastec Imaging Booth: 27

17150 Via Del Campo #301
 San Diego, CA 92127 USA
 Phone: 858-592-2342; Fax: 858-592-2615
www.fastecimaging.com

TroubleShooter is a self-contained, battery powered, hand-held, high-speed digital video camera with built-in display screen and CompactFlash download designed for biology research both in the lab and in the field.

H. Stevan Logsdon/Artist Booth: 24

PO. Box 4070
 Silver City, NM 88062 USA
 Phone: 505-388-8101; Fax:

Quality wildlife jewelry, silk ties and T-shirts.

IOP Publishing Booth: 3

150 S Independence Mall
 Philadelphia, PA 19106 USA
 Phone: 215-627-0880; Fax: 215-627-0879
www.journals.iop.org

IOP Publishing is an international, not-for-profit, learned society publisher. Stop by our booth (#3) for a sample copy of our journal, Bioinspiration & Biomimetics (now indexed in PubMed). BB publishes research where biology inspires new technological solutions, which can in turn provide insight into biological systems.

Visit us online at bb.iop.org.

iWorx Systems Inc. Booth: 40
1 Washington Street, Suite 404
Dover, NH 03820 USA
Phone: 603-742-2492; Fax: 603-742-2455
www.iworx.com

iWorx provides a full range of advanced hardware and software tools for physiology teaching and research.

National Association of Biology Teachers Booth: 10
12030 Sunrise Valley Drive, Suite 110
Reston, VA 20191 USA
Phone: 703-264-9696; Fax: 703-264-7778
www.nabt.org

Since 1938, the National Association of Biology Teachers (NABT) has been dedicated to empowering teachers and providing the best biology/life science education to all students. We have resources available for educators at all levels, so visit our booth to learn more.

National Evolutionary Synthesis Center (NESCent) Booth: 38
2024 W. Main, Suite A200
Durham, NC 27705 USA
Phone: 919-668-4578; Fax: 919-668-9198
www.nescent.org

NESCent staff will be at our booth to discuss funding opportunities in synthetic evolutionary biology research (including postdoc fellowships, sabbaticals and working groups).

National Science Foundation Booth: 22
4201 Wilson Blvd., Suite 685
Arlington, VA 22230 USA
Phone: 703-292-8420; Fax: 703-292-9153
www.nsf.gov

Oxford University Press Booths: 16, 17
198 Madison Ave
New York, NY 10016 USA
Phone: 212-726-6065; Fax: 212-726-6439
www.oup.com/us

Oxford University Press is a leading international publisher of books and journals in the sciences and is proud to be the publisher of Integrative and Comparative Biology, the SICB Journal. Remember to visit the Oxford University Press booth to browse our newest offerings in both books and journals and to receive a free sample copy of Integrative and Comparative Biology.

Princeton University Press Booths: 1, 2
41 William Street
Princeton, NJ 08540 USA
Phone: 609-258-4915; Fax: 609-258-1335
www.press.princeton.edu

Princeton University Press publishes distinguished titles in the biological sciences. New titles include *How the Ocean Works: An Introduction to Oceanography* by Mark Denny, *Ecological Models and Data in R* by Benjamin M. Bolker, and *Superstition: Belief in the Age of Science* by Robert L. Park.

Qubit Systems Inc. Booth: 28
700 Gardiners Rd, Unit #105
Kingston, ON K7M 3X9 Canada
Phone: 613-384-1977; Fax: 613-384-9118
www.qubitsystems.com

Instrumentation for research and teaching in the biological sciences. Multichannel systems for respirometry (from drosophila to large mammals). Swim tunnels and respirometers for aquatic organisms. Human exercise physiology, gas analyzers and environmental controllers.

Sable Systems International Inc. Booth: 29
6340 S Sandhill Road, Ste 4
Las Vegas, NV 89120 USA
Phone: 702-269-4445; Fax: 702-269-4446
www.sablesys.com

Innovative, research-grade equipment and software for biological applications, particularly metabolic screening and respirometry. Measure and control O₂, CO₂, H₂O, WVP, kPa, °C. Featuring our FoxBox all-in-one metabolic system, and announcing the upcoming OUP publication, *“Measuring Metabolic Rates: A Manual for Scientists.”*

SimBiotic Software Booth: 4
148 Grandview Court
Ithaca, NY 14850 USA
Phone: 617-314-7701; Fax: 617-314-7701
www.simbio.com

SimBiotic Software produces inquiry-driven virtual laboratories for biology education. Convenient workbooks guide students through simulated experiments that explore a wide range of key concepts. Our strong track record receiving competitive educational research grants and our resulting publications reflect the rigor and quality of our products.

Sinauer Associates, Inc Booth: 14
23 Plum Tree Road
PO Box 407
Sunderland, MA 01375 USA
Phone: 413-549-4300; Fax: 413-549-1118
www.sinauer.com

On display will be books and educational multimedia relevant to SICB members' interests, including a new book by Scott Gilbert and David Epel - *“Ecological Developmental Biology: Integrating Epigenetics, Medicine, and Evolution.”*

Smithsonian Tropical Research Institute Booth: 9A
Smithsonian Marine Science Network,
Unit 0948
APO AA, 34002-0948
Phone: 703-487-3770

STRI provides fellowships for students and post doc research in Panama. STRI runs several marine and terrestrial labs throughout Panama. Information about these programs will be available at the booth.

Sonometrics Corporation Booth: 36
500 Nottinghill Road
London, Ontario, CN N6K 3P1
Phone: 519-474-6464; Fax: 519-474-6426
www.sonometrics.com

Sonometrics manufactures digital sonomicrometer and data acquisition systems used in a variety of biological research disciplines. Our sonomicrometer allows investigators to measure length changes in biological tissue. Typical applications include the study of locomotion, swimming, flight, and feeding mechanics.

Springer Booth: 25
233 Spring Street
New York, NY 10013 USA
Phone: 212-460-1500; Fax: 212-460-1575
www.springer.com

The Biological Bulletin, Marine Biological Laboratory Booth: 19
7 MBL Street
Woods Hole, MA 02543 USA
Phone: 508-289-7149; Fax: 508-289-7922
www.biolbull.org

The Biological Bulletin publishes outstanding experimental research of general interest to biologists throughout the world. Areas covered include Neuroscience, Behavior, Physiology, Biomechanics, Ecology, Evolution, Development, Reproduction, Cell Biology, Symbiosis, and Systematics.

The Company of Biologists Ltd. Booth: 21
Bidder Building, 140 Cowley Road
Cambridge, UK CB4 0DL
Phone: 011-44-1223 426164; Fax: 011-44-1223-423353
www.biologists.com

The Company of Biologists is the not-for-profit publisher of the leading Journal in integrative and comparative biology, *The Journal of Experimental Biology*.

The Crustacean Society Booth: 20
222 King William #1
San Antonio, TX 78204 USA
Phone: 210-842-7734; Fax:

The Crustacean Society produces *The Journal of Crustacean Biology*. We are an international Society of crustacean researchers inviting you to come by our booth, meet our members, and consider joining.

The Johns Hopkins University Press Booth: 11
2715 North Charles Street
Baltimore, MD 21218 USA
Phone: 410-516-6951; Fax: 410-516-4189
www.press.jhu.edu

The Johns Hopkins University Press publishes innovative works that synthesize knowledge across a variety of scientific disciplines. Recent titles include, *Mountain Gorillas*, by Gene Eckhart and Annete Lanjouw, and *The Social Behaviour of Older Animals*, by Anne Innis Dagg.

The MIT Press Booth: 39
55 Hayward Street
Cambridge, MA 02142 USA
Phone: 617-258-5764; Fax: 617-253-1709
www.mitpress.mit.edu

The MIT Press publishes books in all aspects of biology. Come by our booth, browse our new titles and receive a 30% discount.

The Royal Society Booth: 35
6-9 Carlton House Terrace
London, UK SW1Y/SAG UK
Phone: 011-44-207-4512647; Fax: 011-44-2079-302170
www.royalsociety.org

The Royal Society publishes three biological science journals, in print and online. *Philosophical Transactions B* publishes topical themed issues, each one dedicated to a specific area of the biological science. <http://publishing.royalsociety.org/philtransb>. *Proceedings B* publishes high quality research articles and reviews. <http://publishing.royalsociety.org/proceedingsb>. *Biology Letters* publishes short, letter-style articles. <http://publishing.royalsociety.org/biologyletters>.

Please come and visit us at booth number 35 where our representative, Victoria Millen, will be happy to answer all your questions about our biological journals.

TSI Incorporated Booth: 8A
500 Cardigan Road
Shoreview, MN 55126 USA
Phone: 800-874-2811; Fax: 651-490-3824
www.tsi.com

The Fluid Mechanics Group of TSI is a world-renowned supplier of laser-based instrumentations for Fluid Mechanics research. Information on a wide range of products, including Particle Image Velocimetry, Planar Laser-induced Fluorescence, Laser Doppler Velocimetry and Phase Doppler Particle Analyzer, will be displayed at the conference. In addition, we are proud to announce the release of our revolutionary volumetric 3-Component Velocimetry ($\sqrt{3}V^{\text{tm}}$) System, which is the first commercial system to provide 3-component velocity measurements in a TRULY volumetric region of the flow. Please come to visit us to learn more.

UnderstandingScience.org **Booth: 34**
University of California Museum of
Paleontology
1101 VLSB #4780
Berkeley, CA 94720-4780 USA
Phone: 510-642-4877; Fax: 510-642-1822
www.understandingscience.org

Understanding Science and Year of Science
2009 Coalition on the Public Understanding of
Science.

University of California Press **Booth: 15**
2120 Berkeley Way
Berkeley, CA 94704 USA
Phone: 510-642-2035; Fax: 510-643-7127
www.ucpress.edu

University of California Press, one of the most
distinguished university presses in the United
States, enriches lives around the world by
advancing scholarship in the natural sciences.

Vision Research **Booth: 8B**
100 Dey Road
Wayne, NJ 07470 USA
Phone: 973-696-4500; Fax: 973-696-0560
www.visionresearch.com

Vision Research designs and manufactures
high-speed digital imaging systems used in
applications including defense, automotive,
engineering, science, medical research, indus-
trial manufacturing and packaging, sports and
entertainment, and digital cinematography for
television and movie production.

Vision Research digital high-speed cameras
add a new dimension to the sense of sight,
allowing the user to see details of an event when
it's too fast to see, and too important not to™.
For additional information regarding Vision
Research, please visit www.visionresearch.com.

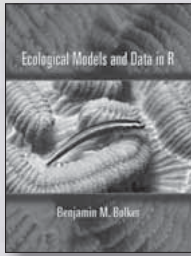
Wiley-Blackwell **Booths: 30, 31**
350 Main Street
Malden, MA 02148 USA
Phone: 781-388-8361; Fax: 781-338-8361
www.wiley-blackwell.com

Wiley-Blackwell is one of the world's foremost
academic and professional publishers and the
largest society publisher. With a combined list of
more than 1,400 scholarly peer-reviewed jour-
nals and an extensive collection of books with
global appeal, this new business sets the stan-
dard for publishing in the life and physical sci-
ences, medicine and allied health, engineering,
humanities and social sciences.

Xcitex **Booth: 18**
25 First Street, Suite 105
Cambridge, MA 02141 USA
Phone: 617-225-0080; Fax: 617-225-2529
www.xcitex.com

Xcitex is an innovator in the industries of
motion analysis and video-based motion cap-
ture. ProAnalyst® is the world's leading soft-
ware for extracting, tracking, analyzing, and
presenting motion from pre-recorded video.

New from Princeton



Ecological Models and Data in R

Benjamin M. Bolker

Cloth \$55.00



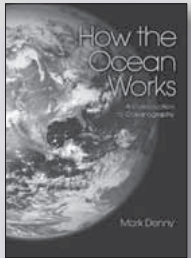
Theories of Population Variation in Genes and Genomes

Freddy Bugge Christiansen

Princeton Series in Theoretical and Computational Biology

Simon A. Levin, Series Editor

Cloth \$75.00



Exploring Animal Social Networks

Darren P. Croft, Richard James & Jens Krause

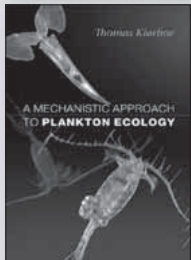
Paper \$35.00

How the Ocean Works

An Introduction to Oceanography

Mark Denny

Paper \$45.00



The Faith of Scientists

In Their Own Words

Edited by Nancy K. Frankenberry

Cloth \$29.95

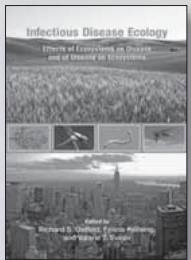
How and Why Species Multiply

The Radiation of Darwin's Finches

Peter R. Grant & B. Rosemary Grant

Princeton Series in Evolutionary Biology: H. Allen Orr, Series Editor

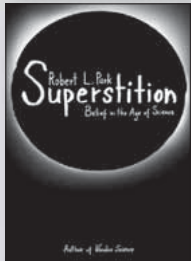
Cloth \$35.00



A Mechanistic Approach to Plankton Ecology

Thomas Kiørboe

Cloth \$39.50



Modeling with Data

Tools and Techniques for Scientific Computing

Ben Klemens

Cloth \$69.50

Infectious Disease Ecology

Effects of Ecosystems on Disease and of Disease on Ecosystems

Edited by Richard S. Ostfeld,

Felicia Keesing & Valerie T. Eviner

Paper \$45.00 Cloth \$99.50

Superstition

Belief in the Age of Science

Robert L. Park

Cloth \$24.95

New in Paperback

Primates and Philosophers

How Morality Evolved

Frans de Waal

Edited by Stephen Macedo & Josiah Ober

Paper \$14.95 Due Spring 2009

Extinction

How Life on Earth Nearly Ended 250 Million Years Ago

Douglas H. Erwin

Paper \$19.95

Forthcoming Spring 2009

A Mathematical Nature Walk

John A. Adam

Cloth \$27.95

The Social Amoebae

The Biology of Cellular Slime Molds

John Tyler Bonner

Cloth \$19.95

The Balance of Nature

Ecology's Enduring Myth

John Kricher

Cloth \$24.95

The Princeton Guide to Ecology

Edited by Simon A. Levin

Stephen R. Carpenter, H. Charles J. Godfray, Ann P. Kinzig,

Michel Loreau, Jonathan B. Losos, Brian Walker &

David S. Wilcove, associate editors

Cloth \$85.00

The Princeton Encyclopedia of Mammals

Edited by David W. Macdonald

Paper \$45.00

Forms of Becoming

The Evolutionary Biology of Development

Alessandro Minelli

Translation funded by SEPS—Segretariato Europeo per le

Pubblicazioni Scientifiche

Cloth \$27.95

The Princeton Encyclopedia of Birds

Edited by Christopher Perrins

Paper \$35.00

For sale only in the United States and Canada

Saturday Schedule of Events

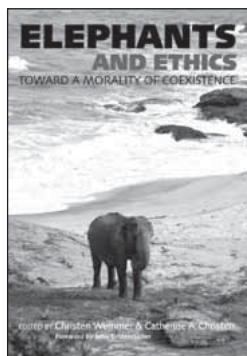
<u>EVENT</u>	<u>TIME</u>	<u>LOCATION</u>
Registration	3-8:30 PM	Harbor Ballroom Foyer
Exhibitor Set-up	Noon-8 PM	Galleria
Poster Session 1 Setup	5:30-8 PM	Galleria
<u>SPECIAL LECTURE</u>		
Plenary Session	7:00-8:00 PM	Grand Ballroom
<u>COMMITTEE & BOARD MEETINGS</u>		
Executive Committee	2:30-5:30 PM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

READY ROOM

Quincy Room

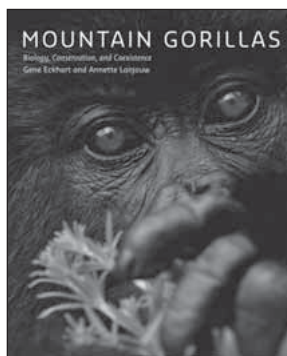
Please bring your presentation on a memory stick (jump drive) or CD to the Ready Room to be loaded as soon as you are able, but no later than the time slot before your session begins.

THE JOHNS HOPKINS UNIVERSITY PRESS



ELEPHANTS AND ETHICS

Toward a Morality of Coexistence
 edited by **Christen Wemmer** and **Catherine A. Christen**
foreword by John Seidensticker
 \$75.00 hardcover

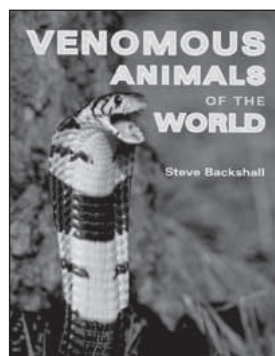


MOUNTAIN GORILLAS

Biology, Conservation, and Coexistence
 Gene Eckhart and Annette Lanjou
 \$34.95 hardcover

VENOMOUS ANIMALS OF THE WORLD

Steve Backshall
 \$35.00 hardcover

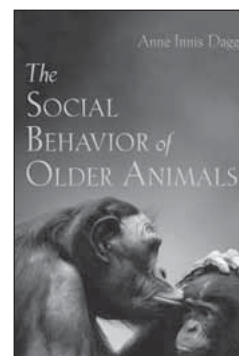


CHARLES DARWIN

The Concise Story of an Extraordinary Man
 Tim M. Berra
 \$19.95 hardcover

THE SOCIAL BEHAVIOR OF OLDER ANIMALS

Anne Innis Dagg
 \$35.00 hardcover



THE EVOLUTION OF AMERICAN ECOLOGY, 1890-2000

Sharon E. Kingsland
 \$25.00 paperback

SEE OUR BOOKS AT THE SICB ANNUAL MEETING

1-800-537-5487 • www.press.jhu.edu



Sunday Schedule of Events

<u>EVENT</u>	<u>TIME</u>	<u>LOCATION</u>
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
<u>SPECIAL LECTURE</u>		
Bartholomew Award Lecture	6:30-7:30 PM	Grand Ballroom A/B
<u>SYMPOSIA ORAL PRESENTATIONS</u>		
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
<u>CONTRIBUTED PAPER ORAL PRESENTATIONS</u>		
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
<u>COMMITTEE & BOARD MEETINGS</u>		
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
<u>BUSINESS MEETINGS</u>		
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
<u>WORKSHOPS AND PROGRAMS</u>		
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
<u>SOCIAL EVENTS</u>		
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

SUNDAY PROGRAM SYMPOSIA

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 S1.3 WINDSOR, S; University of Auckland DCB 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 S1.6 SANE, SP; National Center for DNB 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 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*

SUNDAY PROGRAM SYMPOSIA

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

SUNDAY PROGRAM SYMPOSIA

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	S3.1	HUSAK, JF, IRSCHICK, DJ; Virginia Tech, University of Massachusetts at Amherst	Hormones as mediators of animal performance
9:00 AM	S3.2	HAU, M; Max Planck Institute for Ornithology, Germany	Hormones and life history evolution
9:30 AM	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	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	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	S3.8	MOORE, IT, HOPKINS, WA; Virginia Tech	Interactions between hormones and energetics as mediators of performance and reproductive success
2:00 PM	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 (<i>Gasterosteus aculeatus</i>) to learn potential predators
8:40 AM DAB	1.3	VITOUSEK, MN, TARLOW, E, WIKELS- KI, 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 (<i>Aedes notoscriptus</i>)
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, MCCLIN- TOCK, 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, BAL- SLEY, 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 <i>Stizostedion lucioperca</i> : the role of hydrodynamic trail following
11:40 AM DEDB	1.11	STORZ, BL, HEINRICH, J, YAZDANI, A, PHILLIPS, RD, MULVEY, BB, ARENDR, 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

SUNDAY PROGRAM MORNING SESSIONS

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 <i>Macrobrachium ohione</i> 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 <i>Crepidula</i> : 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: Ostariophysii)
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

SUNDAY PROGRAM MORNING SESSIONS

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 <i>Polistes dominulus</i> : 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 <i>Borrelia burgdorferi</i> 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 (<i>Crotalus atrox</i>) 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, TEWKSBUY, 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 <i>Daphnia</i> populations

SUNDAY PROGRAM MORNING SESSIONS

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	<i>Aplysina</i> 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, <i>Montastraea annularis</i> and <i>M. faveolata</i>
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 <i>Acropora hyacinthus</i>
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 <i>Karenia brevis</i> harmful algal blooms on nearshore fish communities in southwest Florida

SUNDAY PROGRAM MORNING SESSIONS

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 <i>Batrachoseps attenuatus</i>
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 (<i>Antaresia childreni</i>)
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 <i>Palaemonetes pugio</i>
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

SUNDAY PROGRAM MORNING SESSIONS

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 (<i>Aix sponsa</i>) 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 (<i>Molothrus ater</i>)
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 quail
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?

SUNDAY PROGRAM MORNING SESSIONS

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 (<i>Balaenoptera acutorostrata</i>) 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

SUNDAY PROGRAM MORNING SESSIONS

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 <i>Nucella lima</i>
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 <i>Eurycea longicauda</i> 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, <i>Plestiodon reynoldsi</i> , 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, HORNBACK, 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 <i>Mytilus edulis</i> 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
-----------------	------	---	---

SUNDAY PROGRAM MORNING SESSIONS

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 (<i>Chalcides chalcides</i>)
8:40 AM	12.3	SANGER, TJ, MAHLER, DL, LOSOS, JB, ABZHANOV, A; Harvard University	The evolution of developmental patterns in the <i>Anolis</i> 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

**SUNDAY PROGRAM
AFTERNOON SESSIONS**

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, <i>Alectoris chukar</i>
1:20 PM	14.2	REITZEL, AM, TARRANT, AM; Woods Hole Oceanographic Institution	Transcriptional responses by the estuarine sea anemone <i>Nematostella vectensis</i> 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, <i>Homerus americanus</i>
2:00 PM DCE	14.4	MENG, Y, ZOU, E*; Nicholls State University, Thibodaux	Impacts of molt-inhibiting organochlorines on epi- dermal ecdysteroid signaling in the fiddler crab, <i>Uca pugnator</i> , 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 tropical breeding sparrow
2:40 PM	14.6	CHEN, Y, SIBLE, JC, MCNABB, FMA*; Virginia Tech	Effects of pre- and post-hatching perchlorate expo- sure on the thyroid function and expression of thy- roid-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 physi- cal 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

SUNDAY PROGRAM AFTERNOON SESSIONS

2:40 PM 15.6 YEN, J, CATTON, K, WEBSTER, D;
DCB 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 16.1 DERRICKSON, EM, MARINELLI, K;
DCPB 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 16.3 MCGUIRE, LP, FENTON, MB,
DCPB 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 16.4 GIBBS, VK, HOFER, SC, LAWRENCE,
DIZ 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 16.5 PISCITELLI, MA, MCLELLAN, WA,
DVM 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 16.6 MODRALL, JT, KEATING, JH, MILLER,
DEE 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 17.1 DEBAN, SM; University South Florida
DVM Low thermal dependence of elastically-powered movement in salamanders

1:20 PM 17.2 GEORGE, NT, DANIEL, TL; University
DCB of Washington, Seattle Temperature gradients in the dorsolongitudinal flight muscles of *Manduca sexta* may yield functional gradients

1:40 PM 17.3 WOODS, Jr, WA, TRIMMER, BA; Tufts
DCPB University Effects of temperature on dynamic properties of active and passive caterpillar muscle: Q_{10} less than 1?

2:00 PM 17.4 ANDERSON, CV, DEBAN, SM;
DCB University of South Florida Chameleons maintain high-performance tongue projection at low temperature

2:20 PM 17.5 CABLE, AE, KANATOUS, SB; Colorado
DCPB State University Understanding regulation of adaptive changes in skeletal muscle physiology of Weddell seals: a proteomics approach

SUNDAY PROGRAM AFTERNOON SESSIONS

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 (<i>Mytilus</i>) 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, <i>Strongylocentrotus purpuratus</i> , early cleavage embryo to ultraviolet radiation
2:40 PM DCE	18.6	WILMOT, M, KOSUGI, T, FREMAT, M, SCHULTZ, B, SOWER, SA; University of New Hampshire, Durham	Identification of a glycoprotein hormone alpha subunit in the sea lamprey, <i>petromyzon marinus</i>

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, <i>Xiphophorus nigrensis</i>
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, <i>Epinephelus adscensionis</i>
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

SUNDAY PROGRAM AFTERNOON SESSIONS

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, DICK- SON, 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 <i>Manduca sexta</i> , with wing overlap a potential contributor

SUNDAY PROGRAM AFTERNOON SESSIONS

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, PAPA, DR; Vassar College, University of Arizona	A "Silver Ovipositor" effect in the walnut fly, <i>Rhagoletis juglandis</i>
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 Goldfinch
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 (<i>Turdus migratorius</i>)
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 Ecología y Evoluci, UACH	Activity patterns and huddling behavior in the rare austral marsupial (<i>Dromiciops gliroides</i>)
P1.13 DAB	HO, JM, DEMAS, GE; Indiana University, Bloomington	Endocannabinoid signaling and energy balance in Siberian hamsters (<i>Phodopus sungorus</i>)
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, <i>Hemideina crassidens</i>

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 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 STRILEY, DS, BUDEN, AT, ARONOWSKY, A, WESTNEAT, MW; Biodiversity DSEB Synthesis Center, Field Museum Using the encyclopedia of life for new scientific discoveries: the biodiversity synthesis center
- P1.23 PATTI, A, HOCHBERG, R, LITVAITIS, MK; DIZ University Massachusetts Lowell, University New Hampshire Taxonomy and evolution of the *Chaetogaster limnaei* complex (Annelida: Oligochaeta)
- P1.24 PELEP, PO, HADFIELD, MG; University of DIZ 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 PATTI, A, HOCHBERG, R*, CLAMP, J; DIZ 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 GAULKE, CA, IRWIN, JT; Central DEE Washington University High infection rates of the fungus *Batrachochytrium dendrobatidis* in biological supply and wild-caught frogs in central Washington State, USA
- P1.28 LOGAN, ML, MONTGOMERY, CE, DEE 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 MASONJONES, HD, ROSE, E; University of Tampa
- Reproductive demographics of syngnathid fishes inhabiting a human-altered landscape
- P1.31 VITAL, CI, MARTINS, EP; Indiana University, Bloomington
- Effects of different individuals on information transfer in zebrafish groups
- P1.32 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 WALTERS, LJ, TURNER, T, KUFFNER, IB, DEE 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 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

SUNDAY P1 - POSTER SESSION 1

Galleria, 3:00 - 5:00 PM

P1.44	BOLANOS, DM, LITVAITIS, MK*; University of New Hampshire	Embryonic muscle development in direct and indirect developing marine flatworms (Platyhelminthes, Polycladida)
<u>Feeding Biomechanics</u>		
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 (<i>Onychomys leucogaster</i>) and the deer mouse (<i>Peromyscus maniculatus</i>)
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 (<i>Caretta caretta</i>) 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 (<i>Ophiodon elongatus</i>)
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 (<i>Anableps anableps</i>) 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 (<i>Dasyatis sabina</i>) and yellow stingray (<i>Urobatis jamaicensis</i>)

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: <i>Hippocampus reidi</i>)
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, Pflieger 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, HAUSSMANN, 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 (<i>Passerculus sandwichensis</i>) chicks raised in experimentally manipulated broods
P1.68	STRACHAN, LA, TARNOWSKI, HE, SINCLAIR, BJ; University of Western Ontario, Canada	The evolution of insect cold tolerance: a <i>Drosophila</i> 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 prolonged oviductal egg retention
P1.70 DCPB	BRASHEARS, JA, DENARDO, DF; Arizona State University, Tempe	Metabolic rate, clutch oxygen concentration, temperature and dial patterns of contraction in brooding Burmese pythons (<i>Python molurus bivittatus</i>)
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 (<i>Eremophila alpestris praticola</i>) and five species of desert larks

SUNDAY P1 - POSTER SESSION 1

Galleria, 3:00 - 5:00 PM

- 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 jarrovi*
- 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 University, 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 NAVA, SS; Indiana University and the Center for the Integrative Study of Animal Behavior
DAB 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 female *Sceloporus undulatus* lizards
- P1.103 JONES, AJ, MURRAY, JA, CAIN, SD, WYETH, RC; University of Montana, California State University East Bay, Eastern Oregon University, St. Francis Xavier University
DNB 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 STREETS, A, SOARES, D; University of Maryland
DAB Hunting strategies of the Mexican tetra fish *Astyanax mexicanus* larva
- P1.106 HUNTER-SMITH, S, HUANG, L, HIEBERT, SM*; Monell Chemical Senses Center, Swarthmore College
DCPB 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 SCHOLNICK, DA, MANIVANH, RV, SAVENKOVA, OD; Pacific University, Oregon
DCPB The physiological consequence of malaria infection in the western fence lizard, *sceloporus occidentalis*
- P1.109 AAMIDOR, SE, BAUCHINGER, U, PINSHOW, B; Ben-Gurion University of the Negev
DCPB 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 CARUSO, MA, KITTILSON, JD, BLAUFUS, PC, SHERIDAN, MA; North Dakota State University
DCE Rainbow trout insulin receptors: cloning, patterns of mRNA expression, and regulation by fasting
- P1.112 CONEJO, MS, HOFFMAN, GG*, ELLINGTON, WR; Florida State University
DCPB 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 ELLIS, IR, KEMPF, SC; Auburn University, Alabama Histological and SCP-like neuropeptide investigations in the larval oyster *Crassostrea virginica*
- P1.129 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 KLOHR, RC, KRAJNIAK, KG*; Southern Illinois University Edwardsville The systematic effects of neurochemicals on the alimentary 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 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 MEREDITH, AM, KRAJNIAK, KG; Southern Illinois University Edwardsville The cholinergic receptor transduction system in the earthworm gizzard
- P1.135 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 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 BODINIER, C, BOULO, V, CHAR-MANTIER, 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 (<i>Orconectes rusticus</i>)
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, <i>Carcinus maenas</i>
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 <i>Drosophila melanogaster</i>
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 <i>Litopenaeus vannamei</i> to hypoxia and hypercapnic hypoxia
--------	--	--

SUNDAY P1 - POSTER SESSION 1

Galleria, 3:00 - 5:00 PM

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

Symposium Related: Sensory Biomechanics

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

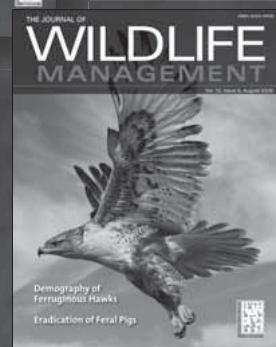
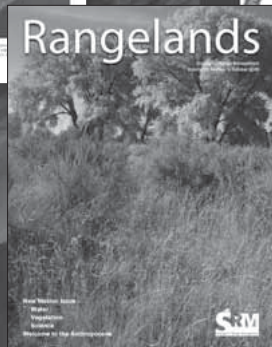
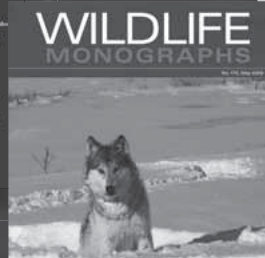
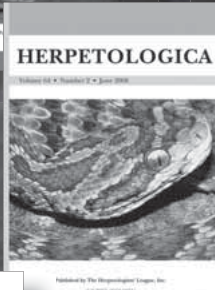
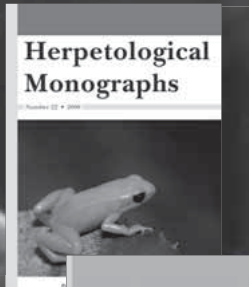
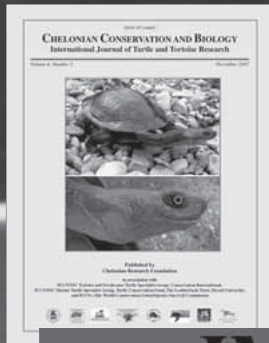
SUNDAY P1 - POSTER SESSION 1

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 carniv- orous rosy wolf snail, <i>Euglandina rosea</i>

Biological Diversity

for Your Collection



allen★press™
PUBLISHING SERVICES

Visit us at our booth or at
www.publishing.allenpress.com

Monday Schedule of Events

<u>EVENT</u>	<u>TIME</u>	<u>LOCATION</u>
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
<u>SPECIAL LECTURE</u>		
Howard Bern Lecture	6:30-7:30 PM	Grand Ballroom A
AMS Keynote Lecture	7:00-8:00 PM	Grand BallroomC
<u>SYMPOSIA ORAL PRESENTATIONS</u>		
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
<u>CONTRIBUTED PAPER ORAL PRESENTATIONS</u>		
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 Morphology	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
<u>COMMITTEE & BOARD MEETINGS</u>		
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
<u>BUSINESS MEETINGS</u>		
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
<u>WORKSHOPS AND PROGRAMS</u>		
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
<u>SOCIAL EVENTS</u>		
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

**MONDAY PROGRAM
SYMPOSIA**

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, YANOVIK, 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, REPERT, 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

MONDAY PROGRAM SYMPOSIA

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-FORBAY, 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	Biological 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 morpholo- gy and clinging performance in mainland and island <i>Anolis</i>
9:00 AM DVM	23.4	MAIE, T, SUMMERS, AP; Clemson University, University of California, Irvine	The adhesive disc and its functional capacity in northern clingfish <i>Gobiesox maeandricus</i> : Gobiesocidae) and tidepool snailfish (<i>Liparis florae</i> : Liparidae): scaling of morphology and suction force
9:20 AM DCB	23.5	DIRKS, JH, CLEMENTE, CJ, FEDER- LE, W; University of Cambridge	Smart foot secretion - insects dont slip!

9:40 AM COFFEE BREAK - GALLERIA

MONDAY PROGRAM MORNING SESSIONS

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 <i>In Vivo</i> 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 <i>Machaeropterus deliciosus</i> (Aves)
9:00 AM DVM	25.4	OSBORN, ML, HOMBERGER, DG; Louisiana 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

MONDAY PROGRAM MORNING SESSIONS

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 (<i>Uca vomeris</i>)
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 (<i>Cherax dispar</i>): 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 photoreception 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 <i>Nematostella vectensis</i>

MONDAY PROGRAM MORNING SESSIONS

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 <i>Ricordea florida</i>

9:40 AM COFFEE BREAK - GALLERIA

MONDAY PROGRAM MORNING SESSIONS

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 <i>Mytilus</i>
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, <i>Odontaster</i> (Odontasteridae; Asteroidea) separated by the Drake Passage
11:00 AM DEE	28.4	CHANEY, NL, DEMAINTEON, MJ; University of Hawaii, Hilo	Connectivity patterns of two Hawaiian marine gastropods possessing 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, <i>Melospiza melodia morphna</i>
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 (<i>Sturnus vulgaris</i>)
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 (<i>Thamnophis sirtalis</i>)
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, <i>Phodopus sungorus</i>

MONDAY PROGRAM MORNING SESSIONS

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, KETTER- SON, 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, PIERS- MA, 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, <i>Crassostrea virginica</i>
8:40 AM DCPB	31.3	VERSTEEGH, MA, HELM, B, GOY- MANN, W, TIELEMAN, BI; University of Groningen, Max Planck Institute for Ornithology	Energetics, immunology and corticosterone response of four subspecies of stonechats in winter

MONDAY PROGRAM MORNING SESSIONS

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 <i>Ephydatia muelleri</i> |
| 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 <i>Lymnaea stagnalis</i> |
| 10:20 AM
DNB | 33.2 | SATTLERLIE, 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 |

MONDAY PROGRAM MORNING SESSIONS

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

MONDAY PROGRAM MORNING SESSIONS

9:20 AM DAB	36.5	STAATERMAN, ER, CLAVERIE, T, PATEK, SN; University of California, Berkeley	Antipredator startle signal of the California spiny lobster (<i>Panulirus interruptus</i>)
9:40 AM	COFFEE BREAK - GALLERIA		
10:00 AM	36.6	CRATSLEY, CK, POULIOT, A, BASIN- SKY, G, WADDINGTON, J, GODIN, T; Fitchburg State College	<i>Photinus ignitus</i> flash signal patterns and prefer- ences: evidence for selection through mate choice and <i>Photuris</i> 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 <i>Manduca sexta</i>
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

MONDAY PROGRAM MORNING SESSIONS

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	Gravity 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 escape response of white spotted ratfish, <i>Hydrolagus colliei</i>
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, <i>Lepomis macrochirus</i>
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

**MONDAY PROGRAM
MORNING SESSIONS**

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, <i>Myoxocephalus octodecimspinosus</i>
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, <i>Clione limacina</i>
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 <i>Orthione griffenis</i> 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

MONDAY PROGRAM MORNING SESSIONS

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 <i>Sceloporus occidentalis</i>

MONDAY PROGRAM AFTERNOON SESSIONS

1:00-3:00 PM

Grand Ballroom C

Session 43: Locomotion - Flight - Gliding and Flight Morphology

Chair: Matthew Probert

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 (<i>Glaucomys sabrinus</i>)
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 peleciform birds

MONDAY PROGRAM AFTERNOON SESSIONS

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

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 <i>Anolis</i> 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 MID-
DLESWORTH, 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 <i>Talorchestia longicornis</i> |
| 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 <i>Manduca sexta</i> |

MONDAY PROGRAM AFTERNOON SESSIONS

- | | | | |
|----------------|------|---|--|
| 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 <i>Drosophila</i> |
| 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 <i>Tritonia diomedea</i> |

1:00-2:40 PM

Commonwealth C

Session 46: Bioindicators & Pollution

Chair: Nicole Palenske

- | | | | |
|-----------------|------|--|---|
| 1:00 PM | 46.1 | DORSEY, JP, GEORGE, M, ANDER-
SON, 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, WALK-
ER, CW; West Chester University,
University of New Hampshire | Chronic occurrence of disseminated neoplasia in different populations of <i>Mya arenaria</i> 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, <i>Gambusia affinis</i> |
| 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, <i>Crassostrea gigas</i> , 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, KRA-
TOCHVIL, L, JOHN-ALDER, H; Rutgers
University, New Brunswick, Charles
University, Prague | Hormonal regulation of sexual dimorphisms in Lichtenfelderi's gecko (<i>Goniurosaurus lichtenfelderi</i>): 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 (<i>Menidia menidia</i>) with different forms of sex determination |
| 1:40 PM
DCE | 47.3 | MIRANDA, RA, SEARCY, BT, PROP-
PER, CR; Northern Arizona University | Arginine vasotocin induces calling behavior in <i>Xenopus tropicalis</i> |

**MONDAY PROGRAM
AFTERNOON SESSIONS**

2:00 PM DEE	47.4	HUYGHE, K, HUSAK, JF, VANHOOPY-DONCK, 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 stomatopod 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	SENENIG, 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

MONDAY PROGRAM AFTERNOON SESSIONS

1:40 PM	49.3	RAKOTOMANGA, M, AZZOUZI, N, SENER, 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 (<i>Oreochromis niloticus</i>)
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, <i>Spermophilus parryii</i>
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, <i>Exechia nugatoria</i>
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

MONDAY PROGRAM AFTERNOON SESSIONS

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, <i>Aulonocara hansbaenchi</i> |
| 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 |

**MONDAY PROGRAM
AFTERNOON SESSIONS**

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 Paulo, 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	GEB CZYNSKI, 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, <i>Menidia menidia</i>

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 <i>Hyla versicolor</i>
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 <i>Xenopus</i>
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, <i>Hyla chrysoscelis</i>
P2.7	REBAR, D, ZUK, M; University of California, Riverside	The importance of courtship song in female mate choice in the Pacific field cricket, <i>Teleogryllus oceanicus</i>
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 (<i>Carpodacus cassinii</i>)
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 <i>Sternarchogiton nattereri</i>
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 <i>Apteronotus albifrons</i>
P2.12 DCE	WACK, CL, SCHUBERT, SN, WOODLEY, SK; Duquesne University	Endocrine sensitivity to pheromonal signals in a terrestrial salamander, <i>Plethodon shermani</i>
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, <i>Thamnophis sirtalis parietalis</i>

MONDAY P2 - POSTER SESSION 2

Galleria, 3:00 - 5:00 PM

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 (<i>Strombus alatus</i>) 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, <i>Strongylocentrotus purpuratus</i> , via multiplex gene expression profiling
P2.19 DEE	GONZALES, VA, TSUKIMURA, B; California State University, Fresno	<i>Eriocheir sinensis</i> 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 <i>Amphibalanus amphitrite</i>
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, <i>Mytella charruana</i>
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 (<i>Propithecus verreauxi verreauxi</i>): Prospective and retrospective perturbation analyses
P2.24	LONGORIA, A, AGUIERRE, P, FREDENS-BORG, 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 <i>Sphaeroma serratum</i> (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

MONDAY P2 - POSTER SESSION 2

Galleria, 3:00 - 5:00 PM

- 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 lati-
tude 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, KET-
TERSON, 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 crus-
tacean 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 cope-
pod *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*)

MONDAY P2 - POSTER SESSION 2

Galleria, 3:00 - 5:00 PM

- | | | |
|---------------|---|--|
| 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 | SHAFFER, 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 <i>Ciona savignyi</i> to acute temperature stress |
| P2.39 | TRAYLOR-KNOWLES, NG, HANSEN, U, KAUFMAN, L, FINNERTY, JR; Boston University | The evolutionary diversification of LSF and grainy-head 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, <i>Anticlea vaginata</i> and Widespread Montane Species, <i>A. elegans</i> |

Chordate Development

- | | | |
|---------------|---|--|
| P2.40
DEDB | OBBERG, 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 University, 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, <i>Xenopus laevis</i> |
| 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 <i>Pocillopora damicornis</i> |
| P2.46 | RUIZ-JONES, GJ, HADFIELD, MG; Chaminade University of Honolulu, Honolulu | The dissociation of the apical sensory organ of <i>Phestilla sibogae</i> 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, <i>Hydroides elegans</i> |

MONDAY P2 - POSTER SESSION 2

Galleria, 3:00 - 5:00 PM

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

Functional and Evolutionary Morphology

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

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 (<i>Narcine brasiliensis</i>) and a bio-mimetic 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 (<i>Chelonia mydas</i>): 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

MONDAY P2 - POSTER SESSION 2

Galleria, 3:00 - 5:00 PM

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 (<i>Tyto alba</i>)
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 <i>Nucella lamellosa</i>
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 <i>Daphnia</i>
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 <i>Vibrio fischeri</i> isolated from natural host squid populations of <i>Euprymna tasmanica</i> (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, <i>Poecilia reticulata</i>
P2.90	MARSHALL, KE, SINCLAIR, BJ; University of Western Ontario	The sublethal effects of multiple acute cold exposure: lessons from <i>Drosophila</i>

MONDAY P2 - POSTER SESSION 2

Galleria, 3:00 - 5:00 PM

- 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*)

MONDAY P2 - POSTER SESSION 2

Galleria, 3:00 - 5:00 PM

- 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 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 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 BERTRAM, DF, PHILLIPS, NE, STRATHMANN, RR*; Environment Canada, Victoria Doubling egg volume to test for reversible evolution of larval form and effects of eggs size on heterochrony
- P2.110 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 ANDERSON, KE, BLACKBURN, DG*, DUNLAP, KD; Trinity College Scanning EM of the placental membranes in the viviparous lizard *Sceloporus jarrovi*
- P2.113 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 HOLLIDAY, CM; Marshall University New insights into the mandibular symphyses of reptiles

Foraging Behavior

- P2.115 WATERS-LINDQVIST, LG, WOLCOTT, DEE TG, KAMYKOWSKI, D; North Carolina State University, Raleigh Seeding red tides: behavioral experiments with plankton mimics
- P2.116 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, YANOVIK, SP; University of Arkansas, Fayetteville, University of Arkansas, Little Rock Effects of vine characteristics on foraging behavior of tropical ants

MONDAY P2 - POSTER SESSION 2

Galleria, 3:00 - 5:00 PM

- P2.118 SEPULVEDA, CA, AALBERS, SA, DON-
LEY, JM, SYME, DA, BERNAL, D; Pflieger
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 WILLIAMS, SC, MCBRAYER, LD; Georgia
DAB Southern University, Statesboro Sources and consequences of intraspecific variation
in the movement patterns of the ambush foraging
lizard *Sceloporus woodi*
- P2.121 NICHOLS, KS, ERICKSON, PA, MAUCK,
DEE 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 MUIR, TJ, COSTANZO, JP, LEE JR, RE;
DCPB Miami University A comparative study of urea-induced hypometabo-
lism in ectothermic animals
- P2.125 PAN, T-CF, BURGGREN, WW; University
DDCB 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-liv-
ing hummingbirds
- P2.129 SGUEO, CE, WAGNER, DN, WALSH, PJ,
SCHAEFFER, PJ; Miami University Seasonal acclimation of energetics in northern cardi-
nals (*Cardinalis cardinalis*)

Muscle Physiology II

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

MONDAY P2 - POSTER SESSION 2

Galleria, 3:00 - 5:00 PM

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 (<i>Leptonychotes weddelli</i>) a response to envi- ronmental 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 myo- statin in the skeletal muscle in response to high fat diet induced diabetes
P2.135	PATTERSON, JP, BERNAL, D, SEPULVE- DA, C; University of Massachusetts Dartmouth, Pflieger 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 Alopiidae).
P2.136 DVM	REIN, R, WEIGAND, KL, DEAROLF, JL; Hendrix College, Conway	Do prenatal steroids affect maternal breathing mus- cles?
P2.137 DCPB	REISER, PJ, BICER, S; Ohio State University	Distinct sarcomeric protein isoform differences in mammalian fast and slow muscle fibers are associ- ated 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 <i>Cavia porcellus</i> vary with exposure to betamethasone?
P2.139 DDCB	WEIGAND, KL, DEAROLF, JL; Hendrix College, Conway	Prenatal steroids: altering myosin heavy chain iso- form 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 sar- coplasmic calcium binding protein (pcSCP1) vari- ants in the freshwater crayfish, <i>Procambarus clarkii</i>
P2.142 DDCB	WOO, H, WEIGAND, KL, DEAROLF, JL; Hendrix College, Conway	Development of the guinea pig (<i>Cavia porcellus</i>) diaphragm

Neurobiology II: Neurophysiology and Behavior

P2.144 DNB	WALTON, DB, PIRTLE, T.J; Abilene Christian University	The effect of cyclic nucleotide dependent protein kinase activity on swimming in <i>Clione limacina</i>
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 <i>Tritonia diomedea</i>

MONDAY P2 - POSTER SESSION 2

Galleria, 3:00 - 5:00 PM

- P2.146 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*
DNB
- P2.147 KRANS, JL, PATERSON, BA; Mount Holyoke College Hysteresis in force production of bodywall muscle of larval *Diptera*
DNB
- P2.148 WU, W-H, HILL, J, COOPER, R; University of Kentucky Influence of nicotine on physiology, development and behavior of *Drosophila melanogaster*
DNB
- P2.149 COOPER, RL, BIERBOWER, SM; University of Kentucky Effect of exercise and environment on the autonomic response in crayfish, *Procambarus Clarkii*
DNB
- P2.150 JIMENEZ, S, FAULKES, Z; The University of Texas-Pan American Establishment of a research colony of Marmorikrebs, a parthenogenetic crayfish species
DNB
- P2.151 BEDORE, CN, KAJIURA, SM; Florida Atlantic University Sensitivity and morphology of the cownose ray electro-sensory system
- P2.152 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
DEDB
- P2.153 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*)
DCE

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 CO₂ and H₂O production.

Regulatory Behavior

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

MONDAY P2 - POSTER SESSION 2

Galleria, 3:00 - 5:00 PM

- 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 bicolor*)?
- 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

MONDAY P2 - POSTER SESSION 2

Galleria, 3:00 - 5:00 PM

Stress Response II

- P2.172 MILLER, WA, TERWILLIGER, NB; University of Oregon, Charleston
DCPB Effects of molting and salinity stress on the expression of HIF, molting, and immune response genes in juvenile *Cancer magister*
- P2.173 PARK, SD, ATHALE, J, NGUYEN, TT, KANG, E, CHEN, J, CAMERON, JS*; Wellesley College
DCPB 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 SIMONIK, E, HENRY, RP; Ohio University, Athens, Auburn University
DCPB Physiological adaptations of the intertidal green crab, *Carcinus maenas* to emersion
- P2.176 TAPLEY, DW; Salem State College
DCPB Patterns of antioxidant defenses vary among zooxanthellate symbioses
- P2.177 ZIMMERMANN, E, DIONNE, M, FREDERICH, M, YUND, PO; University of New England
DIZ 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 HEYLAND, A, REITZEL, A, HODIN, J; University of Guelph, Canada, WHOI, Hopkins Marine Station
DEDB Thyroid hormone signaling in echinoderms: comparative genomics, cross-kingdom signaling and life history evolution
- P2.179 DESCAMPS, E, VLEMINCKX, K, ADRI-AENS, 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 DOUGLASS, JK, TOBIN, WF, WCISLO, WT; Smithsonian Tropical Research Institute, Panama, University of California, Santa Cruz
DIZ A portable microvolumeter for studies of invertebrate brain-body scaling
- P2.183 FORD, CF, VANDENBROOKS, JM, HARDISON, JF; Arizona State University
DCPB 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

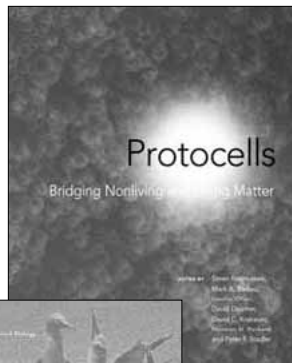
Thermoregulation/Temperature Response I

- P2.186 JOST, JA, O'ROURKE, M, FUREY, N, DEE 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 BERNER, NJ, BULLOCK, JR; DCPB 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 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 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

MONDAY P2 - POSTER SESSION 2

Galleria, 3:00 - 5:00 PM

- | | | |
|-----------------|---|---|
| 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 <i>Cucujus clavipes puniceus</i> |
| 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 thermotoler-
ance at hydrothermal vents: respiration and protein
expression of paralvinellid worms |



Protocells

BRIDGING NONLIVING AND LIVING MATTER

edited by **Steen Rasmussen, Mark A. Bedau, Liaohai Chen, David Deamer, David C. Krakauer, Norman H. Packard, and Peter F. Stadler**

"Protocells, which bridge nonliving and living matter, are playing increasingly important roles in studies on the origin of life, artificial life, and synthetic biology. This book serves as a bridge for both nonexperts and experts in the field, providing introductory and primer material on protocells, as well as more advanced, cutting-edge updates on this exciting subject."
— J.J. Collins, Boston University

776 pp., 20 color illus., 100 b&w illus., \$75 cloth



Evolution of Communicative Flexibility

COMPLEXITY, CREATIVITY, AND ADAPTABILITY IN HUMAN AND ANIMAL COMMUNICATION

edited by **D. Kimbrough Oller and Ulrike Griebel**

"From talking parrots and femme fatale fireflies to singing seals and human children, the authors leave few stones unturned in this wide-ranging and up-to-date survey. The topic—how organisms evolve flexible communication systems—is one of central relevance to the evolution of human spoken language."
— W. Tecumseh Fitch, University of St Andrews

Vienna Series in Theoretical Biology • 352 pp., 36 illus., \$50 cloth



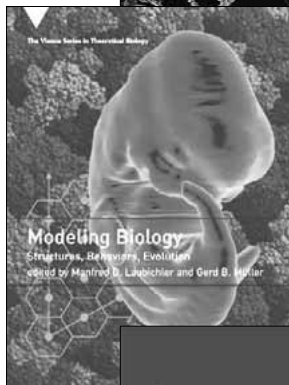
Biological Modeling and Simulation

A SURVEY OF PRACTICAL MODELS, ALGORITHMS, AND NUMERICAL METHODS

Russell Schwartz

"Russell Schwartz has produced an excellent and timely introduction to biological modeling. He has found the right balance between covering all major developments of this recently accelerating research field and still keeping the focus and level of the book at a level that is appropriate for all new-comers."
— Zoltan Szallasi, Children's Hospital, Boston

Computational Molecular Biology series • 408 pp., 111 illus., \$45 cloth



Modeling Biology

STRUCTURES, BEHAVIORS, EVOLUTION

edited by **Manfred D. Laubichler and Gerd B. Müller**

Experts examine new modeling strategies for the interpretation of biological data and their integration into the conceptual framework of theoretical biology, detailing approaches that focus on morphology, development, behavior, or evolution.

400 pp., 103 illus., \$50 cloth



Emergence

CONTEMPORARY READINGS IN PHILOSOPHY AND SCIENCE

edited by **Mark A. Bedau and Paul Humphreys**

"This is a very good and useful book—as more and more scientists push toward the meanings of life and of mind they will appreciate the articles presented here, and the introductory material that helps put them into context."
— Charles Taylor, Department of Ecology & Evolutionary Biology, UCLA

A Bradford Book • 482 pp., 29 illus., \$40 paper

Visit our
BOOTH
for a 30%
DISCOUNT

Tuesday Schedule of Events

<u>EVENT</u>	<u>TIME</u>	<u>LOCATION</u>
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
<u>SPECIAL LECTURE</u>		
Moore Lecture	6:30-7:30 PM	Harbor II/III
<u>SYMPOSIA ORAL PRESENTATIONS</u>		
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
<u>CONTRIBUTED PAPER ORAL PRESENTATIONS</u>		
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
<u>COMMITTEE & BOARD MEETINGS</u>		
Public Affairs Committee	Noon-1:00 PM	Alcott
<u>BUSINESS MEETINGS</u>		
AMS Business Meeting	10:45-11:45 AM	Paine
SICB Business Meeting	5:15-6:15 PM	Harbor 1
<u>SOCIAL EVENTS</u>		
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

TUESDAY PROGRAM SYMPOSIA

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

TUESDAY PROGRAM SYMPOSIA

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, GRAB-HERR, 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: <i>Astatotilapia burtoni</i> and beyond

**TUESDAY PROGRAM
SYMPOSIA**

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 (<i>Passer domesticus</i>)
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

TUESDAY PROGRAM SYMPOSIA

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 (<i>Peromyscus leucopus</i>)
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

TUESDAY PROGRAM MORNING SESSIONS

8:00 AM-Noon
Grand Ballroom C

Session 54: Metabolism, Part I

Co-Chairs: L. Langlois, Ione Hunt von 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 (<i>Tamiasciurus hudsonicus</i>) 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 _O ₂ 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 (<i>T. truncatus</i>) 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

TUESDAY PROGRAM MORNING SESSIONS

**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 <i>Melanochlamys diomedea</i> 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 (<i>Gallinula chloropus sandvicensis</i>) 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, <i>Eptesicus fuscus</i>
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

TUESDAY PROGRAM MORNING SESSIONS

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 <i>Centaurea solstitialis</i> 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 pilidio-phoran 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	CHOINIÈRE, 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)

TUESDAY PROGRAM MORNING SESSIONS

- | | | | |
|-----------------|------|--|---|
| 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 <i>Leptosynapta clarki</i> |
| 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 <i>Homarus americanus</i> |
| 8:40 AM
DNB | 58.3 | CHARVET, CJ, SANDOVAL, AL, STRIEDTER, GF; University of California, Irvine | The goose (<i>Anser anser f. d.</i>), 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 <i>Pheidole dentata</i> |
| 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 <i>Drosophila melanogaster</i> |

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? |

TUESDAY PROGRAM MORNING SESSIONS

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 <i>Neotoma stephens</i> : to specialize on juniper
8:20 AM-Noon			
Carlton			
Session 60: Muscle Physiology			
<i>Co-Chairs: David Coughlin, Steve Kinsey</i>			
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, <i>Homarus americanus</i>
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 (<i>Leptonychotes weddellii</i>): 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?

TUESDAY PROGRAM MORNING SESSIONS

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 <i>Caenorhabditis elegans</i> |
| 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 <i>Drosophila melanogaster</i> ? |
| 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 <i>Hydroides elegans</i> |
| 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 <i>Hydroides elegans</i> |
| 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 <i>Stenostomum virginianum</i> (Platyhelminthes, Catenulida) |
| 11:00 AM | 62.5 | LENKOWSKI, JR, MCLAUGHLIN, KM; Tufts University, Medford | Disruption of tissue morphogenesis in pesticide-exposed <i>Xenopus laevis</i> tadpoles |

Tuesday

TUESDAY PROGRAM MORNING SESSIONS

8:20-9:40 AM

Grand Ballroom E

Session 63: Macroevolution and Paleobiology - Morphology

Co-Chairs: Chris Organ, Richard Lund

8:20 AM	63.1	ORGAN, C, MEADE, A, PAGEL, M; DEE Harvard University	Bayesian inference of discrete character states
8:40 AM	63.3	LUND, R, GROGAN, ED; Carnegie Museum, Saint Joseph's University	Tooth whorls in chondrichthyes: the edestoids, <i>Helicoprion</i> , and other nightmarish sharks of the past
9:00 AM	63.4	DEMAINTENON, M; University of DSEB 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 <i>Anolis</i> 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, DSEB SORENSEN, MD; Boston University, University of Michigan	Recent sympatric diversification of brood parasitic indigobirds: setting an upper limit on speciation times
10:20 AM	64.2	VENDETTI, JE; University of California, DIZ Berkeley	The fossil neogastropod genus <i>Bruclarkia</i> 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 <i>Anolis</i> lizard evolution
11:00 AM	64.4	ALFARO, ME, HARMON, LJ, DSEB 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	64.5	MCCUE, MD; Blaustein Institutes for DCPB Desert Research, Ben Gurion University	Hyperoxia reduces the costs of digestion in snakes: investigating the energetic consequences of the paleoatmosphere
11:40 AM	64.6	WARWICK, AR, HOPKINS, MJ*, DIZ BERENDZEN, PB, THURMAN, CL*; University of Northern Iowa, *University of Chicago	Morphological, physiological, and genetic variation in the red-jointed fiddler crab, <i>Uca minax</i> (<i>Le Conte</i>)

TUESDAY PROGRAM MORNING SESSIONS

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 <i>Loxia curvirostra</i> |
| 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 <i>Fundulus grandis</i> |

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 <i>Nematostella vectensis</i> |
| 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 |

TUESDAY PROGRAM MORNING SESSIONS

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 (<i>Alligator mississippiensis</i>) 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, <i>Sternotherus minor minor</i>
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 (<i>Carcharhinus leucas</i>) 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 <i>Belonesox belizanus</i>
10:20 AM	68.2	MARTIN, CH, WAINWRIGHT, PC; University of California, Davis	Divergence in trophic morphology and diet within a young radiation of <i>Cyprinodon</i> 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

TUESDAY PROGRAM MORNING SESSIONS

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

8:00-9:40 AM

Harbor II

Session 69: Locomotion - Balance and Stability

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

8:00 AM 69.1 NAUWELAERTS, S, MALONE, S, CLAYTON, HM; Michigan State University, East Lansing Development of interlimb coordination in young horses
DVM

8:20 AM 69.2 TAN, H, WILSON, AM; The Royal Veterinary College, UK Turning performance of horses

8:40 AM 69.3 MORENO, CA, BIEWENER, AA; Harvard University Quadrupedal turning behaviors: mechanics and gait preference
DVM

9:00 AM 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*)
DCB

9:20 AM 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?
DCB

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 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
DCB

10:40 AM 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
DCB

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 70.5 HUBEL, T, BREUER, K, SWARTZ, S; Brown University Individual variability in the aerodynamics and kinematics of bat flight
DVM

Tuesday

TUESDAY PROGRAM MORNING SESSIONS

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

8:20-9:40 AM

Harbor III

Session 71: Evolutionary Morphology - Suction Feeding

Co-Chairs: Andrew Carroll, Peter Wainwright

8:20 AM 71.1 GROGAN, ED, LUND, R; Saint Heads, jaws, and feeding: in search of the basal
DVM Joseph's University, Carnegie Museum chondrichthyan condition

8:40 AM 71.3 WAINWRIGHT, PC, HOLZMAN, RA, Integrated diversification of suction feeding per-
DCB MEHTA, RS, HULSEY, CD; University of formance in centrarchid and cichlid fishes
California, Davis, University of
Tennessee, Knoxville

9:00 AM 71.4 CARROLL, AM, HUSKEY, S, WAIN- Muscle mass limits suction feeding performance
DVM WRIGHT, PC; University of Evansville among three centrarchid species

9:20 AM 71.5 COLLAR, D, REVELL, L; Harvard Correlated evolution of feeding morphology in pis-
DVM University civororous *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 72.1 HERNANDEZ, LP, STAAB, KL; George Turning a model on its head: using zebrafish to
DEDB Washington University investigate the origin and evolution of morphologi-
cal novelty

10:20 AM 72.2 BIRD, NC, HERNANDEZ, LP; George Constructing a complex morphological novelty:
DEDB Washington University insights from growth, development, and genetics of
the cypriniform Weberian apparatus

10:40 AM 72.3 STAAB, KL, HERNANDEZ, LP; George Kinethmoid-mediated premaxillary protrusion:
DEDB Washington University development of a complex trait provides clues to
its evolution

11:00 AM 72.4 MEHTA, RS, ALFARO, ME, WAIN- Cranial diversity in Anguilliform fishes: does mor-
DVM WRIGHT, PC; University of California, phological disparity lead to lower levels of modular
Davis, University of California, Los integration?
Angeles

11:20 AM 72.5 DORNBURG, A, SIDLAUSKAS, BL, Morphological and mechanical patterns of evolu-
DSEB SORENSON, L, SANTINI, F, ALFARO, tion in triggerfish fins
ME; Yale University, National
Evolutionary Synthesis Center, Virginia
Institute of Marine Science, University of
California, Los Angeles

TUESDAY PROGRAM MORNING SESSIONS

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

8:00-9:40 AM

Webster

Session 73: Terrestrial Locomotion - Hopping

Co-Chairs: James Wakeling, Olaf Ellers

8:00 AM 73.1 GUTMANN, AK, BERTRAM, JEA, Metabolic cost of human hopping: linking mechan-
DCB RUINA, A; University of Calgary, Cornell ics and physiology of locomotion
University

8:20 AM 73.2 YOO, EH, LEE, DV, BIEWENER, AA; Actuation and compliance of goat foreleg during
DCB Harvard University, University of landing jumps
Nevada Las Vegas

8:40 AM 73.3 EVANGELISTA, DJ; University of Up, up, and away! The jump of the amphipod
DCB California, Berkeley *Apothyale pugettensis*

9:00 AM 73.4 MCGOWAN, CP; University of Texas at Could giant kangaroos hop? Scaling of tendon
DCB Austin geometry and skeletal features

9:20 AM 73.5 CHI, K-J, SCHMITT, D, ROTH, VL; Different functional mechanisms of foot-footpad
DCB Duke University, National Chung-Hsing complex for plantigrade and digitigrade mammals
University, Taiwan 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 74.1 ELLERS, O, YOSHIMURA, K, An inverted pendulum model for underwater walk-
DCB MOTOKAWA, T, JOHNSON, AS; ing
Bowdoin College, Maine, Tokyo Institute
of Technology

10:20 AM 74.2 BIKNEVICIUS, AR, MCELROY, EJ, Primitive, protected and pendular: locomotor
DCB JOHNSON, SD, BENNETT, MB, REIL- dynamics of echidnas and hedgehogs
LY, 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

10:40 AM 74.3 BIEWENER, AA, ROS, I, LEE, DV, Ground reaction force and center of mass dynam-
DCB ANTONNEN, J, HIGGINS, T; Harvard ics of goats and dogs during trotting and galloping
University, University of Nevada, Las
Vegas

11:00 AM 74.4 WAKELING, JM, BLAKE, O; Simon Maximizing power and efficiency from a limb during
DVM Fraser University cyclic contractions

TUESDAY PROGRAM MORNING SESSIONS

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

TUESDAY PROGRAM AFTERNOON SESSIONS

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 <i>Pogonomyrmex californicus</i>

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 <i>Limulus</i> : what long term mark/recapture studies reveal about horseshoe crab population dynamics in Long Island Sound

TUESDAY PROGRAM AFTERNOON SESSIONS

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, <i>Houstonia purpurea</i>
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 <i>Drosophila</i>
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 (<i>Spheniscus demersus</i>) 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 <i>Heliconius</i> butterflies
1:20 PM DCPB	78.2	SINCLAIR, BJ, RAJAMOHAN, A; University Western Ontario	Plasticity in chilling survival of <i>Drosophila melanogaster</i> larvae

TUESDAY PROGRAM AFTERNOON SESSIONS

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 <i>Anopheles gambiae</i>
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, (<i>Cardinalis cardinalis</i>)
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 <i>Amatitlania nigrofasciata</i>
1:40 PM	79.3	MUKAI, M, REPLOGLE, K, WANG, G, WACKER, D, CLAYTON, DF, WING- FIELD, 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 <i>Betta splendens</i> 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 (<i>Aphelocoma coerulescens</i>)

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
---------	------	---	--

TUESDAY PROGRAM AFTERNOON SESSIONS

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 <i>Cleistostoma dilatatum</i> (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 <i>Kryptolebias marmoratus</i>
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, <i>Chelinidea vittiger</i> (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 eye-stalk and pericardial organ on multiple tissues of the blue crab, <i>Callinectes sapidus</i>
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 <i>Callinectes sapidus</i> 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 <i>Origin</i> : incorporating Darwin in introductory courses

TUESDAY PROGRAM AFTERNOON SESSIONS

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 engage- ment
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-pro- cessing 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 <i>Hippocampus reidi</i> 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 <i>Belonesox belizanus</i> and the native <i>Micropterus floridanus</i> , 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 ventila- tion 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 competi- tive interactions?

TUESDAY PROGRAM AFTERNOON SESSIONS

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 <i>Chrysoperla lucasina</i>
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 <i>Callinectes sapidus</i>
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

TUESDAY PROGRAM AFTERNOON SESSIONS

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	86.2	LIEBERMAN, DE, WERBEL, W, DVM 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, KODITSCHKEK, 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	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 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 DEATON, LE; University of Louisiana at Lafayette FMRFamide and 5HT Increase IP3 levels in gastropod hearts
- P3.5 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 MIKA, TL, REIBER, CL; University of Nevada, Las Vegas Physiological limitations to cardiovascular function in thermally stressed grass shrimp (*Palaemonetes pugio*)
- P3.8 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 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; Westminister 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 Marinelifelife 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 HOANG, LK, MCCOY, KA, ST MARY, CM, DEE 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 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 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*

TUESDAY P3 - POSTER SESSION 3

Galleria, 3:00 - 5:00 PM

- 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 HAZARD, LC, KWASEK, KM; Montclair DCPB State University Effects of road deicers on survival and behavior of larval and adult wood frogs
- P3.19 BIRD, SE, ZAPUT, EP, MUSTA, EJ, BENE- DEE NATI, 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 ESTES LAYTON , J, WIBBELS, T, TUCK- DEE ER, 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 Shackelford Horses, Inc. Behavioral effects of contraception management; the use of porcine zona pellucida on wild horses
- P3.23 MORTENSEN, JL, CURRY, RL; Villanova DEE 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 PENALVA-ARANA, DC, ROBERTSON, H, DEE 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 KUROCHKIN, IO, IVANINA, AV, EILERS, DEE 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 TAYLOR, KN, WEIGAND, KL, BAATZ, JE, DEE 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?

TUESDAY P3 - POSTER SESSION 3

Galleria, 3:00 - 5:00 PM

- P3.28 REHOREK, SJ, HILLENIOUS, WJ*, LEIGH, C, FIRTH, BT; Slippery Rock University, College of Charleston, University of Adelaide
DVM The anterior orbital glands in *Sminthopsis crassicaudatus*: a nomenclatural conundrum
- P3.29 REESE, SA, BLACK, P*, ADAIR, E, KOETHER, M; Kennesaw State University
DCPB 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 FRUTIGER, AE, HOLDENER, JA, ITAGAKI, H; Kenyon College
DNB 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 NEWEL, MS, MARTIN, KMF, BOURNE, GB*; University of Calgary, Alberta, Canada
DCPB Observations on the functional morphology of the Pacific geoduck clam, *Panopea abrupta* (Conrad, 1849)
- P3.34 CROFTS, SC, GOSLINE, J; University of California, Irvine, University of British Columbia
DCB An investigation of the mechanics of ventilation and sliming in *Pteraster tesselatus*
- P3.35 MENDOZA BLANCO, MA, PATEK, SN; University of California, Berkeley
DCB Muscle mechanics in mantis shrimp
- P3.36 CLAFLIN, SB, PIEN, CL, RANGEL, EN, UTZ, KE, WALTHER, HV, WRIGHT, AN, ELLERBY, DJ*; Wellesley College
DCB 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 RAKOW SUTHERLAND, K, MADIN, L; MIT/WHOI Joint Program in Oceanography, Woods Hole Oceanographic Institution
DCB *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 BREWINGTON, AK, WEIGAND, KL, DEAROLF, JL; Hendrix College, Conway
DDCB 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

TUESDAY P3 - POSTER SESSION 3

Galleria, 3:00 - 5:00 PM

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

Environmental Endocrinology: Environmental

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

TUESDAY P3 - POSTER SESSION 3

Galleria, 3:00 - 5:00 PM

- 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, HORN-BACH, 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

TUESDAY P3 - POSTER SESSION 3

Galleria, 3:00 - 5:00 PM

- 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

TUESDAY P3 - POSTER SESSION 3

Galleria, 3:00 - 5:00 PM

P3.101 DCPB	SCHOLNICK, DA, HAYNES, VN*, SCHWEITZER, KI; Pacific University, Oregon	Hypoxia impairs antibacterial defense in the dunge- ness crab, <i>cancer magister</i>
P3.102	SMITH, LC, MENDONCA, MT, RICHARD- SON, 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 metallopro- teinase varies throughout development in the tobac- co hornworm, <i>Manduca sexta</i>
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 <i>Orconectes rusticus</i>

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 <i>Gopherus polyphemus</i>
P3.106 DEE	KRUMM, JL; Widener University	Evidence of senescence in a branchiopod crus- tacean, <i>Branchinecta lindahli</i> , 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, TRITILE, B, BUR- TON, P*; Wabash College	Cell death and division during regeneration in the sea anemone <i>Nematostella</i>
P3.109	WARD, WT, KRISTAN, D; California State University San Marcos	Tapeworm co-infection alters life history and distribu- tion of the nematode <i>Heligmosomoides bakeri</i>
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 chor- date <i>Ciona intestinalis</i>
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, VIN- YARD, CJ; NEOUCOM; Rootstown, Ohio	Diversity in gene expression patterns during mam- malian 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

TUESDAY P3 - POSTER SESSION 3

Galleria, 3:00 - 5:00 PM

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

Outreach, Education and Policy

P3.117 NADELSON, LS, WALTERS, LJ, WATER- What works best? Classroom undergraduate
DEE MAN, JM, SACKS, P*; Boise State research experiences with different levels of inquiry
University, University of Central Florida

P3.119 WONG, GK, CHABOT, CC; Quinnipiac The Bioscience Education Network (BEN) digital
University, Plymouth State University library portal and collaborative

P3.120 CARROLL, MA, SKEETE, D, CATAPANE, It's time to *STEP into Science* at Medgar Evers
DCPB EJ; Medgar Evers College/CUNY College

P3.121 TANKERSLEY, RA, LOPEZ-DUARTE, Exorcising Statistical Demons: Interactive Tutorial
DIZ PC*; Florida Institute of Technology, (StatTA) promotes statistical literacy and supports
Scripps Institution of Oceanography inquiry-based instruction in biology

P3.122 WOODLEY, SK; Duquesne University Assessing students beliefs and knowledge regarding
DCE animal research

P3.123 HODIN, J, MILLER, P, HUANG-VOSS, C, Inquiry-based web curricula in development,
EPEL, D; Hopkins Marine Station, Stanford microscopy, physiology and environmental science
University

P3.124 CLEMENT, ML, LEA, JM, PHAM, LL, Hypatia of Alexandria: a comparative perspective on
DEE SMITH, BR, SMITH, DC, WAGNER, NA, her role in history
SIMMONS, CK, BARTHELL, JF; University
of Central Oklahoma

P3.125 MOOI, R; California Academy of Sciences The Summer Systematics Institute: hands-on, col-
DSEB lections-based undergraduate research at the
California Academy of Sciences

P3.126A WILSON, RS, NIEHAUS, AC, WHITE, J, Using video documentary-making to enhance learn-
DAB RASMUSSEN, A, KUCHEL, L; University ing in large first year biology classes
of Queensland

P3.126 TANKERSLEY, RA, WINDSOR, JG; Taking it to the streets: SEAS mobile laboratory
DIZ Florida Institute of Technology exposes students to the excitement of ocean sci-
ence research

Parental Care

P3.127 STAHLSCHMIDT, ZR, DENARDO, DF; Effect of nest temperature on egg-brooding behav-
DAB Arizona State University, Tempe ior, metabolism, and clutch-nest thermal relations in
Children's pythons (*Antaresia childreni*)

P3.128 HARN, LJ, HAUSSMANN, MF, MAUCK, Don't count your chicks before they hatch: an exper-
DAB RA; Kenyon College, Gambier, Bucknell imental manipulation of incubation effort in Leach's
University, Lewisburg storm-petrel (*Oceanodroma leucorhoa*)

P3.129 ABDU, RW, ABATE, ME, KAUFMAN, L; A test for the influence of offspring behavior on
Boston University, Massachusetts parental care in the convict cichlid (*Archocentrus
nigrofasciatus*)

TUESDAY P3 - POSTER SESSION 3

Galleria, 3:00 - 5:00 PM

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

Predation and Predator Avoidance

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

Regeneration and Budding

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

TUESDAY P3 - POSTER SESSION 3

Galleria, 3:00 - 5:00 PM

- P3.144 TEMKIN, MH, MISERCOLA, B, SON-DIZ
AGERE, M, DIXON, E; St. Lawrence University
Homeobox gene characterization and expression in developing zooids of the marine bryozoan *Membranipora membranacea*
- Reproductive Physiology**
- P3.145 JENSEN, BH, CASEY, A; The College of DCPB
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 KORINE, C, DANIEL, S, PINSHOW, B*; DCPB
Ben-Gurion University of the Negev
Frugal energy use by Hemprichs long-eared bats (*Otonycteris hemprichii*) during pregnancy and nursing
- P3.147 BOOHER, CM, HOOD, WR; Auburn DEE
University, Alabama
Calcium intake, bone metabolism and reproductive output of white-footed mice (*Peromyscus leucopus*)
- P3.148 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 GAM, AE, MENDON, MT, NAVARA, KJ; DCE
University of Georgia, Auburn University
Effects of progesterone and corticosterone administration on offspring primary sex ratio in the zebra finch (*Taeniopygia guttata*)
- P3.150 KHAMBATY, M, ECAY, TW*, STEWART, DVM
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 LEBLANC, AM, WIBBELS, T; University of DCE
Alabama, Birmingham
Effect of fluctuating temperature on a turtle with temperature-dependent sex determination
- P3.153 MCGINN, NA, CHERR, GN; University of DDCB
California, Davis
Comparative physiology of multidrug resistance in marine invertebrate oocytes and embryos
- P3.154 REYNA, KS; University of North Texas DCPB
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 TEARE, A, ROSTAL, D, MARLEY, P, DCE
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*)

TUESDAY P3 - POSTER SESSION 3

Galleria, 3:00 - 5:00 PM

P3.158 DAB	FAN, J; University of Maryland	Mathematical 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 <i>Julidochromis</i> 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 (<i>Sialia sialis</i>)
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 (<i>Tadarida brasiliensis</i>) 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, <i>Anolis carolinensis</i>

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
---------------	---	--

TUESDAY P3 - POSTER SESSION 3

Galleria, 3:00 - 5:00 PM

- 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 HANES, SD, KEMPF, SC; Auburn University DDCB 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 MAZZILLO, MJ, KEMPF, SC; Auburn University DIZ Mucilage antigenicity and composition in different zooxanthella strains

Symposium Related: Biomaterials: Properties, Variation and Evolution

- P3.176 ZACK, TI, CLAVERIE, T, PATEK, SN*; DCB 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, TERAJ, 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, TERAJ, 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 KIDD, CE, KIDD, MR, HOFMANN, HA*; DAB University of Texas at Austin A technique for measuring multiple hormones from individual water samples using commercial enzyme immunoassays

Symposium Related: Phychoneuroimmunology Meets Integrative Biology

- 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 COON, CA, ADELMAN, J, LIEBL, AL, DEE 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 ZIMMERMAN, LM, PAITZ, RT, VOGEL, DEE 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 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 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 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 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 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 MCCORKLE, AM, LOOMIS, SH; Connecticut College Natural ice nucleating bacteria increase the freezing tolerance of the intertidal bivalve *Geukensia demissa*
- P3.210 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 <i>Hirudo verbana</i>
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, <i>Eurosta solidaginis</i>
P3.214 DCPB	PRICE, ER, ARMSTRONG, C, STAPLES, JF, GUGLIELMO, CG; University of Western Ontario	Norepinephrine stimulated fatty acid mobilization in hibernating ground squirrels (<i>Spermophilus tridecemlineatus</i>)
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 <i>Eurosta solidaginis</i>
P3.216 DEE	REICHARD, JD, FELLOWS, SR, KUNZ, TH; Boston University	Thermoregulation during flight in the Brazilian free-tailed bat

Wednesday Schedule of Events

<u>EVENT</u>	<u>TIME</u>	<u>LOCATION</u>
Registration	7:30 AM-5 PM	Harbor Ballroom Foyer
Coffee Break	9:30-10:30 AM	Outside of Meeting Rooms
<u>CONTRIBUTED PAPER ORAL PRESENTATIONS</u>		
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
<u>COMMITTEE & BOARD MEETINGS</u>		
Executive Committee	7:00-9:00 AM	Douglas

**WEDNESDAY PROGRAM
MORNING SESSIONS**

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 <i>Poecilia</i> , 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 (<i>Bombus impatiens</i>) |
| 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 | <i>In vivo</i> bone strain and finite-element modeling of the craniofacial haft in catarrhine primates |

WEDNESDAY PROGRAM MORNING SESSIONS

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 sharp- ness 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 proper- ties, masticatory force production and comminution
11:40 AM	88.6	CARMODY, RN, CONE, E, WRANG- HAM, RW, SECOR, SM; Harvard University, University of Alabama	Cooking and the net energy value of meat: implica- tions 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 select- ed trait in <i>Xiphophorus</i>
9:00 AM DEE	89.4	LAILVAUX, SP, HALL, MD, BROOKS, RC; University of New South Wales	Does whole-organism performance indicate genet- ic quality? A test using the black field cricket (<i>Teleogryllus commodus</i>)
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 reproduc- tive 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 mechani- cal performance: a study of the evolution of felid cranial form

**WEDNESDAY PROGRAM
MORNING SESSIONS**

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

WEDNESDAY PROGRAM MORNING SESSIONS

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	91.7	BOILY, P; Western Connecticut State DCPB University	Voluntary motor activity contributes to the increase in body temperature caused by menthol application to the skin of gerbils
10:40 AM	91.8	BEN-HAMO, M, BAUCHINGER, U, PIN- DCPB SHOW, 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 (<i>Thamnophis sauritus</i>) to cold climates
11:20 AM	91.10	CONDON, CH, CHENOWETH, SF, WILSON, RS; The University of Queensland	Mixed signals: thermal performance of zebrafish <i>Danio rerio</i> in uncertain environments
11:40 AM	91.11	SOKOLOVA, IM; University of North DCPB 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	92.1	CHEN, M, JOCOBS, MW, LAUFER, H; DCB University of Connecticut	Competition of tyrosine with alkylphenols during shell hardening in new cuticle of lobsters
8:20 AM	92.2	WALKER, AA, DEVADI, R, RILEY JR, DCE LG*; California State University, Fresno	Temperature and fasting differentially regulate glucose metabolism and ghrelin levels in the tilapia (<i>Oreochromis mossambicus</i>)
8:40 AM	92.3	BIGA, PR, BRASCHAYKO, E, GALT, N, DCPB PAKALA, KP, JENSEN, J; North Dakota State University, Fargo	Does myostatin play a regulatory role outside of muscle growth and metabolism?
9:00 AM	92.4	GLAZER, L, SHECHTER, A, BERMAN, DCE 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	92.5	HELM, BR, DAVIDOWITZ, G; University DEE of Arizona	On the physiological determination of body size in <i>Manduca sex</i> : what is the critical weight?

WEDNESDAY PROGRAM MORNING SESSIONS

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 <i>Uca pugilator</i>
---------	------	--	---

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 <i>Morone</i>)
----------	------	--	--

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 (<i>Eumetopias jubatus</i>)
-----------------	------	---	--

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 (<i>Salmo salar</i>)
-----------------	-------	--	--

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 <i>Nasutitermes acajutlae</i>
---------	------	---	---

8:20 AM	93.2	SCHULTHEIS, KF, ROSENGAUS, RB, BULMER, MS; Northeastern University, Towson University	Symbiont-mediated immunocompetence in the dampwood termite (<i>Zootermopsis angusticollis</i>)
---------	------	---	--

8:40 AM	93.3	HAMILTON, C, ROSENGAUS, RB; Northeastern University	Social transmission of immunity in the carpenter ant <i>Camponotus pennsylvanicus</i>
---------	------	---	---

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 <i>Batrachochytrium dendrobatidis</i> infections on larval foraging performance
---------	------	--	--

9:40 AM COFFEE BREAK

WEDNESDAY PROGRAM MORNING SESSIONS

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 <i>Coenobita clypeatus</i> 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 (<i>Carcharodon carcharias</i>) 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 short-nose 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

**WEDNESDAY PROGRAM
MORNING SESSIONS**

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 (<i>A. oxylophus</i> and <i>A. aquaticus</i>)
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, <i>Lacerta vivipara</i>
11:00 AM DCE	96.4	COX, R, STENQUIST, D, CALSBEEK, R; Dartmouth College	Testosterone stimulates growth in a lizard (<i>Anolis sagrei</i>) 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 (<i>Oreochromis mossambicus</i>) gill tissue: implications for osmoregulation and salinity adaptation
8:20 AM	97.2	PHILLIPS, MB, DIAMANDUROS, AW, HYNDMAN, KA, EDWARDS, SL, CLAI- BORNE, JB; Georgia Southern University, Medical College of Georgia, Appalachian State University	Rh glycoprotein as an ammonia transport molecule in the longhorn sculpin (<i>Myoxocephalus octodecemspinosus</i>) 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 temperate birds
9:20 AM	97.5	SPRAGUE, JC, SMITH, JN, WOODS, HA; University Montana	Waiting to exhale: tracheal air-filling in embryos of <i>Manduca sexta</i>

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 <i>Mytilus</i> 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

WEDNESDAY PROGRAM MORNING SESSIONS

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 (<i>Oreochromis mossambicus</i>)
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, <i>Myoxocephalus octodecemspinosus</i>

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 <i>Rana pipiens</i>
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

WEDNESDAY PROGRAM MORNING SESSIONS

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, RIDDI-FORD, LM; Wellesley College, University of Washington, Seattle, Janelia Farms, Howard Hughes Medical Institute, Ashburn | <i>Distal-less</i> regulates developmental stability in the flour beetle, <i>Tribolium castaneum</i> |
| 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, <i>Petromyzon marinus</i> , 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 disaccharidase activity is fully reversible in young house sparrows |

9:40 AM COFFEE BREAK

WEDNESDAY PROGRAM MORNING SESSIONS

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 sternochoideus
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 (<i>Danio rerio</i>) embryos
9:00 AM DIZ	101.4	GEHMAN, AM; Western Washington University	Maternal diet and juvenile quality in the sea star <i>Leptasterias aequalis</i>
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 <i>Dendraster excentricus</i> 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 <i>Crepidula fornicata</i>
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

WEDNESDAY PROGRAM MORNING SESSIONS

- | | | | |
|----------|--------|--|---|
| 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 skeletogenesis in larvae of the sea urchin <i>Lytechinus pictus</i> : evidence from morphometric and microarray data |
| 11:40 AM | 101.11 | MCALISTER, JS, MORAN, AL; DIZ
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 <i>Acris crepitans blanchardi</i> (Anura: Hylidae) and their implications |
| 8:20 AM | 102.2 | JORGENSEN, ME; Ohio University
DVM | Comparative locomotor morphology of hyloid and non-neobatrachian anurans |
| 8:40 AM | 102.3 | PUGENER, LA, MAGLIA, AM*; Missouri University of Science and Technology, Rolla
DSEB | Developmental evolution of the Anuran Sacrourostylelic Region and its locomotory implications |
| 9:00 AM | 102.4 | VAGLIA, JL, BABCOCK, SK, WHITE, K, CASE, A, SMITH, K; DePauw University
DDCB | Tail elongation and patterns of regional growth in salamanders |
| 9:20 AM | 102.5 | CRAWFORD, K; St. Mary's College of Maryland, MD
DDCB | 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 | 103.1 | SADLEIR, RW, LEE, S; Field Museum, University of Chicago, University of Illinois, Chicago
DVM | Phenotypic plasticity in alligatorinae evolution & visualizing 3-D shape change |
| 10:20 AM | 103.2 | YOUNG, NM, FONDON III, JW; University of California, San Francisco, University of Texas at Arlington
DVM | Artificial selection, developmental constraints, and craniofacial variation in the feral and domesticated pigeon (<i>Columba livia</i>) |
| 10:40 AM | 103.3 | SWIDERSKI, DL, ZELDITCH, ML; University of Michigan, Ann Arbor
DVM | Evolution of jaw size and shape in New World tree squirrels |
| 11:00 AM | 103.5 | VANHOODYDONCK, B, HERREL, A, GABELA, A, PODOS, J; University of Antwerp, Harvard University, University Massachusetts, Amherst | Beyond the beak: wing shape variation in Darwin's finches |
| 11:20 AM | 103.6 | RICO-G., A; University of Connecticut | Evolutionary insights about hummingbirds' serrate tomtia |

WEDNESDAY PROGRAM MORNING SESSIONS

8:00-9:40 AM

Webster

Session 104: Locomotion - Elongate Movement

Co-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 <i>Columba livia</i>

Author Index

-A-

AALBERS, SA83
 AAMIDOR, SE46
 ABATE, ME123, 128
 ABBOTT, EM119
 ABDU, RW123
 ABNEY, M67
 ABZHANOV, A33, 55
 ACHATZ, J101
 ADAIR, E117
 ADAMO, SA94
 ADAMS, AL86
 ADAMS, EDM122
 ADAMS, NL36
 ADAMS, RA110
 ADDIS, EA76
 ADELMAN, JS61, 116, 128
 ADOLPH, SC119
 ADRIAENS, D43, 57, 87, 107, 112
 AERTS, P31, 112
 AFLALO, ED111, 135
 AGNARSSON, I70
 AGOSTA, S108
 AGUIERRE, P75
 AHMAD, S43
 AHN, AN119
 AHN, D-G79
 AHYONG, S129
 AIBARA, M127
 AINSWOTH, KL70
 ALAM, JL50, 128
 ALBERT, GW96
 ALBERTSON, RC62, 128
 ALDWORTH, ZN45, 62
 ALFARO, ME63, 102, 106
 ALLEN, JD141
 ALLEN, LC126
 ALMEDIA, S139
 ALTSHULER, DL100, 143
 ALUCK, RJ79
 ALVINE, T47
 AMARELLO, M27, 124
 AMBRON, RT124
 AMDAM, GV83
 AMIEL, JJ135
 AMITAI, O46
 AMSLER, CD25, 29, 41, 75
 AN, J23, 66, 86, 125
 ANDERS, C132
 ANDERSON, CV35
 ANDERSON, KE82
 ANDERSON, PSL31
 ANDERSON, RA25, 80
 ANDERSON, S69, 92
 ANDERSON, SD137
 ANDREW, J70
 ANDRIAMANDIMBIARISOA, LN113
 ANGERBJOERN, A92
 ANGIELCZYK, KD112
 ANGILLETTA, MJ44, 134

ANGUS, RA41, 69, 75
 ANITOLE-MISLEH, K123
 ANO, L122
 ANSON, JY127
 ANTONEN, J108
 ANTONNEN, J107
 APPLETANS, W59
 ARENA, AJ42, 104, 108
 ARENDT, JD25
 ARMFIELD, BA122
 ARMOUR, MT105
 ARMSTRONG, C130
 ARNOLD, A130
 ARNOLD, S81
 ARNOULD, JPY67
 ARONOWSKY, A40, 112
 ARONSEN, GP40
 ARTITA, KS124
 ARWADE, SR64
 ASAKURA, A66
 ASPLIN, L23
 ASTHEIMER, LB73, 103
 ASTLEY, HC105
 ATCHISON, LA76
 ATEMA, J109
 ATHALE, J87
 ATWELL, JW24, 70
 AU, AG26
 AUTUMN, KA56
 AVEN, AM64
 AVENI-DEFORGE, K29
 AVERY, T41
 AVONDET, JL68
 AVULOVA, S136
 AWERMAN, JL126
 AXTMAN, LM47
 AYERS, T44, 77
 AYERS, TJ129
 AZIZI, E92, 139
 AZZARA, AV99
 AZZOUZI, N71

-B-

BAATZ, JE116
 BABCOCK, SK142
 BADER, BA100
 BADER, BD47
 BAGATTO, B33, 50
 BAGWE, R115
 BAHLMAN, JWM67, 106
 BAIER, DB31, 68
 BAILEY, IB79
 BAILEY, M94
 BAIN, BA124
 BAINE, M40
 BAKER, BJ25, 29
 BAKER, DM136
 BAKER, JA25
 BAKER, P116

BAKER, PJ39
 BAKKEN, GS65, 137
 BALAKRISHNAN, CN102
 BALDA, RP75
 BALDINGER, AJ40
 BALDWIN, BS141
 BALDWIN, JL113
 BALENGER, SL103
 BALL, GF36, 60
 BALSLEY, BB25
 BALTZEGAR, DA136, 138, 139
 BALTZLEY, MJ69
 BANET, AI26, 80, 81
 BARBER, JR63
 BARLEYCORN, AB28
 BARNES, B71, 89
 BARNES, BM71, 134, 137
 BARNETT, HA78
 BAROILLER, JF71
 BARRIENTOS, K39
 BARROWS, A40
 BARRY, BD44
 BARSHIS, D28
 BARTH, FG22
 BARTHELAT, F92
 BARTHELL, JF98, 120, 123
 BASH, R83
 BASINSKY, G64
 BASS, AL29
 BASSETT, DK72
 BASTIAN, AJ114
 BASTON, JI120
 BASU, I51
 BATTEN, BA72
 BAUCHINGER, U46, 49, 71, 96, 135
 BAUER, RT26, 29
 BAUMANN, H97
 BAUMGARTNER, RE119
 BAUTISTA, GM46
 BEAL, M49
 BEATTY, B133
 BECKER, EC98
 BEDORE, CN85
 BEEKEY, MA108
 BEERS, JM115
 BELANGER, JH37
 BELDEN, LK97
 BELL, TM81
 BELLIN, D92
 BEN-ADERET, NJ42
 BENENATI, E116
 BENENATI, J116
 BEN-EZRA, E96
 BENFORD, R75
 BEN-HAMO, M135
 BENNETT, MB107
 BENNETT, NL79
 BENNETT, VA83
 BENOIT, JB88
 BENTIVEGNA, CS40

BENTLEY, GE	85, 86, 95	BONIN, JA	78	BRUEGGEN, MK	28
BERENDZEN, PB	102	BONNEAUD, C	103	BRZEK, P	140
BERENS, EJ	28	BONNET, D	75	BUCHHOLZ, DR	49, 120
BERESIC-PERRINS, RK	124	BOOHER, CM	26, 125	BUCHTOVA, M	140
BERG, AM	143	BOONSTRA, TA	75	BUCHWALD, R	132
BERGEON BURNS, CM	76	BOORSE, G	126	BUCHWALTER, DB	110
BERGMAN, DA	40, 48	BORDA, E	58	BUCK, CL	71, 126
BERGMANN, PJ	143	BORLEY, KA	115	BUCKLES, EL	121
BERGOU, AJ	37, 113	BORMET, AK	99	BUCKLIN, A	122
BERIAULT, D	92	BORSKI, RJ	69, 136, 138, 139	BUDEN, AT	40
BERKE, SK	97	BOSTWICK, KS	57	BUDGE, SM	67
BERMAN, A	135	BOSWELL, LC	48	BUEHLER, DM	61
BERMAN, GJ	37, 113	BOTSFORD, LW	137	BULLOCK, JMR	56, 88
BERNAL, D	43, 83, 84, 115	BOUGHMAN, JW	93	BULMER, MS	136
BERNARD, DJ	60	BOUGHTON, RK	110	BURCH, SH	118
BERNER, NJ	88	BOULET, M	64	BURGERT, I	92
BERTA, A	67	BOULO, V	48	BURGGREN, WW	83
BERTRAM, DF	82	BOURDEAU, PE	137	BURKE, AC	33
BERTRAM, JEA	107, 119	BOURNE, GB	117	BURLAKOVA, LE	59
BESANSKY, NJ	87, 110	BOUTRY, C	70	BURMESTER, EM	88
BESSLER, SM	140	BOWDEN, RM	80, 86, 128, 140	BURNETT, K	49
BETKA, M	49	BOWTELL, MV	114	BURNETT, L	49
BETTS, G	138	BOXSHALL, GA	23, 59	BURNS, DJ	71
BEZAULT, E	127	BOYER, SL	32, 120	BURNS, JR	26
BHAT, A	81	BOYKO, CB	23, 59, 66	BURPEE, JL	100
BHATT, D	48	BOYLES, JG	88	BURTON, P	122
BICER, S	84	BRABY, CE	124	BURTON, RS	76
BICUDO, E	73	BRADLEY, TJ	54	BUTCHER, MT	118
BIER, R	45	BRADY, SG	54	BUTLER, LG	78
BIERBOWER, SM	85	BRAGULLA, HH	78	BUTLER, LK	103, 126
BIERMAN, HS	99	BRAINERD, EL	31, 104	BUTLER, M	98, 120
BIEWENER, AA	34, 100, 105, 107, 108, 139, 143	BRAKORA, K	134	BUTLER, MA	50, 68, 99
BIGA, PR	44, 84, 135	BRANDON, CS	80	BUTTEMER, WA	73, 103
BIKNEVICIUS, AR	107, 119	BRANNOCK, PM	32	BYRNE, M	45
BILBO, SD	94	BRASCHAYKO, EB	44, 135	BYRNES, G	67
BIRD, NC	106, 122	BRASHEARS, JA	43	BYWATER, CL	58
BIRD, SE	116	BRAUN, EL	120		
BISHOP, KL	112	BRAUN, MJ	130	-C-	
BISSON, I-A	103, 126	BRAYER, KJ	59	CABLE, AE	35
BJORN, PA	23	BRAZEAL, KR	39	CAGNON, M	141
BLACK, P	117	BRECKO, J	31	CAIN, KE	70, 76
BLACKBURN, DG	82	BRESETT, M	116	CAIN, SD	46, 69
BLACKLEDGE, TA	70	BREUER, KS	105, 132	CALDWELL, RL	45, 129
BLAKE, O	107	BREUNER, CW	30, 103	CALISI, RM	95
BLANK, JM	134	BREWINGTON, AK	117	CALSBECK, R	138
BLANK, T	29	BRICK, A	81	CAMERON, JS	87
BLAUFUS, PC	46	BRIDGE, ES	110	CAMERON, RA	77
BLEVINS, E	66	BRIDGES, WC	26, 82	CAMILLERI, SA	28
BLOB, RW	26, 79, 81, 82, 118	BRIGHT, JA	42	CAMP, AL	112
BLOCK, BA	137	BRISCOE, AD	54, 109	CAMPANALE, JP	36
BLOMBERG, SP	58, 108	BRISSON, D	27	CAMPAS, O	134
BLOOM, A	92	BRITTON-SIMMONS, K	82	CAMPBELL, JA	40
BLUMSTEIN, DT	39	BROCIA, S	47	CAMPBELL, JM	111
BOBACK, SM	40, 81	BROCKMANN, HJ	113	CAMPBELL-STATON, S	68
BOCKOVEN, A	124	BRODIE, R	45	CAMPOS, EO	45
BODINIER, C	48	BRODKIN, M	50	CANNON, JP	55
BOETTGER, SA	69	BRODSKY, S	88	CANNON, JT	98
BOILY, P	135	BRONIKOWSKI, A	118	CAPUTO, V	33
BOLANOS, DM	42	BROOKS, RC	133	CARDINAL, S	54
BONETT, RM	32	BROWN, JW	117	CARDULLO, RA	101
BONIER, F	30, 86, 119	BROWN, KM	122, 123	CARLETON, JB	124
		BROWN, L	78	CARLETON, KL	63, 70, 93, 128
		BRUBAKER, JL	86	CARLISLE, SL	86

CARLSON, KJ	119	CHEVERUD, JM	38	COOKE, SJ	30
CARLTON, ED	121	CHI, K-J	79, 107	COON, CA	128
CARMODY, RN	133	CHIEL, HJ	109	COOPER, AS	85
CARNEVALE, G	63, 102	CHIN, EH	126	COOPER, BS	44
CARR, JA	80, 139	CHMURA, HE	39	COOPER, JM	82
CARRENO, CA	81	CHO, I	47	COOPER, LN	33
CARRIER, DR	37, 78, 81, 82, 132, 138	CHOE, JC	111	COOPER, R	85
CARROLL, AM	106	CHOI, JB	111	COOPER, RL	48, 85, 99
CARROLL, KN	122, 123	CHOI, JT	114	COOPER, SJ	130
CARROLL, MA	47, 48, 115, 123	CHOINIERE, JN	98	COOPER, WJ	62, 128
CARROLL, S	114	CHOJNOWSKI, JL	120	COPELAND, C	119
CARRUTH, WC	117	CHRISTENSEN, AK	49	COPELAND, DL	110
CARTHY, R	116	CHRISTIAENS, J	107	COPPACK, T	95
CARUSO, MA	46	CHRISTIAN, KA	138	COPPOLA, DM	36
CARY, G	44	CHU, KH	129	COPUS, JM	81
CASE, A	142	CHUNG, JS	50, 111, 120	CORBETT, AH	116
CASEY, A	125	CHUNG, W-Y	48	CORCORAN, AJ	63
CASHON, B	96	CHURCH, SA	109	COREY, DP	22
CASKEY, JL	29	CHURCHILL, GA	93	CORNELIUS, JM	39, 103
CASSEY, P	45	CHURCHILL, MM	44	CORRIGAN, ST	71
CASTO, JM	86	CICHON, M	133	CORRIVEAU, J	81
CASWELL, H	75	CID, FD	120	COSTA, DP	67
CATAPANE, EJ	47, 48, 115, 123	CIUMMO, EM	81	COSTANZO, JP	83, 85, 88
CATENAZZI, A	59	CLAESON, KM	98	COSTELLO, MJ	23, 59
CATTOLICO, RA	29	CLAESSENS, LP	82	COUGHLIN, DJ	100
CATTON, K	35	CLAFLIN, SB	117	COUNIHAN, JL	89
CAVIEDES-VIDAL, E	120, 121, 140	CLAIBOREN, JB	138, 139	COVI, JA	47, 76, 100, 111
CAZAMEA-CATALAN, D	75	CLAMP, J	40	COWAN, NJ	69, 80, 114
CEAZE, A	49	CLAREMONT, M	120	COWGILL, JA	121
CECILE, H	35	CLARK, AD	76	COX, CL	129
CEDIEL, RA	26	CLARK, AJ	104	COX, LN	32, 60
CHABOT, CC	45, 123	CLARK, CJ	143	COX, R	138
CHABOT, JR	137	CLARK, JM	98	COX, RM	24
CHAMPAGNE, AM	43	CLARK, M	75	CRAFT, JD	99
CHANEY, NL	60	CLAUSEN, RC	36, 76	CRANDELL, KE	56, 68
CHANG, C-T	79	CLAVERIE, T	64, 127, 139	CRATSLY, CK	64
CHANG, ES	47, 76, 100	CLAYTON, DF	110	CRAWFORD, JC	64
CHANG, H-C	109	CLAYTON, HM	105, 118	CRAWFORD, K	142
CHANG, JL	82, 124	CLEMENT, ME	44	CRAWFORD, NG	68
CHANG, SA	76	CLEMENT, ML	98, 120, 123	CRAWFORD, S	47
CHANTAROJWONG, TM	44, 86	CLEMENTE, CJ	56	CRESPI, EJ	49
CHAO, E	47	CLEMENTZ, M	44	CRIMALDI, JP	29
CHAPPELL, MA	73	CLIFFORD, AB	108	CROCKER, KC	98
CHAPPLE, TK	137	CLOUSE, RM	32	CROCKETT, EL	96
CHARMANTIER, G	48, 75	COCKREM, JF	30	CROCKFORD, SJ	54
CHARMANTIER-DAURES, M	75	COHEN, AH	64	CROFTS, SC	117
CHARPENTIER, MJE	64	COHEN, I	37, 113	CROLL, RP	62
CHARVET, CJ	99	COHEN, JH	68	CROMPTON, AW	141
CHASE, JM	29	COHN, MJ	55	CRONIN, TW	68, 70, 128
CHE, J	50	COLAYORI, SE	65	CROSSLEY II, DA	47, 115
CHEDIACK, JG	120, 121	COLEMAN, AT	86	CRUZ, V	97
CHEEK, AO	103	COLLAR, DC	98, 106	CUI, J	120
CHEN, J	87, 132	COLLIN, R	26	CULIAT, CT	93
CHEN, M	34, 135	COMBES, SA	112	CULLEN, MA	63
CHEN, W-J	71	CONDON, CH	135	CUMMINGS, ME	36
CHEN, Y	34	CONE, E	133	CUNNINGHAM, CB	109, 132, 138
CHENG, B	37	CONEJO, MS	46	CURET, OM	62
CHENG, Y	123	CONNELLY, SJ	41, 58	CURILE, JP	36
CHENOWETH, SF	135	CONNER, WE	63	CURRY, RL	116
CHERR, GN	125	CONNERS, M	80	CURTIN, AJ	134
CHESLER, EJ	93	CONOVER, DO	69, 73, 97	CURTIS, DL	121
CHESTER, EM	61	CONTRERAS, HL	54	CUTTLER, A	44
		COOK, M	49		

-D-	DHINOJWALA, A.....	70	DZIRLO-AYVAZ, M.....	123
D'COTTA, H.....	DI PALMA, F.....	93, 128	-E-	
DABIRI, J.....	DIAL, KP.....	68, 133	EAMES, BF.....	77
DACOSTA, JM.....	DIAMANDUROS, AW.....	138	EARLEY, RL.....	110, 111
DAHNIEL, S.....	DIAMOND, SE.....	140	EARTHMAN, J.....	92
DALEN, L.....	DIAZ, Y.....	71	ECAY, TW.....	43, 125, 138
DALEY, MA.....	DICK, MH.....	101	ECHEVERRY-GALVIS, MA.....	39
DALTON, BE.....	DICKENS, MJ.....	34, 126	ECKARDT, M.....	82
DANFORTH, BN.....	DICKINSON, BT.....	72	ECKART, L.....	112
DANIEL, S.....	DICKINSON, M.....	37, 113	ECKERD, MS.....	41
DANIEL, TL.....	DICKINSON, MH.....	68, 72	EDGELL, TC.....	80
DANLEY, PD.....	DICKMAN, BD.....	72	EDWARDS, SL.....	138, 139
DANOS, N.....	DICKMAN, DB.....	64	EDWARDS, SV.....	82, 103
DANTZER, R.....	DICKSON, J.....	65	EGGER, B.....	101
DAOUD, A.....	DICKSON, W.....	37, 113	EHRHART, L.....	116
DAPPEN, N.....	DICKSON, WB.....	68, 72	EILERS, S.....	116
DAS, S.....	DILLAMAN, R.....	77	EISENMANN, JC.....	67
DAVID, B.....	DILLY, GF.....	89	EITING, TP.....	64
DAVIDOWITZ, G.....	DING, Z.....	47	ELDERBROCK, EK.....	117
DAVIDSON, B.....	DINGEMANSE, NJ.....	108	ELEKONICH, MM.....	112
DAVIDSON, E.....	DIONNE, M.....	87, 88	ELIAS, D.....	57
DAVIDSON, KGV.....	DIRKS, JH.....	56	ELLERBY, DJ.....	80, 117, 130
DAVIDSON, LA.....	DIXON, E.....	125	ELLERS, O.....	107, 137
DAVIS, G.....	DLUGOSZ, EM.....	73	ELLINGTON, WR.....	46
DAVIS, GK.....	DOHERTY, AH.....	88	ELLIOTT, GRD.....	62
DAVIS, JE.....	DOHM, MR.....	115	ELLIS, IR.....	48
DAVIS, JM.....	DOMBROSKI, DE.....	29	ELLISON, JA.....	121
DAVIS, JS.....	DOMENICI, P.....	65	ELNITSKY, MA.....	88
DAVIS, M.....	DOMMER, DH.....	109	ELSER, J.....	49
DAVIS-BERG, EC.....	DONALDSON, J.....	109	ELVIN, C.....	92
DAWSON, MM.....	DONLEY, JM.....	43, 83	ELY, TE.....	44
DAY, S.....	DOOLEY, JK.....	129	EME, J.....	115, 134
DE MIRANDA JR, MA.....	DOORLY, N.....	50	EMERA, D.....	120
DE SCHEPPER, N.....	DORGAN, KM.....	50, 64	EMME, SA.....	32, 60
DEAN, M.....	DORNBURG, A.....	106	ENG, AE.....	41
DEAN, MN.....	DORNHOFFER, TM.....	47	ENG, CM.....	100
DEARING, MD.....	DORоба, CK.....	38	ENG, KJ.....	80
DEAROLF, JL.....	DORSEY, JP.....	69	ENGEL, S.....	137
DEATON, LE.....	DOUBE, M.....	118	ENTZ, JE.....	122
DEBAN, SM.....	DOUGLASS, JK.....	87	ENTZ, JW.....	117
DEBLASIO, H.....	DOWNER, AN.....	121	EPEL, D.....	123
DECHOW, PC.....	DREA, CM.....	64	ERICKSON, G.....	104
DECONINCK, A.....	DREBITKO, H.....	50	ERICKSON, GM.....	104
DEFUR, PL.....	DUBANSKY, BD.....	109	ERICKSON, PA.....	43, 83
DEMAINTENON, MJ.....	DUDA, K.....	44	ERICKSON, SM.....	62
DEMAS, GE.....	DUDEK, DM.....	92	ERNEST, R.....	116
DEMES, B.....	DUDLEY, R.....	54, 132, 143	ESPINAL, NA.....	130
DENARDO, DF.....	DUDYCHA, JL.....	80	ESPINOZA, NR.....	118
DENG, X.....	DUFFY, TA.....	69	ESPOSITO, C.....	66
DENLINGER, DL.....	DUMAN, J.....	71, 89	ESTES LAYTON, J.....	116
DENNY, MW.....	DUMONT, B.....	57	ESTES, AM.....	36
DEPAOLO, C.....	DUMONT, ER.....	26, 27, 43, 64, 104, 132	ESTES, JA.....	97
DEPEW, TA.....	DUMSDAY, G.....	92	EUBANKS, HB.....	50
DERRICKSON, EM.....	DUNBAR, MB.....	88	EVANGELISTA, DJ.....	107
DESCAMPS, E.....	DUNCAN, CA.....	44	EVANS, DH.....	139
DESROCHERS, DW.....	DUNHAM, A.....	108	EWOLDT, RH.....	92
DEVADI, R.....	DUNKIN, RC.....	96		
DEVICHE, P.....	DUNLAP, KD.....	82	-F-	
DEVRIES, AC.....	DURANT, SE.....	30	FAN, J.....	126
DEVRIES, MS.....	DURICA, DS.....	76, 136	FANGUE, NA.....	142
DEVRIES, S.....	DWYER, LA.....	80	FAUGNO, A.....	72
DEWAR, EW.....	DZIALOWSKI, EM.....	69, 78	FAULKES, Z.....	85, 109
DHABHAR, FS.....				

FEARS, BC	74	FRANSSSEN, RA	36	GETSINGER, PW	138
FEDER, JL	109, 110	FRASER, SE	85	GIAMBRONE, TP	121
FEDERLE, W	56	FRATZL, P	92	GIBB, AC	42, 43, 104, 108
FEDINA, T	81	FREAMAT, M	36, 59	GIBBS, AG	49
FEILICH, KL	80, 130	FREDENSBORG, BL	75	GIBBS, HL	108
FEITL, KE	50, 132	FREDERICH, M	87, 88	GIBBS, VK	35
FELLOWS, SR	130	FREDERICK, J	121	GIBSON, EM	95
FENG, AS	22	FREMONT, RT	37	GIDMARK, NJ	78, 104
FENN, AM	126, 134	FRENCH, SS	61, 94	GIGNAC, PM	104
FENSTERMACHER, K	68	FRICK, MG	81, 125	GILLAM, EH	25
FENTON, MB	35	FRIED, B	89	GILLEN, CM	84, 121
FERKIN, MH	64	FRIES, A	108	GILLIS, B	99
FERNANDEZ, MJ	143	FRIESEN, CR	47	GILLIS, GB	139
FERRY-GRAHAM, L	42, 65, 66, 104	FRISBIE, J	40	GILMOUR, KM	30
FEWELL, JH	108	FROST, PC	122	GINTER, CC	79
FIELDS, PA	36, 76, 88	FRUTIGER, AE	117	GINTOF, CM	141
FIELMAN, KT	75	FRY, S	37	GIOVANNOTTI, M	33
FILL, JF	135	FUDGE, DS	92	GIRGUIS, PR	89, 96
FILORAMO, NI	82	FUJIMURA, K	127	GIRIBET, G	32
FINGERUT, J	72	FULL, RJ	37, 65, 114	GLASSMAN, LW	126
FINK-GREMMELS, J	55	FULLER, CA	136	GLAZER, L	111, 135
FINKLER, MS	49	FUREY, N	88	GLEASON, RE	92
FINNERTY, JR	77, 87	FURIMSKY, M	115	GLENNON, KL	109
FINSTAD, B	23			GNIRKE, MH	109
FIRTH, BT	117	-G-		GOCHFELD, DJ	28
FISCHER-DROWOS, S	115	GABELA, A	142	GODBOUT, JP	94
FISH, FE	65, 79	GAEDE, G	24	GODIN, T	64
FLAMMANG, BE	65	GAFNI, O	111	GOLDIZEN, A	58
FLAUTO, ML	117	GAINEY, LF, JR	119	GOLDMAN, DI	114, 143
FLETCHER, QE	96	GALIBERT, F	71	GOLINSKI, A	69
FLETCHER, RJ	111	GALINDO, G	47	GOLLER, F	43, 78
FLINT, CD	109	GALINDO, J	47	GOLUB, JL	25
FLIPPIN, JL	110	GALT, NJ	44, 135	GOLUS, JM	77
FLORANT, GL	44, 71, 134, 135	GALVEZ, F	109	GOMES-SOLECKI, M	27, 61
FOBBS, AJ	118	GAM, AE	125	GOMEZ-MESTRE, I	120, 137
FOKIDIS, HB	30, 50, 86	GANNON, DP	28	GONYER, KM	124
FOLEY, WJ	56	GANNON, JG	28	GONZALES, VA	75
FOLTZ, SL	30, 103	GAO, S	75	GOODMAN, MB	22
FONDON III, JW	142	GAO, Y	84	GOODMAN, RM	124
FONDRK, MK	83	GARB, JE	58	GOPFERT, MC	22
FONTAINE, E	79	GARCIA, NW	128	GORB, EV	127
FORBEY, J	99	GARCIA, S	92	GORB, S	70, 92
FORBUSH, B	85	GARDINER, JM	109	GORB, SN	54, 92, 127
FORD, CF	87	GARLAND, JR, T	67, 73, 81, 92, 133	GORDON, DP	101
FORD, LS	40	GASSER, BA	45	GORDON, MS	72
FORD, S	42	GATESY, SM	68	GORDON, NM	127
FORMBY, KJ	74	GATICA SOSA, C	121	GORMAN, C	36
FORSTER, CA	98	GAUDRY, Q	69	GOSLINE, J	117
FORT, TJ	47	GAULKE, CA	40	GOSLINE, JM	78, 92
FORTUNE, ES	80	GEBCZYNSKI, AK	73	GOTTLIEB, J	66
FORWARD, JR, RB	68	GEDDIS, MS	124	GOVINDARAJAN, AF	122
FOSHA, KR	78	GEHMAN, AM	141	GOYMANN, W	24, 61
FOSTER, SA	25	GEORGE, M	69, 70	GRABHERR, M	93
FOURNIER, S	116	GEORGE, NT	35	GRABOWSKY, G	112
FOX, AM	32	GEORGI, JA	65	GRACEY, AY	128
FOX, JL	62	GERHARDT, C	74	GRAHAM, SP	121
FOX, SF	113	GERHARDT, HC	74, 81, 113	GRANT, B	108
FRAIRE-ZAMORA, JJ	101	GERKEN, S	40, 45	GRASSI, K	82
FRANCO, LM	39	GERMAN, RZ	141	GRAY, EM	87, 110
FRANK, HK	68	GERRY, SP	42, 43	GREEN, J	43
FRANKLIN, CE	108	GERSON, AR	47	GREEN, MH	79
FRANSON, JC	128	GERSTNER, GE	42	GREEN, S	81
FRANSSSEN, CL	36			GREENERG, MJ	119

GREENLEE, KJ	50, 121, 122	HANSEN, U	77	HILL, EA	109
GREIVES, TJ	61, 128	HAO, S	49	HILL, GE	39, 86, 103, 113
GRIDI-PAPP, M	22	HARDY, DL	27	HILL, J	85
GRIFFITH, SC	103	HARJUNMAA, E	103	HILLENIUS, WJ	117
GRIM, JM	96	HARLEY, CDG	29	HINE, K	26
GRIM, T	45	HARMON, LJ	63, 98, 102	HINTERWIRTH, AJ	45, 64
GRIMALDI, D	54	HARMON, S	122	HIROKAWA, J	118
GRIZANTE, MB	33	HARN, LJ	123	HITCHCOCK, AC	118, 119, 139
GROGAN, ED	65, 102, 106	HARPER, CJ	31	HITT, LR	69, 138
GROSENBAUGH, MA	72	HARRIS, HW	49	HITTE, C	71
GROSS, P	49	HARRISON, J	49	HJELMFELT, SH	47
GROSS, TN	44	HARRISON, JF	50, 54, 87, 96, 108, 117	HO, JM	39
GROSSE, IR	132	HARRISON, JS	76, 120	HO, J-S	23
GROVE, TJ	47	HART, MW	60	HO, RK	79
GRUNBAUM, D	29	HARTEL, KE	40	HO, WW	74
GRUNERT, B	74	HARTKE, TR	39	HOANG, LK	115
GUCKENHEIMER, JM	37	HARTLAUB, BA	121	HOBBS, NJ	64
GUERRERO-FERREIRA, R	36	HARTMANN, MJZ	22	HOCH, JM	137
GUGLIELMO, CG	35, 47, 130	HARTZELL, A	122	HOCHBERG, R	40, 78
GUILLETTE, LJ	115	HARVEY, AL	56	HODIN, J	87, 123
GUNDERSON, JA	57	HAU, M	24, 61, 95	HOEG, JT	59
GUTIERREZ, A	118	HAUBER, ME	45	HOEKSTRA, HE	68
GUTIERREZ, J	80	HAUGHEY, MD	81	HOEKSTRA, LA	99
GUTMANN, AK	107	HAUSSMANN, MF	43, 123	HOFER, SC	35
GUTOWSKI, J	129	HAVENS, SB	142	HOFFMAN, EA	88, 75
GUYON, R	71	HAWKE, TJ	100	HOFFMAN, GG	46
GUZMAN, A	42	HAYASHI, CY	58	HOFFMAN, JM	32, 60
GWALTHNEY, JW	134	HAYASHI, M	80	HOFMANN, CM	63
		HAYDEN, TJ	103	HOFMANN, G	55
-H-		HAYNES, VN	122	HOFMANN, GE	142
HAAK, DC	27	HAYWARD, LNM	92	HOFMANN, HA	93, 110, 128
HABDAS, P	72	HAZARD, LC	116	HOFMEISTER, E	128
HABEGGER, ML	104	HEALY, JE	71	HOHMANN, MG	122
HABER, A	38	HEDRICK, TL	37	HOLBROOK, CT	108
HACISKI, SI	82	HEIDEMAN, PD	95	HOLDENER, JA	117
HADFIELD, MG	29, 40, 77, 101	HEINRICH, EC	117	HOLEKAMP, KE	104
HAENEL, GJ	24	HEINRICH, J	25	HOLGERSSON, MCN	80
HAHN, DA	110	HEINRICH, J	25	HOLLIDAY, CM	82
HAHN, TP	30, 39, 74, 95, 103	HELBING, CC	44	HOLM, C	49
HAIGLER, B	41	HELM, B	61, 95, 108, 135	HOLST, JC	23
HALANYCH, KM	32, 58, 60, 98	HEMLEPP, L	119	HICKMAN, CS	32
HALE, ME	37, 66, 79	HENNINGSEN, J	139, 143	HOLT, GJ	36
HALEY, S	88	HENRY, RP	49, 87	HOLZMAN, RA	72, 106, 112
HALL, H	81	HEPP, GR	30	HOMBERGER, DG	57, 78
HALL, MD	133	HERBERT, JF	43	HONARVAR, S	108
HALPERN, M	62	HERMAN, R	143	HOOD, WR	26, 39, 125
HAM, K	78	HERNANDEZ, JP	42, 43, 77, 78, 104, 106, 122, 134	HOPKINS, BA	78
HAMILTON, C	136	HERREL, A	31, 56, 57, 68, 70, 112, 138, 142	HOPKINS, BC	30
HAMILTON, H	40	HERRING, SW	31	HOPKINS, MJ	102
HAMILTON, RA	51	HERRKIND, WF	25	HOPKINS, PM	76, 136
HAMLET, CL	57	HESTER, F	27	HOPKINS, WA	24, 30
HAMMOND, KA	67	HEUCH, PA	23	HORNBACK, DJ	32, 120
HAMMOND, LM	142	HEULIN, B	138	HORNER, AM	139
HAMMOUDI, AH	84	HEYLAND, A	87, 99	HORROCKS, N	26
HAMPTON, PM	31, 84, 121	HICE, LA	73	HORROCKS, NPC	61
HAND, SC	48, 83	HICKS, JW	55, 115, 134	HORTON, JM	78
HANDRIGAN, GR	140	HIEBERT, SM	46, 112, 129	HOSHIZAKI, DK	49
HANES, SD	127	HIERONYMUS, TL	57	HOSODA, N	127
HANKE, W	25, 79	HIGGINS, T	107, 108	HOSOI, AE	92
HANKEN, J	40	HIGHAM, TE	100, 139	HOSSEIN, I	78
HANNON, RM	67	HILBISH, TJ	32	HOUCK, LD	74
HANSEN, E	118			HOUGEN, HY	129
HANSEN, H	118			HOVE, MC	32, 120

HOWARD, JL	121	JACKSON, BE	133	KANG, JK	119
HOWE, AA	32	JACKSON, FR	97	KANG, L	49
HOWLE, LE	79	JACOBS, MW	34	KAPPER, MA	49
HOYE, BJ	73	JANANANDA, BG	120	KAPRAUN, DF	77
HRANITZ, JM	120	JANKOWSKI, MD	128	KARASOV, WH	120, 121, 140
HSIEH, T	44	JANOSIK, AM	60	KARATAYEV, AY	59
HSU, Y	111	JANSSSEN, J	72	KARAVITAKI, D	22
HU, Z	113	JAVONILLO, R	26	KARLSON, R	28
HUANG, L	46	JAWOR, J	110	KARSNER, S	36
HUANG, Q	37	JAYNE, BC	51, 105	KARSTEN, KB	113
HUANG, Y	77, 101	JEAN-HERVE, L	35	KATAYAMA, H	111
HUANG-VOSS, C	123	JEFIMOW, M	134	KATZ, LA	26
HUBB, AJ	50	JENNINGS, DE	28	KAUFMAN, L	77, 123
HUBEL, TY	105, 106	JENNIONS, MD	39	KAVANAGH, KD	32
HUBER, DR	104	JENSEN, BH	125	KAWAGUCHI, S	34
HUDAK, CA	121	JENSEN, J	135	KAWANO, SM	26, 82
HUETER, RE	109	JENSEN, ML	25	KAWARASAKI, Y	129
HUFFMAN, MA	56	JERNVALL, J	32, 103	KEACH, S	49
HUGGETT, M	101	JIANG, H	72	KEATING, JH	35
HUGGINS, T	48	JIMENEZ, AG	77, 100	KEENEY, BK	67, 100
HUGHEY, MC	25	JIMENEZ, L	129	KEEVER, CC	60
HULSEY, CD	93, 106	JIMENEZ, S	85	KELBER, A	109
HUMFELD, S	74	JOCOB, MW	135	KELLEY, DB	74
HUMFELD, SC	74	JOHN-ALDER, HB	24, 44, 69	KELLEY, KW	94
HUMPHRIES, MM	96, 134	JOHNSEN, S	58, 70, 73, 113	KELLY, CD	39
HUMPHRIES, S	29	JOHNSON, AS	107, 137	KELSTRUP, HCP	141
HUNT VON HERBING, I	96	JOHNSON, C	115, 116	KEMP, AD	78
HUNTER, RL	32	JOHNSON, JB	76	KEMPF, SC	48, 127
HUNTER-SMITH, S	46	JOHNSON, JI	118	KENISON, EK	124
HUPASKO, JM	40	JOHNSON, N	99	KEOGH, MJ	136
HURLEY, W	96	JOHNSON, SD	107	KERFOOT, JR	112
HUSAK, JF	24, 70	JOHNSON, SE	76	KERKHOFF, AJ	83
HUSKEY, S	106	JOHNSON, SL	113	KERN, BS	62
HUSSAIN, FN	126, 127	JOHNSON, SR	115	KERN, MD	117
HUTCHINSON, JR	118	JOHNSTON, GH	50	KERR, B	27
HUTCHINSON, KA	127	JOHNSTONE III, WM	139	KERR, P	71
HUTCHISON, NL	120	JOKIEL, PL	28	KESZEI, A	56
HUYGHE, K	70	JONES, AJ	46	KETTERSON, ED	24, 61, 70, 76
HUYS, R	23	JONES, JH	73	KHAMBATY, M	125
HYDE, T	137	JONES, SJ	60	KHAN, IA	36
HYER, MM	36	JONG, P	45	KHUC, K	134
HYNDMAN, KA	96, 138, 139	JOO, YJ	130	KIDD, CE	128
		JORDAN, LK	72	KIDD, MR	110, 128
-I-		JORGENSEN, ME	142	KIER, WM	73
IDE, C	57	JORGENSEN, SJ	137	KILBOURNE, BM	134
IDJADI, J	28	JOST, JA	88	KIM, H-W	47
IGIC, B	45	JOVONOVICH, J	23	KIM, M	92
IHLE, KE	83	JUMARS, PA	64	KIM, S	111
IKNEVICIUS, AR	139	JURI AYUB, M	121	KIM, TW	111
IMAI, H	127	JURY, SH	49	KIMBERLY, DJ	85
IMAN, JD	47			KIMOKEO, BK	40
IMAZU, M	66	-K-		KIN, K	33
IRIARTE, J	105	KAATZ, IM	64	KING, AA	68, 99
IRIARTE-DIAZ, J	67, 105	KACENAS, SE	97	KING, HM	66, 79
IRSCHICK, DJ	24, 67, 139, 143	KAHAKUI, DK	112	KING, R	34
IRWIN, JT	40, 47, 71,	KAISER, A	50, 54, 96	KINGSOLVER, JG	140
ISAAK, S	50	KAJI, T	82	KINSEY, ST	77, 100
ITAGAKI, H	83, 117	KAJIURA, SM	62, 72, 79, 85	KIRKPATRICK, GJ	28
IVANINA, AV	116	KAMILAR, J	133	KIRKTON, SD	50
IYENGAR, EV	124, 127	KAMYKOWSKI, D	82	KITAYAMA, K	74
-J-		KANATOUS, SB	35, 84, 100	KITTILSON, JD	46, 136
JACKMAN, WR	63	KANE, EA	42	KIVELL, TL	119
JACKSON, AL	49	KANG, E	87	KLASING, KC	73

KLEIN, TA	125	KUROIWA, A	127	LEMASTER, MP	74
KLEY, N	82	KUSAKABE, R	33	LENIHAN, P	81
KLIMLEY, AP	137	KUSEMA, E	44	LENKOWSKI, JR	101
KLINE, RJ	36	KUSHNER, SA	42	LENTINK, D	72, 79
KLOHR, RC	48	KWASEK, KM	116	LEONG, PL	92
KLOK, CJ	50, 96	KYNARD, BE	137	LESLIE, G	82
KLUG, P	135			LESSIOS, HA	45
KNAPP, R	86	-L-		LETTIERI, L	28
KNAPP, WE	77	LACAZE, M	50	LEUNG, KJ	140
KNUTIE, SA	120	LADO-INSUA, T	59	LEVEY, DJ	27
KOBAYASHI, N	127	LADUC, TJ	137	LEWIS, S	81, 133, 137
KOBEY, RL	49	LADURNER, P	101	LEYS, SP	41, 54, 62, 122
KOCHER, TD	70, 93, 120	LAFLEUR, N	97	LEYSEN, H	43, 112
KOCOT, KM	98	LAGARES, E	48	LI, C	114
KODITSCHKE, DE	114	LAI, JCY	129	LIANG, H	134
KOEHL, MAR	29, 65, 72	LAILAW, DH	132	LICORISH, R	48
KOETHER, M	117	LAILVAUX, SP	133	LIDGARD, S	101
KOHL, F	71, 140	LAKE, DT	81	LIEBERMAN, DE	114, 133
KOHLSDORF, T	33, 132	LAMBERT, KG	36	LIEBL, AL	50, 128
KOLBASOV, GA	23	LAMMERS, AR	105	LIEW, C-W	50
KOMAN, JS	119	LANDBERG, T	28, 80	LIGHTON, JRB	96
KOMSUOGLU, H	114	LANDER, ES	93	LIGNOT, J-H	121, 141
KONARZEWSKI, M	73	LANDRY, SO	60	LIGON, DB	86
KONOW, NZ	104, 112, 141	LANE, EB	92	LIGON, RA	113
KOPLOVITZ, G	29	LANGKILDE, T	68	LIM, N	67
KORINE, C	125	LANGLOIS, L	96	LIMA, SL	39
KOSKI, M	77	LANGSTON, J	78	LIMA, TG	32
KOSTELANETZ, SA	126	LANGSTON, MA	93	LIN, A	31
KOSUGI, T	36	LARSON, PM	81	LIN, H	117
KOT, BW	31	LATTIN, C	63	LINDBERG, DR	97
KOUBA, A	141	LAUDER, GV	65, 66, 79, 85	LINDBLAD-TOH, K	93, 128
KOZAK, KH	32	LAUFER, H	34, 135	LINDENFLORS, P	92
KRAJNIAK, KG	48	LAVALLI, KL	25	LINDSAY, SM	41
KRAMER, EM	119	LAWLER, RR	75	LINVILLE, BJ	43
KRANENBARG, S	79	LAWRENCE, AL	35	LIN-YE, A	124
KRANS, JL	85	LAWRENCE, JM	35	LIPS, KR	29
KRATOCHVIL, L	69	LE CAM, S	141	LITMAN, GW	55
KRATOCHVILOVA, H	139	LEA, JM	123	LITVAITIS, MK	40, 42
KREFT, JK	72	LEARY, CJ	24, 49	LLEWELLYN-HUGHES, J	23
KREGTING, LJ	29	LEASE, HM	96	LOCKE, BR	100
KRIEGSFELD, LJ	61, 95	LEAVITT, KD	98	LOCKHART, L	86, 119
KRIENGWATANA, BP	86, 125	LEBERG, PL	27	LODGE, DM	109
KRISKA, T	96	LEBLANC, AM	125	LOGAN, ML	40, 81
KRISTAN, D	122	LEDON-RETTIG, CC	49	LOH, YHE	63, 71, 128
KRISTAN, JR, WB	69	LEE JR, RE	83, 85	LONDRVILLE, RL	119
KROCHMAL, AR	137	LEE	129	LONG, JH	50, 65, 118
KRUMM, JL	122	LEE, DV	107, 108	LONG, JH, JR	79
KRZYZAK, M	82	LEE, EM	77	LONGORIA, A	75
KUBICKA, L	69	LEE, J	114	LOOMIS, SH	129
KUCHEL, L	123	LEE, J-Y	48	LOPEZ, P	45
KUEHNEL, S	26	LEE, K	76	LOPEZ-DUARTE, PC	123, 141
KUHLMAN, JR	94, 121	LEE, RE	88, 130	LORENZ, MW	24
KULHEIM, C	56	LEE, S	142	LOSIN, N	27
KULKARNI, SB	120	LEE, TN	71	LOSOS, J	68, 138
KULLEPERUMA, K	129	LEE, WK	50	LOSOS, JB	33, 56, 68, 102
KUMARTILAKE, J	55	LEE, W-K	57	LOUDON, SJ	45
KUMBUREGAMA, NS	41	LEEUVENBURGH, C	96	LOUNSBERRY, Z	126
KUNZ, TH	26, 97, 106, 121, 126, 130	LEGAC, P	65	LOURIE, S	40
KUPFER, A	26	LEI, F	30, 103	LOVERN, MB	86
KUPFERBERG, S	59	LEIGH, C	117	LOZANO, J	143
KURATANI, S	33, 98, 110	LEININGER, EC	74	LUND, R	102, 106
KUROCHKIN, I	116	LEINWAND, LA	100	LUNDRIGAN, BL	104
KUROCHKIN, IO	116	LEMA, SC	49	LUTTERSCHMIDT, DI	60, 86

LYNCH, KS.....	36	MARSHALL, J.....	70	MCCUE, MD.....	46, 102
LYNCH, M.....	116	MARSHALL, KE.....	80	MCCUNE, AR.....	71
LYNCH, ME.....	132	MARSHALL, NJ.....	128	MCDERMOTT, JJ.....	66
LYNCH, VJ.....	59	MARSHALL, SL.....	83	MCDONALD, AA.....	76
LYNN, SE.....	34, 117, 121, 126	MARTIN, CH.....	104	MCDONALD, MR.....	41, 75
LYON, B.....	113	MARTIN, ER.....	116	MCELROY, EJ.....	37, 107, 118
LYONS, PJ.....	137	MARTIN, JT.....	50	MCFALL-NGAI, MN.....	58
LYONS, R.....	92	MARTIN, KL.....	29	MCFARLANE, WJ.....	141
		MARTIN, KMF.....	117	MCGAW, IJ.....	121
-M-		MARTIN, LB.....	50, 94, 121, 128	MCGEE, MD.....	65
MA, H.....	23	MARTIN, LM.....	38	MCGEE, MR.....	124
MABRY, KE.....	94	MARTIN, PR.....	30	MCGEE-MOORE, AC.....	62, 128
MACDOUGALL-SHACKLETON, B.....	30	MARTIN, RA.....	27	MCGILL, RT.....	81
MACDOUGALL-SHACKLETON, EA.....	86, 125	MARTIN, SB.....	27	MCGILLIVRAY, D.....	43
MACDOUGALL-SHACKLETON, SA.....	86, 95, 125	MARTIN, VJ.....	41	MCGINN, NA.....	125
MACDOWELL, AA.....	134	MARTINDALE, MQ.....	58, 103	MCGINNIS, L.....	27
MACESIC, LJ.....	79	MARTINEZ, JA.....	127	MCGOVERN, TM.....	32, 60
MACIVER, MA.....	22, 62	MARTINEZ, R.....	82	MCGOWAN, CP.....	107
MACMILLAN, HA.....	129	MARTINEZ, E.....	81	MCGRAW, KJ.....	113
MADIN, LP.....	117, 122	MARTINS, EP.....	39, 41, 46	MCGUIRE, LP.....	35
MAGIDA, J.....	100	MARTIN-SMITH, K.....	40	MCGUIRE, NL.....	86, 95
MAGLIA, AM.....	74, 142	MARTYKA, R.....	133	MCHENRY, MJ.....	22, 42, 50, 132
MAGNANOU, E.....	56	MASON, A.....	57	MCHUGH, D.....	78
MAHADEVAN, L.....	72, 119, 134	MASON, C.....	116	MCINTYRE, AM.....	62, 128
MAHLER, DL.....	33, 68, 102	MASON, RT.....	47, 60, 62, 74	MCINTYRE, J.....	71
MAHLER, L.....	68	MASON, ZD.....	92	MCKECHNIE, AE.....	108
MAHON, AR.....	60, 109	MASONJONES, HD.....	41	MCKINLEY, GH.....	92
MAIA, A.....	65, 79	MASTITSKY, S.....	59	MCLAUGHLIN, KM.....	101
MAIE, T.....	26, 56, 82	MATEER, E.....	123	MCLELLAN, WA.....	35
MAIN, RP.....	132	MATOZEL, M.....	50	MCMILLAN, DM.....	67
MAKI, J.....	118	MATSON, KD.....	26, 61, 121	MCNABB, FMA.....	34
MAKOWSKY, R.....	129	MATSUDA, Y.....	127	MCNAIR, J.....	108
MALABARBA, LR.....	26	MATTEI, JH.....	108	MCRAE, LK.....	45
MALADEN, RD.....	143	MATTHEWS II, KL.....	78	MCWILLIAMS, SR.....	96, 97
MALAVASI, S.....	128	MATZ, MV.....	70	MEADE, A.....	102
MALENKE, J.....	56	MAUCELI, E.....	93	MEDDLE, SL.....	34, 60
MALISCH, JL.....	30	MAUCK, RA.....	43, 83, 121, 123	MEDINA, JM.....	109
MALONE, S.....	105, 118	MAUTE, K.....	103	MEEK, TH.....	67, 73
MANAHAN, DT.....	36	MAUTZ, WJ.....	115	MEHTA, RS.....	106
MANISCALCO, JM.....	136	MAWATARI, SF.....	101	MELVILLE, B.....	42
MANIVANH, RV.....	46	MAXSON, KA.....	78	MENAKER, M.....	44
MANLY, KF.....	93	MAY, S.....	81	MENDON, MT.....	125
MANOR, R.....	111	MAYBERRY, JK.....	84	MENDONCA, MT.....	86, 97, 121, 122
MANZON, LA.....	140	MAYDEN, RL.....	71	MENDOZA BLANCO, MA.....	117
MANZON, RG.....	44, 140	MAZZILLO, MJ.....	127	MENG, Y.....	34
MARA, KR.....	57	MCALISTER, JS.....	142	MENON, J.....	77
MARAVILLA, EJ.....	104	MCBRAYER, LD.....	42, 83	MENZE, MA.....	48, 83
MARCOT, JD.....	82, 99	MCCALL, BT.....	98	MEREDITH, AM.....	48
MARCUCCI, M.....	82	MCCARTNEY, MA.....	32	MERLIE, SA.....	101, 124
MARDER, E.....	99	MCCAULEY, DW.....	33, 77	MERLIN, C.....	54
MARINELLI, K.....	35	MCCLARY, M.....	40	MEROW, C.....	97
MARION, K.....	86	MCCLINTOCK, JB.....	25, 29, 41, 75	MERRILL, L.....	30
MARKHAM, J.....	59	MCCLINTOCK, TS.....	48	MERRY, JW.....	101
MARKLEY, JS.....	78	MCCLURE, M.....	29	MERZ, RA.....	126, 127
MARKO, PB.....	32, 60, 98	MCCONAUGHA, J.....	125	MESTRINARO, M.....	72
MARKS, C.....	33, 50	MCCORKLE, AM.....	129	METZGER, KA.....	31
MARLEY, PH.....	117, 125	MCCORMICK, SD.....	24, 49, 136	MEYERS, RA.....	43
MARLOW, HQ.....	58, 103	MCCORMICK, SK.....	44	MEZENTSEVA, NV.....	55
MARSH, RL.....	80, 118, 119, 139	MCCOY, ED.....	32	MICHAL, CA.....	92
MARSHALL, CD.....	42, 79	MCCOY, KA.....	115	MICHELSON, AV.....	33
MARSHALL, H.....	115	MCCOY, MW.....	124, 141	MIDDLETON, KM.....	80, 105
		MCCRACKEN, GF.....	25, 97, 121	MIKA, TL.....	115
		MCCUAIG, J.....	92	MIKLASZ, KA.....	34

MILLER, CW.....	111	MOSS, AL.....	42, 125	NIJHOUT, HF.....	87
MILLER, DL.....	115	MOSS, S.....	82	NISHIGUCHI, MK.....	36, 45, 80
MILLER, EA.....	35	MOSTAFIZ, W.....	78	NISHIKAWA, KC.....	43
MILLER, JP.....	65	MOSTMAN-LIWANAG, HE.....	67	NISHIZAKI, MT.....	29
MILLER, L.....	57, 113	MOTOKAWA, T.....	107	NOH, S.....	113
MILLER, LA.....	34, 57	MOTTA, PJ.....	31, 42, 57, 104, 109	NORENBURG, JL.....	98
MILLER, LP.....	29	MOUNTCASTLE, AM.....	37	NORMAN, G.....	94
MILLER, P.....	123	MUIR, TJ.....	83	NORTHCUTT, MJ.....	84
MILLER, TL.....	66	MUKAI, M.....	85, 110	NOWAK, EM.....	27
MILLER, WA.....	87	MUKHERJEE, S.....	71	NOYES, N.....	139
MILLS-NOVOA, M.....	98	MULLER, E.....	28	NUNEZ, CMV.....	116
MINEO, PM.....	71	MULLER, UK.....	79	NUSSEY, DH.....	95
MINER, BE.....	27	MULVANY, SL.....	42	NYHOLM, SV.....	96
MINER, BG.....	28, 80	MULVEY, BB.....	25		
MING, QL.....	81	MUNOZ, MM.....	68, 138	-O-	
MINIUM, S.....	83	MUNOZ-GARCIA, A.....	43, 44, 67	O'BRIEN, DM.....	71
MIRANDA, RA.....	69	MUNOZ-ROMO, M.....	26	O'BRIEN, JJ.....	66
MISERCOLA, B.....	125	MUNRO, H.....	86, 119	O'BRIEN, S.....	78, 85
MITCHELL, GW.....	43	MURPHY, DW.....	34	O'CONNOR, CM.....	30
MITCHELL, WA.....	134	MURRAY, IW.....	97, 129	O'CONNOR, JL.....	42
MITGUTSCH, C.....	33	MURRAY, JA.....	46, 84	O'CONNOR, MP.....	108
MIYAGI, R.....	127	MURRAY, MM.....	79	O'CONNOR, PM.....	67
MIZOIRI, S.....	127	MURRAY, S.....	48	O'DONNELL, MJ.....	142
MIZRAHY, O.....	49	MUSCEDERE, ML.....	99	O'DWYER, TW.....	73
MODRALL, JT.....	35	MUSHINSKY, HR.....	32	O'LOGHLEN, A.....	30
MOELLER, OS.....	23	MUSTA, EJ.....	116	O'MALLEY, PW.....	75
MOERLAND, TS.....	25	MWAIKO, S.....	127	O'NEAL, DM.....	61
MONETTE, MY.....	85	MYERS, J.....	44	O'NEILL, MW.....	43
MONGEAU, JM.....	65	MYGRANT, MS.....	49	O'QUIN, CT.....	134
MONROY, JA.....	43	MYKLES, DL.....	47, 76, 100, 111	O'QUIN, KE.....	70
MONSON, E.....	45			O'ROURKE, M.....	88
MONSON, SM.....	85	-N-		OAKLEY, TH.....	58, 78
MONTEALEGRE-Z, F.....	57	NADELSON, LS.....	123	OBBERG, F.....	77
MONTELLO, M.....	76	NAGAHAMA, Y.....	120	OCOBOCK, CJ.....	118
MONTGOMERY, CE.....	40, 81	NAGENGAST, AA.....	115	OCONNOR, M.....	108
MOOI, R.....	101, 123	NARINS, PM.....	22	OGUNBAKIN, T.....	78
MOON, BR.....	26, 84	NATHAN, R.....	100	OHMES, LB.....	69
MOORE, AM.....	44	NAUWELAERTS, S.....	105, 118	OKADA, N.....	127
MOORE, FB-G.....	33, 50	NAVA, SS.....	46	OKEKPE, CC.....	86
MOORE, I.....	86, 119	NAVARA, KJ.....	86, 125	OLENIN, S.....	59
MOORE, IT.....	24, 30, 34, 39, 70	NAVAS, CA.....	132	OLIVEIRA, RF.....	24
MOORE, JR.....	39	NEABORE, S.....	82	OLIVER, J.....	58
MOORE, MC.....	50, 94	NEBEKER, CA.....	88, 100	OLIVIER, TJ.....	26
MOORE, MS.....	97, 121	NEFF, BD.....	86	OLSON, JB.....	28
MORAN, AL.....	60, 98, 142	NEFF, M.....	110	OLSON, JR.....	130
MORAN, GF.....	56	NELSON, M.....	48	OLSSON, L.....	26, 33
MORENO, CA.....	105	NELSON, RJ.....	94	ORCHINIK, M.....	86
MORENO, L.....	46	NESTLER, JR.....	48	ORD, TJ.....	64
MORGAN, EF.....	92	NEUBARTH, N.....	79	ORGAN, C.....	102
MORGAN, M.....	82	NEUFELD, CJ.....	80	ORIHUELA, B.....	75
MORGAN, RJ.....	43	NEWEL, MS.....	117	ORR, TJ.....	92
MORGAN, SG.....	28	NEWMAN, AEM.....	86, 125	OSBORN, KJ.....	59
MORGENSTERN, N.....	124	NEWMAN, S.....	55	OSBORN, ML.....	57, 78
MORITZ, S.....	139	NG, PKL.....	129	OSTFELD, RS.....	27
MOROZ, LL.....	99	NGUYEN, CT.....	119	OTA, KG.....	98
MORRILL, M.....	118	NGUYEN, NP.....	57	QUELETTE, JR.....	141
MORRIS, JA.....	118	NGUYEN, TT.....	87	OUFIERO, CE.....	67, 81, 133
MORRIS, RW.....	50, 115	NICASTRO, AJ.....	79	OVERSTREET, RM.....	23
MORSE, DE.....	70	NICHOLS, KS.....	43, 83	OWERKOWICZ, T.....	55, 134
MORSE, MP.....	112	NICHOLS, SA.....	54	OZDEN, O.....	138
MORTENSEN, JL.....	116	NICHOLS, WA.....	80	OZEL, LD.....	124
MOSKALIK, CL.....	49, 120	NICOLAY, CW.....	31	OZOUF-COSTAZ, C.....	71
MOSKAT, C.....	45	NIEHAUS, AC.....	123		

-P-			
PABST, DA	35	PERFITO, N	86, 95
PACE, C	104	PERLMAN, BM	66
PADILLA, DK	59	PERNET, B	45, 78
PAGE, JL	64, 72	PEROTTI, EA	77, 97
PAGE, RE, JR	83	PERRAULT, J	115
PAGEL, M	102	PETANIDOU, T	98, 120
PAIGE, JI	125	PETCHLER, EM	124, 127
PAIG-TRAN, MEW	112	PETERS, JE	36
PAINTER, MS	109	PETERSEN, AM	130
PAITZ, RT	80, 86, 128, 140	PFALLER, JB	104
PAKALA, KP	84, 135	PFEIFFENBERGER, JA	57
PALACIOS, MG	61	PFENNIG, DW	27, 49
PALEN, WP	112	PHAM, LL	123
PALENSKE, NM	69	PHILIP, BN	130
PALUBOK, VI	28	PHILIP, VM	93
PAN, H	143	PHILLIPS, JB	109
PAN, T-CF	83	PHILLIPS, MB	138
PAN, X	34	PHILLIPS, MM	126
PANASUK, BJ	97	PHILLIPS, NE	82
PANESSITI, M	45	PHILLIPS, RD	25
PANKEY, MS	58	PICHA, ME	69, 136
PANTAZATOS, S	124	PIEKARSKI, N	33
PAPAJ, DR	39	PIEN, CL	117
PARFREY, LW	26	PIENAAR, J	68
PARK, SD	87	PIERSMA, T	61
PARKER, C	124	PIERSON, EA	36
PARKER, EL	137	PINSHOW, B	46, 49, 71, 125, 134, 135
PARKER, SD	74	PIRES, A	78
PARKER, TK	137	PIRTLE, TJ	84
PARNELL, NF	63	PIRUN, M	93
PARRIS, MJ	136	PISCITELLI, MA	35
PARRISH, JHA	118	PITTMAN, JT	95
PARSON, JM	79	PITTMAN, QJ	94
PARSONS, JL	141	PLACE, NJ	60
PARSONS, RL	30	PLACHETZKI, DC	58
PATANKAR, NA	22, 62	POCKLINGTON, EM	78
PATEK, S	70	PODOLSKY, RD	97, 141
PATEK, SN	64, 104, 117, 127, 139	PODOS, J	142
PATERSON, BA	85	POKRAS, MA	35
PATIL, YN	83	POLLUX, BJA	81
PATTEN, SB	48	POLNASZEK, T	124
PATTERSON, JP	84	PONTZER, H	118, 133
PATTERSON, SH	30	POORE, AGB	100
PATTI, A	40	POPE, DS	75
PAUL, VJ	99	PORTER WOLFE, H	104
PAVLICEV, M	38	PORTER, M	79, 118
PAYNE, RB	102	PORTER, ME	65
PEARSE, VB	124	PORTER, S	28
PEARSON, LE	84, 100	PORTIS, LM	80
PEATTIE, AM	56	POSTAVA-DAVIGNON, MA	136
PECHENIK, JA	141	POULIOT, A	64
PEEK, MY	68	POWERS, DR	47, 83, 85, 138
PEIFFER, EK	42	POWERS, SD	80
PELEP, PO	40	PRATT, KL	108
PELUC, SI	121	PREBEAU-MENEZES, L	119
PENALVA-ARANA, DC	116	PRENDERGAST, BJ	94
PENG, J	31	PRENTICE, NE	44
PERAIRE, J	105	PREUSS, KM	87
PERDOMO, Y	48	PRICE, ER	130
PEREYRA, ME	95, 120	PRINCE, LE	34
PEREZ III, K	28	PRINCEVAC, M	143
PERFITO, MN	95	PROESTOU, DA	61
		PROPERT, MWG	118, 119, 139
		PROPPER, CR	44, 69, 86
		PROVENZA, FD	56
		PRUITT, NL	130
		PRYKE, SR	103
		PTACEK, MB	26, 132
		PUGENER, LA	142
		PULEO, A	78
		PURI, S	109
		-Q-	
		QI, X	30
		QUITT, MA	119
		-R-	
		RAABIS, S	81
		RACK, JM	74
		RADE, CM	81
		RAFF, EC	45
		RAFF, RA	45
		RAFFERY, SP	122
		RAGKOUSI, K	55, 122
		RAGLAND, GJ	110
		RAJAMOHAN, A	109
		RAKOTOMANGA, M	71
		RAKOW SUTHERLAND, K	117
		RAMBERG PIHL, NC	45
		RAMSAY, JB	43, 105
		RANGEL, EN	117
		RASH, JE	85
		RASMUSSEN, A	123
		RATCLIFFE, JM	106
		RATHBURN, CK	49
		RAUBENHEIMER, D	56
		RAUT, S	69
		RAWSON, PD	81
		RAXWORTHY, CJ	113
		REAVIS, RH	81
		REBAR, D	74
		REBECCA, VW	79
		REED, BR	83
		REED, JM	97, 109, 116
		REED, RN	40
		REED, WL	75, 80, 121
		REES, B	67
		REESE, SA	117
		REGISH, A	49
		REHAN, VK	54
		REHM, KJ	99
		REHOREK, SJ	117
		REIBER, CL	115
		REICHARD, JD	130
		REICHHELD, L	136
		REID, DG	120
		REIDENBACH, MA	65
		REILLY, SM	37, 107
		REIN, R	84
		REINDL, KM	136
		REISER, MB	69
		REISER, PJ	84
		REITZEL, A	87
		REITZEL, AM	34, 87
		REITZEL, AR	58
		RENN, SCP	93, 124, 126

REPLOGLE, K.....	110	RORICK, MM	58	SANFORD, CPJ.....	104, 112, 141
REPP, RA	27	ROS, I.....	107	SANGER, TJ	33, 44
REPPERT, SM	54	ROS, IG.....	108	SANTANA, SE.....	27
REVELL, LJ.....	68, 98, 106	ROSADO, J.....	40	SANTHANAKRISHNAN, A..	34, 57, 113
REVZEN, S	37	ROSA-MOLINAR, E	85	SANTINI, F.....	63, 102, 106
REYNA, KS	125	ROSE, E.....	41	SANTOS, SR.....	28, 126
REYNOLDS, SJ.....	110	ROSEN, O	111	SAPIR, N.....	100
REYSSAT, E.....	72	ROSEN, PC.....	27	SAPORITO, RA.....	124
REZNICK, DN	26	ROSENBLUM, HG	118	SASA, M.....	56, 68, 138
RHYNE, AL.....	59	ROSENDALE, AJ	85	SASKI, CA.....	60
RICH, CA.....	63	ROSENGAUS, RB	39, 136	SATTERLEE, DG	30
RICHARDS, CT.....	34	ROSOWSKI, JJ.....	22	SATTERLIE, R	62
RICHARDSON, CS	122	ROSS, CF	132, 141	SATTERLIE, RA	66
RICHMAN, JM.....	140	ROSTAL, DC.....	42, 117, 120, 122, 125	SAUNDERS, K.....	129
RICHMOND, B	132	ROTH, E.....	69, 80	SAVENKOVA, OD	46
RICHMOND, RH	127	ROTH, VL.....	107, 134	SAVITSKI, AN.....	120
RICHTER, MM	126	ROTHSTEIN, SI	30	SAWYER, SJ.....	41
RICO-G, A	142	ROTJAN, R	137	SCALES, JA	68
RIDDIFORD, LM	140	ROUSE, GW	59	SCARBOROUGH, J	119
RIES, L.....	103	ROWLEY, BD	69	SCHAEFFER, PJ	71, 83
RILEY JR, LG.....	135	RUBEGA, M.....	97	SCHAIBLE, EG	134
RINEHART, MD.....	37	RUBENSTEIN, DI.....	116	SCHAMEL, L	72
RIQUELME, CA.....	100	RUDE, BJ	141	SCHAUENBERG, JD	140
RISKIN, DK.....	26, 67, 105, 106, 132	RUGGIERO, K	142	SCHILLING, N.....	37, 132
RISTROPH, LG	37, 113	RUINA, A	107	SCHIZAS, N	59
RITTSCHOFF, D.....	75	RUIZ, M.....	39	SCHMICKER, TL.....	132
RIVERA, ARV.....	78, 79, 81, 118	RUIZ-JONES, GJ	77	SCHMID, J.....	116
RIVERA, FM.....	45	RUMBLE, J.....	29	SCHMIDT, KL	126
RIVERA, G	79, 81	RUPPRECHT, CE	97, 121	SCHMIDT, V	32
RIVERA, GJ	41	RUSCH, TW	134	SCHMITT, D.....	107, 118, 119
RIVERA, JA.....	98	RUSS, DW	139	SCHMITT, JM	85
RIVERA-RIVERA, NL.....	85	RUSSELL, D	92	SCHNEIDER, CJ.....	68
RO, J.....	73, 138	RUTILA, J.....	45	SCHNEIDER, K.....	88
ROBERT, P	35	RUTKOWSKA, J	133	SCHNEIDER, KR	75
ROBERTS, K.....	96	RUTOWSKI, RL	101	SCHNEIDER, RA	33, 77
ROBERTS, ME.....	71	RYAN, J.....	46	SCHOECH, SJ	94, 110
ROBERTS, RB	70	RYAN, KA	124	SCHOENFUSS, HL.....	26, 82, 118, 124
ROBERTS, S	118	RYAN, MJ	111	SCHOLNICK, DA	46, 122
ROBERTS, SP.....	112	RYCHEL, AL.....	98	SCHOOK, DE	34
ROBERTS, TJ	92, 119, 139	RYCROFT, N.....	125	SCHORR, RA.....	135
ROBERTSON, H	116	RYERSON, WG	31	SCHREIN, C.....	132
ROBERTSON, IC.....	88			SCHREY, AW	32
ROBERTSON, RJ	30, 86, 119	-S-		SCHROEDER, R.....	50
ROBIDART, JA	96	SAARMAN, NP.....	40	SCHROEDER, TP	83
ROCCA, KAC	87, 110	SACCOCCIO, VL	137	SCHUBERT, SN	74
RODGERS, KS	28	SACKS, P.....	123	SCHUETT, GW.....	27
RODRIGUEZ, EI	129	SADDLER, C.....	47	SCHULER, MS	39, 44, 88, 134
RODRIGUEZ, L.....	59	SADLEIR, RW	142	SCHULKIN, J	86
ROELKE, CE	129	SAGI, A	111, 135	SCHULT, N	78
ROETTINGER, E	103	SAHNI, V	70	SCHULTE, M.....	89
ROGERS, NL	81	SAKAI, ST	104	SCHULTE-MERKER, S.....	79
ROGGE, JR.....	25	SAKHTAH, H	50	SCHULTHEIS, KF	136
ROHR, JR	28	SALGER, S	61	SCHULTZ, B.....	36
ROLLYSON, ME.....	26	SALISBURY PALOMARES, KT	92	SCHULTZ, ET	132
ROMEO, MR	115	SALVANTE, KG.....	63	SCHWANZ, LE	27
ROMERO, LM.....	34, 44, 86, 103, 126	SALZBURGER, W.....	63	SCHWARTZ, JJ.....	74
ROMERO, MR.....	141	SAMMETA, N	48	SCHWARTZ, ML	98, 118
ROMMEL, SA.....	35	SAMUEL, D	48	SCHWEITZER, KI	122
RONGES, D	88	SANCHEZ-VILLAGRA, MR.....	38	SCHWENK, K.....	82
ROOS, G	112	SANDERCOCK, BK	135	SCOTT, AJ	42, 43
ROOS, JD.....	118	SANDERS, DB	46	SCOTT, R.....	77
ROOSENBURG, W	86	SANDOVAL, AL.....	99	SCULLY, TA.....	122, 123
ROOT, RG.....	47, 50, 79, 84	SANE, SP.....	22, 37	SEARCY, BT	69

SEARS, KE	38, 99	SLEDGE, J	29	STEINBERG, P	55
SEARS, MW	29, 39, 44, 124, 134	SLICE, D	132	STENQUIST, D	138
SEAVER, EC	58	SMIT, B	108	STEPHEN, S	35
SECOR, SM	100, 121, 133, 140, 141	SMITH III, JPS	101, 124	STEPHENS, TA	82
SEEHAUSEN, O	63, 127	SMITH, AM	92	STERN, DL	122
SEFC, KM	102	SMITH, AR	128	STEVENSON, TJ	60, 95
SEID, M	99	SMITH, BR	123	STEWART, DJ	64
SEIPEL, JE	114	SMITH, D	143	STEWART, JR	43, 125, 138
SELDEN, R	137	SMITH, DC	123	STEWART, TA	62
SELMAN, C	96	SMITH, FA	129	STEWART, WJ	42
SENAPATI, S	109	SMITH, GT	74	STICKLES, EM	50
SENGER, F	71	SMITH, JJ	39	STILBORN, SSM	140
SENSENI, AT	70	SMITH, JN	138	STILLER, JW	136
SEPULVEDA, C	43, 83, 84	SMITH, K	142	STILLMAN, J	28, 88
SERAFINI, L	77	SMITH, KG	29	STOCK, DW	63, 93
SERRANO-VELEZ, JL	85	SMITH, KK	81	STOCKBOWER, KA	126
SEWALL, KB	74	SMITH, LC	24, 122	STOEHR, AS	43
SEWELL, LM	121	SMITH, M	75	STORM, JJ	44, 88
SEWELL, MA	142	SMITH, MJ	74, 113	STORZ, BL	25
SFORMO, T	71, 89	SMITH, SB	47	STOVER, KK	42, 119
SGUEO, CE	83	SNOAP, T	40	STRACHAN, LA	43
SHAFER, TH	77	SOARES, D	46, 126	STRAIT, D	132
SHAFFERY, HM	50	SOCHA, JJ	57	STRATHMANN, RR	82, 141
SHAH, AH	126	SOCKMAN, KW	63, 74	STRATTON, MS	47
SHANBHAG, P	83	SOKOLOVA, I	116	STRAUSS, V	109
SHARP, PJ	73	SOKOLOVA, IM	115, 116, 135	STREELMAN, JT	28, 71, 93, 128
SHAWL, AL	75	SOLEM, RC	77	STREETS, A	46
SHECHTER, A	135	SOMA, KK	126	STRICKLER, JR	72
SHEFELBINE, S	118	SONAGERE, M	125	STRIEDTER, GF	99
SHEN, J-X	22	SONG, DS	120	STRILEY, DS	40
SHEN, X	120	SORENSEN-FORBEY, JS	55	STROTHER, JA	22, 50, 57, 112, 132
SHERIDAN, MA	46, 136	SORENSEN, L	106	STUART, JS	34
SHERMA, J	89	SORENSEN, MD	102	STUART, YE	27
SHERMAN, AJ	84	SOTHERLAND, PR	108	SUAREZ, AV	104
SHI, Q	50	SOTKA, EE	55, 99, 100	SUGAWARA, T	127
SHIELDS, CC	98	SOTO, W	45, 80	SULLIVAN, RJ	55
SHIELDS, JD	66	SOTO-GAMBOA, MR	39	SUMMERS, AP	56, 65, 70, 79, 92, 104, 112
SHIH, M-C	79	SOTOMAYOR, M	22	SUZUKI, T	110, 140
SHIPLEY, LA	99	SOU, E	78	SVANCARA, K	126
SHIRGAONKAR, AA	22, 62	SOUTH, A	133	SVENDSEN, JC	80
SHULL, HC	102	SOWER, SA	36, 59	SWALLA, BJ	98, 103
SHUSTER, SM	75, 81, 124, 129	SPAGNA, JC	104	SWANGER, L	61
SIBLE, JC	34	SPEAKMAN, JR	96	SWANSON, B	70, 92
SIDELL, BD	115	SPEISER, DI	58	SWANSON, BO	69
SIDLAUSKAS, BL	106	SPENCE, AJ	67	SWANSON, DL	130
SIEG, A	108	SPENCER, M	132	SWARTZ, S	67, 78, 105
SILANDER, J	97	SPONBERG, S	65	SWARTZ, SM26, 72, 80, 105, 106, 132	
SILBERNAGLE, MD	97	SPOTILA, JR	108	SWEENEY, AM	70
SILVERI, CM	82	SPRAGUE, JC	30, 138	SWEENEY, S	55, 122
SIM, S	110	SPRAGUE, RS	30	SWIDERSKI, DL	38, 51, 142
SIMISON, WB	40	SQUIRES, DC	140	SWINSTROM, K	129
SIMMONS, CK	123	SRINIVASAN, DG	122	SWOFFORD, RW	93, 128
SIMON, MA	143	SRINIVASAN, M	119	SYLVESTER, JB	63
SIMONIK, E	87	ST MARY, CM	115	SYME, DA	43, 83
SIMONS, ELR	67	ST. LOUIS, J	44	SYMULA, RE	111
SIMS, EL	118	STAAB, KL	42, 104, 106	SZABO, Z	40
SINCLAIR, B	88	STAATERMAN, ER	64	SZAFRANSKA, P	73
SINCLAIR, BJ	43, 80, 85, 109, 129	STAHLSCHMIDT, ZR	29, 123	SZARKO, MJ	119
SISON-MANGUS, MP	109	STAMPS, JA	64	SZEKERES, K	121
SKEETE, D	123	STANGER-HALL, K	133	SZEWCIW, L	92
SKOPEC, MM	88, 100	STANTON, DL	101	SZUMOWSKI, SC	32, 120
SKOPEC, MS	56	STAPLES, JF	130		
SLATER, GJ	132, 133	STARKS, PT	27, 46		

SZYMIK, BG.....	66	TORREGROSSA, A-M.....	99	VAN MIDDLESWORTH, P.....	68
-T-		TORRES-PRATTS, H.....	59	VAN SANT, MJ.....	67
TABIN, C.....	32	TORRES-VAZQUEZ, I.....	85	VAN SOMMERAN, S.....	137
TACHIDA, H.....	127	TORREY, KW.....	39	VAN TRUMP, WJ.....	22, 50, 132
TAFT, NK.....	66	TORRICELLI, P.....	128	VAN UITREGT, BO.....	25
TALLEY, JL.....	109	TORVUND, M.....	85	VAN WASSENBERGH, S.....	31, 112
TAMONE, SL.....	120	TOTH, A.....	121	VANCE, JT.....	112
TAN, H.....	105, 114	TOTTEN, DC.....	84	VANDENBROOKS, JM.....	54, 87
TANAKA, K.....	23	TOUCHON, JC.....	97, 137	VANDERGERON, T.....	29
TANGORRA, JT.....	66	TRACY, CR.....	138	VANHOODYDONCK, B.....	70, 142
TANKERSLEY, RA.....	45, 109, 123, 141	TRAN, C.....	77	VASQUEZ, R.....	76
TANNER, JB.....	104	TRAN, DQ.....	109	VATNICK, I.....	50, 115, 116
TAPLEY, DW.....	87	TRAN, NB.....	84	VAUGHN, C.....	61
TAPPE, JT.....	34	TRANIELLO, JFA.....	99	VAUGHN, D.....	141
TARLOW, E.....	25	TRANT, J.....	111	VELASCO, J.....	68
TARNOWSKI, HE.....	43	TRAVIS, J.....	25	VELOSO, A.....	49
TARRANT, AM.....	34, 58, 87	TRAYLOR-KNOWLES, NG.....	77	VENDETTI, JE.....	102
TASCHUK, FO.....	126	TRIMBLE, J.....	40	VENESKY, MD.....	136
TASDEMIR, D.....	56	TRIMMER, BA.....	35, 117, 143	VENKADESAN, M.....	119
TATE, KB.....	115	TRITLE, B.....	122	VENTURA, T.....	111
TAVERNIA, BG.....	109	TRUMAN, GA.....	69	VERSTEEGH, MA.....	61, 108
TAYLOR, DJ.....	58	TRUMBLE, SJ.....	100	VETTER, J.....	26
TAYLOR, EN.....	27	TRUONG, R.....	119, 139	VIARD, F.....	141
TAYLOR, KN.....	116	TSAI, F-Y.....	79	VICK, M.....	122
TEARE, A.....	125	TSAI, HP.....	134	VILLALBA, JJ.....	56
TEMKIN, MH.....	125	TSANG, LM.....	129	VINYARD, CJ.....	88, 122
TERAI, Y.....	127	TSE, JC.....	45	VISHNUVARDHAN, S.....	121, 122
TERWILLIGER, NB.....	87	TSUKIMURA, B.....	75	VITAL, CI.....	41
TEW, WY.....	121	TSUTSUI, K.....	85, 95	VITOUSEK, MN.....	25
TEWKSBURY, JJ.....	27	TSUTSUI, N.....	111	VLECK, CM.....	30, 61
THACKER, RW.....	28	TU, E.....	36	VLEMINCKX, K.....	87
THERRIEN, C.....	86	TUCKER, M.....	74	VOGEL, LA.....	128
THESLEFF, I.....	103	TUCKER, T.....	116	VOGEL, S.....	58
THEWISSEN, JGM.....	33, 122	TULENKO, FJ.....	33	VOGL, AW.....	92
THEXTON, A.....	141	TULL, C.....	37	VOLTZOW, J.....	111
THOMAS, FIM.....	29	TURINGAN, RG.....	112	VON DASSOW, M.....	77
THOMAS, NM.....	40	TURMELLE, AS.....	97, 121	VONESH, JR.....	124, 141
THOMPSON, LJ.....	115	TURNER, AC.....	99	VOY, BH.....	93
THOMPSON, MB.....	43	TURNER, CR.....	74	VRCEK, I.....	82
THOMPSON, MD.....	47	TURNER, T.....	41	VRIJENHOEK, RC.....	124
THOMSON, A.....	116	TYLER, S.....	101		
THORINGTON, RW.....	78	TYTELL, ED.....	64	-W-	
THORNHILL, DJ.....	28			WACHI, N.....	127
THURMAN, CL.....	102	-U-		WACK, CL.....	74
TIELEMAN, BI.....	26, 61, 108	UBUKA, T.....	86, 95	WACKER, DW.....	60, 110
TIGREROS, N.....	81	UCHIDA, AM.....	43	WADA, H.....	30
TILBURG, CJ.....	29	UEDA, N.....	75	WADDINGTON, J.....	64
TILDEN, A.....	44	UHRIG, E.....	74	WADDLE, E.....	136
TIMM, LL.....	79	UMBANHOWAR, P.....	114	WAGNER, CE.....	71
TIMPE, EK.....	32	USHERWOOD, JR.....	114	WAGNER, DN.....	83
TINKER, MT.....	96	UTZ, KE.....	117	WAGNER, GP.....	33, 38, 58, 59, 120
TKINSON, S.....	136	UYENO, TA.....	43	WAGNER, NA.....	123
TOBALSKE, BW.....	83, 138, 143			WAGNER, ND.....	122
TOBIN, A-E.....	99	-V-		WAINWRIGHT, PC.....	72, 104, 106, 112
TOBIN, WF.....	87	VACCARO, EA.....	74	WAKELING, JM.....	107
TODD, NE.....	76, 110	VAGLIA, JL.....	142	WALDROP, LD.....	72
TODGHAM, AE.....	142	VALENZUELA, JJ.....	76, 138	WALGUARNERY, J.....	50
TOKITA, M.....	77	VALLEN, EA.....	126, 127	WALKER, A.....	50
TOM, M.....	135	VAN DAMME, R.....	31, 70	WALKER, AA.....	135
TOMANEK, L.....	36, 69, 76, 77, 119, 138	VAN DER KRAAK, G.....	30	WALKER, CM.....	98
TOONEN, RJ.....	40	VAN DER MEULEN, MCH.....	132	WALKER, CW.....	69
TORDAY, JS.....	54	VAN GURP, J.....	77	WALSH, J.....	88
		VAN LEEUWEN, JL.....	72, 79	WALSH, K.....	42

WALSH, PJ.....	83	WHITE, JP.....	88	WOODS, JR, WA.....	35
WALTERS, JR.....	39	WHITE, K.....	142	WOODS, KM.....	121
WALTERS, L.....	88	WHITE, TD.....	37	WOODS, SB.....	134
WALTERS, LJ.....	41, 75, 123	WHITENACK, LB.....	31	WOODS, WA.....	46
WALTHER, HV.....	117	WHITTAKER, DJ.....	70	WORTHAM, JL.....	45
WALTON, DB.....	84	WIBBELS, T.....	86, 116, 125	WOZNICA, SA.....	122
WANG, D.....	46	WIDDER, PD.....	49	WRANGHAM, RW.....	133
WANG, G.....	110	WIDMAIER, EP.....	122	WRIGHT, A.....	126
WANG, ZJ.....	37, 113	WIENS, JJ.....	68	WRIGHT, AN.....	117
WARD, AB.....	79, 81, 117	WIERSMA, P.....	73	WRIGHT, ML.....	129
WARD, WT.....	122	WIJESENA, N.....	41	WU, W-H.....	85
WARES, JP.....	81	WIKELSKI, M.....	25, 44, 61, 100, 103	WULFF, J.....	28
WARKENTIN, KM.....	25, 97, 124, 137, 141	WIKRAMANAYAKE, A.....	41, 120	WUND, MA.....	25
WARRICK, DR.....	143	WIKTOROWICZ CONROY, A.....	118	WUNDERLICH, RE.....	119
WARWICK, AR.....	102	WILCOXEN, TE.....	110	WYETH, RC.....	46, 62
WASIM, A.....	79	WILCZYNSKI, W.....	86	WYNEKEN, J.....	57, 79, 115, 116
WASMUNDT, NM.....	100	WILGA, CD.....	43, 105, 112		
WASSERSUG, RJ.....	135	WILLEY, T.....	99	-X-	
WASSMER, G.....	44	WILLIAMS, AS.....	81	XIANG, Y.....	126
WATERMAN, JM.....	123	WILLIAMS, BH.....	44	XIE, L.....	110
WATERS, JS.....	108	WILLIAMS, CM.....	85	XING, X.....	98
WATERS-LINDQVIST, LG.....	82	WILLIAMS, JB43, 44, 67, 73, 108, 112, 130, 138		-Y-	
WATERSON, T.....	28	WILLIAMS, JD.....	66	YAGER, DD.....	45, 85
WATSON, GW.....	29	WILLIAMS, KL.....	125	YANOVIK, SP.....	54, 82
WATSON, R.....	118	WILLIAMS, L.....	44	YAP, A.....	77
WATSON, WH.....	45	WILLIAMS, S.....	120	YARETT, IR.....	126
WATTS, HE.....	95	WILLIAMS, SA.....	76	YASAMURA, T.....	85
WATTS, SA.....	35	WILLIAMS, SC.....	83	YATES, M.....	115
WCISLO, WT.....	87	WILLIAMS, SH.....	42	YAZDANI, A.....	25
WEBB, JF.....	72, 82	WILLIAMS, TM.....	65, 67, 96	YEATES, LC.....	96
WEBER, G.....	132	WILLIAMS, WP.....	95	YEN, J.....	34, 35
WEBSTER, DR.....	34, 35, 64, 72	WILLIS, DJ.....	105	YI, S-X.....	129
WEEDMAN, JM.....	46	WILLIS, MA.....	68, 109	YI, SY.....	127
WEI, T.....	65	WILLIS, PM.....	111	YICK, CY.....	30
WEIGAND, KL.....	47, 83, 84, 116, 117	WILMOT, M.....	36	YOO, EH.....	107
WEIL, S.....	111, 135	WILSON, AM.....	105, 114	YOSHIDA, K.....	127
WEIL, ZM.....	94	WILSON, MP.....	118	YOSHIMURA, K.....	107
WEINER, SA.....	46	WILSON, RS.....	25, 58, 108, 123, 135	YOSHIMURA, T.....	95
WEINSTEIN, SB.....	29	WILSON-RICH, N.....	27	YOUNG, BA.....	143
WEISBECKER, V.....	38	WINDSOR, JG.....	123	YOUNG, NM.....	142
WEISSBURG, MJ.....	64, 72	WINDSOR, PJ.....	41	YOUNG, RL.....	33
WEITZMAN, SH.....	26	WINDSOR, S.....	22	YOUSSEF, SK.....	115
WELCH, AM.....	74, 81, 113, 127	WINGFIELD, JC.....	30, 60, 76, 85, 95, 103, 110	YOUSSEFPOUR, H.....	92
WELCH, KC.....	100	WINKLER, DW.....	61	YU, Z-L.....	22
WELLS, H.....	98	WINSTON, JE.....	73	YUAN, W.....	75
WELLS, RS.....	28	WITMER, LM.....	57	YUDKOVSKI, Y.....	135
WELLS, S.....	125	WOJCIECHOWSKI, MS.....	129, 134	YUND, PO.....	29, 32, 87
WERBEL, W.....	114	WOJDAK, JM.....	97	-Z-	
WERNER, BJ.....	84	WOLCOTT, TG.....	75, 82	ZACCARDI, G.....	109
WERTH, A.....	133	WOLF, BO.....	97, 137	ZACK, TI.....	127
WESTBROOK, JK.....	25	WOLFF, SW.....	44	ZALISKO, EJ.....	78
WESTNEAT, MW.....	40	WON, ET.....	69, 136	ZAMZOW, JP.....	25
WETHEY, DS.....	60	WONG, B.....	33	ZANI, PA.....	26, 89
WETHINGTON, SM.....	83, 138	WONG, GK.....	111, 123	ZANN, RA.....	95
WEY, T.....	39	WONG, RY.....	36	ZAPUT, EP.....	116
WHALEN, K.....	55	WOO, H.....	84	ZARDUS, JD.....	81
WHEATLY, MG.....	84	WOOD, AR.....	38	ZELDITCH, ML.....	51, 38, 142
WHEELWRIGHT, NT.....	83	WOOD, CB.....	133	ZERO, VH.....	126
WHITE, AJ.....	84	WOOD, KJ.....	126	ZERVANOS, S.....	134
WHITE, C.....	58	WOODLEY, SK.....	74, 123	ZHANG, GJ.....	55
WHITE, EB.....	109	WOODS, HA.....	60, 98, 138	ZHANG, Y.....	93
WHITE, J.....	123				

ZHAO, L	37
ZHEN, Y	55, 122
ZHUANG, K.....	80
ZIGLER, KS.....	45
ZIMKUS, BM	129
ZIMMERMAN, LM	128
ZIMMERMANN, E	87
ZINK (DUNCAN), KD	133
ZINSMAIER, KE.....	58
ZIPPAY, ML.....	142
ZMORA, N	111
ZOU, E	34, 76
ZUB, K.....	73
ZUK, M	74
ZURCHER, U	105
ZUZOW, MJ.....	36
ZYLBERBERG, M	103

Keyword Index

- 4-bar linkage 83.2
 4-Nonylphenol P2.31
 4-tert-octylphenol P1.78
 acceleration 105.4, P2.67
 acclimation 78.2, 91.10, 97.10, P1.85,
 P2.173, P2.188, P3.168, P3.205
 acetylcholine P1.130, P1.134
 acid-base regulation P1.154, P2.175
 acidification P1.32, P2.20
 acoustics 25.2, 36.5, 36.8, 85.2, S1.1
 activity 54.11, 91.7, P1.12
 acute stressor 9.10
 adaptation 5.3, 5.4, 18.3, 19.3, 35.2,
 44.1, 44.2, 44.5, 44.6, 53.6, 57.5,
 64.3, 80.2, 91.9, 96.2, 97.6, 101.6,
 P1.139, P2.174, P3.181, P3.183,
 P3.47, S4.3, S5.11, S6.2, S6.7,
 S7.3, S8.2
 adaptive radiation 34.1, 56.5, 64.3,
 P2.101, P3.190, S8.3
 adhesion 23.1, 23.2, 23.3, 23.4, 23.5,
 48.6, P1.42, P3.177, S4.3, S7.5,
 S7.6
 Aerobic Capacity P2.132
 aerodynamics 21.1, 21.2, 21.3, 21.5,
 21.6, 43.6, 52.3, 84.3, 84.4, 84.5,
 84.6, 105.4, 105.5
 aggregation 6.6, 15.6
 aggression 14.5, 29.2, 35.6, 36.2, 47.6,
 80.4, P2.107, P2.159, P2.161,
 P2.92, P3.131, P3.160, S3.10,
 S3.7
 aging 29.5, 30.2, 79.6, 84.1, 98.2,
 P3.106, S9.10
 airfoil 21.5
 algae 8.7, 59.4, 90.6, P1.25, P1.38,
 P2.116, P3.175
 alkylphenols 92.1
 allelopathy P1.88
 allometry 23.4, 53.1, 70.2, 75.3, 87.1,
 90.2, 90.7, 103.3, P1.48, P2.123
 Altitude 105.1
 amphibian declines 7.5
 amphibians 3.4, 7.4, 17.1, 24.3, 46.4,
 55.7, 55.8, 62.5, 95.1, 101.5, 102.2,
 102.3, P1.151, P1.27, P1.78, P2.1,
 P2.125, P2.13, P2.155, P2.162,
 P2.188, P3.15, P3.75, S1.2
 amphipods 59.4, 73.3
 angiogenesis P3.2
 annelids 26.5, 27.3, P1.130, P1.134,
 P1.23, P3.36
 Anolis 12.3, 36.1, 44.3, 64.3, 96.2, P1.28,
 P1.74, P1.86, P2.171
 anoxia P3.16
 Antarctica 1.7, 8.10, 11.3, 15.3, 28.3,
 28.5, 56.2, 60.8, P2.193, P3.1, P3.2
 antenna 37.2, 38.2, P1.94
 anthropogenic stressors P3.140, P3.168,
 P3.179, P3.18
 antibacterial proteins 2.6, 9.9
 antifreeze proteins P2.195
 antioxidants 54.4, 78.4, P1.11, P2.176
 antipredator 1.1, 1.3, 1.8, 36.5, 51.5
 anurans 1.11, 4.4, 15.5, 93.5, 98.10,
 98.8, 102.1, P2.113, P2.16, P2.4,
 P2.5, P2.97, P3.133, P3.18,
 P3.202, P3.61, S1.1
 apical sensory organ P2.46
 apoptosis P3.108, P3.207
 aposematic P3.133
 aposematism 4.5, P3.132
 aquaculture S2.4, S2.5
 aquaporin P1.145, P3.213
 arachnids 48.3
 arboreal locomotion 69.4, 69.5
 arginine kinase P1.112
 arthropods S4.7
 artificial selection 42.4, P2.94
 associative learning P2.158
 Asteroidea 28.3
 asymmetry 34.2
 AVT 19.5
 axial elongation 102.4
 axolotl 13.3, 102.5, P2.59
 bacteria 18.2, 62.1, P2.81, P2.86,
 P3.195, P3.209
 barnacle P2.102, P2.20
 bats 1.9, 3.2, 3.5, 10.8, 16.3, 36.4, 51.2,
 55.6, 70.1, 70.3, 70.4, 70.5, 70.6,
 80.1, 87.2, P3.102, P3.146, P3.94,
 P3.99
 bee-eater 60.9
 behavior 1.1, 1.2, 1.4, 1.5, 3.5, 4.1, 19.4,
 19.6, 20.5, 30.3, 36.4, 36.5, 37.2,
 37.6, 38.1, 45.4, 47.4, 51.4, 59.2,
 79.2, 79.4, 87.6, 91.4, 94.2, 94.6,
 95.5, P1.10, P1.165, P1.168, P1.58,
 P1.99, P2.10, P2.115, P2.117,
 P2.122, P2.151, P2.160, P2.17,
 P2.29, P2.74, P2.8, P3.166,
 P3.191, P3.22, S1.1, S1.7, S3.10,
 S3.3, S3.9, S8.10, S9.10, S9.6,
 S9.7
 behavior syndrome P2.122, P3.157
 behavioral ecology 1.8, 35.6, 44.1, 80.6,
 85.5, 91.5, 91.9, 94.4, P1.2, P2.22,
 P3.148, P3.161, S6.6, S6.7, S8.11,
 S9.4
 benthic P1.18
 beta-catenin S5.4
 biodiversity 7.5, 11.2, P1.20, P1.22,
 P2.16, P3.24, S6.7, S6.9
 biogeography 11.2, 11.4, 11.5, 28.2, 49.6,
 54.2, 55.11, 64.2, 64.6, P1.28,
 P1.89, P2.98, P3.202
 bioinformatics 18.3, P1.22, P3.138,
 P3.189
 bioinspiration S7.6
 bioluminescence 26.3, 27.3
 biomechanics 10.10, 15.2, 15.3, 15.4,
 15.6, 17.3, 20.3, 21.4, 23.1, 23.5,
 24.1, 24.2, 24.6, 25.11, 33.5, 37.1,
 38.1, 38.2, 40.3, 40.4, 48.1, 48.5,
 48.6, 52.3, 60.2, 67.1, 67.2, 67.3,
 67.4, 68.4, 69.3, 70.2, 73.1, 73.3,
 73.4, 73.5, 74.1, 74.2, 74.3, 74.4,
 74.5, 74.6, 83.1, 83.6, 86.1, 86.3,
 86.5, 87.2, 87.3, 87.6, 88.1, 88.3,
 98.11, 98.4, 98.7, 104.2, 104.4,
 105.2, P1.123, P1.164, P1.168,
 P1.49, P2.152, P2.62, P2.64,
 P2.66, P2.69, P2.75, P2.76,
 P3.177, P3.34, P3.35, P3.37, P3.49,
 P3.52, P3.54, P3.57, P3.59, P3.60,
 P3.63, P3.67, P3.68, P3.69, P3.70,
 S1.11, S1.4, S1.5, S1.6, S1.8, S1.9,
 S4.4, S7.1, S7.10, S7.11, S7.2,
 S7.4, S7.7, S7.9
 biomechanics of morphogenesis P2.42
 biomimetics 23.5, 25.11, 48.4, S7.4, S7.5
 biomineralization 92.4, P2.37, P3.29,
 S7.12, S7.2
 biorhythms 91.2, 94.5, P1.96, P1.97,
 S10.10, S10.4, S4.8, S9.9
 Biotransformation P2.185, S6.10, S6.2
 birds 9.11, 9.5, 9.8, 9.9, 14.6, 16.6, 19.1,
 25.1, 29.2, 30.4, 36.2, 43.4, 43.5,
 47.6, 54.9, 55.2, 58.3, 65.2, 65.3,
 65.4, 75.5, 76.3, 79.1, 79.3, 79.6,
 80.3, 86.1, 90.1, 103.5, 105.5,
 P1.110, P1.117, P1.6, P1.71, P1.8,
 P1.92, P2.108, P2.121, P2.129,
 P2.160, P2.163, P2.164, P2.27,
 P2.77, P2.8, P3.154, P3.157,
 P3.162, P3.163, P3.169, P3.194,
 P3.196, P3.211, P3.42, P3.56,
 S10.10, S10.11, S10.2, S5.5
 bite forces 67.4, P1.47
 bivalves 11.11, 31.2, 46.2, P1.113,
 P1.127, P1.129, P1.131, P1.133,
 P1.135, P2.187, P2.21, P3.33,
 P3.85, P3.9
 bleaching P3.173
 blood chemistry P3.162
 blue crab 37.3, 85.4
 body condition 16.3, 54.8, 85.1, 92.9
 body size 5.1, 54.6, 63.4, 90.8, 92.5,
 96.4, P1.159, P1.164, P1.9, P2.117,
 P2.181, P2.183, P2.94, P3.30,
 P3.31, P3.93
 bone 88.1, 90.8, 90.9, P2.192, P3.57,
 P3.58, S7.11
 bone resorption P3.147
 Bopyridae S2.8
 boundary layer P1.45
 brain 19.4, 35.3, 58.3, 96.1, P2.182,
 P3.45, S10.9, S9.10, S9.2
 brain receptors 14.1
 brood parasite P1.92

brood size manipulation P1.67
 bryozoan P3.144
 burrowing 37.1, 104.4, P1.164
 butterfly 78.1
 Caenorhabditis 61.1
 calcium 3.2, P1.144, P2.141, P3.147, P3.150
 calsequestrin P1.126
 captivity P3.165, S9.5
 carbonic anhydrase P1.142
 cardiac 24.5, 60.3, P3.167, P3.4, P3.6, P3.8, S5.8
 Cardiac morphogenesis P3.111
 cardiovascular 13.5, 24.2, 24.3, 24.6, P1.117, P2.148, P2.149, P3.3, P3.5, P3.7, S5.10, S9.11
 Cardueline finches P1.6
 Carnivora 80.5, P1.19, P2.60
 carnivorous plants 7.1
 carotenoid 85.3, P1.11
 carotenoids P1.7, P3.100
 cartilage 13.2, P2.41, P2.43, P3.69, S7.10, S7.11, S7.12
 catfish 72.6
 cDNA library P2.47
 cell biology P1.82, P3.172
 cell cycle 62.3
 cell migration P2.115
 cell proliferation 61.5, 99.1
 cephalopods 26.3, 48.2, P2.86
 cetaceans 12.5, 16.5, 39.4, 88.4, P1.53, P2.69, S7.2
 Chaetodontidae P2.95
 character evolution 12.2, 72.3, 72.4, 89.2
 chemical defenses 5.6, S6.8
 chemical ecology 8.10, 59.3, 59.6, P2.14, S6.1, S6.11, S6.3, S6.4, S6.9
 chemoreception 38.1, 77.1, P2.125, P3.25
 chemosensation 37.3, 51.1, P2.12
 chondrichthyan 29.1, 71.1, P2.73
 chordates S5.8
 chromosomal inversion 78.3, P2.180
 chronic stress 65.1
 chytrid P1.27
 cichlid 34.1, 34.2, 35.3, 35.4, 35.5, 35.6, 49.1, 49.2, 49.3, 49.4, 49.5, 49.6, 79.5, P2.65, P3.129, P3.160, P3.180, P3.181, P3.183, P3.184, P3.186, P3.190, P3.191, S8.2, S8.8
 circadian BERN.1, P1.74, P1.97, P2.158, S10.6
 circatidal rhythm 101.1
 cleaner fishes 5.6
 climate change 2.4, 8.1, 28.1, 28.2, P1.32, P1.4, P1.8, P2.20, P2.25, P2.87, P3.123, P3.20
 clutch size P3.151
 cnidarians 14.2, 26.8, 66.1, P2.176, P2.39, P3.108, P3.141, P3.171, P3.172, P3.173
 co-occurrence 35.5
 coevolution 48.3, P2.102, P2.86, S2.1, S2.2, S6.5
 cold acclimation P3.74
 Cold tolerance 50.1, 50.3, 78.2, P1.68, P2.193, P2.90, P3.207, P3.208, P3.213
 colonization 11.4
 colour 85.3, P1.92, P3.188
 communication 1.9, 19.1, 25.2, 36.1, 36.2, 36.3, 36.7, 36.8, 36.9, P2.1, P2.11, P2.12, P2.2, P2.29, P2.5, P2.8, P3.158, S8.7
 community ecology 4.3, 7.3, 35.5, 55.10, 55.9, P1.19
 community genetics 11.7, 28.1
 comparative embryology 13.1
 comparative method 36.10, 44.6, 57.5, 63.1, 63.5, 64.4, 68.1, 71.5, 80.5, 85.3, P2.91
 comparative physiology 42.1, 46.4, 53.5, 60.6, 78.4, 97.4, P2.124, P2.30, P2.66, P3.109, P3.153, S5.11, S7.1
 competition 4.4, 7.1, 84.2, 96.1, P1.52, P1.88
 Computation 70.4
 conservation 7.5, 14.1, 33.6, 55.2, 55.3, 76.1, 76.2, 76.3, 76.5, 82.4, 100.7, P1.19, P1.22, P2.23, P3.17, P3.19, P3.23, P3.84
 conserved domains & aa repeats 26.7
 constraints 19.3, 22.2, 25.5, 86.3, 103.2
 convergence 61.4, 63.5
 cooking 88.6
 cooperation 1.6
 coral reefs 6.1, 6.2, 6.3, 6.4, 27.5, P1.37, P1.38, P3.78
 corals 6.5, 6.6, P2.45
 correlation 72.4, P2.105
 corticosteroids 1.1, 9.11, 65.1, P1.124, P1.125, P1.160, P2.131, P2.138, P2.139, P2.163, P2.88, P3.164, P3.169, P3.27, P3.43, P3.72
 corticosteroid binding globulin 9.10, 9.3, 65.4
 corticosterone 9.1, 9.2, 9.3, 9.6, 9.7, 9.8, 29.4, 31.3, 65.3, P1.155, P2.12, P3.165, S10.2, S3.9
 courtship P1.114, P2.13, P2.7, P2.9
 crab 41.3, 41.6, 80.2, 81.5, P1.154, P3.101, P3.155, P3.199, P3.77, P3.88
 cranial kinesis 10.7
 craniofacial 25.1, 103.2, P1.49, P2.179, P2.41, S5.7
 crayfish 76.1, 77.3, 81.1, 92.4, P1.141, P1.20, P2.141, P2.150, P3.104
 creatine P2.140
 cricket P2.15, P2.7
 cricoid/hyoid cartilage P2.3
 crocodylian 90.9, 103.1, P2.57, P3.90
 crustacean hormones 81.4
 crustaceans 8.9, 14.3, 20.5, 41.1, 41.2, 58.2, 60.10, 60.5, 81.3, 81.4, 92.1, 92.6, 94.2, P1.118, P1.119, P1.120, P1.121, P1.122, P1.142, P1.144, P1.16, P1.33, P1.82, P1.89, P1.90, P1.98, P2.105, P2.172, P2.186, P2.19, P2.25, P2.28, P2.32, P2.32A, P2.32B, P2.33, P2.36, P2.37, P3.155, P3.25, P3.7, S2.10, S2.11, S2.6, S2.7, S2.8, S2.9
 crypsis 53.2, P3.132, P3.134
 Cyprinidae P1.56
 cytogenetics P3.180
 Darwin 82.2
 decision making P3.159
 deep-sea 11.2, 27.3
 Defensive tactics 44.1
 dehydrin-like protein P1.139, P3.215
 demography P1.30
 desiccation resistance 78.3, P1.139, P1.143, P2.157, P2.175, P2.193
 development 12.2, 12.5, 27.2, 58.3, 69.1, 99.2, 100.2, 102.1, 102.3, P1.105, P1.117, P1.124, P1.148, P1.42, P1.43, P2.110, P2.125, P2.131, P2.138, P2.139, P2.142, P2.40, P2.56, P2.59, P2.81, P2.88, P3.103, P3.144, P3.150, P3.184, P3.27, P3.3, P3.43, P3.5, P3.51, P3.8, S2.6, S5.7, S8.5
 DGC P2.157
 diet 36.9, 42.4, 65.4, 68.2, 88.5, 100.4, P1.149, P1.91, P2.54
 digestion 16.2, 75.2, 100.1, 100.2, 100.3, 100.5, 100.9, P1.162, P3.87, P3.88, P3.89, P3.90, P3.91, P3.92
 digital learning 82.5
 digital library 27.4, P1.29, P3.119
 dinosaurs 57.4, 90.7
 disease 6.1, 7.4, 55.8, 93.5, P3.196, P3.94, S9.3
 dispersal 8.1, 11.6, 52.1, 94.4, 101.8, P2.22, P2.76, P3.136
 divergence time 28.1, P3.199
 diversity 64.4, 64.6, 72.4, 103.3, S2.3, S5.9
 diving 75.2
 DNA 26.4, 28.4, 76.4, P2.36
 dopamine 58.5
 dragonfly 84.5, P2.75
 Drosophila 21.2, 21.3, 45.3, 58.5, 61.3, 77.4, 84.3, P3.208, P3.30
 drug discovery S6.9
 durophagy 67.5
 ecdysteroids 92.6, P2.32
 echinoderms 58.1, 61.2, 74.1, 95.3, 101.4, P1.137, P1.87, P2.178, P3.115, P3.116, P3.34
 ecological immunology 4.2, 9.9, 30.2, 30.4, 55.6, P3.102, P3.104, P3.94, P3.99

ecological physiology 5.4, 8.3, 16.1, 43.1, 53.3, 54.7, 78.6, 80.1, 97.7, P1.55, P1.74, P2.127, P2.180, P2.187, P2.90, S6.4

ecomorphology 3.5, 10.4, 25.7, 44.4, 51.6, 63.5, 96.2, 104.1, P1.62, P2.104, P2.52

education 82.2, 82.3, 82.4, 82.5, P3.119, P3.120

educational outreach P3.119, P3.123, P3.126

eggs 2.2, 65.2, 97.5, 101.11, P2.88, P3.153, P3.155

elasmobranchs 10.10, 33.6, 39.5, 40.1, 51.6, 77.2, 83.4, P1.52, P1.61, P1.65, P2.110, P2.151, P2.62, P2.63

electrical stimulation P1.93

electromyography 20.2, 68.3, 74.4, P2.72

ELISA P3.192, P3.194

embiotocid 40.2

embryogenesis P1.40, P1.41

embryos 1.5, P2.169, P2.26

enamel microstructure 88.4

endocrine-disruptor 14.3, 14.4, 14.6, 46.3, 79.4, P2.29

endocrinology 92.2, 97.8, P1.13, P1.140, P2.165, P3.156, P3.163, S10.6, S10.7, S10.9, S3.4, S3.6, S8.11

energetic costs 36.1, 60.6, 73.1, 87.5, 91.11, 91.8, P1.107, P1.114, P2.133, P3.128, P3.146, P3.49, S9.8

energetics 31.3, 43.1, 54.7, 54.8, 60.9, 74.6, 88.6, 89.6, 91.3, 98.5, 101.11, P2.128, P2.87, P3.176, P3.91

environmental biology 91.3, P3.140

Environmental physiology 91.8, P2.149

environmental variation 76.5

enzymes 59.6, 100.3, 100.5, P1.112, P2.135, P2.166, P2.185, P3.6

Epigenetics 2.3, 30.5

escape response 20.4, 39.1, 39.2, 46.1, P1.95, P1.98, P2.73, P3.132, P3.40, P3.44

estrogen 46.3

ethics P3.122

eusociality 4.2, 93.2, 93.4, P1.107, S4.9

evaporative water loss 97.5, P1.116, P1.141

evo-devo 5.5, 12.1, 12.3, 12.4, 12.6, 13.3, 22.1, 22.3, 26.10, 34.4, 35.2, 35.3, 57.3, 61.2, 61.5, 66.1, 66.2, 66.4, 72.1, 72.2, 72.3, 78.5, 99.5, 102.4, P1.167, P1.39, P1.44, P2.51, P3.110, P3.79, S5.1, S5.2, S5.3, S5.4, S5.8, S8.4

evolution 3.3, 4.4, 5.3, 12.4, 20.4, 22.2, 23.3, 25.10, 26.1, 26.5, 26.7, 26.8, 42.1, 47.5, 56.5, 63.4, 64.5, 82.2, 82.5, 87.4, P1.159, P1.68, P1.86, P2.109, P2.111, P2.3, P2.6, P2.96A, P3.81, P3.82, S10.3, S3.2, S3.3, S4.5, S4.6, S4.8, S5.11, S5.7, S8.10

evolution of endothermy 53.3, P1.70

evolution of nest architecture 93.1

Evolutionary innovation 26.10, 35.2, 72.1, 72.2, 72.6, P2.53, P3.112, P3.114

evolutionary model 57.5

evolutionary radiation 44.2, 44.4, 49.2, 71.3, P3.112, P3.181, P3.185, P3.200, S8.1

exercise physiology 17.5, 42.4, 53.4, P1.116

experiment 55.5, P3.121

extinction P3.24

eyes 61.3, P1.105, P2.51, P3.10, S4.7

Fast P1.72

fasting 9.3, 50.5

fat P1.7, S5.5

fatigue P3.68

fatty acids P1.106, P1.110, P1.72, P2.188, P3.206

feathers 25.2, P1.7, P2.77, P3.42

fecundity P2.90

feeding 4.1, 10.1, 10.2, 10.3, 10.4, 10.5, 10.9, 16.2, 16.3, 17.4, 25.6, 38.3, 46.1, 51.5, 59.2, 67.1, 68.1, 68.3, 68.4, 68.5, 68.6, 72.6, 76.1, 77.2, 83.1, 83.3, 83.5, 83.6, 88.3, 88.5, 91.2, 100.6, 100.8, 101.9, P1.105, P1.13, P1.48, P1.51, P1.57, P1.58, P1.60, P1.61, P2.118, P2.40, P3.161, P3.212, P3.36, P3.39

feeding habits 94.1, 100.1, P1.37, P2.116, P2.96B

fertilization 8.4, P1.87

fibroblast growth factor 12.5, P3.111

fiddler crabs 25.8, 64.6, 101.1, P1.96

field behavior P1.12, P1.96

field metabolic rate 54.3

Fighting 79.2, P2.107, P3.158, S8.11

finite element analysis 10.11, 67.5, 88.2, 88.3, 90.2, P1.49, P1.59

fish, fishes 1.10, 3.3, 7.3, 23.4, 24.4, 40.3, 48.6, 54.5, 55.5, 68.2, 68.5, 71.3, 72.5, 80.4, 83.1, 83.3, 87.1, 89.3, 92.7, 94.4, P1.126, P1.138, P1.146, P2.11, P2.111, P2.31, P2.56, P2.58, P2.70, P2.91, P2.99, P3.140, P3.145, P3.159, P3.185, P3.187, P3.74, S1.3, S2.2, S2.4, S2.5, S3.6, S8.1

fitness 9.11, 9.6, 22.6, P2.170

flatworms 62.3, P1.44, P2.130, P3.142

flight 21.6, 43.6, 45.2, 60.9, 70.2, 70.3, 70.4, 70.5, 84.1, 84.2, 84.3, 84.6, 87.3, 103.5, 105.2, 105.3, 105.4, 105.5, P2.128, P2.77, P3.216, S1.6, S4.4

flight control 21.1, 21.2, 21.4, 21.5, 33.3, 37.2, 45.3, 84.5, 105.3, P1.93, P1.94, S1.6

Flow Cytometry P3.97

fluid flow 8.4, 8.6, 15.1, 24.1, 51.2, 77.6, 105.2, P1.166, P2.64, P3.39

flying 15.4, 21.1, 21.3, 43.2, 84.4

food processing 88.5

foot 86.2

footpads 73.5

foraging 50.6, 58.4, 77.5, 93.5, P1.52, P2.117, P2.120, P2.121, P3.210

fouling community 8.5

freeze avoidance 50.1, 50.3, P2.195

freeze tolerance 50.3, P2.191, P3.209, P3.215

frogs 47.3, 57.1, 97.7, P1.157, P2.156, P2.191, P2.2

functional morphology 10.2, 10.8, 10.9, 16.5, 20.1, 20.2, 24.5, 25.4, 25.6, 34.1, 34.2, 38.3, 39.3, 40.3, 42.1, 48.3, 68.1, 68.6, 70.1, 73.5, 83.6, 98.11, 98.6, P1.59, P1.61, P1.62, P2.107, P2.114, P2.50, P2.60, P2.63, P2.68, P3.114, P3.171, P3.33, P3.53, P3.54, P3.56, P3.59, P3.60, P3.64, P3.66, S3.1, S7.12, S8.1

fungi 93.1, P1.27

gap junctions P2.152

gape P1.47

gas exchange 75.1, P2.26

Gasterosteus aculeatus 39.1

Gastrolith 92.4

gastropods 11.1, 28.4, 63.4, 64.2, 101.8, P2.17, P2.177, P3.174, P3.4, P3.78

gastrulation P2.42

gender P3.124, P3.160

gene duplication P3.189

gene expression 14.2, 18.2, 19.4, 35.4, 66.3, 97.10, P1.106, P1.111, P1.156, P2.141, P2.156, P2.172, P2.173, P2.194, P2.32, P2.33, P2.37, P2.48, P2.97, P3.113, P3.13, P3.187, P3.82, P3.87, P3.89, P3.93, P3.96

gene regulation 26.10, 26.11, 49.5, 60.3

genetics 11.7, 49.1, 95.1, P1.21, P2.96A, P3.186, P3.190, P3.83, S6.11, S8.6, S8.9

genomics 18.1, 31.2, 49.3, P2.39, P3.189, P3.25, P3.77, S5.1, S6.10, S6.4, S8.10, S8.2, S8.9

Genotype-Environment Interaction 13.5

geographic variation 5.1, 11.1

gills 76.6, 97.2

glide 43.1, 43.2, 43.3

glochidia 76.6

glucosamine 8.9

glucose absorption 100.2

Glutamate 32.1

glycoprotein hormone 18.6

glycoprotein hormone receptor 26.9

goats 69.3, 73.2

Gonadotropin-Releasing Hormone 29.3, 79.1, P2.162, P2.30, S10.11, S10.7, S10.8

gonads P3.79

Gonodotropin-inhibitory Hormone (GnIH) P2.153

grooming P1.99
growth 6.3, 9.8, 27.2, 90.5, 90.9, 92.3, 92.5, 95.3, P1.43, P1.50, P1.77, P1.79, P2.181, P2.183, P2.53, P2.93, P3.29, P3.31, P3.42
growth hormone 92.10, 92.8
gular glands P2.57
gut 16.4, P1.134
habitat selection 1.7, P1.9, P2.17, P2.89
habitat structure 55.2, 55.4, P2.16, P2.70, P3.135
habitat use P1.30
hagfish 57.3, 68.3
halteres 33.4
hammerhead 25.5
harderian gland 32.2, P3.28
Harmful Algal Bloom 7.3
hatching cues 1.5, P3.154
hearing P1.167, P1.95, P2.146, S1.11, S1.2, S1.9
heat shock 42.5, P3.143
heat shock protein P2.174, P2.177, P2.34
heavy metals 46.1, 46.2, P1.129, P1.131, P3.11, P3.14, P3.16, P3.9
hemichordates 56.4
hemoglobin 54.5, P3.1
herbivory 59.1, 59.2, 59.4, 100.7, P2.184, S6.1, S6.11, S6.3
heritability 85.1, 89.4, P3.178
hermaphroditism 19.5, 95.4
Heterochrony 22.1
hibernation 50.1, 50.2, 91.2, 94.5, P2.189, P2.192, P3.214
hibernator 50.5, 91.6
High-speed video 101.9, P1.54
histochemistry 98.3
histology P1.128, P2.54, P3.173
history P3.124
hopping 73.1
hormonal control of vitellogenesis 81.5
hormone receptors 81.4, 92.8
hormone-binding proteins P1.148
hormones 9.5, 47.4, 79.5, 79.6, 80.4, 81.2, 92.9, P1.46, P2.113, P2.164, P2.167, P3.131, P3.149, P3.191, P3.192, S10.6, S3.1, S3.2, S3.3, S9.1
horse 69.2, P3.22, P3.51
horseshoe crabs 76.2, 77.1
host-parasite interactions 55.8
house sparrow P1.155
Hovering flight 105.1
hox genes 12.2, 61.2, P3.144
huddling 91.1
Hummingbird 60.7, 97.3, 103.6, 105.1, 105.3, P2.128
hybridization 11.10, 80.3
hydrodynamic imaging 51.3
hydrodynamics 8.5, 10.5, 15.5, 24.4, 37.3, 39.4, 51.1, 52.1, 52.2, 68.5, P2.68, P2.69, P2.71, S1.3
hydrothermal vent ecology 54.10
Hyperoxia 64.5
hypothermia 50.6
hypoxia 65.5, P1.153, P1.154, P1.162, P2.132, P2.173, P2.28, P2.56, P3.101, P3.26, S5.10
hysteresis P2.147
immune response 30.1, 30.3, 30.5, 66.3, 89.5, 93.3, 93.4, P1.14, P1.15, P1.157, P3.100, P3.101, P3.103, P3.193, P3.72, P3.95, S5.9, S9.2, S9.5, S9.7, S9.9
immunocompetence 53.4
immunohistochemistry 31.2, 58.1, P1.65, P2.168, P3.142
immunology 30.2, 31.1, 31.3, 93.2, P3.194, P3.195, P3.197, P3.96, P3.97, P3.98, S9.4, S9.6, S9.8
incubation 9.2, P3.128
inducible defense 95.3, P2.82, P2.83, P2.85
inducible defenses 95.2, 101.6
inhibitory cascade 12.1
insects 21.6, 23.2, 43.6, 45.2, 54.6, 67.3, 77.6, 78.4, 78.6, 84.2, 84.4, 84.6, 87.3, 93.1, 93.3, 93.4, 100.4, P1.1, P1.15, P1.152, P1.158, P1.161, P1.163, P1.2, P1.68, P2.147, P2.183, P2.184, P3.103, P3.177, P3.208, P3.96, S3.4, S4.4, S4.5, S4.6, S4.8, S4.9, S7.6, S7.7, S9.4
insulin P3.193
Insulin like peptides 81.1
Insulin Receptor P1.111
insulin-like peptides 81.2
integration 22.5, S8.3
integrin P1.42
interlimb coordination 69.1
intertidal 8.3, 8.8, P2.190, P2.85, P3.139
intestine P2.154, P2.58
introduced species 41.5, P2.85
Invasive species 1.3, 27.1, 55.11, 55.3, 76.4, 83.5, P2.150, P2.19, P3.24, P3.83
invertebrates 27.1, 76.2, P1.18, P1.43, P1.63, P3.130, P3.46
Isotopes 94.1
jaws 10.8, 63.3, 71.1, P1.50, S8.3
jumping 73.2, 73.3, P3.61
Juvenile 101.4
Key Innovation P3.112
Kidney P3.12
Kinase 97.8
kinematics 10.9, 15.5, 17.4, 40.1, 40.5, 70.6, 83.2, 83.5, 84.1, 98.7, 104.3, 104.5, P1.51, P1.56, P1.58, P3.62
kinetics 69.5, 70.6, 74.5, 98.7
kisspeptin 29.6, 43.5
krill 15.3
laboratory teaching P3.126
lamellae P1.86
lamprey 13.2, 13.4, 18.6, 26.9, 37.5, 99.6, P1.76, P2.43
Lampyrid 36.6
larvae 8.5, 11.3, 28.5, 52.1, 52.2, 62.2, 66.2, 101.1, 101.10, 101.11, 101.2, 101.8, 101.9, P1.128, P1.38, P1.45, P2.103, P2.109, P2.19, P2.45, P2.46
larval development 18.3, 101.6, P2.18, P2.48
lateral line 1.10, 51.3, 51.4, P1.166, P2.110, S1.3
lateral occlusion P1.53
lateral somitic frontier 13.4
lean mass 50.2
Learning 1.2, 94.6, P3.126A
Leech P3.130
lepidopterans 33.3, P1.93, P2.127, P3.37
leptin 92.7, P3.74
life history 2.1, 2.2, 2.4, 2.5, 2.6, 11.8, 54.3, 89.6, 92.5, 101.7, P2.178, P3.106, P3.109, P3.48, S2.10, S3.2
limbs 12.1, 12.6, 22.2, 22.3, 40.6, 57.6, 87.5, 98.6, 102.5, P2.97, P2.99, P3.49, P3.55
linkage mechanism 98.11
lipids 42.3, 54.4, 60.3, 60.8, 78.6, P1.71, P1.73, P2.194, P2.196, P3.214
lizards 1.8, 11.6, 42.5, 44.2, 44.4, 47.1, 85.6, 96.3, 98.3, 104.1, 104.4, P1.102, P1.108, P1.28, P1.46, P1.69, P1.77, P2.106, P2.114, P2.120, P2.87, P3.170, P3.55, S3.5
lobster 1.6, 14.3
locomotion 15.1, 15.2, 20.5, 23.2, 37.4, 37.6, 38.5, 39.3, 40.1, 40.2, 40.4, 40.6, 42.5, 43.3, 43.4, 43.5, 60.2, 69.1, 70.3, 73.2, 73.4, 74.1, 74.2, 74.3, 74.5, 86.1, 86.2, 86.4, 86.5, 86.6, 98.10, 98.1, 98.2, 98.4, 98.5, 98.8, 98.9, 102.2, 104.1, 104.2, P1.108, P1.168, P1.66, P1.97, P2.111, P2.144, P2.62, P2.65, P2.70, P2.78, P2.80, P2.89, P3.36, P3.37, P3.40, P3.48, P3.50, P3.52, P3.53, P3.54, P3.55, P3.56, P3.57, P3.58, P3.60, P3.61, P3.63, P3.64, P3.65, P3.66, P3.67, P3.68, S4.3
lung 16.5, P3.27, S5.10
lungfish 40.6
lysozyme 31.1, P3.98
macroevolution 22.5, 35.1, 61.4, 64.4, 71.3, 72.5
Madagascar 85.6, P2.23
magnetoreception 77.4, P1.103
malaria P1.108
mammals 20.1, 20.2, 25.4, 42.2, 53.1, 57.6, 66.4, 75.3, 90.7, 90.8, P1.91, P2.104, P3.13, P3.45, S10.1
marine biology 8.7
marine ecology 1.7, 7.2, 41.2, 55.4, P1.34, S6.3
marine herbivory 59.3
marine invertebrates P1.32, P1.90, P3.107, P3.139, P3.174, P3.200
marine mammals 10.2, 60.8, P2.68

marsupial 19.3, P1.12, P3.28
mate choice 79.5, 80.3, P2.15, P3.159, P3.178
mate choice and competition 36.11, P2.9
material properties 10.11, 48.1, P2.58, S7.1, S7.7, S7.8, S7.9
maternal effect 9.2, 99.2, 101.7, P1.151, P2.171, P3.148
maternal investment 5.2, 5.5, 101.7, P3.105, P3.131, P3.151
mathematical model P1.123
mathematical P3.158
mating system 8.9, 87.1, P1.1, P2.92, P2.95, P3.187, P3.198
maximum likelihood 71.5
meal composition 100.9
mechanoreceptor S1.10
mechanosensory 24.1, 45.4, S1.11
Megachilidae P3.83
melanization P1.143
melatonin 29.4, 62.3, P1.82, P2.159, P2.168
membrane transport proteins P2.156, P3.93
mesoderm 13.4
metabolic rate 31.1, 53.3, 53.5, 54.2, 75.2, 75.3, 75.4, 75.5, 75.6, 97.3, P1.115, P2.123, P2.124, P2.126, P2.127, P2.140, P2.26, P3.15, P3.212, P3.31
metabolism 50.5, 54.5, 79.2, 88.6, 92.7, 100.9, P1.109, P1.156, P1.162, P2.134, P2.55, P3.16, P3.17, P3.211, P3.90
metamorphosis 62.1, 99.6, 101.5, P1.76, P1.78, P2.181, P2.44, P2.45, P2.46, P2.47, P2.49, P2.50, P2.83, P3.179, P3.75
metapopulation P2.22
metazoa 26.1
microarray 79.3, P1.132, P1.153, P1.157
microbial ecology 18.1
microbial eukaryotes 2.3
Microhylid 57.1
microRNA 49.5
microsatellites 11.6
microvilli P3.92
mighty 92.3, P1.79
migration 2.1, 30.1, 30.4, 54.1, 54.9, 91.1, 94.1, 94.3, P1.109, P1.147, P1.8, S10.4
miniaturization 102.1
mitochondria 26.5, 50.4, 60.1, 75.5, P1.113, P3.26
mmp P2.134
modeling 8.7, 24.3, 26.7, 51.2, 83.4, 86.4, 91.6, P2.195, P2.78, P3.137, P3.70
modules 22.4, 22.6, 61.4
molecular ecology 6.2, 26.4, 27.5, 76.4
molecular evolution 2.3, 12.6, 18.6, 26.11, 26.2, 26.6, 26.9, 48.2, 49.3, P1.112, P2.39, P3.110, P3.170, P3.201, P3.80
molecular systematics 11.5, 56.3, 56.4, P2.39A, P3.200, S2.9
molluscs 2.2, 25.10, 33.2, 40.5, 56.3, P2.130, P2.144, P3.33, P3.9, S7.9
molting 14.4, 81.3, P1.5, P1.6, P2.28, P2.32A, P2.32B, P3.167, P3.169
morphogenesis 3.4, 13.1, 22.3, 24.2, 62.5, 66.4, 72.1, 90.5, 90.6, P2.42, P2.48, P3.115, P3.116
morphological integration 22.4
morphology 3.3, 12.4, 16.6, 22.1, 22.5, 25.1, 36.8, 40.2, 57.4, 60.7, 68.2, 78.5, 87.2, 87.4, 102.2, 102.3, 103.6, 104.2, P1.166, P2.102, P2.103, P2.105, P2.106, P2.108, P2.151, P2.179, P2.3, P2.52, P2.54, P2.98, P2.99, P3.12, P3.184, P3.185, P3.41, S2.3
morphometrics 11.5, 25.5, 25.8, 55.7, 78.5, 90.3, 103.1, 103.5, P1.24, P2.100, P2.101, P2.39A
mtDNA 11.1, 11.9, P3.202
mucus P1.169, P3.175, S7.4, S7.5
multidrug resistance P3.153
muscle architecture 53.2, P1.63, P1.64, P2.40, P3.62, S7.8
muscle fatigue 98.4, P1.125
muscle physiology 17.3, 60.1, 60.2, 60.6, 100.6, P1.123, P2.137, P3.216, P3.35
muscle power 17.1, 17.2, 71.4, 74.4, P1.66
muscles 37.4, 44.6, 48.4, 60.10, 60.11, 60.5, 68.6, 98.10, 98.1, 98.2, 98.3, 98.5, 98.8, 98.9, P1.118, P1.119, P1.120, P1.121, P1.122, P1.126, P1.44, P1.60, P1.65, P2.131, P2.133, P2.135, P2.136, P2.137, P2.140, P2.142, P2.147, P2.36, P2.80, P3.43, P3.50, P3.53, P3.66
museums P1.26, P3.125
mussel 11.8, P1.20, P2.21, P3.85
mutualism 5.6, 95.5
myosin P1.124, P2.137, P2.138, P2.139
myostatin 60.5, 92.3, P1.118, P1.119, P1.121, P1.122, P1.79, P2.134
Mytilus 11.9, 18.4, P2.190, P2.35
Na-K-Cl cotransporter P2.154
nanomechanics S7.10
Natural-History P1.26
navigation P1.103
nematodes S1.10
Nemertea 56.1, P3.46
neoplasia 46.2
nervous system 58.1, 66.2, P1.127, P1.128, P1.136, S9.11
neural control 20.3, 37.4, 45.3, 58.5, 86.4, 91.7, P1.133, P1.135, P2.145, P2.49, P2.78, P3.62
neural crest 13.1, 13.2
neural networks 20.4, P3.45
neuroanatomy 33.1, 60.7
neurobiology 19.2, 19.5, 26.2, 32.1, 33.2, 33.4, 45.4, P1.127, P1.129, P1.131, P1.132, P1.133, P1.135, P1.136, P2.148, P2.5, P2.64, P2.74, S1.4
neuroethology 33.1, 36.3, 38.2, 45.5, 58.4, 77.3, P2.145, P2.152, S1.5
neuromuscular junction P1.136
neuropeptides 92.10, P1.130, P3.77, S10.8, S3.4
nicotine P2.148
nitric oxide P2.44, P3.1, P3.2, P3.73
nitric oxide P3.26
nitrogen 46.5, P1.152
non-breeding 30.1, P3.76
non-shivering thermogenesis P3.205
novelty 4.5, 26.11, 26.2, 68.4, P1.149
nuclear receptors 26.8
nudibranchs 28.5, 56.2
nuptial gifts 89.2
Nutritional ecology 59.1, S6.12
nutrition 54.9, 100.7, 101.4, P1.111, P1.77, P3.104, S6.12
occipital region 25.4
Ocean Acidification 101.10
olfaction 19.2, 36.10, 36.11, 36.9, 45.5, 77.2, 77.5, 77.6, P1.132, P3.129
omega-3 P1.110
ontogeny 42.3, 57.2, 67.1, 67.2, 83.3, 88.1, 90.1, 90.3, 90.4, P1.138, P1.54, P2.123, P2.65, P3.87
opsin gene duplication 78.1
Organ mass 53.5
osmoregulation 97.1, 97.10, 97.2, 97.8, P1.138, P1.140, P1.142, P1.145, P1.146, P2.154, P2.155, P3.88, S4.5
oxidative damage P1.161
oxidative stress 54.3, P1.67, P2.175, P2.176
oxygen P3.30
oxygen consumption 53.1, P1.113, P2.126
paleontology 35.1, 57.6, 63.1, P1.83
parasites 4.3, 41.1, 41.2, 41.3, 41.5, 41.6, 65.3, P1.10, P1.23, P2.130, P2.24, P3.109, P3.72, S2.1, S2.10, S2.11, S2.2, S2.3, S2.4, S2.5, S2.6, S6.6
parcellation 22.6
parent-offspring conflict P3.128
parental care 8.2, 9.4, 14.5, 19.6, P3.127, P3.129, P3.130, P3.166, S3.10
parental effects P1.2, P2.93
parvalbumin 60.11
performance 4.1, 47.4, 69.4, 86.3, 88.2, 89.4, 90.1, 90.2, 91.10, 104.5, P1.46, P1.62, P3.206, S3.1, S3.5, S3.8
periodic arousal P2.189
pH-adaptation 100.1
pharmacology S6.1
pharyngeal jaw 90.4, P2.53

phenotypic plasticity 5.2, 5.5, 13.5, 50.4, 54.1, 55.7, 75.4, 95.1, 95.2, 100.3, 100.5, 101.5, 103.1, P2.129, P2.82, P3.105, S10.3

pheromone P2.13, P2.15, P2.162

photoperiod 29.5, BERN.1, S10.11, S10.5

photoreception 26.1, 26.3, P1.137

photoreceptor 77.4, P3.46, S4.7

phylogenetic inertia 44.5

phylogenetic mapping 3.1

phylogenetic signal 44.5, 56.5

phylogeny 11.4, 41.1, 49.6, 56.2, 56.3, 56.4, 57.1, 57.3, 70.1, P2.51, P3.107, P3.125, P3.142, P3.199, P3.204, P3.78, S2.7, S2.9, S4.9, S5.9

phylogeography 11.3, 11.7, 11.8, 28.3, P1.21, P2.96B, P3.85

physiological ecology 36.10, 54.2, 78.3, P1.73, P3.73, P3.98

physiology 17.1, 42.2, 58.2, 76.6, 87.4, P1.85, P3.14, S3.6, S5.1

pigmentation 44.3, 49.1

pine cone 52.4

Pinnipeds 17.5, 92.9, P1.83, P2.132

placentation 2.5, 96.3, P1.69, P2.112

plankton 8.6, 15.2, 15.6, P2.115

plants 52.4, 90.5, 90.6, P2.39A, P2.76, S6.8, S7.3

plasticity 1.11, 1.4, 7.2, 19.2, 19.6, 55.1, P1.159, P2.18, P3.92

pollination 55.11

pollution 14.2, 14.4, 91.11, P1.18, P3.10, P3.12, P3.13, P3.15

Polyandry 85.5, P1.1

polychaetes 37.1, 62.2, P1.34, P2.47, P2.49

polyphenism 1.11

polyploidy P2.6

population density P1.152

population genetics 49.4, 64.1, P3.84, S8.9

Porifera 32.1, S5.3

postural sway P3.51

Power amplification P3.176

predation 4.5, 7.2, 25.7, 36.6, 51.4, 55.4, P1.169, P1.54, P2.50, P3.133, P3.134, P3.135, P3.136, P3.137, P3.138

predator-prey interactions 1.10, 1.2, 1.4, 1.6, 95.2, P1.95, P2.83, P3.139, P3.141

premaxillary protrusion 72.3, P1.56

pressure P3.65

primates 36.11, 96.1, P2.23, P3.63, P3.64, P3.65, S6.6

protandry S10.4

Protein assimilation 16.1

protein limitation P1.109

proteomics 17.5, 18.4, 18.5, 46.5, 54.10, 61.1, 97.6, P1.75, P2.196A, P2.31, P2.34, P2.35, P2.38, P3.71

protostomes 56.1

protozoans P1.25

psycho-neuro-immune S9.3

pycnogonids P3.141

quadrupedal P3.67

rabies 55.6

Radio Telemetry 30.3

Rapid cold-hardening P3.207

ratfish 39.2

reactive oxygen species (ROS) 54.4

receiver P1.101

receptor P1.144

recruitment 6.4, P3.120, P3.179

reduction 86.6

regeneration 92.6, 99.1, 102.5, P1.34, P3.108, P3.143

reproduction 3.2, 19.1, 29.2, 29.4, 29.5, 29.6, 65.5, 79.4, 80.6, 95.4, 101.2, P1.107, P1.160, P1.4, P1.5, P2.14, P2.153, P2.164, P2.166, P2.25, P2.89, P3.11, P3.145, P3.146, P3.147, P3.150, P3.41, P3.80, P3.95, S10.2, S10.5, S10.7, S10.8, S10.9, S9.8

reproductive ecology 8.8, 55.1, 80.1, 80.5, 85.5, 89.6, S10.1

reproductive mode 2.5, 3.1, P2.112

reptiles P1.70, P1.72, P2.170, P2.196, P3.3, P3.5, P3.8

resource availability 94.2, P1.14, P3.105

respiration 24.4, 50.4, 54.11, 54.6, 75.1, 97.5, P1.158, P1.161, P2.149, P2.157, P2.196A, P2.59, S4.6

Rh 97.2

rheotaxis P1.103

Rhizocephala 41.3

rhythmic behavior 20.3, 58.2, 100.6, P1.48, P1.75

Ricordea 27.5

robotics 33.5, 36.7, 40.4, 74.6, 86.5, 86.6, P1.165, P3.47

rocky intertidal 55.10, P2.82

rodents 16.1, P1.47, P3.210, S9.2

running speed P2.92

salamanders 7.4, 102.4, 104.5, P2.129

salinity 46.5, 97.1, 97.6, P1.146, P1.33, P2.21, P2.24, P3.18, P3.71

saltwater intrusion 5.2

scaling 10.3, 60.1, 67.3, 73.4, 75.6, 88.2, 103.3, P2.182, P3.59

scallop P3.40

schooling P2.71

Sclerotome S5.6

sea turtles 75.1, P2.67, P3.11, P3.151, P3.20

sea urchin 8.4, 16.4, 18.5, 101.10, P1.37, P2.109, P2.34, P3.123

seasonality 2.4, 29.3, 29.6, 32.2, 54.8, 75.4, BERN.1, P1.13, P3.193, P3.197, P3.73, S10.10, S9.11, S9.9

secondary cartilage P2.41

secondary metabolite 5.3, 59.3, S6.5, S6.8

seed dispersal 55.3

seed predation P2.184

selection 9.1, 55.5, 61.3, 103.2, S8.6

Sensory biomechanics 38.4

sensory drive P1.100

sensory physiology 33.1, 33.2, 33.3, 33.4, 33.6, 37.5, 38.4, 51.5, 51.6, 87.6, S1.10, S1.4, S1.8, S1.9

sensory-motor 33.5, 45.2, 45.5, P1.165, S1.5, S1.7

sequence divergence P3.204

serotonin (5-HT) P2.158, P3.115, P3.116, P3.4

settlement 6.4, 52.2, 62.2

sex allocation 95.4

sex determination 47.2, P2.170, P3.152, S8.8

Sex differences 4.2, 81.2, 94.3, P1.101, P1.64, P2.120, P2.33

sex ratio P1.30, P2.163, P2.167, P3.149, P3.20

sexual conflict 11.11

sexual dimorphism 32.2, 47.1, 96.4, P1.15, P1.90, P2.10, P2.11, P2.113, P2.4, P2.94

sexual selection 25.8, 36.6, 44.3, 66.3, 85.1, 85.2, 85.4, 85.6, 89.2, 89.3, 89.4, P1.100, P2.2, P2.7, P2.91, P2.93, P3.178, P3.188

shark 63.3, 67.4, 94.3, P1.66, P2.118, P2.135, P3.6

shell 92.1, P2.100

shrimp 2.1, 77.3, 95.5, P1.153

signal transduction 92.8, P2.144

signaling 25.9, 34.3, 66.1, P3.143, S5.2, S5.3

silk 48.4, 48.5

simulation P3.137, P3.138

size 29.1

skeleton 12.3, P2.18

skin 97.4, P2.57

skulls 67.5, 71.1, 90.3

snails P1.169, P1.24

snakes 5.1, 8.2, 10.4, 10.5, 16.2, 38.4, 64.5, 69.4, 91.5, 94.6, 104.3, P1.114, P2.106, P2.14, P2.98, P3.127, P3.48, P3.95

social interactions 29.3, 47.5, 58.4, 77.5, 80.6, 93.3, P1.31, P2.159, P3.157, P3.22

social learning P1.31

sociality 75.6

somite 13.3

sonar jamming 36.4

song production 36.3, P1.64, P2.9

songbird 9.7, 64.1, P2.153, P3.164

sound S1.2

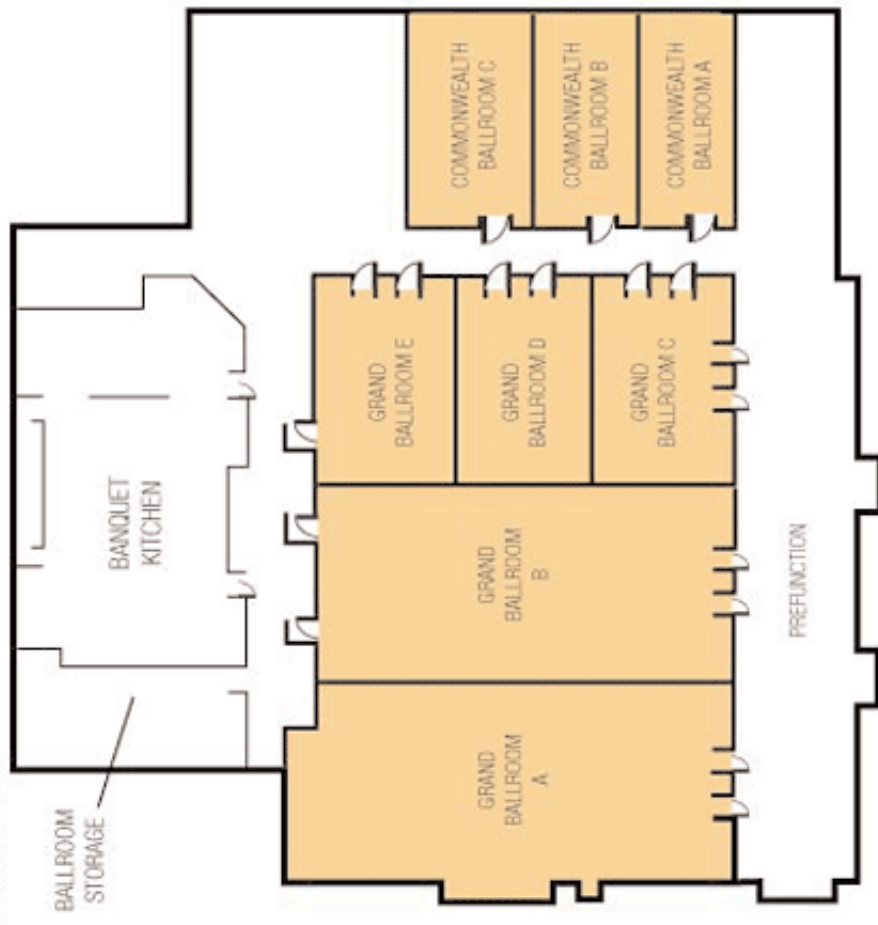
specialization 25.7, 59.1

speciation 11.10, 11.11, 49.4, 64.1, 64.2, 76.5, P1.88, P2.6, P2.96B, P3.180, S8.6

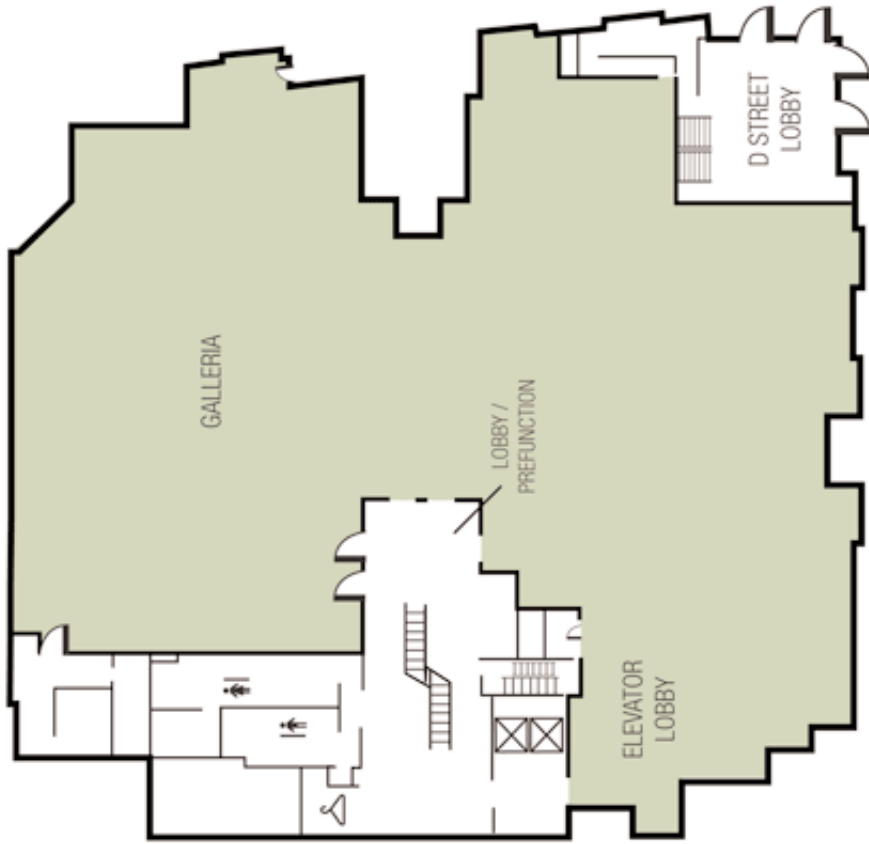
species coexistence 6.6

species recognition 11.10, P1.84

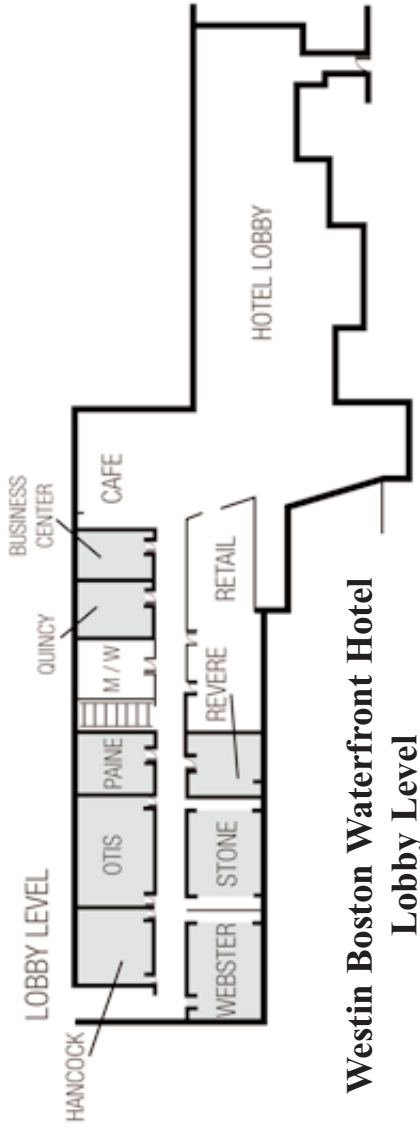
Spectrophotometry P3.195
 spermatozoa 61.1
 spiders 7.1, 23.1, 26.6, 48.5
 spinal cord 37.5
 sponges 6.1, 6.3, P1.39, P3.114, S5.4
 spring properties P1.63
 Squamata 99.5
 squirrels 43.2, P2.52
 stability 21.4, 99.1
 stable isotopes 50.2, 54.1, 55.9, P1.83, P2.121, P2.189
 statistics P3.121
 stem cells 61.5
 steroids 65.5, 99.2, P2.136, P2.166, P2.169, S3.8
 Stomatopod 48.1, P1.99, P3.176, P3.198, P3.35
 stopover P1.147
 strain P3.58
 stress 9.5, 14.1, 39.5, 65.1, P1.149, P1.155, P2.160, P2.172, P2.186, P2.38, P3.102, P3.162, P3.163, P3.165, P3.166, P3.167, P3.170, P3.196, S3.8, S7.3, S9.1, S9.3, S9.5, S9.6, S9.7
 stress responsiveness 1.3, 9.10, 9.1, 9.4, 9.6, P1.156, P3.164, P3.168, P3.76, S6.2
 students P3.120
 substrate limitation P2.126
 suction feeding 71.4, 71.5, P1.53, P1.55, P1.57, P1.59
 surface complexity 55.10
 survival 91.6, P1.141, P1.67
 suspension feeding 8.6, 83.4
 swimming 15.1, 15.4, 39.2, 39.3, 39.4, 40.5, 51.3, 53.6, 89.3, 98.1, P1.98, P2.61, P2.63, P2.66, P2.67, P2.71, P2.72, P2.73, P2.80
 symbiosis 6.2, 6.5, 18.1, 41.6, 54.10, 55.1, 93.2, P1.25, P3.171, P3.172, P3.174, P3.175
 symphysis P1.50, P2.114
 syrinx 16.6
 systematics 56.1, 57.2, 57.4, P1.23, P1.24, P1.89, P3.198, P3.204, S2.1
 tadpole 10.3, 27.2, 62.5, P1.148, P3.135
 Tail 43.3, 69.5
 taxonomy 41.5, S2.8
 teacher education P3.117, P3.122, P3.126
 teaching 82.1, P3.117, P3.122, P3.126A
 technology 82.1, P3.126A
 teeth 10.10, 10.11, 34.3, 88.4, P1.91, P2.104, P3.113, S8.4, S8.5
 teleost fishes 3.1, 8.8, 9.4, 29.1, 34.4, 35.1, 92.10, 92.2, 100.8, P1.55, P1.57, P3.192, P3.201, P3.44, S3.7
 temperature 16.4, 17.2, 17.3, 17.4, 18.4, 91.11, 91.4, 91.5, 92.2, 100.4, P1.106, P1.115, P1.85, P2.1, P2.174, P2.187, P2.190, P2.196, P2.35, P2.38, P3.127, P3.14, P3.152, P3.206, P3.210, P3.214, P3.215, P3.44, P3.7
 tendon 98.9, P2.133, S7.8
 terrestrial locomotion 69.3, 87.5
 territoriality 36.7, 79.3, P2.161, P2.27, P2.95, P3.161
 testosterone 14.5, 47.1, 47.5, 47.6, 53.4, 65.2, 79.1, 96.4, P1.151, P1.4, P2.161, P2.165, P2.27, P2.30, P3.100, S3.5, S3.7, S3.9
 thermal tolerance 6.5, 8.3, 28.2, 78.2, P2.177, P2.180, P2.186, P2.196A, P3.154
 thermoregulation 8.1, 25.11, 50.6, 54.7, 91.1, 91.3, 91.4, 91.7, 91.8, 91.9, 94.5, P1.143, P1.70, P1.9, P2.194, P3.134, P3.136, P3.205, P3.211, P3.212, P3.216
 throwing P3.70
 thyroid hormone 14.6, 99.6, P1.76, P2.178, P2.44, S10.5, S5.2
 Tibet 9.7
 Tomia 103.6
 Tooth replacement 34.4, 99.5
 tooth whorls 63.3
 tortoises P3.41, P3.84
 toxicology 46.4
 tracheae P1.158
 Trade-off 8.2, 39.1, 83.2, 89.5, 98.6, P1.14, P1.5, P2.84, P3.106
 transposon 62.1, P3.80
 Triclosan 46.3
 tunicates 8.10, P3.107, P3.111, P3.39, P3.71
 turbidity 101.3
 turning 69.2, P2.145
 turtles 24.5, 55.9, P1.11, P1.51, P2.100, P2.165, P2.72, P2.81, P3.148, P3.152, P3.156, P3.17, P3.197, P3.29, P3.50, P3.79
 ultraviolet radiation 5.4, 18.5, 26.4, 101.2, 101.3, P1.33
 uncoupling protein S5.5
 undergraduate research 82.3, 100.8, P1.21, P1.94, P3.117, P3.121, P3.125, P3.19
 urbanization 76.3
 urchins P2.116
 urea 60.11, P2.124, P2.191
 Urodeles P2.155
 variation 22.4, 57.2, 85.2, P1.167, P2.103, P2.96A
 vasotocin 47.3, P1.140, P2.168
 venom 26.6, P1.115, P3.91
 ventilation 38.3, 54.11, 80.2, P1.125, P1.60, P2.136, P2.142, P2.55, P3.34
 vertebral column 20.1, 39.5, 53.6, P2.61, S5.6
 vertebrates P3.47, S10.3, S5.6
 Vibrio 18.2
 vibrissa S1.7
 vigilance P1.10
 viruses S2.11
 vision 48.2, 77.1, 78.1, P1.137, P1.163, P3.183, P3.186, S8.7
 visual ecology 25.10, 35.4, 45.1, 49.2, 53.2, 85.4, P1.100, P1.101, P1.102, P1.104, P1.163, P3.188, S8.7
 visual laterality P1.102
 visual plasticity P1.104
 visualization P2.60
 vitellogenesis 81.5
 viviparity 96.3, P1.69, P2.112
 vocalization 47.3, P2.4
 volume P2.182
 wake structure 70.5
 water balance 42.3, 97.3, 97.7, P1.116, P1.145, P1.147, P3.213
 water loss 42.2, 97.4, P1.71, P1.73
 water quality P3.19
 Weberian apparatus 72.2
 White Nose Syndrome P3.99
 white-footed mice 4.3
 wind dispersal 52.3
 wings P2.75
 winter physiology P3.76
 Wnt P1.39, P2.179
 woodchuck P2.192
 woodrat 59.6, P2.185, S6.10
 x-ray 24.6
 Y-organ 81.3, P2.32A, P2.32B
 yolk P1.160, P2.169
 zebra finch 89.5, P2.167, P2.55, P3.149, P3.89
 zebra fish 37.6, 90.4, 91.10, 101.3, P2.43, P2.61, S8.4
 zebrafish 34.3, P1.104, P1.31, P1.45, P2.101, P2.74, P3.10, S1.8



**Westin Boston Waterfront Hotel
Concourse Level**



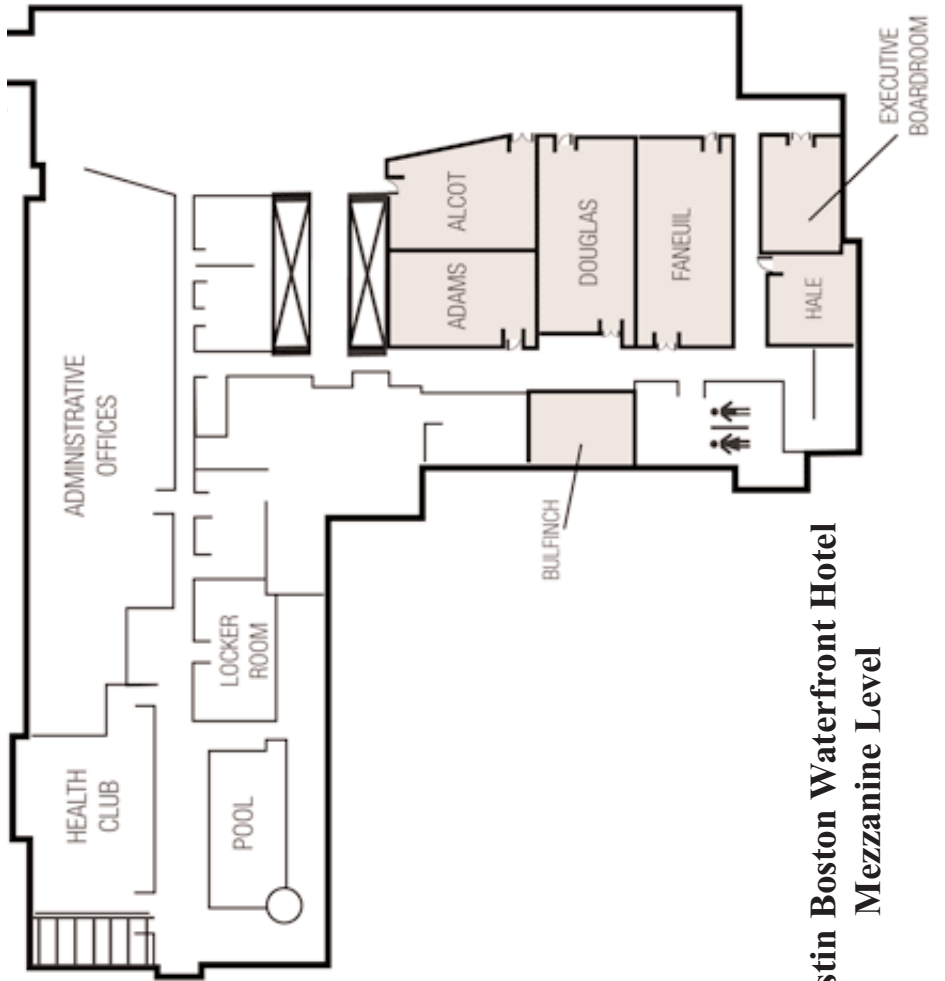
**Westin Boston Waterfront Hotel
Galleria Level**



**Westin Boston Waterfront Hotel
Lobby Level**



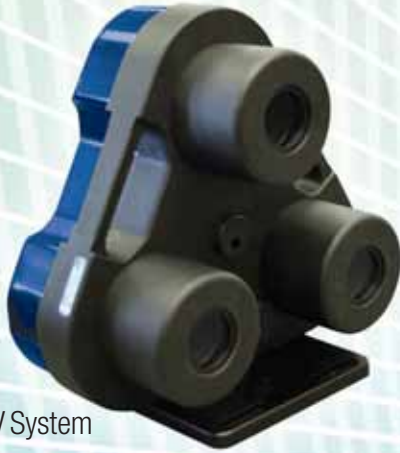
**Westin Boston Waterfront Hotel
Conference Level**



**Westin Boston Waterfront Hotel
Mezzanine Level**

Create the Experience...

Discover the 3-dimensional flow you have never seen!



V3V System



V3V™ System...
From TSI

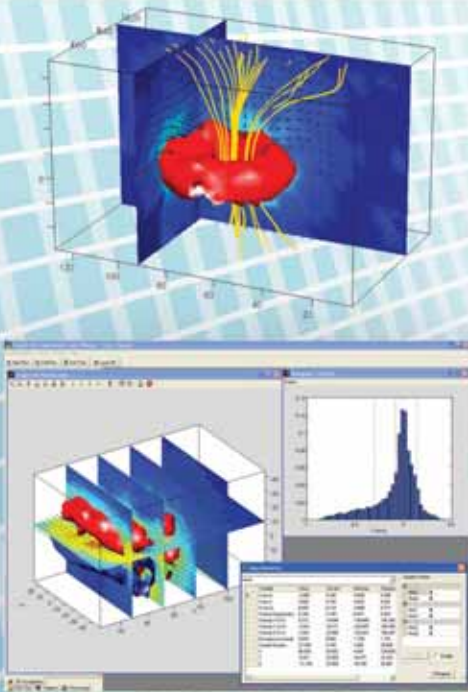
Volumetric 3-Component Velocimetry

The V3V™ System is the only 3-dimensional, 3-component (3D3C) velocity measurement system for your complex 3-D flows in a true volumetric domain.

Once the image of your 3-D flow field is captured, you can see the velocity results in seconds, rather than minutes, thus allowing you to DISCOVER your instantaneous flow field quickly and accurately.

The patented Camera probe in the V3V System uses three apertures to obtain the locations of the seed particles in the 3-D domain up to 140 mm by 140 mm by 100 mm. With 12 million total pixel resolution, it is not only powerful but also simple to use. It is as easy as point and shoot, with no need for focus adjustment or complex alignment procedures.

The measurement of 3-Components of velocity in a truly volumetric region using the V3V System is all you need for your flow measurements.





Join us next year in Seattle, Washington

January 3-7, 2010

Seattle Sheraton and Washington State Convention Center

The Society for Integrative & Comparative Biology

1313 Dolley Madison Blvd.

Suite 402

McLean, VA 22101

Phone: 703-790-1745 - 800-955-1236

FAX: 703-790-2672

Email: SICB@BurkInc.com

Web: www.SICB.org