



# ISBE Newsletter

Supplement to *Behavioral Ecology*  
[www.behavecol.com](http://www.behavecol.com)

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## FROM THE NEWSLETTER EDITOR

Do you remember why you became a biologist? Our reasons vary I'm sure. Some of us dreamed about it in early childhood, others were influenced by a good High School teacher. Some even claim they do this for the love of biological theory. My guess is that most of us were motivated by some form of love of nature. We are the butterfly collectors, the ornithologists, the horse-crazed girls, the sport fishermen, the pet animal lovers the forest hikers, turned professional biologists.

But to what extent do our current jobs allow us to spend our days outdoors? Really. Sometimes I feel the longer I go on in academia, the less often I get to be outside. Yes, our motivations change, and sure, I can find pleasure in reading up on a new theory or discovering an elegant statistical analysis. But still... there is a level of displeasure in me that, despite I now live my childhood dream as a biologist, I spend precious little time out in the field these days.

Some years ago, I was on a research vessel in the Southern Ocean with a mission to tag sharks and count seals. Proper biology! Sea sickness, sun burn and smelly animals! A friend had offered me a spot on the boat as a field assistant. On the same cruise was a medical doctor. It turned out that he had started to study biology - because he wanted to spend his days doing expeditions like the one we were on. But he soon realized that most academics spend very little time doing actual field biology. Instead they teach, write, review, apply and administrate. So he got a brilliant idea: Large field expeditions to remote areas will require medical staff. So he changed tack, went to medical school, became a physician and signed up for all the exotic field projects he could find. As long as no one became sick or injured, he would work as one of the field assistants - doing what he loved, namely practical field biology. As an office-bound biologist, happy to get a few field days a year, I thought this guy had struck gold.

My longing for more field time is especially strong during springtime. My PhD project allowed me to spend entire springs and summers in the field. It was wonderful and I miss it. Nowadays, I have a heavy course load in the spring semester, and although I enjoy giving those courses (they include Behavioral Ecology!), it is frustrating to be stuck indoors when the birds are singing, insects are mating and fishes are courting.

This year however, I too have struck gold! Thanks to the generous parental leave system in Sweden, I will spend spring and summer 2017 performing paternal care. So where will I spend the next few months? Well of course: out in the field, exploring nature with my one year old son!



*Reintroduction to the wild, with offspring*

I want to extend a big thank you to all who contributed to this Newsletter, especially Ken Otter and our three book reviewers. I for one will order all the books reviewed in this issue!

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## How to contribute to the Newsletter

The ISBE Newsletter publishes Book Reviews, Conference/Workshop Reviews and Commentary Articles of interest to the International Society for Behavioral Ecology. The ISBE Newsletter will only consider work that is not already published or intended to be submitted for publication elsewhere.

**Book Reviews:** Persons involved in the publishing of books who would like these to be considered for review in the Newsletter should contact the editor and arrange for their publisher to forward a review copy to the reviewer. Authors may submit a list of possible reviewers. Members who wish to review a particular text should contact the editor. The editor will provide reviewers with instructions. Reviews are typically 1500-2000 words. For a list of books currently available for review, see the end of this Newsletter.

**Workshop/Conference Reviews:** Workshop and/or Conference reviews should be prepared in one of the following two formats. *Brief synopses* (max 1500 words) and *Longer reports* (max 3000 words) Graduate students and postdocs are strongly encouraged to consider contributing to writing these reports.

**Cartoons:** Cartoonists and other artists are encouraged to submit artwork, either in hardcopy, or as TIFF or high resolution (>300 dpi) gif or jpg files. All cartoons published in the Newsletter will be credited to the illustrator.

**Spotlight on young scientists:** Early career members (PhDs/ postdocs) are encouraged to participate in the section "Spotlight on"; please provide name, education, current address, research interests and selected papers in an email to the editor.

## ASAB Easter Meeting 2017

April 5-7, 2017 in Liverpool, UK.  
<http://www.asab.org/conferences/2017/4/5/asab-easter-meeting-2017>

## EHBEA 2017

European Human Behaviour and Evolution Association Congress. April 6-8, 2017 in Paris, France.  
<https://ehbea2017.sciencesconf.org/>

## The 7th Poeciliid Meeting

Norman, Oklahoma May 24-26, 2017.  
 Website: <http://poeciliid2017.com/>  
 Facebook group: "7th Meeting of Poeciliid Biologists".  
 Contact us at [poeciliid@ou.edu](mailto:poeciliid@ou.edu)

## HBES 2017

Human behaviour and Evolutions Society meeting  
 May 31 - June 3 at Boise State University, Idaho.  
<http://ishe.org/boise-2017/>

## ABS 54th Annual Conference

Animal Behavior Society Annual Conference in Toronto, Canada. June 12 - 16, 2017.  
[www.animalbehaviorsociety.org/2017-sd/](http://www.animalbehaviorsociety.org/2017-sd/)

## 13th Ecology and Behaviour meeting

June 19-23, 2017 Chizé, France  
<https://eb2017.sciencesconf.org/>

## Evolution 2017

"Evolution conference": a conference of the Society for the Study of Evolution, the Society of Systematic Biologists, and the American Society of Naturalists. June 23-27 at the Oregon Convention Center in Portland, OR, USA. [www.evolutionmeetings.org/](http://www.evolutionmeetings.org/)

## Mathematical Models in Ecology and Evolution.

The 6th bi-annual conference, 10-12 July 2017 at City, University of London. UK. [www.city.ac.uk/MMEE2017](http://www.city.ac.uk/MMEE2017)

## 4th International Symposium on Acoustic Communication by Animals

July 18-21, 2017. Henry Doorly Zoo & Aquarium, Omaha, Nebraska, USA. Sponsored by the Acoustical Society of America and the Henry Doorly Zoo & Aquarium. See also page 16.  
<http://AcousticCommunicationByAnimals.org>

## ASSAB 2017

The 45th meeting of the Australasian Society for the Study of Animal Behaviour. July 19-22, 2017, in Mooroolbark, Victoria. <http://www.assab.org/>

## Behaviour 2017

The 35th International Ethological Conference, July 30 - Aug 4, 2017 in Estoril, Portugal. See also page 8.  
[www.behaviour2017.org](http://www.behaviour2017.org)

## ISAE 51st International Congress

International Society for Applied Ethology Aug 7-10, 2017 Århus, Denmark. Theme: Understanding animal behaviour. <http://conferences.au.dk/isae2017/>

## ISWE conference

6th Conference of the International Society of Wildlife Endocrinology in Orlando, Florida, USA. See also page 7. <https://iswe2017.eventbrite.com>

**European Society for Evolutionary biology (ESEB) Congress.** August 20 - 25, 2017 in Groningen, The Netherlands. <http://www.eseb2017.nl/>

**ASAB and ZSL** Interdisciplinary workshop/symposium - Avian senses Sep 14-15, 2017. ZSL London Zoo. [www.asab.org/conferences/2017/9/15/asab-and-zsl-interdisciplinary-workshopsymposium-avian-senses](http://www.asab.org/conferences/2017/9/15/asab-and-zsl-interdisciplinary-workshopsymposium-avian-senses)

## ASAB Winter Meeting 2017

Dec 7-8, 2017 The 2017 ASAB Winter Meeting will be titled "Sexual selection: 30 years of testing the alternatives". [www.asab.org/conferences/2017/12/7/asab-winter-meeting-2017](http://www.asab.org/conferences/2017/12/7/asab-winter-meeting-2017)

## Göttinger Freilandtage

An international conference on primate behaviour 12-15 Dec 2017. See also page 5. [www.freilandtage.de/](http://www.freilandtage.de/)

## ASSAB conference

July 12-14, 2018. Australasian Society for the Study of Animal Behaviour Conference, Brisbane, Australia.  
<http://www.assab.org/>

## ICN 2018

International Congress of Neuroethology. July 16-20, 2018 in Brisbane, Australia.  
<http://icn2018.com/index.php>

## IUSSI 2018

International Union for the Study of Social Insects, Guarujá, Brazil. August 5-10 2018  
<http://www.iussi2018.com/>

## ISAE 52nd International Congress

International Society for Applied Ethology  
 July 30 - Aug 03, 2018, Prince Edward Island, Canada  
[http://www.applied-ethology.org/isae\\_meetings.html](http://www.applied-ethology.org/isae_meetings.html)

## Evolution 2018

The 2018 Evolution meeting will be held in Montpellier, France. Aug 18-22, 2018.  
<http://www.evolutionmeetings.org/>

## Evolution 2019

The 2019 Evolution meeting will be held in Providence, RI, USA. June 21-25, 2019.  
<http://www.evolutionmeetings.org/>

## ISAE 53rd International Congress

International Society for Applied Ethology  
 Aug 5-9, 2019, Bergen, Norway  
[http://www.applied-ethology.org/isae\\_meetings.html](http://www.applied-ethology.org/isae_meetings.html)

## POSTDOCTORAL OPPORTUNITY IN CHILE

We seek a postdoctoral fellow to integrate his or her independent research into our ongoing research projects on how sociality interacts with ecology and attributes of social groups to impact reproductive success in communally breeding rodent, *Octodon degus*. The postdoctoral fellow will design and/or conduct a project that complements our research program. This may include the use of a long-term (12 year) database, and genotyping of adults and offspring, or field experiments to determine how personality differences explain extent of cooperation and its fitness effects within social groups. Addressing other aspects that contribute to individual differences in social behavior and fitness are similarly welcomed. The postdoctoral fellow is expected to generate publications in peer reviewed journals and present results at international meetings.

Project duration: 2-3 years  
Location: Santiago, Chile

### Requirements

The ideal candidate will have an expertise in behavioral ecology. We seek individuals with compatible interests in social theory, some basic experience with lab techniques used to genotype and then run paternity and maternity analyses, ability to work with large datasets and its statistical analysis, and the desire to develop field tests of theory. The candidate must have a history of publishing papers in peer-reviewed journals and the potential to secure external funding as indicated by previous research grants. The ideal candidate will have willingness to work with students and other junior scientists. A PhD must be earned between 1 January 2014 and 30 November 2017. The beginning of this postdoctoral training will be 15 March 2018. Although not a requirement, we prefer individuals with some Spanish language skills.

### Funding

The prospective postdoctoral fellow will need to apply to the FONDECYT postdoctoral program, the postdoctoral training program in Chile. This program provides considerable support to researchers of any nationality (USD based on 1 USD = 650 pesos; values can fluctuate  $\pm 30$  pesos):

- Research stipend (\$20.640.000 pesos/year or ~\$31,750 USD/year)
- Travel and research expenses (\$4.500.000 pesos/year or ~\$6,900 USD/year)

- Health insurance (\$456.000 pesos/year or ~\$700 USD/year)
- Movement costs (1 year only, from international candidates: \$3.000.000 pesos or ~\$4,600 USD)

Formal application (in English) to FONDECYT will be from June – August 2017, so a complete application draft should be nearly ready before that time. Very important to international applicants, the FONDECYT program requires successful applicants to spend no less than 6 months in Chile during each funding year.

US citizens are also encouraged to seek funding from the National Science Foundation. See [http://nsf.gov/funding/pgm\\_summ.jsp?pims\\_id=5179&org=NSF](http://nsf.gov/funding/pgm_summ.jsp?pims_id=5179&org=NSF)

Potential postdocs would have access to molecular genetics, and hormone assay facilities. They would also have the possibility of forming collaborations with PUC faculty with interests in ecology, evolution, or genomics (<http://biologia.uc.cl/en/>).

### Application instructions

Interested individuals should submit

- (i) documentation of PhD earned or evidence that PhD will be earned by 30 November 2017,
- (ii) a CV highlighting research and educational activities,
- (iii) two recent publications, and
- (iv) contact information of three academic professionals (including a PhD advisor).

Applicants should be prepared to discuss questions that relate to and potentially expand upon our published work on *degus*. To this end, please indicate potential interest in a statement of research interest. The description should be brief, but with enough information to determine the potential compatibility of the applicant's ideas to our long-term study. Please, combine all files into a single PDF with the title 'Lastname\_Firstname\_FONDECYTpostdoc', and email this file directly to both Luis Ebensperger and Loren Hayes.

### Contacts

Prof. Luis Ebensperger, P. Universidad Católica de Chile ([lebensperger@bio.puc.cl](mailto:lebensperger@bio.puc.cl)); Prof. Loren Hayes, University of Tennessee at Chattanooga ([loren-hayes@utc.edu](mailto:loren-hayes@utc.edu)).



The Göttinger Freilandtage (12-15 Dec 2017) is a bi-annual international conference on timely topics in primate behaviour, ecology and evolution organised by the Behavioral Ecology & Sociobiology Unit at the German Primate Centre (Deutsches Primatenzentrum). This meeting differs from many other conferences in that (1) one topic is comprehensively analysed from different perspectives, (2) leading experts focus on this topic for several days, and (3) there is plenty of time for formal and informal discussion. To achieve these goals, these meetings mainly feature presentations by invited speakers, but opportunities for contributed talks and poster presentations are provided as well.

#### SCOPE AND RATIONALE

Social complexity has been one of the most noticeable emerging topics in the study of animal behavior in recent years. Either the social system of some species in its entirety has been labeled as complex, or "complex" is used to characterize particular behavior patterns. Similarly, some bees, fish, gerbil, meerkats, baboons or killer whales, have, for example, been characterized as "highly social", implying the existence of grades of social complexity, but these studies have often neither provided an explanation nor definitions of the potential components and levels of sociality that contribute to complexity, particularly for vertebrate taxa. In studies of social insects, a common understanding on social nomenclature has apparently been reached, and scholars of human societies and behavior also appear to have generally acceptable working definitions of social complexity. The recent tendency to attribute "(more) complexity" to some vertebrate species without precise definition and justification is not just a semantic problem, however, because it also hampers comparisons and functional analyses of sociality.

Whereas cynics might argue that "complex" is only added to the title of some publications to enhance their attraction for high-impact journals, there is clearly variation in the complexity of all aspects of social systems beyond variation in group size that deserves systematic study. Species vary not only in the average number of individuals that form social units, but also in how they are distributed in space and time, although this aspect has received little attention so far. In contrast, much more attention has been paid to the role of cognitive abilities, the nature of social interactions, including the ways in which group

members communicate with each other, and social network analyses may provide a sophisticated tool to quantify and compare this variation. On the other hand, theoretical models (of primate behavior) and genetic analyses (in social insects) indicate that complex social systems can be generated with only a few simple rules. Furthermore, because most variation in social complexity appears to exist among species, comparative and phylogenetic analyses may provide insights about evolutionary patterns and drivers. Careful analyses of variation in social complexity and its correlates within interesting lineages are equally valuable in this context. Finally, human behavior and societies clearly represent the highest level of social complexity, so that understanding our own species in this respect may contribute an important scale for comparative studies, as well as further insights about what makes us human.

While exciting and cutting-edge research on all of these aspects is taking place in different disciplines, and on a diversity of study systems, there are few opportunities at professional meetings to address and discuss this complex topic (sic!) in an adequate manner. The goal of this conference is, therefore, to bring together the internationally leading researchers from each of these fields of study for a comprehensive discussion of what constitutes social complexity and how we can explain it with a broad Tinbergian perspective. Such exchange and discussion should yield insights about general patterns, facilitate cross-disciplinary interactions and identify areas for fruitful future research.

Invited speakers will provide overviews of different aspects of the general topic. We also welcome submissions for contributed oral and poster presentations.

More information: [www.freilandtage.de/](http://www.freilandtage.de/)



## WORKSHOP ANNOUNCEMENT

# FishSim Animation Toolchain

"Discovering FishSim in 3 days - new software for computer-animated 3D fish stimuli for innovative research in animal behavior"

When? October, 20th - 22nd 2017

Where? University of Siegen, Hölderlinstrasse 3, 57076 Siegen, Germany

Participants: 10

Language: English

Costs: 50 € (Students), 70 € (Postdocs and senior researchers)

Contact: [virtual.fish.project@gmail.com](mailto:virtual.fish.project@gmail.com)

Website: <https://virtualfishproject.wixsite.com/fishsim>

Application deadline: Friday, 30th June 2017

### BACKGROUND

Within the scope of the DFG funded Virtual Fish Project at University of Siegen (Germany), we developed the free and open-source "FishSim Animation Toolchain" (FishSim) which combines easy creation, animation and presentation of realistic 3D computer-animated fish stimuli for the use in experiments with live test fish (Müller et al. 2016, doi: 10.1093/cz/zow106; Gierszewski et al. 2016, doi: 10.1093/cz/zow108). FishSim was specifically designed for behavioral experiments using common one-choice and two-choice set-ups, as in studies on visual signaling and mate choice. FishSim provides various possibilities to experimentally manipulate morphology and behavior of any number of virtual 3D fish with presentation via monitors. Since FishSim is based on a computer game engine, it offers a unique way for animating 3D fish via real-time input from an external video-game controller.

To introduce FishSim and to assist in the implementation of our toolchain, we would like to welcome you to join a 3-day international workshop for behavioral biologists on "Discovering FishSim in 3 days

- new software for computer-animated 3D fish stimuli for innovative research in animal behavior". The workshop will be held at University of Siegen in Siegen, Germany, from October 20-22, 2017, and is organized by Dipl.-Biol. Stefanie Gierszewski (Institute of Biology, University of Siegen), Prof. Dr. Klaudia Witte (Institute of Biology, University of Siegen), Dipl.-Inform. Klaus Müller (Institute of Real-Time Learning Systems, University of Siegen) and BSc. Jan-Marco Hütwohl (Institute of Real-Time Learning Systems, University of Siegen).

The goal of this 3-day workshop is to provide detailed information on the free and open-source FishSim Basic and its integrated tools FishCreator, FishSteering and FishPlayer in both theory and practice. DOs and DON'Ts for implementation of FishSim Basic in future research are discussed. Working computers with all software installed will be provided but it is also possible to use personal laptops. Assistance and advice for working with own data will be given.

Please visit our website

<https://virtualfishproject.wixsite.com/fishsim> for more information about the software, the preliminary program and the application procedure.

We hope to welcome you in Siegen!

Cheers,  
The Organizing Team

## BEHAVIOR METHODS DVD

The Methods of Behavioral Research DVD tutorial produced by the Association of Zoos & Aquarium's Behavior Scientific Advisory Group is still available for purchase.

The tutorial covers all the steps of the behavioral research process from literature review to basics of data analysis. The content is presented at the undergraduate level but certain chapters may be useful for high school students as well as graduate students new to behavioral research.



Detailed content, video samples, and ordering information are available here:

[www.aza.org/methods-for-animal-behavior-research-dvd](http://www.aza.org/methods-for-animal-behavior-research-dvd)

David M. Powell  
[dpowell@stlzoo.org](mailto:dpowell@stlzoo.org)



## ISBE 2018 TRAVEL AWARDS



### Travel Awards for ISBE 2018 in Minneapolis

ISBE will once again offer travel awards to defray the expenses of attending our biennial conference. There will be two types of awards:

- 1) Travel Awards, intended to help with transportation costs of Ph.D. students and post-docs who are members of the society, and
- 2) Developing Nations Awards, aimed at offsetting meeting attendance costs for student, post-doc or faculty members of the society whose home institutions are located in developing nations.

More information will follow in this Newsletter and on the Society's home page: [www.behavecol.com](http://www.behavecol.com)

## ISWE CONFERENCE



We are happy to announce that the Abstract Submission process for the 6th Conference of the International Society of Wildlife Endocrinology is now open!

Conference dates: August 14-16, 2017, Disney's Animal Kingdom, Orlando, FL, USA.

For full information, see the Conference tab in our website: [www.iswe-endo.org](http://www.iswe-endo.org)

You can also follow us on Facebook.  
[www.facebook.com/International-Society-of-Wildlife-Endocrinology-ISWE-1415365048731471/](https://www.facebook.com/International-Society-of-Wildlife-Endocrinology-ISWE-1415365048731471/)

Also remember that you can already register for the Conference and make your Hotel Reservations at:

Conference registration  
<https://iswe2017.eventbrite.com>

Hotel registration  
<https://resweb.passkey.com/go/ISWE2017>

We hope to see you at ISWE6 in Orlando!

Marina Ponzio and Catharine Wheaton  
ISWE Conference Chair  
ISWE Conference Local Host

## FIELD HERPETOLOGY COURSE



### Field Herpetology of the Southwest Southwestern Research Station

29 July – 7 August, 2017

This 9-day course will emphasize taxonomy, ecology, and field identification of reptiles and amphibians of southeastern Arizona and parts of southwestern New Mexico. The course is designed for students, conservation biologists, and other individuals who have a background in biology at the college level. Labs and

lectures will focus on identification and ecology of herps. The majority of time will be spent in the field, hiking through low and high elevation habitat. For more information about the course, contact Geoffrey Bender.

Tel: +1 520 558 2396

Email: [gbender@amnh.org](mailto:gbender@amnh.org)

Website: [www.amnh.org/our-research/southwestern-research-station/education/field-herpetology-of-the-southwest](http://www.amnh.org/our-research/southwestern-research-station/education/field-herpetology-of-the-southwest)

## BEHAVIOR 2017

The Behaviour 2017 is a joint meeting of the 35th International Ethological Conference (IEC) and the 2017 Summer Meeting of the Association for the Study of Animal Behaviour (ASAB), that will bring together researchers and students from all fields of behaviour science.

This exciting multidisciplinary meeting will be held in the Lisbon area, close to important international research centres, between July 30th and August 4th 2017. The venue, the Estoril Congress Centre, boasts a privileged location on the Cascais coast, 25 km away from the Lisbon airport, with plenty of accommodation in a relaxed environment, and it is right next to the famous Casino with its surrounding gardens. Besides the prestigious invited speakers and a full scientific program, participants will be able to enjoy numerous cultural and leisure options.

The call for abstracts is now open (<http://behaviour2017.org/call-for-abstracts/>)

For more information visit the website: <http://behaviour2017.org/>

If you are interested in sponsorship, exhibiting or advertising, please contact us at [behaviour2017@ispa.pt](mailto:behaviour2017@ispa.pt)

On behalf of the organising committee,

Patricia Rachinas-Lopes



## SPOTLIGHT ON...

**Name**

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**Education**

PhD, University of Edinburgh (2016)

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**Research interests**

I have broad interests in evolutionary and behavioural ecology, with a general focus on reproductive behaviour, phenotypic plasticity, and adaptation to environmental change. For my PhD, I studied parental care in burying beetles. As a postdoc, I am using Icelandic three-spined sticklebacks from geothermal ponds and lakes to investigate the behavioural, morphological, and physiological changes that occur in response to contrasting thermal regimes.

**Selected papers**

Pilakouta N, Smiseth PT (2016) Maternal effects alter the severity of inbreeding depression in the offspring. *Proceedings of the Royal Society B* 283:20161023.

Pilakouta N, Halford C, Racz R, Smiseth PT (2016) Effects of contest experience and contest outcome on female reproductive decisions and offspring fitness. *American Naturalist* 188:319–328.

Pilakouta N, Jamieson S, Moorad JA, Smiseth PT (2015) Parental care buffers against inbreeding depression in burying beetles. *Proceedings of the National Academy of Sciences* 112:8031–8035

## MEANWHILE IN SCANDINAVIA



Grey herons (*Ardea cinerea*) waiting for spring, just like the Newsletter editor.  
Photo: Andreas Svensson

# Mammal Societies

Tim Clutton-Brock

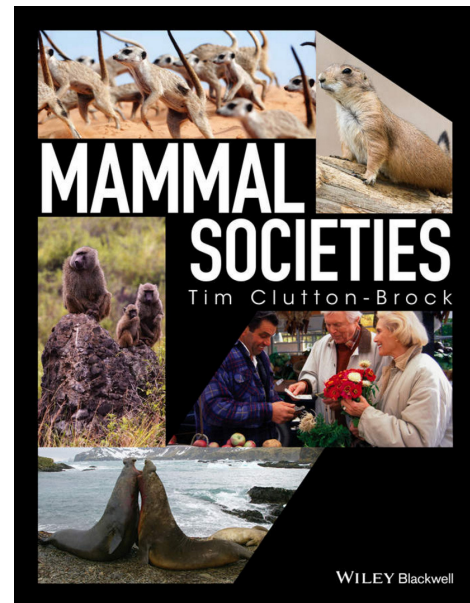
Wiley-Blackwell (Oxford, UK) 2017  
ISBN 97811119095323

"The key to the sociobiology of mammals is milk."  
E.O. Wilson (1975)

Knowledge about group-living mammals may contribute to an understanding of vertebrate social evolution and the evolution of gregariousness in animals with generalized phenotypes. Compared to social insects and birds, the social biology of mammals is poorly known with the exception of ungulates, carnivores, and primates (3 of ~25 Orders). In 2011, Ladevèze et al. reported fossil evidence documenting mammalian gregariousness and its associated ecology from the basal Tertiary of Bolivia. These findings suggested that extinct, marsupial-like *Pucadelphys andinus* were group-living, probably exhibiting frequent interactions, strong sexual dimorphism, and male-male competition, as well as, polygyny. Based on the spatial and ecological settings of their specimens, these authors speculated that the species may have been cooperative breeders. In 2012, based on a phylogenetic analysis, Briga et al. showed that relatedness and allomaternal<sup>1</sup> care are positively correlated in Class Mammalia. These papers indicate that, though the population dispersion of most extant mammals is sexually segregated ("solitary"), group-living has a long history in these animals.

Tim Clutton-Brock (henceforth, "TC-B") is a highly-regarded empiricist at the University of Cambridge (UK), recognized, particularly, for his field studies on primates, red deer, and meerkats. He is a prolific scientist with a knack for asking good questions and choosing animal models that have yielded flagship research. The author will be familiar to most animal behaviorists and behavioral ecologists as a specialist of cooperative breeding and evolutionary aspects of reproduction (e.g., female mating strategies, sexual selection). In the book under review, TC-B notes that his undergraduate training was in Anthropology and that he completed his doctorate under Robert Hinde, an animal behaviorist that Psychology typically claims as one of its own. I have been familiar with TC-B's work since the 1970s, and my personal favorites among his copious publications are his 1995 paper with Geoff Parker and the 2003 volume edited with R.M. Sibley & J. Hone. I am pleased to have the opportunity to review *Mammal Societies*, and, as a point of information, admit to having no "bones to pick" with its author. I have interacted with TC-B on several occasions, once face-to-face, and, more than once, via e-mail. He has always been generous and courteous to me. In this review, I do not intend to deconstruct, to question the book's authority, or to impose my biases. Instead, I hope to provide a context for its readers, particularly, mammalian social biologists, to decide on their own its scope and utility.

<sup>1</sup>Care of offspring by conspecifics other than the mother



Previous books by JH Crook, "Griff" Ewer, J Eisenberg, EO Wilson, R Estes, D Macdonald, CB Jones, and others, have treated mammalian social biology to one degree or another. *Mammal Societies*, however, is the first attempt to provide a comprehensive literature review of the topic. The publisher's description of the volume states that it is intended for "behavioral ecologists, ecologists, and anthropologists," and TC-B self-identifies as a "behavioral ecologist." The book is, to all purposes, a literature review of selected Natural History reports emphasizing publications by his own laboratory, by primatologists, and from the Old World. Of an estimated 5,300 references cited in the book under review, only 64 derive from mainstream journals in Ecology and Evolutionary Biology (N= 15 journals, including, Trends In Ecology and Evolution, American Naturalist, Journal of Theoretical Biology, Journal of Evolutionary Biology). While the Table of Contents presents a detailed outline of topics of interest to social biologists, there is little integration of technical reports with ecology and evolution. Furthermore, the sheer number of topics covered is so large that little space is devoted to most of them. To provide context, professors using *Mammal Societies* as a course textbook or reference work are strongly advised to acquaint their students early on with Wilson's (1975) treatment of the same topic (pp 456-574) presenting an explicitly articulated conceptual framework for mammalian social biology, including, trends, general and comparative features, an extensive glossary, as well as, case studies and summary tables, figures, and diagrams.

Chapter 1, "Social evolution," omits definitions of terms (e.g., "aggregation," "social," "cooperation"), leading to obfuscation throughout the book, particularly, since there is no discussion of how to measure social traits (cooperation, altruism) and to discuss their pertinence to reproductive success. In this chapter, the author might have defined "Mammal" and should tell the reader why mammalian social biology is of import. The reader will want to understand possible trajectories to cooperation and altruism from aggregations and groups and how the (spatial and temporal)

distribution of limiting resources favor or disfavor the evolution of mammalian sociality. Chapter 1 is, in great part, a selective account of the history of Animal Behavior combined with some mention of theoretical issues (e.g., Darwinism, competition, reciprocity, game theory). However, for rigorous discussions of verbal and quantitative theory in Behavioral Ecology, as well as, overviews of Methods and G x E interactions, readers are referred to Davies et al. (2012) and Westneat & Fox (2010).

Chapters 2-9 address topics related to features of female behavior, particularly, as they pertain to mating, maternal tendencies, and gregariousness. Focusing on females, their strategies, and their energetic requirements as the primary driver of group-living and patterns of male behavior and dispersion is fundamental to an understanding of mammal societies because fertilizable females are usually a limiting resource for males and, subsequently, an ultimate determinant of male "fitness optima." Though these and other important concepts are implicit in some of TC-B's discussions, explicit use of many principles inherent to Behavioral Ecology are unclear or lacking (e.g., integration of Hamilton's rule throughout chapters, acknowledgment of the many competing hypotheses in Ecology pertaining to dispersal or multiple-mating by females, use of optimality formulations). As an example from Chapter 5 ("Maternal care"), TC-B's treatment asserts, accurately, that mammalian females invest heavily in current offspring, but theory holds that, after parturition, female resources, above some critical minimum, are channeled into future reproduction and lifetime "fitness."

Chapters 10-16 pertain to males, especially, mating strategies, relations with females, and paternal care. Characteristic of Mammal Societies as a whole, these chapters are literature reviews of mostly familiar Natural History papers and book chapters from the Animal Behavior literature, and few of the reports classifiable as Behavioral Ecology meet the standards of, say, Bradbury 1981. Life history evolution is addressed in this chapter without mentioning the importance of tradeoffs, the distinction between semelparity and iteroparity ("fast" and "slow" life history trajectories, respectively), and the role of mortality as a driver of life-history evolution (Stearns 2000). Chapter 17 reviews "Cooperative breeding," one of TC-B's specializations, and Chapter 18 presents a discussion of "Sex differences" (without discussing classic theory). Throughout the book, the author impresses the reader with the centrality of sex, sexual competition, and mating—topics of import in TC-B's career, though one is surprised that more attention is not given to Sexual Selection. Chapters 19 and 20 address hominoids and hominids, including, modern humans, topics often missing or skimmed in other Animal Behavior texts.

TC-B presents at least one controversial formulation in Mammal Societies by asserting, with no supporting evidence or logical arguments, that no mammals are "eusocial"<sup>2</sup>—that the highest grade of sociality in mammals is "cooperative breeding." This view is orthogonal to standard practice in Mammalian Social Biology whereby the social mole rats are typically classified as "primitively" eusocial. Technically, according to common usage, "cooperative breeders" might, as well, be classified "primitively" eusocial because of the presence of reproductive division of labor in the form of totipotent "helpers" (see Jones 2014). Mammal Societies highlights the need for practitioners of Natural History, Animal Behavior, and Behavioral Ecology to revisit topics such as standardization of terminology, advancement of the Hamiltonian Project, the roles of quantitative theory and modeling (in particular, agent-based modeling), field experiments, as well as, hypothesis-testing based on 1st principles. The text will appeal to professors wanting a Natural History, mostly, non-quantitative, review allowing supplementary reading to be incorporated into a syllabus. Future syntheses of Mammalian Social Biology will rely more heavily on mainstream reports from Population Ecology (e.g., Oikos, Functional Ecology, Journal of Animal Ecology), of which Behavioral Ecology is a sub-field.

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## References

- Bradbury JW (1981) The evolution of leks. In Natural selection and social behavior. (RD Alexander, DW Tinkle, eds). Chiron Press, New York, pp 138-169.
- Briga M, Pen I, Wright J (2012) Care for kin: within-group relatedness and allomaternal care are positively correlated and conserved throughout the mammalian phylogeny. *Biology Letters*: p.rsbl20120159
- Clutton-Brock TH, Parker GA (1995) Punishment in animal societies. *Nature* **373**: 209-216.
- Davies NB, Krebs JR, West SA (2012) Introduction to behavioral ecology. Wiley-Blackwell, 4th edition. Oxford, UK.
- Jones CB (2014) Evolution of mammalian sociality in an ecological perspective. Springer, New York.
- Keller L, Chapuisat M (2010) Eusociality and cooperation. In Encyclopedia of life sciences. Macmillan, published online: DOI: 10.1002/9780470015902.a0003670.pub
- Ladevèze S, de Muizon C, Beck RMD, Germain D, Céspedes-Paz R (2011) Earliest evidence of mammalian social behaviour in the basal Tertiary of Bolivia. *Nature* **474**: 83-86.
- Sibley RM, Hone J, Clutton-Brock TH (eds) (2003) Wildlife population growth rates. The Royal Society: Cambridge University Press, UK.
- Stearns SC (2000) Life history evolution: successes, limitations, and prospects. *Naturwissenschaften* **87**: 476-486.
- Westneat D, Fox C (eds) (2010) Evolutionary behavioral ecology. Oxford University Press, Oxford University Press, UK.
- Wilson EO (1975) Sociobiology: the new synthesis. Belknap (Harvard), Cambridge, MA.

<sup>2</sup>"The evolution of eusociality, here defined as the emergence of societies with reproductive division of labour and cooperative brood care, has occurred under specific ecological, genetic, and life history conditions. Although sophisticated levels of cooperation have evolved in the largest and more complex societies, conflicts among individuals are still common because, in contrast to cells of an organism, they are not genetically identical." (Keller & Chapuisat, 2010)



## Conservation Behavior: Applying Behavioral Ecology to Wildlife Conservation and Management

Edited by: Oded Berger-Tal and David Saltz

Cambridge University Press 2016  
ISBN 9781107040106

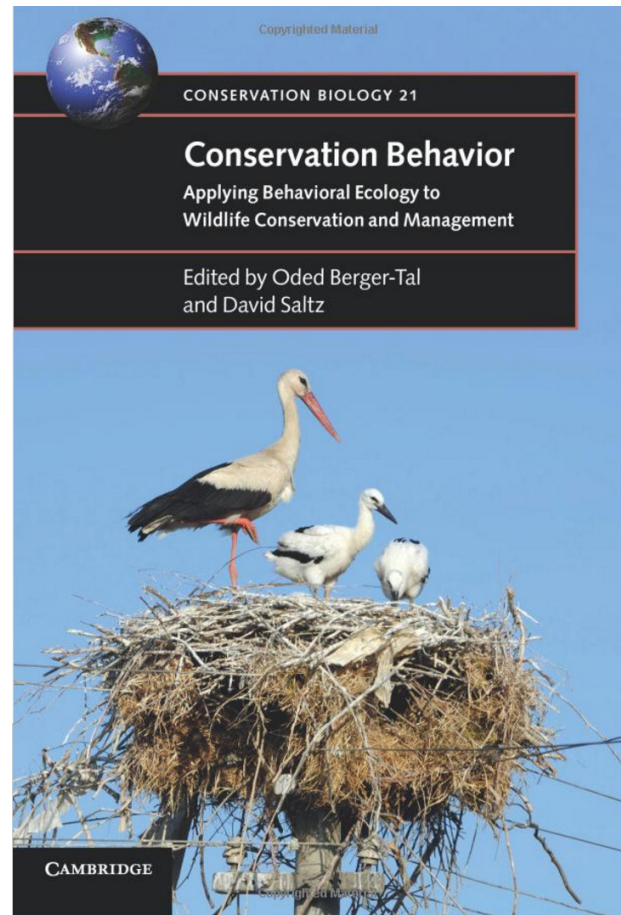
Conservation behaviour is a blossoming subfield in animal behaviour with many behavioral scientists thinking hard about how to apply their knowledge to promoting conservation. The question is how? This 12-chapter book shows that there are a number of promising avenues to pursue. Chapter 1 by Berger-Tal and Saltz lays out the basic approaches to conservation, utilitarian or biocentric; the different meanings of biodiversity; and the four (five) horsemen of the conservation crisis – boilerplate conservation textbook prose. Then it switches to outlining Tinbergen's four questions and gives a thumbnail sketch of behavioural ecology. Then, and this is central to the book's structure, it reiterates Berger-Tal et al's (2011) framework of conservation behaviour with its three linkages: anthropogenic impacts on animal behaviour (think Human Induced Responses to Environmental Change), behaviour-based management (think reintroductions), and behavioural indicators (think ecotoxicology). These three themes form the main sections of the book although there are two further preamble chapters.

Chapter 2 by Swaddle takes us through mutation, selection, drift and gene flow and then switches from micro to macro-evolutionary patterns focusing on the consequences of sexual selection. Next there is a long section on how behavioural flexibility leads to evolutionary change. Behavioural flexibility and reaction norms feature strongly in how organisms react or fail to adapt to rapid anthropogenically induced change and this chapter on evolution and conservation behaviour provides a conceptual view of this linkage.

Last in this introductory section is a chapter on learning and conservation behaviour by Schakner and Blumstein in which different types of learning are discussed: habituation and sensitization, Pavlovian conditioning, instrumental conditioning, and social learning. These are then related to the book's three-point framework: (i) how sensitive learning periods, brain size, and habituation, for example, enable individuals to cope with rapid environmental change. (ii) How conditioned and unconditioned stimuli can be used to train animals prior to reintroductions, or to deter animals from crop raiding. (iii) How flight initiation distances can be used as an indicator of human disturbance.

Part II is the section on anthropogenic impacts. First, in a tremendous chapter, Berger-Tal and Saltz discuss the difficulties that behavioural rigidity poses

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for animals in a changing world: fixed behaviours, imprinting, and slow plastic responses all pose hurdles for flexible behavioural change. Famously, one of the consequences of rigidity are ecological traps where a previously reliable cue no longer results in adaptive decision leading to reduction in survival or reproduction (think of hatchling sea turtles heading for hotel lights), but there are others including stress and ecological scarecrows! At the end, short practical advice for managers is presented which is critical for linking behaviour to conservation (Caro & Sherman 2013).

In chapter 5 Rubenstein makes a case for behavioural diversity being important in the sense of having rigid, plastic and flexible behaviours, but here he argues that behavioural flexibility can be a handicap. He suggests that flexibility will be facilitated by long life, large brains, diversified personalities, ease of using public and private information, and a history of living in non-equilibrium ecological systems. K-selected species fit the bill. The chapter ends with a discussion of equids.

Part III is concerned with behaviour-based management and forms the core of the volume. Fernandez-Juricic argues that knowledge of sensory systems, for example birds' widths of view and foveal architectures, are central to knowing how to manipulate animal behaviour to assuage consequences of anthropogenically driven change (think of reducing road collisions, or attracting animals to suitable nesting places). He outlines a 7-stage process: determine the sensory modality,

establish sensory dimensions that can be manipulated, quantify sensory dimensions, compare sensory space to that of humans, and then assess behavioural responses under lab and later field conditions. The chapter is certainly a good sensory perception primer.

Chapter 7 provides a powerful introduction to reserve design and wildlife corridors and then demonstrates how knowledge of animal behaviour can be important in making these into effective conservation tools. Cassidy St Clair, Found, Gangadharan and Murray ask a series of questions. Do animal move down corridors? Can animals perceive fragmented habitats as suitable? What is the extent of individual variation in movement behaviour? These are all important behavioural questions relevant to reserve design. We certainly know that species differ greatly in how they perceive the landscape (think of elephants and squirrels), and how individual state affects habitat selection (hungrier individuals make riskier decisions about where to move). This provides an unusual link between in situ conservation and behaviour.

Bell in Chapter 8 draws attention to post-release behavioural modification in translocations which builds on the individual's past experience, its learning from conspecifics already present at the release site, and from its own experience at the release site. Following a discourse on the natural history of translocations, Bell shows how behaviour can influence feasibility studies, planning and preparation, eventual release, and subsequent monitoring. This is a very thorough exposition culminating in a guide for managers on the key points of successful translocations.

Chapter 9 explores how population dynamics is influenced by behaviour. Bessa Gomes and Sarrazin show how behaviour affects reproductive success, survival and dispersal in population models and then examines a series of functional, mechanistic, behavioural, and individual-based models. Population biology does indeed depend on the actions of individuals but I was not convinced these arcane arguments will sway conservation practitioners.

In chapter 10 we are back to moving animals around as Shier examines ways in which we can manipulate animal behaviour to increase reintroduction success. Behavioural modification can be used to promote appropriate behaviour in naïve individuals, to help captive born animals maintain wild-type behaviour, and to provide cognitive challenges. Teaching appropriate antipredator behaviour, foraging skills, habitat selection and being adept socially are all important in making reintroductions successful. The final two contributions deal with behavioral indicators. Kotler, Morris and Brown discuss diet choice, vigilance, and habitat choice as behavioural indicators but I confess I was not sure of how these behaviours necessarily relate to conservation. Anyone unfamiliar with GUDs (giving up densities) should read this chapter. Last, Berger-Tal and Saltz explore the ways in which behaviour can indicate how populations are faring – this is a familiar concept in behavioural ecotoxicology. But now

changes in phenology and breeding behaviour are showing how populations respond to climate change. In this chapter, and in two earlier ones, there are boxes written by others that beef up the prose.

What to make of this book? It is hardly a read for conservation managers, those park wardens, non-governmental organization personnel, forestry officers, zoo keepers, or reintroduction workers that we hear so much about as generic “managers” in the academic conservation behaviour literature. Managers are too busy doing real conservation to have time for this sort of academe. But for a behavioural ecologist or animal behaviorist who dwells on how their 8am to 6pm activities might be useful, it is a very good read and good value for money. Read this with *Animal Behaviour* May 2013 and October 2016 special editions on Behavioural Plasticity and Evolution and Conservation Behaviour respectively and you will be bang up-to-date on conservation behaviour.

Until we engage with conservation practitioners, however (see Greggor et al 2016), we won't make much of a dent in regards to in situ conservation. I am more hopeful in the reintroduction and captive breeding spheres of conservation – last ditch attempts to breed threatened species and reintroduce them back into the wild. Behavioural modification surely has a role to play here (Caro 2016). But these are notoriously expensive conservation endeavours compared to in situ habitat protection. This raises the awkward question of whether conservation behaviour is mainly a rich nation pursuit – generally only relevant in some instances in the developed world where money for high profile species' ex situ conservation is available, but unfortunately less relevant in the far poorer developing world where most of the world's biodiversity is found.

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## References

- Caro, T. 2016. Behavior and conservation, conservation and behavior. *Current Opinion in Behavioral Sciences* **12**:97-102.
- Caro, T. and Sherman, P.W. 2013. Eighteen reasons animal behaviourists avoid involvement in conservation. *Animal Behaviour* **85**: 305-312.
- Berger-Tal, O., Polak, T., Oron, A., Lubin, Y., Kotler, B.P., and Saltz, D. 2011. Integrating animal behavior and conservation biology: a conceptual framework. *Behavioral Ecology* **22**: 236-239.
- Greggor, A.L., Berger-Tal, O., Blumstein, D.T., Angeloni, L., Bessa-Gomes, C., Blackwell, B.F., Cassidy St Clair, C. Crooks, K., de Silva, S., Fernandez-Juricic, E., Goldenberg, S.Z., Mesnick, S.L., Owen, M., Price, C.J., Saltz, D., Schell, C.J., Suarez, A.V., Swaisgood, R.R., Winchell, C.S., and Sutherland, W.J. 2016. Research priorities from animal behavior for maximizing conservation progress. *Trends in Ecology and Evolution* **31**:  
<http://dx.doi.org/10.1016/j.tree.2016.09.001>



## Understanding Evolution

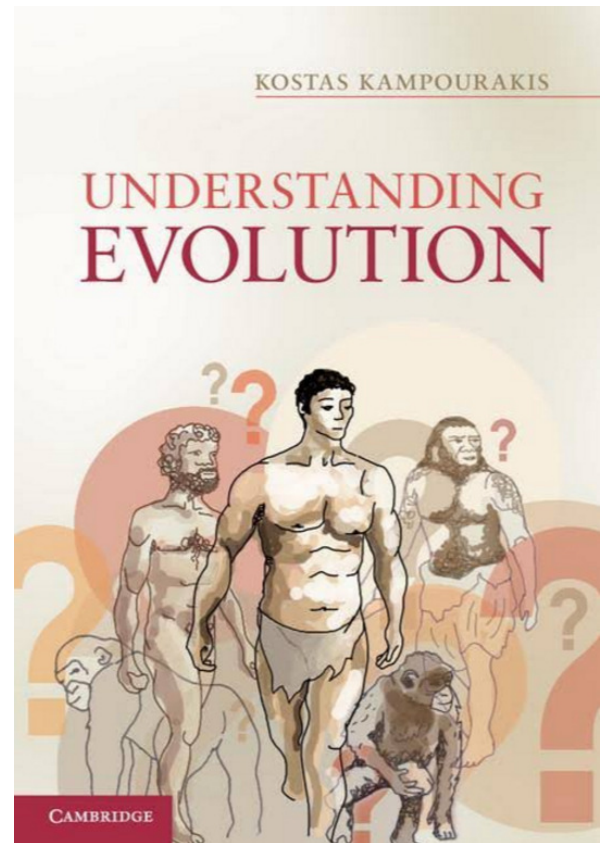
Kostas Kampourakis

*Cambridge University Press 253pp. 2014*  
*ISBN: 978-1-107-61020-0*

This is a book that in my view truly fills a gap in the market. *Understanding Evolution* is a remarkably balanced book that takes a decidedly non-confrontational approach with regard to religious (and other anti-evolution) groups and viewpoints, yet still maintains an unabashedly 'pro-evolution' stance. By doing so, it presents a platform that is far more likely to achieve the goal of increasing acceptance (or at least understanding) of evolutionary theory regardless of the reader's background than many other books on the subject. This is one of the book's two major advantages over similar efforts, the other being the extensive discussion of the barriers to understanding evolution, and both of these will reoccur throughout this review.

Given the points just made, I have to admit that I found the cover of the book a rather unfortunate choice, and this is one of my few criticisms (though a minor one). For a book whose strengths lie in ensuring the content is not going to immediately put off prospective readers with a knee-jerk reaction to the concept of evolution for religious or other reasons, the cover does not continue this and instead could be considered provocative. For many groups, human evolution is undoubtedly the most controversial aspect of the subject, yet this is what the cover features (including a curiously hairless man wearing a loincloth). It would be a shame if potential readers were put off opening the book in the first place by such a cover, but I do get the impression that this is a distinct possibility.

Right from the Preface the book sets out its rationale with a very nicely written justification. In essence, Kampourakis highlights that despite the existence of many excellent books laying out the evidence for evolution, there is still poor acceptance in many areas and amongst many groups. Therefore something other than the availability of information and evidence must be at the heart of the problem of acceptance of evolution. Part of this is a failure to address the barriers to understanding faced by readers, and part is due to the setting up of confrontation between (e.g.) evolution and religion by "modern militant atheists like Richard Dawkins". The latter often leads to an artificial choice being made ('if I am religious I can't accept evolution') and also a conflation between evolution being perceived as a threat to important social and moral issues. I have to say that my personal views echo this, despite it being a point rarely made by pro-evolutionary popular science writers; Richard Dawkins' approach is divisive enough to prevent any of the information he espouses being reached by almost anyone other than those who already agree. Preaching to the choir is not, from my perspective,



an effective form of education (however accurate the information may be).

The book presents an interesting and original structure that work very well with the equally unusual focus of *Understanding Evolution*. In relation to this, it is notable that one of the more important conclusions is one rarely noted explicitly in evolutionary texts: that evolutionary theory cannot answer many questions often attributed to it, and that the implications for an individual's worldview are highly diverse. This latter point helps to explain the various reactions towards evolution from all traditional schools of thought, ranging from "rejection as atheistic dogma" to "dogmatic acceptance as a form of secular religion" and everything in between. It also implies that acceptance of evolution and its perceived implications are far more nuanced subjects than the simplistic generalisations often used in discussions and debates. This makes it important during a particular debate to respond to the other party's actual arguments rather than the caricatured version of their views you assume they hold.

Chapter 1 begins the main body of the book with a very clear description of how science is done and what kind of questions evolutionary biology can answer. By devoting a whole chapter to these kinds of issues Kampourakis is able to provide a more nuanced view of science than most other biology texts. The highly select choice of examples further assist in the description of evolution as a science, as well as providing some pertinent links to the 'real world' with discussion of two areas of applied evolution. Overall this chapter would particularly benefit undergraduate or lay readers by clearly

introducing scientific thought and process in a highly engaging way.

Chapter 2 is on “religious resistance to accepting evolution”, which is a very delicate subject to include a whole chapter on, especially so early in the book. However it is executed exceptionally well and could easily help to ease tensions between religion/creationists and ‘evolutionists’ – the mark of a true science communicator rather than a scientific preacher. This is achieved by highlighting that evolution is actually a very difficult and counter-intuitive concept to understand; it is not just creationists being ‘blinkerred’ or ‘stupid’. This potential easing of the conflict is also evident in the extensive, fair, and uncondescending description of Paley’s watchmaker argument, which creates an opportunity for education rather than coming across as degrading. Phrases like “such claims [creationism/intelligent design/irreducible complexity/evolution as a low probability event] have a widespread appeal, in part because superficially they seem to be correct” exemplify this approach, which emphasises understanding rather than conflict. Note that this does not prevent Kampourakis concisely but clearly explaining why such concepts are incorrect, but he does so in a way that is far more likely to engage the mind of the reader (however it is initially set) than the approach known as ‘militant modern atheism’. He also succinctly highlights some of the problems of the latter’s inflammatory and divisive style, pointing out how authors such as Dawkins are likely to be hampering, or even outright preventing, people from understanding evolution who would otherwise be less against the idea in principle. Indeed, there is a nice discussion of how creationism is actually the more intuitive interpretation of the world based on the developmental psychology literature; for instance, at certain ages even children from non-religious backgrounds or schools tend to give creationist-style accounts of things. The explicit acknowledgement that not all scientists, and in fact not all evolutionary biologists (including accomplished and well-known ones), are anti-religion or even atheists. The two concepts are not mutually exclusive. An overarching point is convincingly made in this chapter that not only should we be careful to distinguish knowledge from belief in our own views, but also that we should highlight this in science communication.

Unfortunately, chapter 3 starts to become a little repetitive in places. It is clear that this is a result of trying to be clear and to maintain structure, and doesn’t seem too disruptive on the whole, but I think the author has perhaps gone a bit far with this. Nevertheless, the chapter is in general another valuable discussion of (non-religious) barriers to understanding evolutionary theory. In particular, Kampourakis makes an excellent point that it is not enough to simply impart knowledge to people in a science communication or educational context. If pre- and misconceptions aren’t explicitly and appropriately addressed that a person may still fail to achieve an improved level of understanding. I am sure that many readers will suffer from the same misconception that I did, namely that even if some of the technical details and diversity of evolutionary theory are acknowledged as highly complex, the

basic tenants are simple and intuitive to understand. Dispelling this misconception is, in my view, the gold nugget of this chapter, and perhaps the book as a whole. Understanding both why and how evolution is inherently difficult to grasp even at a basic level may qualify as a conceptual change in myself, and certainly is something to be cognizant of in future science communication efforts.

Chapter 4 presents an unusually detailed history of Charles Darwin’s ideas on evolution and of *On the Origin of Species* for a book on evolution itself (rather than the history of science). This not only provides an interesting context to the development of evolutionary theory, but Kampourakis also expertly crafts the narrative to highlight a number of common misconceptions and to provide an excellent case study of conceptual change in science. For instance, I think Kampourakis is correct in saying that many of those who quote Darwin’s *On the Origin of Species* haven’t actually read it. It is also pointed out that the initial rejection of Darwin’s views was not only on religious grounds but on sound scientific grounds, again challenging the oft-held idea of a dichotomy of science and evolution vs religion and anti-science. In a time of frequent arguments between religious people and ‘evolutionists’, a welcome inclusion is Kampourakis’s regular reminders and demonstrations that a mutually exclusive dichotomy between them is a falsehood. In particular, the impact of religion to Darwin’s development of his ideas and his own statements that he was not an atheist, but a self-declared agnostic, should quell any misconception that atheism in an inherent requirement for acceptance of evolution.

It is a testament to the unusual structure of this book that we get to chapter 5 before we reach the evolutionary biology content per se. Kampourakis makes very clear use of analogy to describe phylogeny based on family trees, a concept with which people are typically familiar. More generally, the clarity of explanation is a common thread weaving through the last two chapter (chapter 5 and 6), obviously drawing on the principles outlined in earlier chapters. A nice touch is the habit of specifically pointing out where questions are really challenging to answer, and why. Kampourakis doesn’t always include some common solutions to these difficulties, likely due to space limitations, but it is nevertheless an insight into the complexity of science that undergraduates and other readers may not often encounter. As Kampourakis says: “conclusions can be difficult to draw, but this is what makes science fascinating”. Too many texts aimed at the same readership shy away from this important point. In relation to evo-devo and the idea of evolutionary novelty, Kampourakis discusses the terminological disputes over what counts as a ‘genuine’ novelty. He makes an important point here, that simply distinguishing between ‘levels of life’ allows you to ignore technical arguments over terminology in most cases and instead focus on the underlying understanding, processes, or phenomena we are actually interested in. Following the book’s own guidelines, chapter 6 begins with an explicit recognition of the conceptual

difficulties for people with regard to evolutionary change: descendants that seem very different from ancestors, and the concept of deep time. In my view, another sticking point for a proper grasp of evolution is the stochastic component, which presents a challenge if a person holds a more deterministic perception of evolution. Many descriptions of evolution limit stochasticity to random genetic mutation, but chapter 6 addresses this concept directly by providing an entire section on the importance of stochasticity to many areas of evolutionary biology. The discussion of ahistorical vs historical definitions of adaptation is a little repetitive – a single paragraph explaining this followed by the (excellent) polar bear example would have been sufficient. Three paragraphs plus a table and a figure seemed overkill and seemed not to add much. My own interests made me desirous of more coverage of macroevolution, especially given it's something many people have difficulty with. For instance, in the very brief discussion of tempo and mode, the author only mentions anagenesis vs cladogenesis and gradualism vs punctuated equilibrium, and called these "all possible combinations". However, information on speciation and extinction leaving an impact of the shape of phylogenies, and other patterns such as explosive or adaptive radiations would have been interesting. However, this may have been a problem with space rather than a deliberate exclusion. Chapter 6 finishes with an excellent discussion of the nature and approach of historical science, which will be valuable to many readers who may not have thought about this much.

My general enthusiasm for Kampourakis's Understanding Evolution should by now be clear, and

indeed my main quibbles are few and minor. In the whole book I found only 3 typographical errors: 'than' instead of 'that' on p.40, 'many any' instead of 'many' on p.58, and a confusing error at the bottom of p.165. The index was unfortunately limited, in that there were many things I would want to find again in the book, and which I know are in there, but they are not in the index. Similarly, I have minor issues with some entries in the glossary. For instance, the entry for 'evolution' seems to be defined inextricably with speciation, which neither reflects the definition of evolution nor the concept as covered in the main text of the book itself. Entries for 'knowledge' and 'molecular clock' were equally confusing in part.

The book ends in an unusual way which befits its general structure, by discussing what evolution cannot do. This is commendable in the context of providing a balanced overview that is palatable to the widest readership possible, and provides a high level of honesty, critical evaluation, and insights into the whole phenomenon of science. I would have no hesitancy in recommending this book to undergraduates or laypersons as an excellent introduction to science in general and evolutionary biology in particular. Furthermore, due to the enjoyable writing style and coverage of relevant (but rarely considered) subjects such as psychology, philosophy, and history of science, I would also recommend it to those with an advanced knowledge of evolution already.

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## ACOUSTIC COMMUNICATION SYMPOSIUM

The 4th International Symposium on Acoustic Communication by Animals July 18-21, 2017 in Nebraska, USA.

The Acoustical Society of America has partnered with Omaha's Henry Doorly Zoo and Aquarium (HDZ) to bring together a diverse community of scientists, engineers, teachers and students to the Fourth International Symposium on Acoustic Communication by Animals. This four-day symposium is designed to address contemporary topics in animal acoustic communication across a wide range of taxa, including arthropods, lizards and amphibians, as well as birds, fish and terrestrial and marine mammals. We have an extraordinary slate of keynote and invited speakers, covering a broad range of topics and taxa. Please plan to attend, participate and share your work.

Pre-Symposium Workshop: The scientific program of the symposium will be preceded on Monday, 17 July 2017, by a half-day workshop in which key questions

related to The Impact of Anthropogenic Noise on Animal Acoustic Communication will be discussed. The workshop is free to all registrants.

The abstract submission period is now open and those interested in giving an oral or poster presentation must submit an abstract by May 1st, 2017. Two-page extended abstracts must be submitted using the format of the template format provided on the abstract submission website.

Early registration is now open and the deadline for special, discounted rates is May 1st, 2017. For details regarding registration fees and to register for the symposium, please visit the Symposium website.

Symposium Website:  
<http://AcousticCommunicationByAnimals.org/>

For more information, please contact Edward Walsh at [Edward.Walsh@boystown.org](mailto:Edward.Walsh@boystown.org).

## BOOKS FOR REVIEW

If you are interested in receiving *and* reviewing any of these books, or some other book suitable for this newsletter, please email the newsletter editor: andreas.svensson@lnu.se. Please include your postal address. The due date for review in the next edition of the Newsletter is Sep 30, 2017.

### The following titles are available for review from Oxford University Press

Title	Author
The Sensory Ecology of Birds (2017)	Martin
Biology and Conservation of Musteloids (soon to be published)	Macdonald
Kalahari cheetahs (soon to be published)	Mills & Mills
Bonobos (soon to be published)	Hare & Yamamoto:
An Introduction to Primate Conservation (2016)	Wich & Marshall
Pandas and People (2016)	Liu et al.
Behavioral Ecology of the Eastern Red-backed Salamander (2016)	Jaeger et al.
Reptile Ecology and Conservation (2016)	Dodd
Charles Darwin's Life With Birds: His Complete Ornithology (2016)	Frith
Social: Why Our Brains Are Wired to Connect (2015)	Lieberman
One Plus One Equals One: Symbiosis and the evolution of complex life	Archibald
Mutualism (2015)	Bronstein
Cultural Evolution: Conceptual Challenges (2015)	Lewens
Gaining Control: How human behavior evolved (2015)	Aunger & Curtis
Ecological Statistics (2015)	Fox et al.
Animal Behavior: Concepts, Methods, and Applications (2015)	Nordell & Valone
Natural History of Crustacea 2: Lifestyles and Feeding Biology (2015)	Thiel & Watling
Can Animals Be Moral? (2015)	Rowlands
Dog Behaviour, Evolution, and Cognition 2nd ed. (2015)	Miklosi
Plant Behaviour and Intelligence (2014)	Trewavas
Quantitative Genetics in the Wild (2014)	Charmantier, Garant, & Kruuk
Shallow Subterranean Habitats (2014)	Culver & Pipan
The Evolution of Insect Mating Systems (2014)	Shuker & Simmons

### The following titles are available for review from Springer

Chemical Signals in Vertebrates 13 (2016), by Schulte, Goodwin & Ferkin.

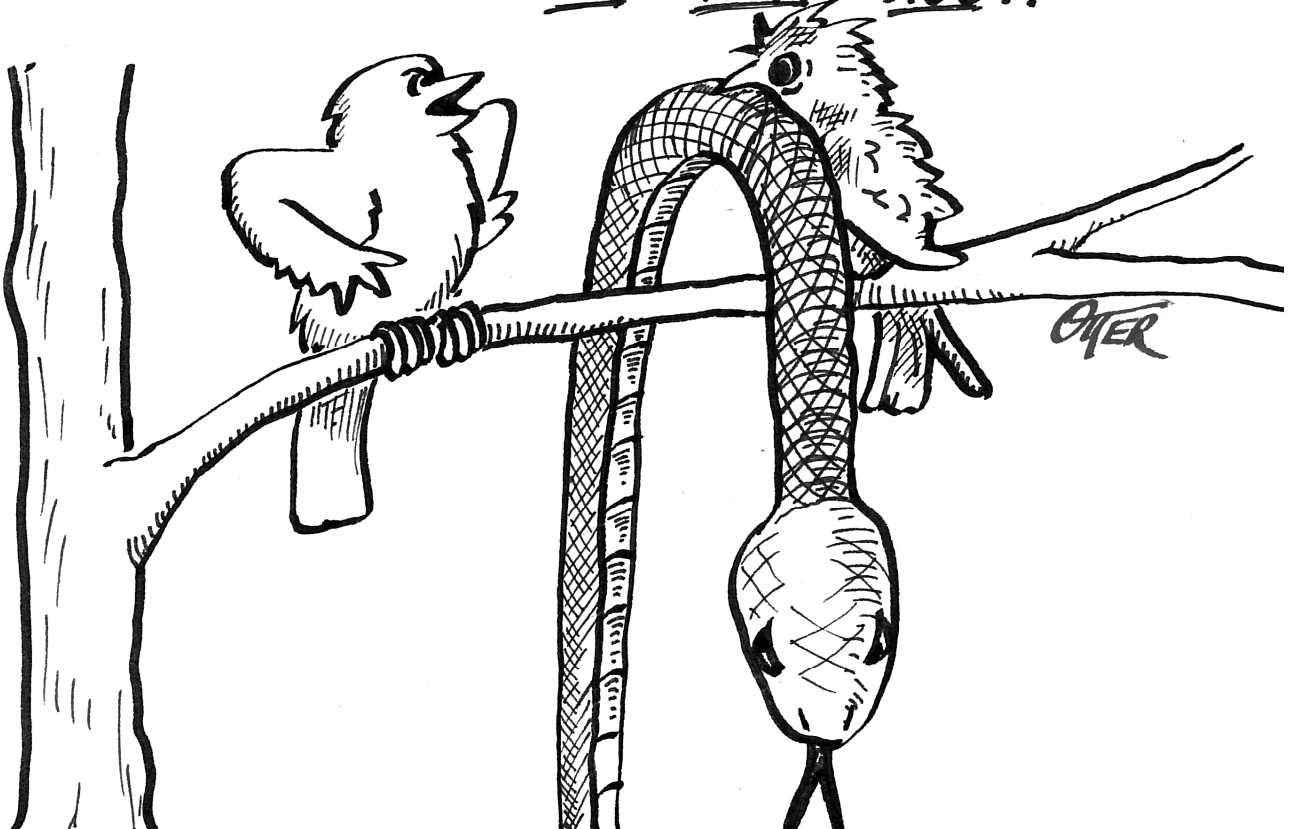
### The following titles are available for review from Chicago University Press

Zebra Stripes (2017), by Caro

### The following titles are available for review from Cambridge University Press

Title	Author
Demography and Evolutionary Ecology of Hadza Hunter-Gatherers (2016)	Blurton Jones
Mahale Chimpanzees (2015)	Nakamura et al.
Escaping from Predators (2015)	Cooper & Blumstein
The Evolution of Human Sociability: Desires, fears, sex and society (2015)	Vannelli
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WHERE THE HELL HAVE YOU BEEN!! I SENT YOU  
OUT TO GET DINNER TWO HOURS AGO!!



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