

## Division of Systematic and Evolutionary Biology

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### DSEB Officers & Representatives

**Patrick O'Connor**  
Chair 2010-2012

**Anne M. Maglia**  
Past Chair 2010-2012

**Todd H. Oakley**  
Secretary 2010-2013

**Michael E. Alfaro**  
Program Officer 2009-2012

**Nicole Cox**  
Student/Postdoc Representative  
2009-2012

**Richard Mooi**

### Message from the Chair

*Patrick O'Connor*

Greetings and Happy New Year! The year is off to a great start with the recent strong showing of DSEB members at the annual meeting in Salt Lake City. I want to thank the SICB and DSEB program committees for selecting a solid collection of talks and posters for the conference. And a very special thank you is sent to DSEB program officer Mike Alfaro and DSEB secretary Todd Oakley for having convened the next installment of the 'Phylogenetics for Dummies' offerings. The theme this year focused on using R for conducting phylogenetic comparative analyses.

The 2011 conference featured a diverse assemblage of talks and posters from our division, ranging from a consideration of speciation patterns in marine microeukaryotes and sea cucumbers to molecular phylogenetics of groups as diverse as pancrustaceans, ray-fined fishes and barking frogs. Other topics focused on refining the theoretical basis for estimating evolutionary rates in the face of incomplete data and the development of experimental approaches seeking to elucidate the role that atmospheric oxygen plays in dictating body size evolution in insects.

In particular, I want to thank all of the students who participated in the 2011 DSEB 'Best Student' presentation competition...and I want to 'continue to encourage' our student members to become more involved with the division during the upcoming year. You can do this by contributing your profile to the DSEB researcher database in the first instance, and by signing up to compete in the 2012 'Best Student' presentation at the next annual conference that will take place in Charleston, SC from the 3<sup>rd</sup> through the 7<sup>th</sup> of January in early 2012.

Congratulations to the 2011 winners and thanks once again to all participants for making the effort to put your work out there for everyone to see.

Please note that we have three important divisional items for you to consider during the upcoming months.

First, a few minor changes have been proposed for the Divisional Bylaws—these proposed changes were sent out in early March by SICB Secretary Lou Burnett and are included in this newsletter.

Second, we have two elections taking place this spring. We are looking to put in place both Chair-Elect and Secretary-Elect positions beginning in January 2012. Please review the biographies below and take the opportunity to voice your opinion for these important divisional positions later this spring. Thanks to the dedicated efforts of Graham Slater in helping assemble the candidate biogra-



phies.

Finally, after a series of discussions at the annual business meeting in each of the last two years and during intermittent email exchanges among several division members, we are proposing to change the name of the division from the SICB **Division of Systematic and Evolutionary Biology** (DSEB) to the SICB **Division of Phylogenetics and Comparative Biology** (DPCB). This change is being proposed by the division officers and several key division members who routinely participate in and provide input on division activities. The rationale for this change revolves around two main points. First, we feel that the SICB Division of Phylogenetics and Comparative Biology better reflects the activities of our group as a whole in underscoring the foundational role played by phylogenetic inference in almost all areas of biology. Second, the rapidly expanding and ever more accessible 'discipline' of comparative biology continues to develop novel ways in which a variety of evolutionary analyses can be conducted subsequent to the formulation of phylogenetic hypotheses. Thus, such a name change will likely appeal to a much broader membership within SICB, particularly potential members who are not necessarily focused on generating phylogenetic trees, but rather, those who are interested in addressing any number of evolutionary questions once phylogenetic hypotheses have been proposed. Please provide us with feedback and vote on this during the spring election period.

Here are a few announcements for you to consider in the upcoming months.

We are looking to expand our web presence by the inclusion of periodic updates in the form of 'In the News' contributions from division members. For example, if your research has been highlighted in the popular press, let us know so that we can help to promote it via the division 'In the News' section of the web site. We are also considering another new section for the web site and/or the newsletter that would include one or more short research profiles of division members. This could be par-

ticularly beneficial to senior student and/or postdoctoral members as they begin that transition to the next job.

Please contact me and divisional Secretary Todd Oakley if you would like to submit something for either of these new features. Also, let us know if you have other ideas that you would like us to consider for helping with research communications, outreach, or both.

Please contribute to the ever growing DSEB Researchers Database at <http://www.sicb.org/divisions/DSEB/researchers.php3>. This applies to student members too! Contact me (oconnorp "at" ohio.edu) or our divisional secretary Todd Oakley (oakley "at" lifesci.ucsb.edu) if you would like to provide a researcher profile to the database. This is a very effective (and inexpensive) way to get yourself out there for others to see...and for you to see what else is happening within the division.

And last but not least, here are the dates and places for a few of our sister organizations during the upcoming months:

### **Evolution 2011**

University of Oklahoma, Norman, OK

17 - 21 June 2011

### **Society for Molecular Biology and Evolution (SMBE)**

Kyoto University, Kyoto, Japan

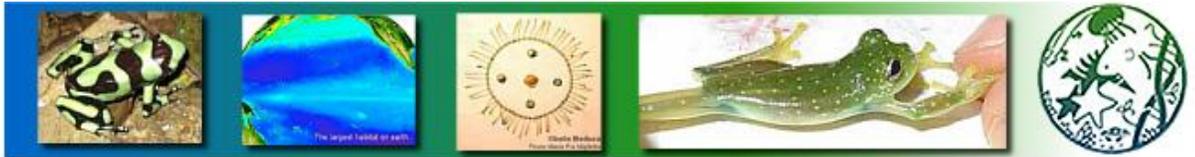
26 - 30 July, 2011

### **71<sup>st</sup> Annual Meeting of the Society of Vertebrate Paleontology**

Las Vegas, NV

2 - 5 November 2011

Have a good spring/summer and we look forward to seeing you in Charleston, South Carolina for SICB 2012.



## Message from the Program Officer

Mike Alfaro

Greeting DSEBers. The 2011 SICB meetings were great fun. Congratulations to Kevin Kocot for winning the DSEB Best Student Presentation and to all of the students that contributed this year. I would also like to recognize our panel of judges including Naomi Phillips, Alexis Janosik, Sarah Boyer, Luiz Rocha, Lauren Chan, Feifei Zhang, Marta DeMaintenon, Ken Angielczyk, Max Maliska, Tobin Hieronymous, Graham Slater, and Todd Oakley. We hope to increase participation in both the talk and poster categories next year, so please encourage your students to present. Once again the division sponsored the Introduction to Comparative Methods in R workshop which attracted over 60 attendees. Thanks to Todd Oakley and Graham Slater for co-instructing and Sam Price and Carl Boetig-



Phylogenetics for Dummies Workshop

ger for assisting. I look forward to seeing you all again next year in Charleston!

## Message from the Secretary

Todd Oakley

An ongoing challenge for me is to encour-

age members to submit their biographies and pictures for the researcher database. I'll start trying to ask people in person, but if you're reading this, why not take a few minutes right now and send me a photo and a bio.

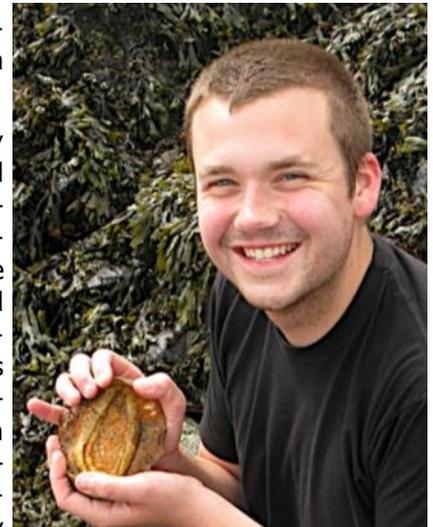
I would also like to encourage students to participate in the "best student presentation" competition. I will be trolling upcoming meetings for outstanding student talks to encourage those presenters to come to SICB. If you know (or happen to be) an outstanding student, encourage her or him to compete in the competition.

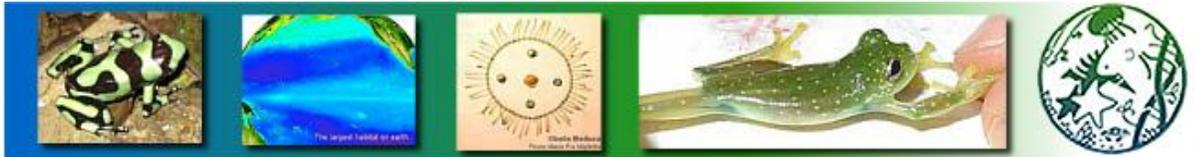
Finally, we will be electing a new Secretary-Elect and Chair-Elect. The biographies of candidates are included below. Please make sure to vote later this spring.

## Congratulations to Best Student Oral Presentation Winner, Kevin Kocot!!

Kevin's Biography and Research Interests:

I received my B.S. in Biological Sciences from Illinois State University in 2006. While at ISU I performed undergraduate research on topics as diverse as algal development, fish physiology, and insect ecology. However, it was in my Invertebrate Zoology course, where we read Dr. Ken Halanych's 2004 "New view of animal phylogeny" review paper, that I became interested in phylogenetics. I was surprised that so little was known about evolutionary relationships among the major lineages of animals. I subsequently contacted Dr. Halanych and ended up joining his lab as a Ph.D. student in





2007. While working in Dr. Halanych's lab, I have had tremendous opportunities including visits to marine labs in several countries, participation in several research cruises, and being first author on a follow-up to the Halanych 2004 review paper.



Kevin Kocot's  
study organism

My dissertation research in Dr. Halanych's lab is focused on the evolutionary relationships among the major lineages of the phylum Mollusca. Despite the diversity and importance of this group, very little is known about the relationships among the eight major lineages. I am particularly interested in the neomenioid aplacophoran molluscs whose phylogenetic position has been intensely debated. At the 2011 SICB meeting, I presented the results of a collaborative phylogenomic study showing support for the Aculifera hypothesis which places Polyplacophora (chitons) as the sister taxon of a monophyletic Aplacophora. Additionally, a sister-taxon relationship between Gastropoda and Bivalvia is supported.

Future directions include a molecular phylogenetic investigation of neomenioid evolutionary relationships and studies of the evolution of particular gene families of interest in molluscs.

## DSEB Members In the News

DSEB Chair **Patrick O'Connor** and DSEB Member **Tobin Hieronymus** were part of international team of researchers who described a fascinating new crocodile with mammal like characteristics. The new animal was described in the Aug. 5, 2010, issue of *Nature*.

Paleontologists scouring a river bank in



Tanzania have unearthed a previously unknown crocodile from 105 million-year-old, mid-Cretaceous rock in the Great East African Rift System. The discovery of a relatively lanky, cat-sized animal with mammal-like teeth and a land-based lifestyle supports a growing consensus that crocodiles were once far more diverse than they are today, dominating ecological niches in the Southern Hemisphere during the Cretaceous Period that were filled in the Northern Hemisphere by early mammals.

"At first glance, this croc is trying very hard to be a mammal," joked O'Connor. While numerous character traits show the animal is clearly crocodylian, he added, "A number of characteristics of this new species—including a reduction in its total number of teeth and a dentition specialized into ones similar to canines, premolars and occluding molars—are very similar to features that were critical during the course of mammalian evolution from the Mesozoic into the Cenozoic."

More information on the fossil find, including pictures and videos, can be found on the NSF website: [http://www.nsf.gov/news/special\\_reports/crocs/index.jsp](http://www.nsf.gov/news/special_reports/crocs/index.jsp)

If you are a DSEB member 'in the news', please let us know, by sending an email to DSEB secretary [Oakley@lifesci.ucsb.edu](mailto:Oakley@lifesci.ucsb.edu). We'd love to feature your work in our newsletter.



## Proposed DSEB Bylaws Changes

Change the name of the division to the Division of Phylogenetics and Comparative Biology.

Change title of the Article VII to be consistent with SICB bylaws.

Change reference to the annual meeting of SICB.

3. Under participation specify that the degree is the Ph.D. and remove restriction of previous winning to be consistent with SICB bylaws.

4. In Article VIII and Article IX, delete the headers called "Section 1" since there is no Section 2.

### Article I. Name and Purpose

#### Section 1. Name

The official name of this division of the Society for Integrative and Comparative Biology shall be "The Division of **Phylogenetics and Comparative Systematic and Evolutionary Biology**."

Note that the name of the division appears in at least nine places in the bylaws where it will be changed to the new name.

Rationale: Finally, after a series of discussions at the annual business meeting in each of the last two years and during intermittent email exchanges among several division members, we are proposing to change the name of the division from the SICB **Division of Systematic and Evolutionary Biology** (DSEB) to the SICB **Division of Phylogenetics and Comparative Biology** (DPCB). This change is being proposed by the division officers and several key division members who routinely participate in and provide input on division activities. The rationale for this change revolves around two main points. First, we

feel that the SICB Division of Phylogenetics and Comparative Biology better reflects the activities of our group as a whole in underscoring the foundational role played by phylogenetic inference in almost all areas of biology. Second, the rapidly expanding and ever more accessible 'discipline' of comparative biology continues to develop novel ways in which a variety of evolutionary analyses can be conducted subsequent to the formulation of phylogenetic hypotheses. Thus, such a name change will likely appeal to a much broader membership within SICB, particularly potential members who are not necessarily focused on generating phylogenetic trees, but rather, those who are interested in addressing any number of evolutionary questions once phylogenetic hypotheses have been proposed. Please provide us with feedback and vote on this during the spring election period.

#### Section 2. Purpose

The ~~study field~~ **field** of systematic biology (**nomenclature, taxonomy, phylogenetics**) **provides the fundamental scaffolding for all other areas of biological inquiry, whether the goal is to understand the origin and extent of biological diversity or to generate hypotheses of evolutionary relationships among organisms or genes. Moreover, its constituent parts are essential for all comparative approaches in evolutionary biology** is basic to all comparative studies in biology. The purpose of the Division shall be to advance, encourage, and coordinate research and publication in systematic **and comparative** biology, and to act as a liaison between workers in various scientific fields interested in systematic or taxonomic applications of biology **the application of these approaches.**

Article VII. Best Student-Paper **Presentation** Awards



## Section 1. Awards

At each annual meeting of the **Society** ~~Division of Systematic and Evolutionary Biology~~, two awards, each consisting of an appropriate monetary sum and a certificate, may be made for student research in systematic biology. One award may be made to the best student oral presentation, and one to the best student poster presentation.

## Section 2. Participation

Undergraduate and graduate students, and graduates within one year of receiving **the Ph.D.** ~~their degree~~, who are members in good standing of the Society for Integrative and Comparative Biology ~~and who have not previously won an award in the same presentation format (oral or poster) from an SICB division~~ are eligible. The work should be original and principally the work of the student presenter. Students may apply to compete for the awards when submitting the abstract of their work for the Annual Meeting. A prize can be awarded only once to any student.

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## Minutes of the DIVISION OF SYSTEMATIC AND EVOLUTIONARY BIOLOGY business meeting

Wed Jan 5, 2011, Salt Lake City, UT.

Present – Patrick O’connor (President); Todd Oakley (Secretary); Graham Slater representing Michael Alfaro (Program Officer) plus 7 delegates.

Richard Zimmer, program officer for NSF encouraged people to consider submitting RCN (Research Coordination Network) grants. He then answered questions regarding symposium and other funding at

NSF.

Patrick O’Connor urged people to send in ideas for nominating committees to elect a Secretary-Elect and Program Officer Elect.

Patrick indicated that SICB will institute a new \$5 dues fee, which will be distributed to the different divisions based on proportion of membership. The divisions can use the funds at their discretion.

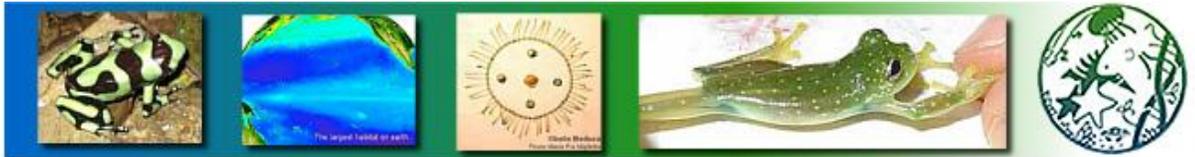
People discussed the possibility of changing the name Division of Systematic and Evolutionary Biology. One suggestion is to change to “Phylogenetic and Comparative Biology”. Ideas include getting feedback from all members, perhaps through a survey. A ballot and vote would be required, and perhaps multiple choices of name could be offered.

People discussed the possibility of a new 5-minute format option for presentations at future meetings. Some concerns were raised – “why not just give a poster instead?” Another concern is that these talks could be mainly by students and the presentations could get less attention. A positive is that it could be less intimidating for some students. One possibility would be to use this venue to propose collaborative ideas.

We discussed the newsletter for the division. Ideas for making the newsletter better include contributing news releases from divisional affiliates, a focus on student experiences, announcement of other relevant meetings, and photos.

We still do not have many people in the researchers database; all members are encouraged to contribute their information.

An idea for increasing attendance at the business meeting was to tack a small invitation to good posters relevant to the division.



## Candidates for Elections

Candidates for Chair-Elect

### Michael Alfaro



**Current Position:** Associate Professor, University of California-Los Angeles

**Research Interests:** Comparative Biology and Macroevolution.

The central goal of my research program is to understand the factors that govern the dynamics of evolutionary diversification. Why are some groups morphologically diverse? Does morphological diversity always

signal mechanical, functional, or ecological diversity? Are there general laws or themes that can be used to explain the uneven distribution of diversity in physiological traits across lineages? To address these questions, I work largely on marine fishes. My research approach is interdisciplinary and quantitative and crosses traditional boundaries among evolutionary morphology, molecular phylogenetics, and theoretical evolution. I identify and quantify organismal diversity by measuring genome size, morphology, and behavior; construct evolutionary trees and test evolutionary hypotheses using phylogenetic statistical methods; and use models of trait evolution to explore form-function dynamics.

**Goals Statement:** The SICB meetings are the premier annual meetings of organismal biologists. I believe that the role of our division, DSEB, is to promote the comparative mission of the society by sponsor-

ing talks and symposia that apply phylogenetic trees to better understand organismal diversity. As President I would work to make this mission more explicit by supporting workshops like the R comparative methods workshop that I have co-instructed for the last three years. In addition, I would like to bring other kinds of introductory workshops to the meetings. For example, Steve Haddock has expressed interest in providing an introduction to some of the computational tools covered in his excellent new book, Practical Computing for Biologists. I would also work to foster closer connections between other societies like DVM and DCB, whose members frequently apply phylogenies to better understand their systems. Finally I would work to encourage participation of undergraduate and even high-school researchers, especially those from underrepresented groups. I think the Undergraduate Diversity program at the SSE/SSB meetings, where minority undergraduate researchers attend one or more sessions with faculty members, is a good model for this kind of activity.

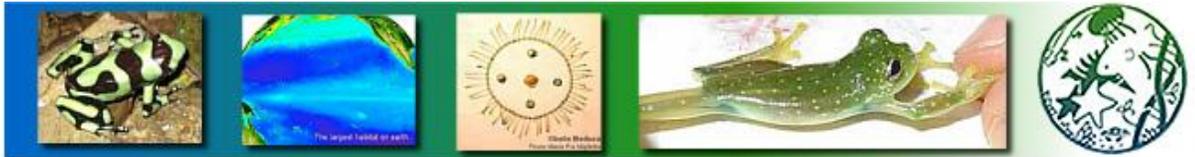
### Todd H. Oakley

**Current Position:** Professor, University of California-Santa Barbara

**Education:** BS (1993) and MS (1996), Biology, University of Wisconsin-Milwaukee; PhD, Biology Duke University (2001)

**Professional Experience:** Postdoctoral Fellow, Ecology and Evolution, (2001-2003) University of Chicago. Associate Editor Systematic Biology (2005-present).





## SICB Newsletter

Spring 2011 Issue

Associate Editor Molecular Biology and Evolution (2010-present).

**SICB Experience:** Member (2000-present); SICB Student Support Committee (reviews all student grants) (2009-present); Symposium Co-Organizer (2003); Best Student Paper Committee, DSEB (2005, 2008, 2010); DSEB Secretary 2009-Present.

**Other Memberships:** Society of Systematic Biologists, Sigma Xi, NERE (Network for Experimental Research in Evolution).

**Research Interests:** My research involves comparisons of independent evolutionary transitions such as convergence, parallelism, duplication, and homoplasy. Such transitions provide an element of repeatability within the singular history of life, and can yield insight into the most general evolutionary questions. For example, when and why do the same molecular or developmental changes underlie similar - though independent - evolutionary changes? What are the fates of duplicated genes, and what causes them to diversify or retain old functions? How can we even determine what is an independent evolutionary event? These questions have driven my research on diverse subjects in evolution. Current topics include the evolution of complex traits, like eyes and nervous systems, and the phylogeny and evolution of ostracod crustaceans.

**Goals Statement:** My goals as a DSEB officer would be to help maintain the strengths of DSEB, including the systematics for dummies workshop. In addition, I would strive to help DSEB grow by promoting visibility of SICB to other organizations, like the Society of Systematic Biologists. Especially by targeting early-career systematists, and spreading the word that SICB is a student-friendly meeting, I envision strengthening DSEB even further.

### Candidates for Secretary-Elect

**Kerin M. Claeson**

**Current Position:**

Instructor of Anatomical Sciences, Ohio University College of Osteopathic Medicine.

**Education:**

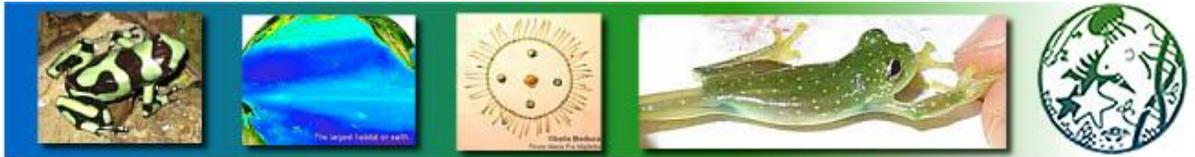
Ph.D., University of Texas at Austin, 2010; M.S., University of Massachusetts at Amherst, 2005; B.S., Stony Brook University, 2001.

**Research Interests:**

Ontogeny, systematics, phylogenetics, and evolution of cartilaginous and bony fishes. I investigate the role that phenotypic variation plays in the interpretation of the vertebrate skeleton through deep time, as well as the role that fossils play in the interpretation of modern biodiversity and phylogenetics.

**Goals for SICB:** As secretary, I will not only take good notes, but I will support the effort to boost the Systematics Division of SICB and will take an active role in fulfilling the broader goals of its members. I also see an opportunity to work more with the paleontological community. For the last 8 years I've noticed a gradual increase in the prevalence of systematics, phylogenetics, and deep-time evolution sessions at the annual meeting. However, students/professionals still seem to largely overlook SICB in favor of other conferences to present that type of work. I would like to see more interaction between students and professionals at the conference because it can result in critical first-steps in the careers of young scientists. By increasing the awareness of interdiscipli-





## SICB Newsletter

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nary systematics at SICB, we can promote scientific collaborations and provide the framework for discussion and action on important the issues that affect our field.

**Professional Service (non-SICB):** Program Committee Member for the Society of Vertebrate Paleontology; Chair of the Student Liaison Committee of the Society of Vertebrate Paleontology; Graduate Student Representative to the Development Committee of the Society of Vertebrate Paleontology.

### *Eric McElroy*



**Current Position:** Assistant Professor, Department of Biology, College of Charleston

**Education:** Ph.D., Ecology and Evolution, Ohio University; B.S., Biology, Ohio Northern University

**SICB Activities:** Member since 2003

**Research Interests:** Evolution of animal biomechanics; Mechanical basis of animal behavior; Physiology, biomechanics, and ecology of animal locomotion.

**Statement of Goals:** An important role of DSEB at SICB is that it encourages the incorporation of comparative methods and phylogenetics in studies of organismal biology. As secretary, I would strive to encourage this linkage primarily via the newsletter