

SOCIETY FOR INTEGRATIVE AND COMPARATIVE BIOLOGY
Executive Committee Meeting Minutes
3 and 7 January 2014
Hilton Austin
Austin, Texas

Executive Committee Members, 3 Jan 2014:

President – Billie Swalla
President-Elect – Peter Wainwright
Past President – Ken Sebens
Secretary – Lou Burnett
Program Officer – Jon Harrison, not present
Program Officer-Elect – Sherry Tamone
Treasurer – Karen Martin
Member-at-Large – Amy Moran, not present
Member-at-Large – Beth Brainerd, not present
Member-at-Large – Cheryl Wilga

Divisional Chairs

DAB – Diana Hews
DCB – Mark Denny
DCE – Steve McCormick
DCPB – Don Mykles
DEDB – Chris Lowe
DEDE – Marty Martin
DEE – Mike Angilletta
DIZ – Jim McClintock
DNB – Jim Belanger
DPCB – Mike Alfaro
DVM – Alice Gibb

Editor, *ICB* – Harold Heatwole
Student Postdoctoral Affairs Committee Chair – Sean Lema
Educational Council Chair – Bob Podolsky
Broadening Participation Committee Chair – Michele Nishiguchi
Executive Director (*ex officio*) – Brett Burk

Others present:

Committee Chairs

Amy Johnson – Membership Committee Chair
Jake Socha – Public Affairs Committee Chair
Darwin Jorgensen – Development Committee Chair

Guests

Stephen Secor – DCPB Chair-Elect
Suzanne Miller – *ICB* Assistant Editor
Ian Sherman – Oxford University Press Publishing Editor
Callum Ross – DVM Chair-Elect

David Drupa – Executive Secretary (BAI)
Jane Silverthorne – NSF
Steve Ellis – NSF
Bill Zamer – NSF

1. **Call to Order.** The meeting was called to order at 2:30 p.m. by President Billie Swalla. President Swalla welcomed and introduced the members of the Executive Committee and guests.
7. **New Business** – This item of New Business was moved to the top of the agenda. Marty Martin was introduced to outline the plans for the establishment of a new division to be called the Division of Ecoimmunology and Disease Ecology.
Lou Burnett moved, Hal Heatwole seconded, that the Division of Ecoimmunology and Disease Ecology be established. The motion passed by acclamation.
2. **Record of Executive Committee Actions**
 - a. **Approval of minutes of the 2013 Executive Committee Meeting**
The minutes of the 2013 Executive Committee meeting were approved as submitted.
 - b. **The following actions of the Executive Committee between the annual meetings were read into the minutes for the record.**
 1. Endorsement of Letter from former SICB Presidents to President Obama – February 4, 2013; 20 of 24 members voting; 11 approved, 8 disapproved, 1 abstained; see [Appendix 2](#) for the text of the letter.
 2. Selection of 2017 Annual Meeting Site - New Orleans, Louisiana – December 5, 2013; 23 of 24 members voting; 23 votes for New Orleans, LA, 0 votes for Dallas, TX.
3. **Officer Reports.**
 - a. Program Officer – Jon Harrison (Harrison’s arrival at the meeting was delayed so Sherry Tamone, Program Officer-Elect gave a brief report. There was much work put into organizing this meeting; abstract numbers will be presented later. There is a new meeting App. More than 1500 abstracts were received and the number of individuals preregistered for the meeting is 1951.
 - b. Secretary – Lou Burnett (**Secretary Report,**)
 1. The Secretary reported on a number of items associated with the organization and management of the Society ([Appendix 3.Secy.a](#)).
 2. The newsletter schedule for 2014 was reviewed.
 - a. Spring 2014
 1. Mar 3 - submission due
 2. Mar 25 - review on-line draft
 3. Apr 4 - corrections due
 4. Apr 9 - newsletter goes on-line
 - b. Fall 2014
 1. Oct 8 - submission due
 2. Oct 24 - review on-line draft
 3. Oct 31 - corrections due
 4. Nov 5 - newsletter goes online
 3. The Secretary reviewed the Spring election schedule.

- a. Elections occur in the spring ([Appendix 3.Secy.b SICB Election Schedule for Spring 2014](#) for SICB-wide and divisional elections). The full election schedule is available online: Resources > Elections > Election Schedule for SICB and Divisions or <http://www.sicb.org/resources/electionschedule.php3>.
 - b. The divisional chairs were reminded to appoint nominating committees for divisional offices in the fall prior to the annual meeting. Nominating committees may use the list of candidates who have previously run for offices (Resources > Elections > Election Candidates for SICB and Divisions or <http://www.sicb.org/resources/electioncandidates.php3>).
4. SICB Bylaws changes last spring.
 - a. There were no bylaws amendments in 2013.
 5. Divisional Best Student Presentation awards procedures were reviewed.
 - a. Best Student Presentation procedures for administering the awards are posted on SIB web site Resources > Administration, Contacts & Handbooks > Administrative Procedures for Divisional Best Student Presentations. The description of the procedures has been revised ([Appendix 3.Secy.c, Administrative Procedures on Divisional Best Student Presentation Awards at the Annual Meeting](#)).
 - b. **Divisional Secretaries** must report the results of Best Student Presentation awards to the SICB Secretary **within 2 weeks** after the annual meeting for posting on the SICB web site and notification of winners.
 - c. Procedures for processing certificates and checks were reviewed. Divisional Chairs signed a circulating form for certificates to be presented.
 6. The Secretary reviewed a number of Resources available on the SICB web site.
 7. Post-meeting Survey. A post-meeting survey was sent to all attendees of the 2013 annual meeting and 490 individuals responded. The results of the survey were shared with the Executive Committee. The feedback was used to improve the annual meeting and the program of the meeting. A post-meeting survey is planned for this year.
- c. Treasurer – Karen Martin - **Treasurer Report**
1. The Treasurer reported on the finances of the Society ([Appendix 3.Treas.a, Treasurer Report](#)).
 2. A budget for 2015 was presented and discussed. Further discussion occurred at the Executive Committee meeting on 7 Jan 2014.
 3. The Treasurer announced that a survey evaluating Burk & Associates, Inc. and SICB Executive Officers will be sent after the annual meeting to all 2013 Executive Committee members, SICB committee chairs, and divisional officers. The survey closes on January 31, 2014.

4. Special Reports

- a. National Science Foundation representatives Jane Silverthorne, Steve Ellis, and Bill Zamer were present at the meeting. Bill Zamer presented an update on Grand Challenges in Organismal Biology at the NSF ([Appendix 4.NSF Update](#)).

5. Committee Reports

a. Journal, *Integrative and Comparative Biology* – Editor, Hal Heatwole

1. Hal Heatwole reported on the status of the journal ([Appendix 4.ICB Editor Report](#)).
2. Editorial Board appointment. Editor Heatwole nominated Lars Schmitz to represent DPCB on the *ICB* Editorial Board as recommended by the division. The credentials of Lars Schmitz had previously been circulated. The appointment will be for a term 01/2014-01/2019.

The Executive Committee approved the appointment of Lars Schmitz by acclamation.
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3. Ian Sherman, Oxford University Press, reviewed the Publisher's Report previously circulated to the Executive Committee.
4. President Billie Swalla announced that given the end of Editor Hal Heatwole's term in January 2016, a search committee to identify a new editor will be formed. She asked for suggestions of individuals who might serve on the search committee and also suggestions of candidates for editor. The journal is in excellent condition thanks to the leadership of Hal Heatwole and the support of Ian Sherman.

b. Standing Committee Reports (committee order as listed in the SICB Bylaws) ([Appendix 5](#))

1. Advisory – Sebens ([Appendix 5. Advisory](#)).
2. Educational Council – Podolsky ([Appendix 5. Ed Council](#)).
3. Membership – Johnson, no report
4. Nominating – Manahan, no report
5. Editorial Board, *ICB* – Heatwole (included in Journal Report above)
6. Student/Postdoctoral Affairs – Lema ([Appendix 5.SPDAC](#)).
7. Student Support – Patek ([Appendix 5.Student Support](#)).
8. Finance Committee – Martin (included in Treasurer Report)
9. Public Affairs – Socha ([Appendix 5.PAC](#)).
10. Program – Harrison (included in Program Officer Report)
11. Development – Jorgensen ([Appendix 5.Development](#)).
12. Broadening Participation – Nishiguchi ([Appendix 5.BPC](#)).

6. Divisional Reports. ([Appendix 6](#))

1. Animal Behavior
2. Comparative Biomechanics
3. Comparative Endocrinology
4. Comparative Physiology & Biochemistry
5. Evolutionary Developmental Biology
6. Ecology & Evolution
7. Invertebrate Zoology
8. Neurobiology
9. Systematic & Evolutionary Biology

10. Vertebrate Morphology

7. New Business

- a. Honorary Members – as per the SICB Bylaws, the Membership Committee recommended approval of two new honorary members that were nominated by the SICB Executive Officers and whose biographies were circulated previously.
Jim McClintock moved, Sherry Tamone seconded, that Randy Olson and Ross Nehm be given Honorary Memberships in the SICB. The motion passed by acclamation.
- b. Orlando, Florida Meeting Venue 2018 – Brett Burk brought forward information on a possible 2018 meeting venue in Orlando, Florida. The BAI meeting organizers Lori Strong and Jennifer Rosenberg had been working on the 2017 meeting planned for New Orleans. Discussions were occurring with the Sheraton Hotel in New Orleans and there was an opportunity to explore a meeting in Orlando, Florida under the Sheraton corporate umbrella. The 2018 meeting is scheduled to rotate to an east coast venue. The following points were discussed.
 1. Sheraton has proposed to give SICB a rebate for New Orleans and Orlando meeting, which would amount to a reduction in cost of \$18,000 for New Orleans and \$21,000 for Orlando. They would also lock in a room rate of \$145 for 2018 in Orlando. The last time SICB met in Orlando was 2006 and the feedback from SICB members was very mixed. Many felt that it was a very family-friendly meeting, but others suggested that individuals were not attending sessions because of the proximity of Disney World. In addition, the cost of food was judged to be too high, especially for students.
 2. The proposed specific venue was the Swan and Dolphin, which is not a Disney World property. There are numerous affordable eating places nearby.
 3. There was general discussion and the matter was deferred until the second Executive Committee meeting on January 7.
 4. Discussion continued on the topic of approving a meeting venue in Orlando, Florida. Divisional Chairs brought information from the different divisions based on feedback from divisional meetings.
 5. A straw poll was taken with 5 voting in favor of meeting in Orlando and the remaining against. It was decided that further information was needed and that an electronic poll would possibly be used to call for a vote.

Executive Committee Members, 7 Jan 2014:

President – Billie Swalla
President-Elect – Peter Wainwright
Past President – Ken Sebens
Secretary – Lou Burnett
Program Officer – Jon Harrison
Program Officer-Elect – Sherry Tamone
Treasurer – Karen Martin
Member-at-Large – Amy Moran
Member-at-Large – Beth Brainerd
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DAB – Diana Hews
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Editor, ICB – Harold Heatwole
Student Postdoctoral Affairs Committee Chair – Sean Lema
Educational Council Chair – Bob Podolsky
Broadening Participation Committee Chair – Michele Nishiguchi
Executive Director (*ex officio*) – Brett Burk

Others present:

Guests

Stephen Secor – DCPB Chair-Elect
Suzanne Miller – ICB Assistant Editor
Ian Sherman – Oxford University Press Publishing Editor
Mary Mendonca – DCE Chair-Elect

The Executive Committee meeting convened again at approximately 7:00 a.m. on 7 January 2014.

7. New Business (continued)

- b. There was continued discussion following the previous meeting of the 2018 Annual Meeting venue in Orlando, Florida.
 - 6. Divisional Chairs brought information from the different divisions based on feedback from divisional meetings.
 - 7. A straw poll was taken with 5 voting in favor of meeting in Orlando and the remaining against. It was decided that further information was needed and that an electronic poll would possibly be used to call for a vote.

5. Committee Reports (continued)

- b. Standing Committee Reports
 - 1. Advisory Committee – The committee met on 5 Jan 2014 and Ken Sebens presented a report ([Appendix 5. Advisory](#)).

8. Recognition of Officers

- b. A number of members of the SICB Executive Committee have terms ending at the end of this Executive Committee meeting. President Billie Swalla acknowledged the service of these individuals, which included the following.
 - 1. Amy Moran – Member-at-Large
 - 2. Steve McCormick – Chair, DCE
 - 3. Don Mykles – Chair, DCPB
 - 4. Chris Lowe – Chair, DEDB
 - 5. Jon Harrison – Program Officer

Appendix 2, Letter to President Obama

31 January 2013

An open letter to President Barack Obama,

Members of the Society for Integrative and Comparative Biology are biologists from throughout the U.S. with the broadest possible perspectives—from microbes to whales, from molecules to ecosystems. The undersigned current and past presidents of the Society and the Society's Executive Committee have watched with increasing dismay the deterioration of the life support system of our planet, threatening all life as we know it.

It has long been known that one product of burning fossil fuel, carbon dioxide, is a powerful greenhouse gas, and more recently that this gas has been associated with drastic climate variations in Earth's past. Consequently, it is no surprise that prodigious worldwide burning of fossil fuel is creating large-scale climate change with increasing disruption of life on the planet. While many in the western developed nations still enjoy relative prosperity – despite the horrific storms experienced in the U.S. in recent years – it is in poor nations around the world that the impacts of climate change are currently most destructive. Pacific Island nations are disappearing beneath the tides as sea level rises. Desertification is destroying agriculture in northern Africa, and massive floods have devastated Pakistan, Bangladesh and Thailand in the last two years.

It is too late to avoid substantial disruption, but further damage can be reduced if we act immediately to keep remaining fossil fuel deposits in the ground, out of the air and sea. A most immediate decision is yours: whether or not to approve the Keystone XL pipeline. More important than the fact that the pipeline itself will endanger aquifers and life along its length, the pipe will deliver the dirtiest, most CO₂-producing petroleum source known, to be refined on the Gulf Coast. Additionally, the Athabaskan tar-sands mine is destroying vast regions of northern Alberta that have been home and hunting and fishing grounds for First Nations peoples for thousands of years.

Even before fossil fuels are burned, releasing climate-altering greenhouse gases, the extraction phase itself produces environmental disasters, including toxins in water supplies due to hydraulic fracturing for natural gas, degradation of watersheds by mountain-top coal mining, and the loss of marine life from offshore drilling. Permits for all of these activities lie in the hands of agencies of your administration.

Alternative sources of energy are at hand. We do have the individual and collective intelligence and technology to see the urgently needed transition through to better times. What we require is sufficient political will on a global scale to meet the challenge. The U.S., for the last three federal administrations, has been a major impediment to ratification of international climate treaties. Clearly, the future demands that we – through your administration – reverse this pattern and join with leaders of other nations to ratify agreements that will quickly and drastically reduce greenhouse gas emissions.

Mr. President: you are arguably the most powerful person in the wealthiest and most powerful nation on the globe. To be clear, change will come, one way or another. Your task is no less than to steer the course of history away from its current devastating trajectory toward a sustainable existence for humankind.

Signed by:

Billie Swalla, University of Washington
President, 2013-2014

Peter Wainwright, University of California, Davis
President-elect, 2013-2014

Kenneth Sebens, University of Washington
Past President, 2011-2012

Richard Satterlie, University of North
Carolina, Wilmington
Past President, 2009-2010

John Pearse, University of California, Santa Cruz
Past President, 2007-2008

Sally Woodin, University of South Carolina
Past President, 2005-2006

Marvalee Wake, University of California, Berkeley
Past President, 2001-2002

Alan Kohn, University of Washington
Past President, 1997-1998

Michael G. Hadfield, University of Hawaii
Past President, 1995-1996

David Wake, University of California, Berkeley
Past President, 1992

Lynn Riddiford, University of Washington
Past President, 1991

Albert Bennett, University of California, Irvine
Past President, 1990

Stephen Wainwright, Duke University
Past President, 1988

William Dawson, University of Michigan
Past President, 1986

Patricia Morse, University of Washington
Past President, 1985

Edwin L. Cooper, University of California, Los Angeles
Past President, 1983

F. John Vernberg, University of South Carolina
Past President, 1982

Mary E. Rice
Past President, 1979

And approved by the Executive Committee of the Society for Integrative and Comparative Biology, following the Society's Resolution on Climate Change and Ocean Acidification approved on March 1, 2012: <http://www.sicb.org/resources/resolutions.php3#climate>

Appendix 3.Secy.a, Secretary Report

Lou Burnett, Secretary

The items reported here are ones in which the secretary had significant involvement.

Email Contacts and Calendar Updates. The email accounts created for some of the Society officers have expanded to include more individual and some committees. These accounts have facilitated communication and include automatic notices tied to the SICB calendar. The full list of accounts with email addresses is available on the SICB web site > Resources > Administration, Contacts & Handbooks > SICB Officer and Committee Email Contacts.

Officer and Committee Manuals. Additions and updates were made to the manuals for officers and committees containing standard operating procedures. Like all societies, the turnover of officers and the training of new officers is an ongoing challenge. The Secretary will continue to work with Society-wide and Divisional officers over the next two years to update these manuals. Manuals will appear on the SICB web site > Resources > Administration, Contacts & Handbooks > Officer Handbooks and Committees and Other. The following are available.

- President Manual
- Secretary Manual
- Program Officer (in progress)
- Treasurer Manual (new)
- Member-at-Large Manual
- Divisional Officer Manuals
 - Divisional Chairs Manual
 - Divisional Secretaries Manual
- Committee Manuals
 - Membership Committee
 - SICB-wide Nominating Committee
- Other
 - Administrative Procedures for Divisional Best Student Presentations
 - SICB Awards List and Timelines

Bylaws Updates. There were no bylaws amendments in 2013.

Newsletter. The newsletter schedule is published on the agenda. Please put these dates on your calendars. The deadlines are serious. Spring is time for Society-wide and divisional elections. Please make sure your nominating committees have a complete slate of officers and at least two candidates for each position. Divisional secretaries will work with the chairs to provide complete candidate biographies with photos.

Member Updates. We have continued to use SICB Member Updates to provide members with monthly information on the activities of the society. This past year we began using MailChimp to send these updates. We receive many requests from divisions and committees to post announcements and these are included in the monthly updates.

Executive Officers. The executive officers of the society had significant interaction with each other throughout the year with a total of 34 conference calls and a September planning meeting in Austin, TX.

Appendix 3.Secy.b, SICB Election Schedule for Spring 2014

SICB-Wide Elections in 2014

President-Elect
Program Officer-Elect
Treasurer-Elect
Chair, Educational Council
Member-at-Large

Divisional Elections in 2014

Division of Animal Behavior	Secretary
Division of Comparative Biomechanics	Chair-Elect
Division of Comparative Endocrinology	Program Officer-Elect
Division of Comparative Biochemistry & Physiology	Chair-Elect Program Officer
Division of Evolutionary Developmental Biology	Chair-Elect Program Officer-Elect
Division of Ecology & Evolution	Chair-Elect Program Officer-Elect
Division of Invertebrate Zoology	Chair-Elect
Division of Neurobiology	Chair
Division of Phylogenetics & Comparative Biology	Chair-Elect Secretary-Elect
Division of Vertebrate Morphology	Chair-Elect Secretary-Elect

Administrative Procedures

Divisional Best Student Presentation Awards at the Annual Meeting (updated 18 Dec 2012)

This procedure describes a process that outlines the responsibilities of the Divisional Chair, the divisional representatives, the SICB business office, and the SICB Secretary in administering the Best Student Presentation Awards.

1. **Awards Committee Appointment.** Divisions should review their procedures and the Chair should appoint an awards committee no later than the summer prior to the annual meeting. This is a part of the SICB calendar.
2. **Judging.** Appointment of judges is the responsibility of the Divisional Chair or the Chair's delegate. Information on the individuals who wish to be considered for judging is collected as a part of the annual meeting registration process. Additional names may be obtained by divisions. Divisions should emphasize in the fall newsletter the importance of having judges. Instructions on how to volunteer for judging should be provided.
 - a. **List of individuals volunteering to judge.** Names collected through registration will be given to each Chair in the form of a link provided by the SICB webmaster ([Link 1](#)). Through this link a separate spreadsheet can be downloaded for each division. The spreadsheet gives the name of the volunteer judge, the email address, SICB membership status (remember only Postdoctoral and Full Members are allowed to judge), and division(s) for which the individual is willing to serve as a judge.
 - b. **Contact the Judges.** Judges should then be contacted by email and asked to sign up for presentations they are willing to judge. The webmaster will provide the appropriate link for sign-up ([Link 2](#)). On this page judges can view their assignments. Some divisions have rules governing the number of judges required for each paper or poster, so additional work might be required by the division to obtain the desired coverage.
 - c. **List of Presentations and Assigned Judges.** A listing of the presentations and the assigned judges for each division can be obtained through a link provided by the webmaster: [Link 3](#).
 - d. **Collecting Scores.** Scoring can be submitted to the division by paper/email/other means, or by asking the judges to enter their score into an online form: [Link 4](#). **This electronic form can be used regardless of whether the judges have signed up on-line in the step above. The two databases are independent. A division could invite a judge ad hoc at the meeting and have her/him enter the scores on the on-line scoring form.**
 - e. **Viewing the Results.** A list of presentations and their scores by division can be found at the following link: [Link 5](#).
3. **Awards associated with prizes with budgetary implications.** The review of the procedures must include provisions in the divisional budgets for cash awards, memberships, or other prizes that the division will award to student award winners. Wiley-Blackwell has generously underwritten the Best Student Presentations such that each division is allocated \$300 for the student awards (\$150 for best oral presentation and \$150 for best poster presentation). Wiley-Blackwell also provides student winners with a

free one year subscription to an appropriate one of their journals. The following journals are associated with the divisions.

Division of Animal Behavior	Ethology
Division of Comparative Biomechanics	J. of Zoology
Division of Comparative Endocrinology	J. Exp. Zoology A
Division of Comparative Physiol. & Biochem.	J. Exp. Zoology A
Division of Evolutionary Developmental Biol.	J. Exp. Zoology B
Division of Ecology & Evolution	Ecology Letters
Division of Invertebrate Zoology	Invertebrate Zoology
Division of Neurobiology	Developmental Neurobiology
Division of Systematic & Evolutionary Biol.	Evolution
Division of Vertebrate Morphology	J. Morphology

4. **Certificates.** SICB headquarters will make available certificates for each division to present to the student award winners. A sample of the certificates will be provided to the Chairs of each division before or during the annual meeting. At this time, Chairs should order special wording. Certificates will be printed by the business office once student award winners are known.
5. **Reporting winners to SICB.** Divisions handle the mechanisms of judging in different ways. However, the winners of the competitions should be announced on the SICB web site as soon as possible after the annual meeting. *To this end, it is the responsibility of the divisional Secretary to report the names of the winners (with the presentation number) to the SICB Secretary within two weeks after the annual meeting.*
6. **Notifying students of their award.** It is the responsibility of the divisional Chair to notify the students of the status of their awards. The Chair should announce the winners to all students in the division who entered the contest. This can be done simply by an email congratulating the student winners. In this communication, each Chair can indicate that the winners will receive a certificate, a check and a subscription to one of the Wiley journals. A list of student participants and their email addresses can be found at the following link: [Link 6](#).
7. **Certificates (and checks) will be sent to award winners by the SICB business office.** Once the student winners are known, the certificates will be completed for each division by SICB headquarters and mailed along with the check to the award winner.

Appendix 3.Treas.a, Treasurers Report

Karen Martin. Treasurer

The finances of the Society are in good shape. The total assets have increased from \$1,650,445 in FY 2012 to \$1,766,371 in 2013, an increase of \$115,926.

Investments rose from \$1,102,475 as of 30 Nov 2012 to \$1,220,178 as of 28 December 2013, an increase of \$117,703. The investments were re-balanced mid-year. Of these investments, approximately 75% are in the endowed (restricted) funds and 25% in the unrestricted funds.

Endowed funds received over \$22,000 in donations last year, including a major gift of stock to the Hyman fund, auction funds for the Hyman fund, donations to the Symposium Enhancement fund resulting from the wine tour, and donations to the Grants In Aid of Research fund from the octopus travel mugs. In the coming year, new guidelines for fund maintenance and growth will be addressed.

Annual meetings continue operating in the black, as they have since 2009. In 2013 the annual meeting in San Francisco brought in revenues of \$431,011 against expenses of \$414,238. Travel support was provided to 452 students.

The budget approved for FY 2013 predicted revenue of \$748,525 against expenses of \$785,845, with an expected loss of \$37,320. The actual revenue was \$1,006,819 and expenses were \$950,107, with a positive balance of \$56,712. Over the past four fiscal years, approved budgets have anticipated finishing in the red, but results for the past four years have been in the black.

Based on past performance and conservative predictions, the budget for FY 2015 proposes expected revenues of \$872,625 and expenses of \$860,315, a positive balance of \$12,310. This is the first time SICB members will be asked to approve a balanced budget for the coming year, in at least ten years.

Grand Challenges in Organismal Biology

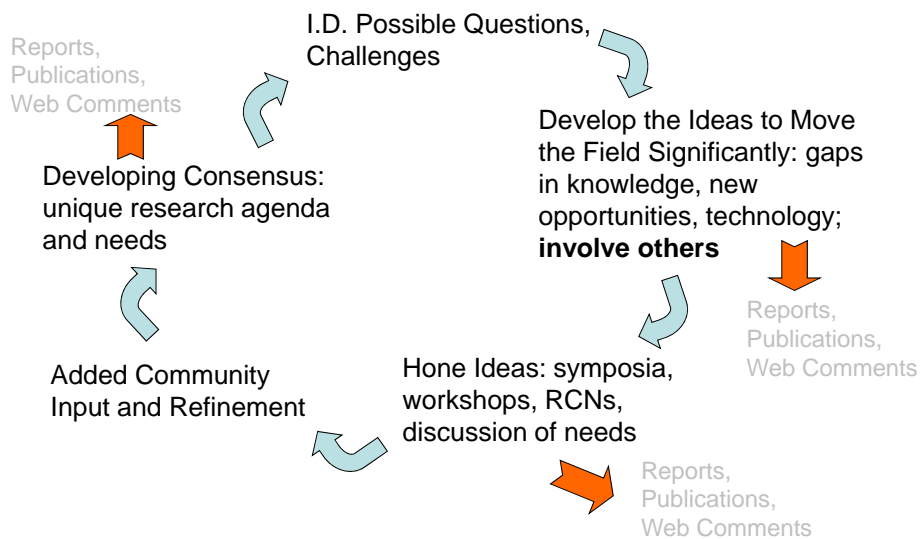
UPDATE!



Bill Zamer, Program Director,
BIO/IOS

At the Start of GCOB

2009



At the Start of GCOB

2009

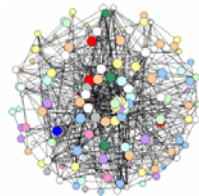
- Persistence, Community Building
 - The near-term process requires your nimbleness in setting priorities. The long-term process will require 2-3 years of focused effort: community discourse, refinement of ideas, buy-in beyond SICB



GCOB UPDATE!

2014

BIO is now in a planning phase to consider enhancing its present investment in Genomes to Phenomes



Genomes to Phenomes

One of 5 grand challenges identified by SICB



“Grand challenges in organismal biology”

Kurt Schwenk, Dianna K. Padilla, George S. Bakken, and Robert J. Full

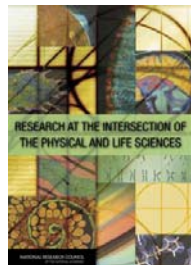
4. “Understanding how genomes produce organisms—Current focus is on descriptive patterns of gene sequences, single gene responses and a few model species. However, the mechanisms by which genes and genomes produce whole organisms with a variety of complex phenotypes and how these processes regulate and shape organismal function and performance are poorly understood.”

Integr. Comp. Biol. **49(1):7-14 (2009)**

Genomes to Phenomes

Identified in other workshops, national reports

“New Frontiers for Organismal Biology,” Dietmar Kùltz, David F. Clayton, Gene E. Robinson, Craig Albertson, Hannah V. Carey, Molly E. Cummings, Ken Dewar, Scott V. Edwards, Hans A. Hofmann, Louis J. Gross, Joel G. Kingsolver, Michael J. Meaney, Barney A. Schlinger, Alexander W. Shingleton, Marla B. Sokolowski, George N. Somero, Daniel C. Stanzione, and Anne E. Todgham *BioScience* **63(6):464-471 (2013)**



Grand Challenge 3 from NRC Report, 2010

Genomes to Phenomes

- Enormous area in modern biology
 - Progress in GtoP can have catalytic effect and stimulate progress widely
- Community interest plus the potential for a catalytic effect across biology lead to the decision to begin a planning phase



Genomes to Phenomes

- The Planning Process
 - Perhaps Focused Workshops, Planning Grants
 - Very soon: A wiki for community input, and community interaction on GtoP
 - ***Is there a compelling area of research where BIO could make a strategic difference in progress on this grand challenge?***



Genomes to Phenomes

- The Planning Process
 - BIO has listened carefully to input of this community and others
 - BIO will use the input of the community on the wiki to shape next steps in planning, including consideration of scientific opportunities shared on the wiki



You have to use the wiki to be seen and heard!

Genomes to Phenomes

Thanks for your engagement in GtoP





*INTEGRATIVE AND
COMPARATIVE BIOLOGY,
REPORT FOR 2013*

By Harold Heatwole
Editor in Chief

SICB SYMPOSIA PUBLISHED IN VOLUME 53 (2013)

- S1 – When Predators Attack: Sensing Motion in Predator-Prey Interactions.**
Organized by Matthew McHenry, Stacey Combes
- S2 – Ecological Epigenetics**
Organized by Cristina Ledon-Rettig
- S3 – Vertebrate Land Invasions- Past, Present and Future**
Organized by Alice Gibb, Miriam Ashley-Ross, Richard Blob, Tonia Hsiegh
- S4 – Understanding First Order Phenotypes: Transcriptomics for Emerging Models**
Organized by Suzy Renn, Antonia Monteiro,
- S5 – Hormone Mediated Sex Ratio Adjustment in Vertebrates**
Organized by Kristen Navara
- S6 – Coping with Uncertainty: Integrating Physiology, Behavior and Evolutionary Ecology in a Changing World.**
Organized by Zoltan Nemeth, Frances Bonier, Scott MacDougall Shackleton
- S7 – Keeping Time During Animal Evolution: Conservation and Innovation of the Circadian Clock .** Organized by Adam Reitzel, Ann Tarrant
- S8 – Assembling the Poriferan Tree of Life**
Organized by R. Thacker, A. Collins
- S9 – Physiological Responses to Simultaneous Shifts in Multiple Environmental Stressors Relevance in a Changing World.**
Organized by Anne Todgham, Jonathon Stillman
- S10 – Integrating Genomics with Comparative Vision Research of the Invertebrates**
Organized by Todd H Oakley, Jeanne M. Serb
- S11- Phenotypic Plasticity and the Evolution of Gender**
Organized by Janet Leonard

NUMBERS OF PAPERS IN 2013 SICB SYMPOSIA

SYMPOSIUM	PAPERS PRESENTED	PAPERS PUBLISHED*
S1	11	7
S2	11	7*
S3	11	9*
S4	9	3*
S5	10	8*
S6	13	5*
S7	11	8*
S8	12	12*
S9	13	11*
S10	10	7
S11	11	7*
TOTAL	122	83
*Number includes introductory papers		
Three papers rejected		

NUMBER OF AUTHORS BY COUNTRY

Australia	7
Austria	1
Belgium	3
Brazil	4
Canada	4
China	1
Colombia	1
Denmark	1
England	1
France	4
Germany	10
Israel	1
Italy	4
Japan	1
Netherlands	1
New Zealand	1
Norway	2
Panama	1
Sweden	1
Switzerland	1
United Kingdom	9
United States	104
Venezuela	2
TOTAL	165

PROJECTED FOR 2014

- ❖ **ELEVEN Symposia --- 99 papers**
- ❖ **So far, 6 papers have been received for one symposium, of which 5 have been sent for review: 3 now under revision and 1 already accepted and sent to production.**

Advisory Committee Report

Ken Sebens, Chair

The Advisory Committee met at the 2014 Annual Meeting and a number of issues were discussed.

1. Some members of the Advisory Committee participated in the planned giving workshop sponsored by the Development Committee. Members were pleased that attention was given to larger donations to support SICB. Members thought that the ribbons on the badges acknowledging the different levels of donations were a good idea.
2. Members were interested in making sure that the SICB investments are environmentally sound and defensible. They recommended an analysis of the current investments.
3. Members very much like the way the annual meetings are running. Concern was expressed that session moderators were changing the schedules when a speaker did not show up.
4. Members liked the fact that SICB was taking stands publicly such as the letter to President Obama.
5. Members felt that the news releases were a very positive step, e.g., releases from Newswise.

Educational Council Report

Bob Podolsky, Chair

The Educational Council continues to pursue activities to advance the educational mission of the Society.

- (1) This year we initiated the **M. Patricia Morse Award for Excellence and Innovation in Science Education** and selected Dr. Michael Hadfield as the inaugural recipient. Dr. Hadfield will be presented with the award at the start of the Moore Lecture during the Austin meeting. As part of the award, in lieu of an oral presentation we have asked Dr. Hadfield to write a short piece about the work that led us to honor him with the award, and we are currently considering where it will be published.
- (2) The **Moore Lecture** in Austin will be delivered by Dr. Ross Nehm of Stonybrook University, who focuses on the measurement and growth of evolutionary understanding.
- (3) This year we are sponsoring the **4th Annual Display of Undergraduate Posters** on the Austin meeting arrival day, in order to recognize undergraduate research. More than 60 undergraduates have chosen to take part in this display as a way to practice their presentations and to meet other students.
- (4) In August 2013 I attended, as a representative of SICB, a AAAS-sponsored conference in Washington D.C. entitled, “**Vision and Change in Biology Undergraduate Education: Chronicling Change, Inspiring the Future.**” This conference provided an opportunity to present SICB’s contributions to reforming science education.
- (5) In addition, the conference sparked a continuing **dialogue among educational representatives of professional societies** to share information about best practices in promoting science education through professional societies, including a teleconference in early October and an upcoming follow-up teleconference in January.
- (6) At last year’s SICB annual meeting in San Francisco we sponsored the first **TALX workshop entitled, “Implementing Vision and Change at the Introductory Biology Level.”** We have arranged a second TALX for the Austin meeting on “Teaching Evolution across the Curriculum,” but unfortunately the organizer has dropped out of communication with me and the Program Officer and the workshop seems unlikely. However, we have plans in place for the West Palm meeting to offer a TALX on Quantitative Biology, led by Laura Miller and her symposium co-organizers.
- (7) Society members continue to contribute to our **SICB Teaching Database**, albeit at a slow pace. Suggestions for how to increase participation are welcome.

Student/Postdoctoral Affairs Committee (SPDAC) Report

Sean C. Lema, Chair

This year the SPDAC established a new “External Grants and Fellowships” list with over 120 grant and fellowship opportunities applicable to SICB’s graduate student and postdoctoral members. This “External Grants and Fellowships” list is now posted on the SICB website (<http://www.sicb.org/grants/externalgrants.php>) and contains funding opportunities ranging from small research grants of a few hundred dollars to multiyear fellowships with stipend and tuition support. The SPDAC intends this listing to be a long-term resource for SICB’s student and postdoctoral members, and the Chair of SPDAC will review and update the list annually. The SPDAC made concerted efforts this year at the Austin 2014 meeting to inform students and postdoctoral researchers about this new grants listing, and distributed over 200 informational handouts with the web address for the listing via the SDPAC Booth in the Exhibitor Hall. The SPDAC anticipates that this new “External Grants and Fellowships” lists will be a valuable resource for student and postdoctoral members that complements SICB’s own student support programs (e.g., Grants-in-Aid) for years to come.

The SPDAC sent an e-mail to student and postdoctoral attendees of the 2014 Austin meeting a few days prior to commencement of the conference with “Advice for Getting the Most Out of Your SICB Meeting.” This e-mail contained several tips and suggestions aimed at helping first-time student and postdoctoral attendees make the most of their SICB meeting, and emphasized the welcoming and friendly spirit of the SICB annual meetings.

At the Austin 2014 meeting, SPDAC convened a workshop on the topic of “Developing a Web Presence for your Research” with over 65 persons in attendance. This workshop explored avenues for using web pages on the internet as an avenue to communicate and enhance one’s research, and covered a variety of topics including using the web for crowdsource funding your research, recruiting interns for summer research, conveying your research to the press, networking among specialists in your field, communicating your research via social networking sites, and how to effectively use the web for science education and outreach as part of grant funded projects. In sum, the workshop explored timely topics on how to develop web resources to enhance one’s own research and professional goals. The SPDAC would like to acknowledge the following persons for their generous participation and exceptional presentations at the 2014 SPDAC Workshop:

Dr. Christine Bergeon-Burns, Postdoctoral Researcher, Louisiana State University

Ms. Martyna Boruta, Graduate Student, University of South Florida

Ms. Michelle Fournet, Graduate Student, Oregon State University

Notably, the workshop panelists this year were themselves graduate students or postdoctoral researchers, reflecting the commitment of SICB’s own student and

postdoctoral members to the training and success of their peers. **Dr. Robert Thomson** (Assistant Professor, University of Hawaii at Manoa) had also accepted the SPDAC's invitation to participate as a panelist in this workshop, but was unable to travel to the meeting given airline flight cancellations beyond his influence. Nonetheless, the SPDAC would like to acknowledge Dr. Thomson for kindly accepting the invitation and offering his expertise to the benefit of the Society's student and postdoctoral members.

The SPDAC thanks all workshop panelists for their efforts and participation in this important SICB Annual Meeting event!

Student Support Committee Report

Sheila Patek, Chair

During the 2012 grant cycle, the SSC received 118 grant proposals and funded 23 of them. The 2013 grant cycle netted 169 applications for the GIAR and FGST – a substantial 43% jump in applications from the previous year's pool. The winners will be posted on the SSC website during the SICB conference. Thirteen faculty, in addition to the Chair of the committee, serve as reviewers. We have continued to fine tune the SSC website to make the application and reviewing process streamlined and intuitive. The website moved to <http://sicbgrants.biology.duke.edu> this past year.

Public Affairs Committee Report

Jake Socha, Chair

Members: Jake Socha (Chair), Andie Ward, Molly Jacobs, Mike Simon, Tonia Hsieh, Jon Harrison (Ex officio), Lou Burnett (Ex officio)

The Public Affairs Committee continues to work to connect the membership with the broader public. The committee met two times, in person on Jan. 6 and via Skype on June 6. The committee engaged in the following activities during the year:

1. We worked with 6 students in the Science Journalism Internship program. Molly Jacobs and Eric Tytell served as editors, and Jake Socha served as overall editor. This second-year class of science journalism interns completed their stories by May, and all were published on the front page of the SICB web site. We're aiming for tighter deadlines next year to get the stories out sooner (with a target of end February).

The stories are:

Bacteria allow woodrats to eat poison. By Anne Madden, Department of Biology, Tufts University

Earliest legs weren't made for walking. By Katrina Jones, The Center for Functional Anatomy and Evolution, Johns Hopkins University

Birdseed, cowbirds, and disease: The unintended consequences of bird feeding. By Shane Hanlon, Department of Biological Sciences, University of Memphis

A tale of two corals: genetic relationships of coral reefs in Micronesia. By Medhavi Ambardar, Department of Zoology, Oklahoma State University

Soccer players tackle animal performance. By Hugo Dutel, Museum national d'Histoire naturelle, Paris, France

Skimming the surface: a larval window on the biodiversity of nemertean worms. By Christopher Laumer, Department of Organismic & Evolutionary Biology, Harvard University

2. We conducted a workshop on citizen science at the 2013 San Francisco meeting, titled "Beyond Public Outreach: Citizen Science." A panel of four experts described their work with citizen scientists and answered questions about the design and funding of citizen science projects. Snack food was provided. The event was well attended (at least 80) and the reaction was very positive. Molly Jacobs did a great job in initiating and organizing this workshop.

3. We organized a workshop for the upcoming 2014 Austin meeting, titled "Storymaking with the WSP model" conducted by plenary speaker Randy Olson. Randy was generous with his time and efforts in willing to run this workshop in conjunction with his talk "Storytelling skills: Now mandatory for a career in science." Lunch will be served to the participants, which was limited to a small group (~20) in a first-come-first-serve signup basis. Mike Simon organized the workshop.

4. We developed eight press releases for the upcoming 2014 Austin meeting. This represents a new approach, spurred by the society's desire for greater publicity and public awareness, facilitated by a new subscription to the Newswise press service. In previous years, we had put out a single, short press release prior to the conference, which usually highlighted a few of the symposia. Our new subscription to Newswise enables us to put out multiple releases. The process for selection of presentations to highlight was set by the Executive Committee: recommendations were first sought from the Division Chair, then the PAC provided input to the Executive Committee based on this list, and lastly the Executive Committee made the final decisions on selections.

Eleven presentations were chosen. The PAC Chair invited each lead author to participate in a press release. Three authors declined the invitation, mostly citing concerns about publicity for their work prior to completion or publication. Eight accepted.

To do the actual work, the PAC Chair invited the previous 12 students in the Science Journalism Internship to write each piece. The response was great — more students volunteered than was needed. In addition to the students, Billie Swalla volunteered to write a story, and Joel Garrett (an engineer and grad student of Socha) was asked to write a story due to his interest in biomimetics. The press releases follow this report. Note that the stories are embargoed until the following dates, coinciding with the individual presentations:

January 3: R. Olson

January 5: F. Fish, L. Guillette, Grand Challenges Talk

January 6: D. Larson, B. Lockwood, S. Adamo

January 7: L. Burton

5. Four new students were chosen to participate in the Science Journalism Internship program for the upcoming 2014 Austin meeting. The students are:

Brenna Doheny, Medical University of South Carolina

Casey Gilman, University of Massachusetts, Amherst

Justin Havird, Auburn University

Beth Mortimer, University of Oxford

Scientist-turned-Filmmaker Implores Colleagues to Join Him in “The War on Boredom”

Byline: **Mike Simon**, Arcadia Healthcare Solutions

"In the war against boredom," says Dr. Randy Olson, "the casualties can be found sitting in their seats ... asleep. It's time to put an end to the suffering."

And this is a war that Olson knows only too well. The marine biologist and former professor has for years warned his colleagues of the dire consequences of losing their audience, whether in a classroom or in the public sphere.

So one can understand Olson's enthusiasm as he took the stage to present a turning point, if not an end, to the 'war on boredom' at the 2014 Annual Meeting of the Society for Integrative and Comparative Biology in Austin, TX.

Olson's solution to science boredom? 'Narrative Training,' an age-old discipline known to storytellers as the ability to structure stories – in this case about science and scientists – with a full narrative arc, a beginning, middle, and end, and a human connection that listeners can relate to.

"I've seen the light," Olson says, on the need to teach scientists how to tell stories. "This is the best hope for solving the difficult problems that scientists have."

And Olson is certainly doing his best to spread the word. His latest workshop, entitled "Storymaking With the WSP Model" – WSP stands for "Word-Sentence-Paragraph" – brought together a group of scientists, armed only with their own experiences in science and as scientists, to teach them how to transform those experiences into scientific narrative.

The workshop makes use of the Connection Storymaker, a smartphone app based on storytelling lessons from *Connection: Hollywood Storytelling Meets Critical Thinking*, which Olson co-wrote.

In case anyone is wondering, Olson has certainly seen exemplars, scientists who really understand how to frame that story. "Back when I was a scientist," Olson recalled, "there were departmental seminars, someone who really had it. It was no different from a murder mystery."

Although he understands that not every scientist will be an Agatha Christie, Olson believes that every scientist must develop these skills, preferably beginning early in scientific training.

And the former tenured university professor believes that the view that the public can't handle science is just wrong. Rather, he counters, consider how many people have discovered genuine scientific instincts following along with the forensic scientists on *CSI*, or who got their first understanding of genetics from the animated snippet of DNA in *Jurassic Park*.

And yet, there remains the stereotype of the lofty, thoughtful professor. Olson grants that "the sophistication of complex words is dazzling. But when the outcome depends on understanding, it's a train wreck."

Olson sees *Connection* and the accompanying app as the “solution” to the “problem” framed in his 2009 book, *Don't Be Such a Scientist*, which used Olson's experience in Hollywood as a catalyst to approach the challenge of science communication from a new direction. His films *Flock of Dodos* and *Sizzle: A Global Warming Comedy*, took a similar tack, addressing the challenge that scientists face in communicating about Evolution and Climate Change, respectively, and how many of those challenges are of their own making.

“It's so bad, and there's no excuse for it,” says Olson. The books and films on science communication, the Storymaking App, and the workshop tour would all appear to be his call to arms, to create new expectations that scientists, as the title of his book suggests, not be such scientists. And Olson is not alone; his is only one of many efforts nationwide to help scientists advance public understanding of science in ways that are useful and approachable to non-experts.

The scientists selected for Olson's workshop in Austin this weekend came ready for the challenge. Armed with stories about the intimate lives of birds, lessons learned from the auto shop, and terrible pickup lines, these scientists came both for the opportunity to work with Randy Olson, and for the chance to learn how to tell stories that keep their audiences on the edge of their seats.

And that larger narrative – the story of a generation of scientists who can explain science as if they and their audience were sitting around some ancient campfire – is one that Olson clearly can't wait to hear.

"I have a dream," Olson says, "of a day where every oral presentation, every written paper, and every answer to the question of, 'So what are you working on?' has a clear beginning, middle and end, following a narrative arc, advancing the narrative, reaching for specifics, and is humanized, concise and compelling. That's all I'm asking of scientists. Is that too much?"

Endocrine Disruptors Start a Medical Revolution: From Alligators to Humans

Byline: **Kara Feilich**, Harvard University

Dr. Lou Guillette Jr. began studying the evolution of lizard reproduction more than 40 years ago. He never expected that reptiles would point him in the direction of a worldwide environmental challenge: endocrine disruption. Speaking at the Society for Integrative and Comparative Biology's annual meeting in Austin, Dr. Guillette explained how his basic research on animals has brought him and others to recognize the environmental challenges to human health.

Early studies of alligators led Dr. Guillette to realize that something in the environment was affecting their reproduction. Juvenile female alligators had malformed ovaries, while males had lower than average testosterone levels and a small penis. He and his colleagues discovered that the changes were caused by environmental contaminants, which were acting as endocrine disruptors.

The endocrine system is one of the body's most important internal communication systems. It is how cells tell each other what to do to keep everything working correctly. Hormones are the messengers of the endocrine system, running back and forth among cells carrying their instructions. Disrupting normal endocrine function can have serious repercussions for health.

According to Dr. Guillette, the way hormones create different effects in the body is like music. "Think about all of the ways you could play 'Twinkle Twinkle Little Star' and you could still understand that it is 'Twinkle Twinkle Little Star'. You could make the notes loud, or play them softer. You could play them slower or faster... Each one of us is a little bit different. We each play 'Twinkle Twinkle Little Star' a little bit differently." As long as the body recognizes the message, the "music" played by its chemical messengers, it works correctly.

The idea of endocrine messages as music also describes the effect of environmental contaminants that act as endocrine disruptors. "If 'Twinkle Twinkle Little Star' is so loud that it no longer is music, it's noise, or if it's so soft that you can't hear it, now all of the sudden, that's not good." Contaminants can cause either of these situations, breaking down the harmony of the body's communication systems. If the body is overwhelmed with false messengers, or blocked from receiving its own messengers, it won't be able to function properly. If other chemicals interact with the body's own chemicals in unexpected ways, they confuse cells, and provide them with incorrect instructions.

How did researchers find these endocrine effects in alligators and other wildlife before humans? The alligators are what Dr. Guillette calls a "sentinel" species. At the top of the food chain, alligators accumulate contaminants faster than other animals. And the effects of those contaminants on alligators point researchers, like Guillette, to how they may affect people.

The National Institutes of Environmental Health Science lists over a thousand chemicals that appear to be endocrine disruptors, and Dr. Guillette and researchers around the world are only beginning to uncover the extent to which these endocrine disruptors affect human health. Pesticides, flame retardants, metals, even the nitrates in fertilizer can be endocrine disruptors. "Our bodies are actually being bombarded with thousands of chemicals every day. Some of

those are natural products but many of them are compounds that we've introduced into the environment, and many of them are biologically active. It's not just one or two chemicals, but whole classes of compounds." Some like DDT are restricted, but researchers are only starting to realize how other chemicals, like phthalates found in everything from nutritional supplements to children's toys, may be affecting human health.

Dr. Guillette believes this new appreciation of how the environment—and not just genetics or germs—affects health is ushering in a revolution in medicine. "There's still a perception that somehow we're going to find a gene that cures cancer, or there's a gene for Alzheimer's; the reality is that what we're doing is we're messing with the language or music of genes. Environmental contaminants, or even other kinds of environmental factors—if you don't eat the right food, you have too much stress--all of those change the music. That alteration, of course, can lead to health or disease."

Animals Walking the Tightrope Between Stability and Change: Addressing a Grand Challenge in Organismal Biology

Byline: **Billie Swalla**, University of Washington

Why can some animals respond to climate change, while others cannot? How do animals develop properly when conditions change? How do animals respond quickly or build new neural pathways but maintain past abilities and function? These questions have perplexed biologists for decades. The challenge in addressing these questions is that biological systems are complex, and they operate at many different spatial scales and time scales simultaneously. Thus, the conventional tools of biologists limit the advances that can be made. New approaches are needed to make progress in answering these important questions for animal biology.

What new insights might be gleaned when engineers and mathematicians work with biologists to answer these fundamental questions? A special symposium at the 2014 Society for Integrative and Comparative Biology annual conference brings together biologists, mathematicians and engineers, who will investigate the potential and power of a new, quantitative organismal systems biology to address these questions.

Speakers include a mix of biologists from different fields, including physiology, neural biology, development, genetics, functional morphology, and ecological and evolutionary biology. They join with mathematicians and engineers and will present work that illustrates the potential power of cross-disciplinary approaches for answering these complex questions. The speakers will also explore how organismal biology can be used to help solve questions that have daunted mathematicians and engineers. Talks will include a wide range of questions from locomotion, physiology, development, networks, and ecology, from the level of genomics to whole organism responses to change. Talks in this symposium will illustrate the power of engineering and quantitative approaches to address and test complex questions, and lead us to a new organismal systems biology.

The symposium will be held Sunday, January 5. Ten speakers will present examples of research and modeling that illustrates how new approaches can help us investigate important questions about complex biological systems, as well as the big questions that remain to be tackled. Immediately following the symposium, complementary posters will be presented. On Monday, January 6 there will be a session of additional complementary papers.

This is an exciting time for organismal biology, and approaching complex systems in new ways. Come and see what all the excitement is about!

<http://www.sicb.org/meetings/2014/symposia/organismal.php>

How dogs do the ‘dog paddle’: An evolutionary look at swimming

Byline: **Medhavi Ambardar**, Oklahoma State University

Most adults remember their first success in learning to swim using the ‘dog paddle’. This classic maneuver has been used to describe swimming in armadillos, turtles, even humans – just about everything *except* dogs. Dr. Frank Fish, a professor of biology at West Chester University, set out with his colleagues to understand how *real* dogs perform the dog paddle. Fish has spent most of his career studying the swimming of marine mammals such as whales. But looking at swimming in dogs afforded Fish the opportunity to investigate how swimming in marine mammals may have evolved from walking in their terrestrial ancestors.

For the study, Fish used eight different dogs that spanned six breeds, ranging from the Yorkshire terrier to the Newfoundland. Several dog owners, including Fish himself, volunteered their pets to take part in the study. The trick to analyzing the swimming movements was to find a large area of clear water where the dogs could swim and be recorded, which they found in a rehabilitation pool for horses at the University of Pennsylvania. In the pool, the dogs were encouraged to swim while their legs were filmed with an underwater video camera.

Fish and his colleagues analyzed the videos and found that the dogs were swimming with a gait that was similar to a familiar trot on land. When a dog trots, moving at a pace more brisk than a walk, diagonal pairs of legs move together. In swimming, the dog’s legs move in a similar fashion, but even faster than a trot, and the legs move beyond the range of motion for a trot. This means that the swimming dogs are using a basic movement but with some modification. Also, while the movements that make up terrestrial gaits like trotting can vary from one dog breed to another, the dog paddle gait showed very little variation among the different breeds.

While dogs are able to swim, it is not as natural for them as walking and other terrestrial gaits. These differences in coordination provide an opportunity to examine the evolution of swimming in other mammals right from the start. Did the earliest ancestors of swimming mammals fumble as they took to the water? As Fish puts it, “how bad are you at the beginning?” There is strong evidence that the ancestors of the cetaceans (whales, dolphins, and porpoises) were long-limbed terrestrial quadrupeds, and changes to the musculature and the skeleton eventually led to limbs become more like paddles. Although dogs are not ancestors to cetaceans, they can be used as a model for precursors to early swimming mammals. Fish hopes to unravel the steps that led from a four-legged terrestrial form to an animal like a dolphin, which has highly complex swimming locomotion.

“Dogs are enthusiastic and they like to work,” Fish says. Here, the dogs’ work is leading Fish to answers for evolutionary questions simply by performing their namesake movement: the dog paddle. Fish presented the findings of his dog study at the 2014 Society for Integrative and Comparative Biology (SICB) meeting, held in Austin, TX.

Frozen frogs: How amphibians survive the harsh Alaskan winters

Byline: **Shane Hanlon**, University of Memphis

As winter approaches, many of us hunker down and virtually “hibernate” for the season. Classic hibernation in the wild conjures images of furry bears, but other animals are not so lucky to have immense fat stores or fur to protect them from the elements. Frogs that live at northern latitudes have neither of these, but must find ways to survive the harsh winter season. Their solution? Freezing...but not to death.

Wood frogs (*Lithobates sylvaticus*) freeze upwards of 60% of their bodies during the winter months. “For all intents and purposes, they *are* dead,” said Don Larson, a Ph.D. student at Fairbanks who is interested in how frogs in some of the harshest conditions of Alaska alter their physiology to survive the long and extremely cold winters. Unlike previous studies, Larson used standard lab-based experiments, but also included measurements to track a population in the wild.

Beginning in October, Larson tracked frogs throughout the harsh winter season. Prior to freezing for the entire season, he observed that frogs underwent 10-15 cycles of freezing and then thawing. Thinking that such freeze/thaw cycles may be the key to the frogs’ survival through the winter season, Larson wanted to mimic these natural conditions back in the lab. To do this, he conducted a lab experiment where frogs were left unfrozen, frozen directly, or frozen through a freeze/thaw cycle.

In the wild, all frogs survived throughout the long winter where temperatures ranged from -9°C to -18°C, a longer *and* colder period than previously observed with wood frogs. How did they avoid becoming frog-flavored popsicles? One clue was the amount of glucose in the frog’s tissues, one of the primary agents that “protect” the frogs while they freeze. In both field and lab settings where the freeze/thaw cycles occurred, glucose concentrations increased between 2 and 10-fold, levels that have never been previously observed.

Glucose production occurs as frogs begin to freeze. Thus, Larson thinks that the high number of freeze/thaw cycles allows for a greater increase in glucose production. This process is akin to the deliberate hyperventilation of divers prior to submerging, which serves to increase the volume of air that their lungs can consume. The frogs’ version of hyperventilation—the freeze/thaw cycles—increases their glucose levels to allow them to survive longer and colder conditions.

While previous research has shown that wood frogs can tolerate low temperatures for short periods of time, frogs in Larson’s study survived longer, had a higher incidence of survival (100%), and survived at colder temperatures than ever previously recorded. Moreover, his work highlights glucose as an agent for the survival of wood frogs in the harsh winter conditions. Now that Larson has a better understanding of how a frog’s physiology changes in response to the winter season, his next step is to understand how things living inside them, such as parasites, will be affected. He hopes to use his current research to shape future studies that examine the role of the cold environment on host-parasite interactions in frogs.

Larson presented his research findings on freezing frogs at the 2014 Society for Integrative and Comparative Biology annual conference in Austin.

Mom's proteins may help fly embryos face the heat

Byline: **Julie Charbonnier**, Virginia Commonwealth University

In nature, animals face a broad range of temperatures, and at times the heat can become taxing. When it becomes too hot to survive, some animals can simply migrate to more favorable climates, but what if you are a mere embryo confined within an egg and cannot escape the heat?

High temperatures can cause proteins within the embryo to become denatured—an unraveling that results in loss of function, an ineffective or denatured protein. Moreover, denatured proteins can form aggregates that are toxic. Understanding this process has important implications for human health, because such protein aggregates are a hallmark of neurodegenerative diseases, such as Parkinson's and Huntington's.

But what happens when embryos face temperatures outside their optimal zone remains a puzzle. "Nobody has looked at the ecological context of thermal environment on early developing embryos," explains Dr. Brent Lockwood, a National Institute of Health Postdoctoral researcher at Indiana University.

Lockwood has been studying developing fruit fly embryos to understand the influence of temperature. Fruit flies are used because their genetics are well established, and the small flies are ideal for cellular microscopy. "You can watch cellular development in real time under the microscope – and get a sense of what is really going on," says Dr. Lockwood.

As presented at the 2014 [Society for Integrative and Comparative Biology](#) annual conference in Austin, Lockwood exposes the embryos to a range of temperatures to pinpoint when the eggs reach their threshold temperature, the point at which more than 50% of embryos die. He exposes one-hour old fly embryos to increasing amounts of heat over 45 minutes, a process called "heat-shocking." He then examines cellular processes using a microscope, providing an inside look into the cell, to discover precisely how temperature impacts development.

So what happens to embryo cells when they face heat stress? When the temperature rises, the cell's organization center, the cytoskeleton, unravels. Actin and tubulin, which are key proteins that coordinate early development, break down. Without their proper structure, embryos can no longer develop and so they perish. Under heat-shock, embryos lose their actin array, the tubulin becomes disorganized, and the cell loses its structure, effectively ending development of the embryo.

This work provides a unique, inside look at how temperature impacts development in animals beyond just fruit flies. "Because of the highly conserved role of the cytoskeleton, Dr. Lockwood's investigations into the mechanisms that maintain these cellular structures during times of environmental heat stress will have implications for the success of many species," explains Dr. Kristi Montooth, an Assistant Professor of Biology at Indiana University, who is also involved in this study.

When real environmental temperatures spike, how do fly eggs survive at all? The answer may be that mothers provide proteins that ease the effects of temperature. Mothers may inject heat-shock proteins — special proteins that effectively sequester and ‘fix’ damaged proteins by helping them fold properly. Maternal heat shock proteins may act as a safeguard to protect embryos from heat-shock until they can make their own proteins.

The next step for Lockwood’s research is to look at effects beyond the single cell and the individual. He plans to examine whether mother flies from hotter environments impart to their offspring a better ability to withstand heat stress. If the environment is hot enough, natural selection should favor mothers that make protective proteins, or favor mothers who lay their eggs in cooler, shadier spots.

Virus fans the flames of desire in infected crickets

Byline: **Desmond Ramirez**, University of California, Santa Barbara

Love may be a battlefield, but most wouldn't expect the fighters to be a parasitic virus and its cricket host. Just like a common cold changes our behavior, sick crickets typically lose interest in everyday activities. But when Dr. Shelley Adamo of Dalhousie University found her cricket colony decimated by a pathogen, she was shocked that the dying insects didn't act sick. Not only had the infected crickets lost their usual starvation response, but they also continued to mate. A lot. How were the pathogen and the exuberant amorous behavior in the sick crickets connected?

Dr. Adamo soon realized that she had stumbled onto a classic parasite-host struggle. As a neurobiologist, Dr. Adamo is especially interested in parasites that control the behavior of their hosts, known as parasite manipulators. "Parasite manipulators have something to teach us about how brains work," says Adamo, as they are able to exert fine-grained control over their hosts' brains in ways that human neurobiologists can only dream of. Parasites use hormones, neurotransmitters and other proteins to disconnect the host brain and the immune system, altering host behaviors to increase the survival and reproduction of the parasite. By studying the various avenues parasites use to control their hosts, neurobiologists hope to gain new understanding of how nervous systems produce behavior.

Dr. Adamo set out to determine the mechanisms by which the virus changed cricket behavior. As presented recently at the Society for Integrative and Comparative Biology annual conference in Austin, Adamo and colleagues found that the virus invaded and reproduced in the crickets' fat body, a vital organ that controls insect energy reserves.

By attacking this single organ, the virus impacted the host in multiple ways. In sick crickets, almost all of the hosts' resources were channeled into producing proteins for the virus, and the fat body became engorged with viral particles. As a result, infected crickets showed signs of sterility, as females produced few if any eggs, and male sperm showed low or no mobility. But attacking the fat body doesn't only help the virus gain host resources, so it seems that sterility is just collateral damage in the fight between the virus and the crickets.

Besides its role in making fats, the fat body also creates proteins that contribute to the crickets' immune responses. Dr. Adamo and colleagues found that infected crickets had overall lower levels of proteins in their blood, including a key component of the crickets' immune response. By hijacking the cricket fat body, the virus established itself more easily by knocking out part of the cricket immune response, a necessary tactic for any parasite to avoid being detected and destroyed by their host.

And what about the ardent mating that Dr. Adamo first observed in her sick crickets? The virus was the culprit, acting like other parasitic manipulators to change cricket mating behavior for its own gain. While it was unusual to find that sick female crickets acted just like healthy females, Adamo's biggest surprise was in sick male crickets. They actually outperformed healthy control males in mating, courting females more quickly and enthusiastically. Because the virus can be contracted through sexual contact, more matings means more opportunities for the virus to spread.

While Dr. Adamo was happy that she could turn the lemon of her dying cricket colony into an interesting study of this parasitic virus manipulator, she doesn't have any future plans to study this virus. Instead, she is moving on to other larger and more manageable parasite manipulators of crickets. By using the smaller and less complex cricket brain as a model, Dr. Adamo hopes to uncover more broad patterns of nervous system function in both immune responses and, of course, behavior.

Bugs and flowers inspire new cocktail curiosities

Byline: **Joel Garrett**, Virginia Tech

Your mother probably warned against playing with your food, but she may have neglected to mention playing with your drinks. Dr. Lisa Burton, a scientist from MIT, thankfully missed that lesson. Inspired by a love of experimental cuisine, Burton and her colleagues developed several bio-inspired edible cocktail novelties as part of her graduate research. These devices take advantage of fluid-surface interactions first observed in nature to provide a fun science twist to fancy beverages.

Presented at the 2014 Society for Integrative and Comparative Biology annual conference, Burton's first invention is a cocktail boat inspired by *Microvelia* water bugs. These insects take advantage of a phenomenon called the Marangoni effect to escape predators: by expelling a chemical, they are able to rapidly propel themselves across the surface of a lake or pond. Liquids with high surface tension pull more strongly than liquids with low surface tension, so the insect is pulled forward when it reduces the surface tension behind itself.

The team's device, a tiny boat made of plastic or edible materials like wax or gelatin, uses the same principle of the water bug to dart around in a martini glass. High-proof alcohol is stored in a small reservoir, and slowly leaks out of a narrow channel on the stern. This reduces the surface tension behind the boat and allows the craft to steam forward for as long as two minutes before its "fuel" is expended. "We would love to develop a version of the device for children," says Dr. Burton, though so far the best non-alcoholic fuel seems to be Tabasco sauce, a spicy condiment that tends to inspire sour faces rather than excitement in young diners.

Taking another cue from nature, Burton and her team also put together a flower-inspired pipette. In flood-prone regions of Brazil, rising water forces some plants to shut their petals to protect their genetic material. The flowers accomplish this defense through surface tension – the high surface tension of water holds neighboring petals together, preventing water from passing through. Burton's floral pipettes take advantage of a similar design, though with a reversed effect—when the "flower" is pulled away from the surface of water, the petals zip shut, encapsulating a droplet of drink that's just the right size for cleansing the palate between courses.

As with all engineering projects, these designs came as the result of years of dedicated study and countless hours developing prototypes in the lab. Still, Burton says, "The great thing is how much fun the work was. The whole team was always excited about the project; engineers were motivated to learn about food science and the chefs were motivated to learn about science. It's fun to have a project that people can relate to and understand and that encourages them to investigate science."

Biologically-inspired design is a rapidly expanding field, inspiring new technologies across a tremendous spectrum of engineering disciplines, from aerospace to biomedical. Recent applications include diving suits inspired by shark skin and display screens that mimic the refractive patterns of butterfly wings. Dr. Burton's creations take a different approach, resulting in some of the first successes in combining bio-inspired design with fine dining. She

hopes to get the devices into restaurants and bars around the world, so be on the lookout for tiny martini swimmers soon.

Development Committee Report

Darwin Jorgensen, Chair

The Committee met formally during the 2013 meeting in San Francisco. At that meeting (chaired by Emily Carrington), preliminary ideas for Committee-related activities at the Austin meeting were discussed. There was general discussion of longer-term mechanisms that might be employed to encourage donations from Society members, perhaps targeting specific Endowment funds. These discussions will be continued in Austin.

1. The Committee Chairship was changed at mid-calendar year when Emily Carrington requested to step out of the Chair. Darwin Jorgensen agreed to assume the Chairship at that time. As the most senior, regular continuing member of the Committee he was scheduled to assume the Chair after the 2014 meeting. The Committee wishes to express its gratitude to Emily for her leadership and looks forward to her continuing participation on the Committee going forward.

2. There has been general discussion of individual Endowment funds. It was noted that the Moore fund continues to be the most-challenged. Its corpus, according to accounting information provided to us (up through July 2013), stood at less than \$1000 (with only about \$100 available for distribution the current year). We showed no contributions to the fund during FY13 (the Society Treasurer likely has more recent accounting information). Clearly, this is a fund that deserves the Committee's (and Society's) attention. The most prosperous funds (e.g., Bart, GIAR, Mangum, and Symposium) generally showed the most donor activity. It was noted that the Bern Lecture fund, which showed fairly healthy donor interest in FY12, dropped in donor activity substantially during FY13.

The SICB coffee mug sales and wine tour activities at the San Francisco meeting netted nearly \$1000.00 for the Endowment (\$300 from the wine tour went to the Symposium fund and \$610 from the mug sales went to the GIAR).

We have noted that total donations for FY13 were at less than 1% of the total Endowment corpus.

3. Activities planned for the Austin meeting include: 1) water bottle sales, 2) a donor identification/recognition program, 3) a luncheon for invited Society members with discussion centering around Estate Planning to benefit the Society, and 4) a brew pub "tour" event.

The water bottle idea was discussed in San Francisco and carried forward principally by Emily. She sought advice on the design (with input from Ray Huey), identified an artist, commissioned the design (notably with substantial personal fiscal contribution), and brought the project to fruition. After much discussion over the per unit cost to members (including the concept of having a two-tiered price structure – one price for regular members and a lower price for student members), we settled on a final price of \$15 – up from an original price of \$12.50.

This year we are piloting a donor recognition program. Ribbons will be distributed with the meeting packet to members who have contributed to the Endowment since June 2012. The

ribbons can be affixed to the meeting badge. There are four levels of recognition based on donation amount: Bronze (up to \$50), Silver (\$51-\$100), Gold (\$101-\$250), and Platinum (\$251 and up). In connection with the water bottle sales activity, anyone purchasing a bottle would automatically receive at least a Bronze ribbon. In Austin, the Committee intends to discuss the concept of publishing names of donors in the Newsletter or some other publication.

We will be holding a luncheon in Austin at which we'll host a representative from the University of Texas's Development Office. The general topic of discussion will be Estate Planning to benefit the Endowment. This was designed to be a relatively small (in terms of attendance) event. Many thanks to Bob Roer for securing the UT representative's services.

The brew pub tour idea was hatched in San Francisco (following on the heels of the relatively successful wine country tour in California). This initiative was pushed forward by Ray Huey.

4. The Committee wishes to thank the Burke office crew members (Lori Strong has been particularly helpful to this Committee's Chair over the last several weeks) for all their help over this calendar year. They were always accommodating and supportive. Any request to them was handled efficiently and quickly.

Broadening Participation Committee Report

Michele Nishiguchi, Chair

Membership

The Broadening Participation Committee (BP) added one new member, Kendra Greenlee, as well as our ex-officio members Jon Harrison, Sherry Tamone, Sean Lema, and Peter Wainwright who will serve on this year's committee. Three members who are stepping down from their hard work and participation are Peggy Biga, Cheryl Wilga, and Gregory Florant. Cheryl is now on the Executive Committee of SICB AS Member-at-Large, but will still be involved in BP activities for the coming year.

Funding

Michele Nishiguchi, Brian Tsukimura, and Cheryl Wilga attended an invitation-only Broadening Participation meeting in Arlington, VA, sponsored by the Council for Undergraduate Research (CUR) from Sept. 8-9, 2013. The meeting was facilitated by Dr. Mary Crowe, who is the lead PI for the NSF BP funded grant to CUR. The purpose of the meeting was to have the three currently funded BP grantees (CUR, American Physiological Society (APS), and The Society for Developmental Biology (DEB)) present their current ongoing work in broadening participation in their societies. NSF Division of Integrative Organismal Systems (IOS) representatives were also present, and updated the group on funding opportunities that may be available next year for societies. There was one short brainstorming session that provided a logic framework on how to develop a program to suit BP needs in IOS fields for students in K-12, undergraduate, and graduate levels of study. There may be an RFA announced next year, but this is pending budget and funds available through NSF-IOS. Cheryl (cwilga@uri.edu), Brian (briant@csufresno.edu), and Michele Nishiguchi (nish@nmsu.edu) will be working on this proposal if and when the RFA is announced, and hope to address issues for increasing diversity within SICB. Brian, Cheryl, and Nish also had previously submitted a grant proposal for SICB for the previous RFA, and hope to address the reviewers concerns regarding future funding.

Brian, Cheryl, and Nish also put together a mini-proposal to NSF-IOS in late September to obtain funding for the SICB 2014 Austin, TX meetings. Although the government shutdown in October slowed progress, NSF funded SICB for \$25,000 in mid November to fund additional BP members to travel to SICB. This was a great addition since we had many more qualified applicants than funding for attending the 2014 meeting.

BP travel awards for SICB 2014

This year we had two rounds of applicants, due to the late funding from NSF. The BP committee sent out the call for travel awards in September, with the application deadline of October 31st. We received 42 applicants in the first round, and were only able to initially fund 20 of those applicants (we budgeted \$10,000 of our \$15,000 budget for travel awards, each at \$500). The BP Committee ranked the applicants based on a rubric that considered rank (Asst. Prof, Postdoc, Grad, Undergrad), ethnicity, gender, reasons/comments on difficulties being from an underrepresented group, workshop suggestions, and a letter of recommendation. With the additional \$25,000, we were able to fund all 42 applicants (some had obtained other funding or were unable to attend, so we finally funded 38 from this first group). The BP Committee then

advertised for more applicants, with the focus being on Assistant Professors and postdocs. From this second call, we received 18 applications, and funded 16 of those (2 declined due to not being able to attend the meeting for health/personal reasons). In total, the BP Committee was able to fund 54 travel awards to this year's applicants, as well as fund our workshop leaders for the 2014 Austin meeting.

Workshops for SICB 2014, Austin

The Broadening Participation Committee sponsors two workshops at each annual SICB meeting, based on suggestions from previous years Broadening Participation Travel Award applicants. The first workshop (noon, Jan. 4th) that the BPC will be sponsoring at the 2014 annual meeting is: "Recruitment strategies to obtain a diverse and thriving lab/department" led by Rebecca Calisi-Rodriguez (Barnard College), Cheryl Wilga (University of Rhode Island), and Michele Nishiguchi (New Mexico State University). This workshop is geared towards members who are interested in how to increase the diversity in their home departments as well as throughout their university. The panel will provide discussion topics and will offer insight to the process of maintaining diversity throughout the workplace. The second workshop (noon, Jan. 6th) is entitled: "Writing grants and manuscripts in a timely manner" led by Brian Tsukimura (Fresno State), Peggy Biga (University of Alabama at Birmingham), and Heather Bleakley (Stonehill College). This BP sponsored workshop is meant to provide a toolkit to aid writing productivity and time management skills. SICB Presenters will provide information from direct experiences as well as information from a recently sponsored NSF workshop/retreat for early stage faculty from under-represented groups in biology.

Socials for SICB 2014, Austin

The BP Committee will also sponsor two socials for the 2014 Austin meetings. The first will be the "Meet and Greet" social on Friday, January 3rd, where BP awardees can meet committee members as well as get to know each other. The BP Committee plans to use this social to help match BP awardees with a mentor within the society, as well as any other concerns or ideas they may have for SICB. The second social is scheduled for Monday, January 6th, and will be held at Carmelo's, across the street from the Austin Hilton. This social is to recognize the BP travel awardees, as well as include all SICB members and officers (past and present), as well as other attendees (NSF representatives, publishing reps, etc.). This social has been very successful in the past, and we hope to have a great evening of good food and recognition for our award recipients.

Broadening Participation Events for the 2014 Meeting in Austin, TX:

1. Mentor-Mentee meeting hosted by Michele Nishiguchi. Friday, Jan. 3rd, 6-7:30 PM in Room 614.
2. Committee on Broadening Participation meeting, Saturday, Jan 4th, 7-8 a.m. Room 614.
3. Workshop - "Recruitment strategies to obtain a diverse and thriving lab/department" organized by Rebecca Calisi-Rodriguez, Cheryl Wilga, and Michele Nishiguchi, Saturday, Jan. 4th, Noon -1:30 p.m.
4. Workshop - "Writing grants and manuscripts in a timely manner" hosted by Brian Tsukimura and Heather Bleakley, Monday Jan. 6th, Noon - 1:30 p.m.
5. Diversity Social hosted by BP committee on Monday night, Jan. 6th from 8 - 10 p.m at Carmelo's restaurant.

Division of Animal Behavior (DAB)

Diana Hews, Chair

Officers

Chair: Diana Hews 1/2013 - 2016

Secretary: Melissa Bowlin 1/2012 – 2015

Program Officer: Allison Welch 1/2011 – 2014; 1-2014 – 2017

Student/Postdoc Representative: Maxine Zylberberg 1/2012 - 2015

Christine Bedore, alternate 1/2012 – 2015

Division Posts: My position as Chair of the DAB began this year in January. I wish to extend thanks to the outgoing division chair, Dr. Marilyn Ramenofsky, for her hard work. Mathew Grober of Georgia State University was approved by the Executive Committee to replace Diana Hews as a member of the Editorial Boards for *Integrative and Comparative Biology*. A hearty thank you and congratulations goes out to Allison Welch, who was re-elected this year to serve as the Program Officer.

Meeting statistics, current and future symposia (notes from Alison Welch PO):

The animal behavior division continues to exhibit growth over the past several years. At the Austin meeting the DAB members are contributing with 77 oral presentations in 12 behaviorally-themed sessions, 58 posters in behaviorally-themed poster sub-sessions, and 102 presentations in other sessions by authors with DAB primary affiliation or ABS affiliation. We have a total of 50 entrants in DAB Best Student Presentation competitions (oral and poster) and new for this year (2014 Annual Meeting) we implemented a special oral session that will feature the Best Student Paper finalists. These students were selected from a larger set of applicants who all submitted extended abstracts this fall. The special session is Sunday afternoon, January 5. Finally, DAB is co-sponsoring one society-wide and five regular symposia at the Austin 2014 meetings. Table 1 at the end of this report lists the comparative statistics over the past 3 years which PO Alison Welch initiated. This table is helpful for monitoring annual changes in the division.

Melissa Bowlin continued her fine work in the Secretary's position. With her guidance, the DAB Executive Committee creating the structure of the new BSP oral session and the mechanisms of solicitation and selection. Congratulations should be extended to the seven finalists for the 2014 Best Student Oral Presentation award: Benjamin Goller, Jacquelyn Grace, Patricia Jones, Timothy Polnaszek, Devaleena Pradhan, Sehresh Saleem, and Daniel Sasson. Melissa Bowlin will be finishing her term as Secretary with the 2015 meetings, and we will be soliciting nominations for elections for the Secretary position.

DAB Awards:

The 2013 Best Student Oral Presentation Award went to graduate student **Bradley Carlson** for his talk entitled, "Behavioral variation among tadpole populations: Ecological causes and consequences." Carlson is currently a Ph.D. candidate at Pennsylvania State University. Working with Dr. Tracy Langkilde, the research he presented examined behavioral adaptations of wood

frog tadpoles to variation in predation risk, and the ecological impacts of that behavioral variation.

James Crall, a Ph.D. candidate from Harvard University, won the 2013 Best Student Poster Presentation with his poster entitled, “Blown in the wind: Bumblebee temporal foraging patterns in naturally varying wind conditions.” Crall works with Dr. Stacy Combes and Dr. Naomi Pierce on the evolution of butterfly wing shape, insect flight mechanics, and pollination. His SICB presentation was on his work examining the flight behavior patterns of bumblebees in different wind and turbulence conditions.

We thank and congratulate all the entrants into the 2013 competition. We also extend sincere thanks to all the judges who made such a large competition possible.

The Chairs of DAB and DEE have begun discussion of how to regularize consideration and competition for the Adrian M. Wenner award. This award is not required to be conferred each year, and has not been so for several years. There was consensus that a standardized method to encourage consideration for this award was needed, because attendance of all potentially relevant student talks by members of these divisions and potential judging for the award can be haphazard, at this point.

Information from the NSF relevant to DAB

Two NSF representatives, John Wingfield, Assistant Director for Biology, and Michelle Elekonich, Science Advisor for the Division of IOS, joined our Business Meeting in 2013 San Francisco. They spoke about the changes to applications in the IOS cluster and also about what budget sequestration means for NSF. They noted that funding for symposia is still available at any time and encouraged DAB members to put together symposia proposals that bring together groups of people that do not normally interact. They also highlighted proposals for Research Coordination Networks (RCNs).

Next Business Meeting. Our DAB Business Meeting for the 2014 Austin meeting is scheduled for Saturday, January 4 at 17:45 – 18:30 h in Room 630. It will be followed immediately by the joint DAB/DNB social from 18:30-20:00, to be held in the 6th Floor Foyer.

Diana Hews, Alison Welch, Melissa Bowlin, Maxine Zylbeberg

Table 1. DAB activity over the past 3 years assembled by Alison Welch, PO of DAB.

Categories	2012 SICB	2013 SICB	2014 SICB +			
Oral presentations in behaviorally-themed sessions (# talks /# sessions)	70/13	48/9	77/12			
Posters in behaviorally-themed sessions	57	54	58			
Presentations in other sessions by authors with DAB or ABS affiliation	52	61	102			
Entrants in DAB's best student presentation competitions	57	63	50			
DAB co-sponsored Society wide / Regular symposia	2/2	3/3	1/5			

+ For 2014 meeting DAB changed the BSP format of Oral talks to an invited competition based upon an extended abstract.

Division of Comparative Biomechanics (DCB)

Mark Denny, Chair

2013 Activities

In 2013, the Division of Comparative Biomechanics hosted three regional meetings. The Southeast regional meeting was held on September 27th at the Georgia Institute of Technology in Atlanta, organized by Daniel Goldman and David Hu. A total of 46 people attended the meeting, presenting 25 talks capped off by a keynote address by Jake Socha from Virginia Tech.

The Southwest regional meeting was held at U.C. Riverside on October 26th, organized by Tim Higham. A grand total of 79 people attended and 40 talks were presented on subjects ranging from bed bugs to hummingbirds.

The Northeast regional meeting was also held on October 26th, organized by Daniel Field and Teresa Feo. Nearly a hundred participants trekked to Yale to hear 45 oral presentations.

Two new divisional officers were elected in 2013. Joe Thompson will step in Laura Miller's shoes as Program Officer, and Andie Ward will take over the Secretary's duties from Tim Higham.

Division of Comparative Physiology & Biochemistry (DCPB)

Donald L. Mykles, Chair

Spring 2013 election results:

Deborah Lutterschmidt was elected DCPB secretary for a 2-year term beginning at the DCPB business meeting in Austin. She takes over from Rich Londraville.

Stephen Secor will assume the responsibilities as Chair, beginning at end of 2014 meeting.

Natalie Pitts, Ph.D. Candidate in the Cell & Molecular Biology program at Colorado State University, begins her term as the DCPB representative on the Student and Postdoctoral Affairs Committee (SPDAC), replacing Christopher Slay.

Finances:

As of Dec. 30, 2013, there is a balance of about \$16,765.68 in the discretionary funds for support of SICB symposia and national and international meetings organized by DCPB members. DCPB has made the following commitments using this fund:

- \$2,000 for support of symposia that DCPB is sponsoring or co-sponsoring at the SICB 2014 meeting.
- Approximately \$3,500 for the DCPB-hosted social following the Bartholomew Lecture.
- \$9,000 (proposed) for support of two symposia at the APS Intersociety Meeting Oct. 5-8, 2014 in San Diego (<http://www.the-aps.org/mm/Conferences/APS-Conferences/2014-Conferences/Comparative>). The amount will be finalized by the DCPB officers at the Austin meeting.

This leaves an estimated balance of about \$2,265 to be carried over for 2014.

San Francisco 2013 meeting:

Program Officer Kristin O'Brien organized 227 abstracts for DCPB. DCPB supported the SICB-wide symposium "Vertebrate Land Invasions-Past, Present and Future," and symposia "Hormone-Mediated Sex Ratio Adjustment in Vertebrates," "Coping with Uncertainty: Integrating Physiology, Behavior and Evolutionary Ecology in a Changing World," and "Physiological Responses to Simultaneous Shifts in Multiple Environmental Stressors: Relevance in a Changing World". There were two special sessions supported by DCPB: One in honor of Bruce Sidell, organized by Rich Londraville, and the other in honor of Ken Nagy, organized by Stephen Secor and Joe Williams.

Dr. Alison Sweeney gave the Bartholomew Lecture Jan 4, 2013. The selection committee (Stephen Secor-Chair, Adam Summers, Sheila Patek, Doug Altshuler, and Art Woods) received nine applications. Dr. Sweeney, Assistant Professor at the University of Pennsylvania, was selected for her unprecedented, multidisciplinary approaches to the study of organismal design. Alison and all future winners will submit an article based on their lecture for publication in *Integrative & Comparative Biology*. This was supported by Hal Heatwole, editor.

The Bruce Sidell DCPB Student Presentation Competition had 89 entrants, who were judged by 47 DCPB members. Katie Marshall, University of Western Ontario, was selected for the Best Student Oral Presentation for her talk on "The goldenrod gall fly's liquid little secret: 3-acetyl-1,2-diacyl-*sn*-glycerols are associated with natural survival of intracellular freezing in *Eurosta solidaginis*." Robert Kobey, Indiana University, was selected for the Best Student Poster Presentation for his poster on "Genetic mechanisms of cold tolerance through increased desiccation resistance in *Drosophila melanogaster*."

Austin 2014 meeting:

Program Officer Jonathon Stillman organized about 250 DCPB presentations. DCPB is sponsoring a society-wide symposium: "Epigenetics: Molecular Mechanisms through Organismal Influences," organized by DCPB member Warren Burggren. Other symposia supported by DCPB are: "Stress, Condition and Ornamentation," organized by Geoffrey Hill; "The Micro and Macro Nutrient Effects in Animal Physiology and Ecology," organized by Robin Warne and Dan Hahn; and "Methods and Mechanisms in Ecoimmunology," organized by Cynthia Downs, Jim Adelman and Greg Demas. The support totals \$2,000.

Dr. Dan Warner, University of Alabama at Birmingham, was selected and will give the Bartholomew Lecture, followed by a social hosted by DCPB. The selection committee consisted of Art Woods (Chair), Adam Summers, Sheila Patek, and Lynn Martin. Sheila Patek will take over as chair next year.

SPDAC organized a workshop on "Improving Your Online Presence," with discussion of how to build an effective website and use other web-based resources to maximize your hiring potential. Additionally, SPDAC is hosting a professional development and networking booth in the exhibition hall.

Division of Evolutionary Developmental Biology (DEDB)

Chris Lowe, Chair

1. During the year the DEDB officers have discussed a variety of ways of increasing our membership, largely around the organization of symposia proposals. The main DEDB symposium this year is organized largely by two postdocs Mansi Srivastava and Dede Lyons with the assistance of Mark Martindale. We will discuss promoting student and postdoc organized symposia at our Divisional Meeting in Austin along with proposals to form a committee to identify emerging areas in our field and directly soliciting proposals from leaders in these new areas.
2. We have also discussed joining forces with The Society of Developmental Biology to survey our joint membership about the impact of the revised NSF review procedures on our membership as there has been no official survey by NSF IOS of our field. This will also be discussed at our Austin Divisional Meeting.
3. At the end of the Austin meeting Sally Leys will take over as Chair and our new student/Postdoctoral affairs representative will be Nathan Farrar from the University of Alberta.
4. The successful program “EvoDevo dinners” will be continued this year at the Austin meeting. Our student rep Jake Musser has organized this program where Divisional faculty volunteer to sign up to take students out for a meal during the meeting. This gives students an extended opportunity to interact with faculty in a more informal setting.
5. DEDB is cosponsoring the following symposia in Austin:
The cell’s view of animal body plan evolution
Epigenetics: Molecular Mechanisms through Organismal Influences
Adaptation or developmental constraint? Uniting evolutionary theory and empirical studies of phenotypic plasticity

Division of Ecology and Evolution (DEE)

Michael Angeilletta, Chair

In 2013, the Division of Ecology & Evolution arranged an exciting line up of events for the 2014 meeting in Austin and has started to plan for the meeting in 2015.

- 1) The Huey Award competition will enter its second year. The DEE officers conducted preliminary evaluations of abstracts for the 2014 meeting. Seven finalists are scheduled to deliver their oral presentations on January 4th before a panel of 5 judges: Aaron Krochmal, Abigail Cahill, Don Miles, Jennifer Sunday, and Elizabeth Dahlhoff. Due to a small number of applicants, no competition will be held for best poster this year. A custom plaque was designed from a graphic that Ray Huey provided; plaques will be given to the winners from last year (Laura Bagge and Jennifer Sunday) and the winner from this year (TBD).
- 2) A new social event, Beer and Brains, was planned for the meeting in Austin. DEE has reserved space for 65 students at Banger's beer garden in Austin on Jan 6th at 6-8 pm. These students will have an opportunity to meet more than a dozen well-known researchers in ecology and evolution. Food and beverages will be provided by DEE. Students signed up for this event online and the spaces were filled within a few hours.
- 3) DEE agreed to support two symposia for the meeting in 2015. One symposium will be organized by Robbie Wilson and titled "Towards a general framework for predicting animal movement speeds in nature". The other will be organized by Christine L. Madliger and titled "Conservation Physiology".
- 4) A new batch of DEE officers were elected to succeed the current batch. Don Miles will replace Elizabeth Dahlhoff as the Program Officer. Michael Dillon will replace Aaron Krochmal as Secretary. Michael Sears will replace Michael Angeilletta as the Chair. Eric Riddell was selected to replace Abigail Cahill as the student representative.

Division of Invertebrate Zoology (DIZ)

James B. McClintock, Chair

Briefs from the 2013 San Francisco meeting

DIZ co-sponsored six successful and well attended symposia at the annual meetings in San Francisco, California: 1) Phenotypic plasticity and the evolution of gender roles, 2) Keeping time during animal evolution: Conservation and innovation of the circadian clock, 3) Physiological responses to simultaneous shifts in multiple environmental stressors: Relevance in a changing world, 4) Understanding first order phenotypes: Transcriptomics for emerging model systems, 5) Integrating genomics with comparative vision research of the invertebrates, and 6) Assembling the poriferan tree of life.

Beth Davies-Berg did a wonderful job in her final year of organizing the judging for the Best Student presentations and poster awards in San Francisco. Dr. Anne Boettger has kindly agreed to my appointing her to this important position and will begin at the Austin meeting.

The best presentation awards winner and runner up awardees for DIZ at the 2013 San Francisco meeting were:

Best Oral Presentation

Winner: Christina Vasquez; cjfre@uab.edu

Multiple stressor interactions delay horseshoe crab embryo development.

Runner up: Danielle Ludeman; cawa@hawaii.edu

Testing passive flow and oxygen consumption in three temperate demo sponges

Best Poster Presentation

Winner: Amberle McKee; dacastro1@g.cofc.edu

Substrate attributes determine gait in a terrestrial gastropod.

Runner up: Kenan Matterson; nicolas.lessios@asu.edu

Reduced irradiance alters cyanobacterial symbiont abundance and growth rate of three tropical sponges.

Adrian Wenner Strong Inference Award

Winner: Christina Vasquez; cjfre@uab.edu

Multiple stressor interactions delay horseshoe crab embryo development.

Runner up: Amberle McKee;

Substrate attributes determine gait in a terrestrial gastropod.

Student and Postdoctoral Activities Kit Yu Karen Chan once again did a superb job as our representative for student and postdoctoral fellows. Karen's term is up after the Austin meeting and I am currently considering nominations made by DIZ officers and representatives to replace her.

Libbie Hyman Auction

To the credit of far too many individuals to name, the Libbie Hyman auction that took place in San Francisco was a rousing success. The auction generated thousands of dollars that were invested in the principal of the Libbie Hyman fund bringing the total fund to approximately \$28,000. Particularly successful – and appropriate to generating revenue - were a number of sets of the Libbie Hyman *The Invertebrates* that were donated and then purchased in lively bidding. As chair, I have recommended that the auction be held every three years to ensure maximum financial return and spread out the work effort across years.

Briefs from the upcoming Austin 2014 meeting

DIZ is sponsoring two symposia in Austin, Texas: 1) Shaking, dipping, and drinking: Surface-tension phenomena in organismal biology, and 2) Parasitic manipulation of host phenotype, or how to make a zombie.

I have decided that our annual divisional discriminatory funds (amount to be determined) will be allocated at the DIZ business meeting in Austin following discussion. I have solicited recommendations via the DIZ newsletter. One possibility is to use some of the funds to pay for the digitization of the hard copy historical records of DIZ. Should any funds not be expended, the balance will once again be invested in the principal of the Libbie Hyman Award fund.

The 2013 Libbie Hyman Award was awarded to Emily Weiss of Oregon State University to support course work and research at the Bocas del Toro Biological Station in Panama. Unfortunately, due to the late summer cancellation of the course she was unable to use the funds. The funds were therefore retained in the Libbie Hyman fund. Jennifer Burnaford will remain as our chair of the Libbie Hyman Award committee. John Zardus will rotate off the committee after six years of great service and be replaced by Dr. Dawn Vaughn.

Jonathan Allen was nominated by our membership to be the new DIZ Secretary and began his term after the San Francisco meeting. He is doing an excellent job in this new role.

Grand Challenges

In my discussions at the SICB convention with Bill Zamer from NSF it seemed evident that he would like to encourage the SICB leadership to parse their current list of grand challenges in organismal biology down to several specific areas of research that might be emphasized in future funding cycles. While this will be difficult given the worthiness of the broad suite of grand challenges formulated to date, my sense is that this opportunity provided by NSF should not be squandered.