



ISBE Newsletter

Supplement to *Behavioral Ecology*
www.behavecol.com

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FROM THE NEWSLETTER EDITOR

Sometimes I envy the animal scientists of previous generations. They appeared to be essentially free to do what they wanted. Then I mutter to myself: "Why can't everybody just leave me alone so that I can play with my animals!"

It seems to me that we spend less and less time doing research, and more and more time deciding who should get to do research. All the hours, days, months we spend on getting the grants, the permissions, the certificates, the approvals. And then we have to report all of that back in various idiosyncratic systems, and assess the same type of paperwork produced by our colleagues.

Is it just me or is there a slow but steady increase in science bureaucracy, stealing time from our passion to do science? This perceived growth in red tape of various kinds is a common source of frustration, at least judging from the discussions in our lunchroom.

Don't get me wrong, it is of course important with ethics applications. And writing grants proposals may hone one's ideas and make assumptions explicit. And I do think lab safety is important. And field safety. And sustainability strategies. And documentation and keeping diaries. And copying receipts and reporting activities and doing time logs. And having the updated boat certificate, and the correct diving certificate, and so on. But I also think the sheer bulk of all these (all well intended, I am sure) checks and balances is impeding science. All these administrative tasks are severely interfering with my ability to do what I like most, which is to do behavioural ecology.

My main activity these days seems to be to run in a bureaucratic obstacle course where actual experiments are almost lost in the distance. I certainly don't feel left alone to do what I want, like I romantically imagine Tinbergen and his contemporaries were.

How can we find more time to do what we are passionate about, and importantly, what we are actually good at?

One day in the field or in the fish lab is so much more stimulating than struggling with yet another document that is going to take hours to write only to be filed away somewhere, never to be seen again, so that some administrator can put a check mark in a box on a form and feel satisfied with his workday.

This week alone I have been told of two new online systems that all researchers and teachers at my University are required to learn so that we can report our activities in even greater detail. I wish we could explain to the bureaucrats that the best use a tax dollar is when we are left to do what we do best; immerse ourselves in scientific investigation. Perhaps we should teach them about opportunity costs, temporal trade-offs and some basic cost-benefit modelling. I wish the "obstacle course" could be kept to a minimum, because the trade-off between research and its "supporting" bureaucracies is very real.

Attending the ISBE conference in August was a powerful antidote to this frustration. It was truly inspiring to listen to all those fascinating talks. It made me want to go straight to my lab and do some behavioural ecology! It also reminded me that despite it all, many of us still manage to find time to "play with our animals".

P. Andreas Svensson
 ISBE Newsletter editor

PS. I want to express my gratitude to all that have contributed to this Newsletter, especially our book and conference reviewers.

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Meeting with the ISBE Executive in Minneapolis

CONTRIBUTIONS TO THE NEWSLETTER

Your contribution is important!

The ISBE Newsletter publishes Book Reviews, Conference/Workshop Reviews, Job postings and other advertisements, as well as 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 so that they can be added in the books-for-review list. Authors may submit a list of possible reviewers. Members who wish to review a particular book 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 can be prepared in one of the following formats: *Brief synopses* (around 1500 words) and *Longer reports* (around 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.

Upcoming conferences and events: Please submit information about events that are relevant to the Society. Do this by emailing the Newsletter editor so that it can be included in the "Conference calendar"

The deadline for contributions to the next issue is Feb 28, 2019

FROM THE PRESIDENT

Taking on the Presidency of ISBE is a great honour, and I inherit a society in great shape. I would like to thank Ben Hatchwell for his efforts over the last couple of years as President. Elections were held for incoming Council positions and I am delighted to announce that Becky Kilner has been elected to be President from 2020-2022. Dan Blumstein and Claire Spottiswoode were also elected to Council.

I must also thank our outgoing Councillors Suzanne Alonzo, Sasha Dall, Mandy Ridley and Nina Wedell.

In addition to these positions that rotate at two-year intervals the Council benefits from the labours and corporate knowledge of a very small number of people who have longer terms, and suffer the dual indignity of having to do almost all of the work. Bob Wong as Secretary and Trish Schwagmeyer as Treasurer form the backbone of the Council. The society also owes a special thanks to Leigh Simmons as Editor-in-Chief of Behavioral Ecology, publication of which is one of the two primary activities of the society. Leigh leads a team who have firmly established Behavioral Ecology

as the highest impact journal in the field or animal behaviour. Andreas Svensson produces our newsletter.

The big event for the Society has been its 17th biennial meeting in Minneapolis in August. We are deeply grateful to Marlene Zuk and her organising committee (Mark Bee, John Rotenberry, Emilie Snell-Rood and Dave Stephens) for their efforts. Reviews of the Congress will appear elsewhere in this newsletter, but I personally found the organisation of the conference and the standard of the science to be excellent. The topics covered were very broad, and I was heartened that it seemed less faddish than some previous Congresses.

The Congresses remain the second major activity of the society, and in this Newsletter you will find an invitation to attend the 2020 meeting in Melbourne.

Andrew Cockburn
President
International Society for Behavioral Ecology

TO HOST A FUTURE ISBE CONGRESS

Are you interested in hosting an ISBE Congress?

Looking through the rose-coloured glasses of 1996, hosting the Canberra ISBE Congress in that year was one of the most rewarding things I have done. Not only are there general rewards, but it showcased our department in the best way possible, and led to an ongoing stream of sabbatical visitors, students and potential collaborators. With Minneapolis a fresh memory, and Bob Wong having presented an inspired invitation to visit Melbourne (aka 'one of the two most liveable cities in the world') in 2020, it is not too soon to think about planning for our Congresses in 2022, 2024 and beyond. Hence this preliminary call for expressions of interest in hosting a future meeting.

At this stage we are interested in talking to people interested in hosting the 2022 meeting. We would like to have any preliminary expressions of interest by 30 June 2019, so we can encourage a final bid, or bids, with full financial and organisational details by 30 June 2020. The Society Executive will then endorse the successful bid so that the host can make a presentation to the September 2020 meeting in Melbourne.

What are we looking for? There are really two primary needs. First, someone needs to take responsibility for the organisation, and needs to be able to call on a team of people to share the workload. We therefore want to have an academic in charge of the bid, preferably with colleagues nearby and students and lab

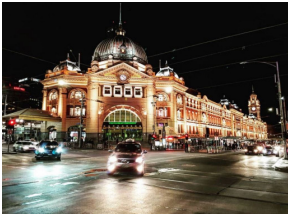
members who can be co-opted to help. Although we expect the organising team to engage a conference agency, we do not want bids from the agencies themselves. We have a policy of not providing the membership list to commercial entities, and we will give a polite no to agencies asking for membership details so that they can try and persuade a member to take on the conference. Second, there has to be a suitable venue to host a conference where both plenaries, concurrent oral sessions, and posters can be staged.

We also think that the Society benefits from having the meeting in different parts of the world. Eight countries have currently hosted a meeting. However, after the 18th meeting in Melbourne, half of the 18 will have been in the USA or Australia, which will also have just hosted the 2018 and 2020 meetings respectively. We are therefore looking for a venue elsewhere in 2022. Of course it is all the better if the host city can provide great food, venues for excursions etc.

I am always available to discuss a potential bid, to provide advice, and/or examples of what previous organisers have done. I am initially available by e-mail (andrew.cockburn@anu.edu.au), but I can also arrange to Skype or communicate by other means at a mutually convenient time.

Andrew Cockburn
President
International Society for Behavioral Ecology

MELBOURNE : HOST CITY OF THE 2020 ISBE CONGRESS



On the last day of the ISBE2018 program, just prior to the Hamilton Lecture, 200 toy koalas descended on the Minneapolis Convention Centre. The koalas revealed Melbourne, Australia, as the host city of the next International Society for Behavioral Ecology (ISBE) Congress to be held from 27 September to 2 October 2020. What can delegates expect from Melbourne and the 18th ISBE congress?

Marvellous Melbourne

Melbourne is the State Capital of Victoria and is Australia's second largest city. Set on the shores of picturesque Port Phillip Bay, Melbourne has consistently been ranked as one of the world's most liveable cities. And it's not hard to see why.

Melbourne's creative culture is expressed in its food, fashion, events, arts and music scene. It is home to world class museums, botanic gardens, zoos, parklands, and a labyrinth of laneways with plenty of street art and hidden bars to explore. Melbourne is a haven for foodies and coffee connoisseurs, and the wineries of the Yarra Valley are only a short drive from the city.

Nature lovers will be spoilt by the unique natural beauty of Victoria, ranging from cool temperate rainforest to alpine meadows, *Eucalypt* woodlands and a spectacular coastline. These environments are home to some of Australia's most iconic native animals, including wombats, koalas, kangaroos, platypus, parrots – and superb fairy wrens. There is even a penguin colony in the city (at St Kilda Pier), a mere 20 minutes tram ride from the conference venue. The conference has been timed to coincide with the Australian Spring to showcase the very best that Melbourne, and Australia more generally, has to offer.

Conference venue and support for the conference

The ISBE Congress will be held in the state-of-the-art Melbourne Convention and Exhibition Centre (MCEC). The MCEC is located in the heart of the city next to the Yarra River at the South Wharf Precinct in the city and is within short walking distance to numerous cafes, restaurants, bars and pubs (the nearest is only a 40 second walk from the MCEC's entrance). There are also plenty of accommodation options in close proximity to the venue, from youth hostels to 5 star hotels. Indeed, there are over 4,300 hotel rooms within a 10 minute walk of the MCEC (not to mention the many serviced apartments and Airbnb listings).

The local organising committee has secured over AUD\$260,000 funding from the Victorian State Government to support the event and has committed AUD\$20,000 of this towards child care services to encourage attendance by those with young families

and carer responsibilities. This support is in addition to the very generous grants that the Society already offers to delegates through its student and developing nations travel awards.

Coming to Melbourne

For those of you who haven't been to Melbourne before, the city is easily accessible for delegates from all parts of the world. Melbourne Airport operates around the clock and is a 20-minute drive from the city centre.

Australia's government is committed to making conferences in Australia easy to attend, and has set up the International Event Coordinator Network which provides support on visa issues. In this regard, Australia's Electronic Travel Authority provides instant online applications for over 30 countries and enables delegates to spend up to three months in the country.

Qantas Airways is supporting the ISBE2020 conference through discounted travel to Australia for delegates. This discount extends to the OneWorld Airline Alliance flights, which comprises 15 of the world's leading airlines providing services to 700 destinations in more than 140 countries.

Melbourne welcomes more than 484 direct international flights from 33 international airlines per week. Those delegates travelling via Europe will transition through an international hub such as Dubai, Singapore, Kuala Lumpur or Bangkok, and those travelling from the Eastern States of the USA will transition through Los Angeles or an alternate international hub.

Getting around

Once you arrive in Melbourne, one thing you can expect is ease of connectivity. Melbourne is the perfect walking city with a grid layout that is easy to navigate. With the Yarra River running through the city and a bay next door, Melbourne is a great city to experience by boat. There are ample public transport options for groups to explore the city. Melbourne has the largest tram network in the world and free year-round tram travel is provided within the city centre including to and from the MCEC.

Final comments (for now)

Melbourne will be an ideal setting for ISBE's scientific program and, on behalf of the behavioural ecology community of Australasia, we look forward to hosting you. Remember to mark the dates into your diary.

See you in 2020!
The Organizing Committee of the 18th ISBE Congress
Bob Wong, Devi Stuart-Fox and Andy Bennett
Twitter: ISBE2020

ASAB Winter Meeting 2018

Dec 6-7, 2018. Theme: Behavioural Biology In Animal Welfare Science. www.asab.org/conferences/

ASAB Easter Meeting 2019

April 3 - 5, 2019. The ASAB Easter Meeting in 2019 will be held at the University of York. Updates via <https://twitter.com/ASABEaster2019>

European Human Behaviour and Evolution

April 24-26, 2019 in Toulouse, France. "Hybridization: morphological, genetic, behavioural mechanisms and consequences." Pre-conference satellite meeting on April 23. <http://ehbea.com/>

Human Behavior and Evolution Society meeting

May 29-June 1, 2019, in Boston, USA. www.hbes.com/conference/

Evolution 2019

June 21-25, 2019, in Providence, RI, USA. <http://www.evolutionmeetings.org>

Behaviour 2019

July 23-28, 2019 at the University of Illinois Chicago, IL, USA. A joint meeting of the International Council of Ethologists Conference (ICE) and the Annual Conference of the Animal Behavior Society (ABS) <http://www.animalbehaviorsociety.org/2019/>

ESEB 2019

August 19 – 24, 2019. The next European Society for Evolutionary Biology meeting will be held in Turku, Finland. <http://eseb2019.fi>

International Society for Human Ethology

August 21-24, August 2019. The next ISHE Summer Institute will be held in Zadar, Croatia <http://ishe.org/croatia-2019/>

ISAE 53rd International Congress

August 5-9, 2019. International Society for Applied Ethology meeting in Bergen, Norway. http://www.applied-ethology.org/isae_meetings.html

International meeting of Poeciliid Biologists

September 26-26, 2019 in Mexico City. The next Poeciliid meeting will be held at the campus of the Universidad Nacional Autónoma de México (UNAM), in Mexico City. More details will follow

9th World Congress of Herpetology

5 – 10 January 2020, Dunedin New Zealand www.worldcongressofherpetology.org/

ISBE 2020

27 September - 2 October, 2020 in Melbourne Australia. More information on page 4

International Congress of Neuroethology

ICN2020 will be held in Lisbon, Portugal www.neuroethology.org/ebusisne/MEETINGS.aspx

International Union for the Study of Social Insects XIX IUSSI International Congress 2022

San Diego, California, USA www.iussi.org/meetings.html

Name

Lily Johnson-Ulrich

Education

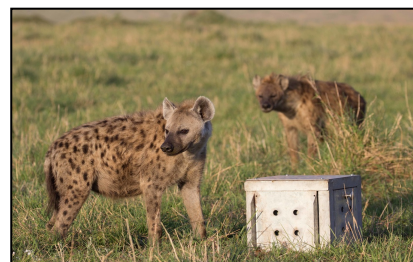
BA, University of Miami (2011)

Current Address

Dept. of Integrative Biology, Michigan State University, East Lansing, MI, USA.
Email: john3923@msu.edu

Research Interests

For my PhD I am investigating the social, ecological, and individual factors related to natural variation in two cognitive abilities, innovation and inhibitory control, in wild spotted hyenas in the Maasai Mara National Reserve, Kenya and in Mekelle, Ethiopia. I'm interested in an intraspecific approach to test hypotheses about the factors that select for the evolution of these abilities and increase our understanding of both the causes and consequences of such individual variation.



Low-ranking immigrant male hyenas, right before the closer one innovated a solution to the multi-access box. Low-ranking animals might face stronger socio-ecological demands for innovation due to higher competition for food.

Selected papers:

- Johnson-Ulrich L, Johnson-Ulrich Z, & Holekamp KE (2018). Proactive behavior, but not inhibitory control, predicts repeated innovation by spotted hyenas tested with a multi-access box. *Animal Cognition*, 21(3), 379-392.
- Johnson-Ulrich L, Lehmann K, Turner J, Holekamp KE (2018) Hyenas – Testing cognition in the umwelt of the spotted hyena. In Bueno N & Amici F (Eds.) *The experimental umwelt – a practical guide to animal cognition*.
- Green DS, Johnson-Ulrich L, Couraud HE, & Holekamp KE (2017). Anthropogenic disturbance induces opposing population trends in spotted hyenas and African lions. *Biodiversity and Conservation*, 1-19.

Name

Dr Louise Roberts

Education

PhD Biological Sciences (2015) University of Hull, UK; M.Sc Marine Biology (2010) Bangor University, Wales; B.Sc. (Hons) Zoology (2008) University of Durham, UK.

Current Address

Postdoctoral Research Associate, Department of Biological Sciences, Dartmouth College, Hanover, New Hampshire, USA. Email: louise.roberts@dartmouth.edu

Research Interests

Marine and terrestrial bioacoustics and biotremology, anthropogenic impacts, sensory ecology

Selected papers:

- Roberts, L. and Elliott, M. (2017) Good or bad vibrations? Impacts of man-made vibration upon the marine epibenthos. *Science of the Total Environment* 595: 255 – 268.
- Roberts, L., Cheesman, S., Elliott, M., Breithaupt, T. (2016) Sensitivity of *Pagurus bernhardus* (L.) to substrate-borne vibration and anthropogenic noise. *Journal of Marine Biology and Ecology (JEMBE)*: 185 – 194

Name

Stotra Chakrabarti

Education

PhD (Wildlife Institute of India), 2018; MSc (Wildlife Science), Wildlife Institute of India 2013.

Current address:

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Research interests

I am primarily interested in understanding proximate and ultimate processes governing patterns in animal and human behavior. For my PhD I studied the social behavior and reproductive strategies at the interface of sexual conflict in Asiatic lions. My results revealed a novel social structure and mating system in these tawny cats which were not known for lions till date. Presently, I integrate animal behavior, population ecology and habitat studies to understand human-wildlife interactions in India. I have a strong inclination towards discerning animal behavior, cognition and distribution through physiological and metabolic studies.

Selected Papers:

Peer-reviewed Articles

Chakrabarti S, Jhala YV. 2017. Selfish Partners: resource partitioning in male coalitions of Asiatic lions. Behavioral Ecology arx118, <https://doi.org/10.1093/beheco/arx118>.

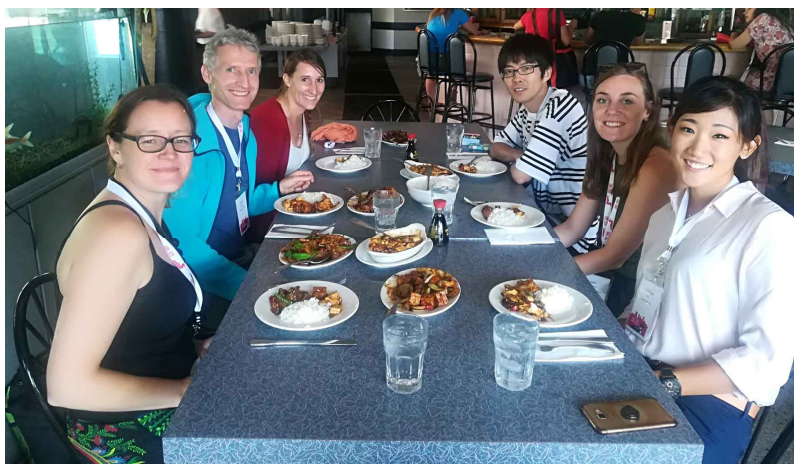
Chakrabarti S, Jhala YV, Dutta S, Qureshi Q, Kadivar RF, Rana VJ. 2016. Adding constraints to predation through allometric relation of scats to consumption. Journal of Animal Ecology 85:660-670.

Popular Articles:

Chakrabarti S. 2018. Tailing the last lions of Asia. Science Outside, American Blog of Science <https://scienceoutside.com/portfolio/tailing-the-last-lions-of-asia/>

Chakrabarti S. 2018. Of Men & Manes. SAEVUS, Vol 7 Issue 1, March-May 2018

Chakrabarti S. 2017. Belling the cat: using telemetry to study lions in people's backyards. Sanctuary Asia, Vol. XXXVII No.12 December Issue. <http://www.sanctuaryasia.com/magazines/conservation/10754-belling-the-cat--using-telemetry-to-study-lions-in-peoples-backyards.html>



Lunch with a Faculty Mentor

Although the ISBE conferences are very friendly, it may still be intimidating for a young delegate to approach a senior scientist.

Therefore this year's ISBE conference offered *Mentor Lunches*, where younger scientists and students had lunch together with a faculty member. These lunch meetings were very informal and the early-career scientists were encouraged to ask lots of questions.

The photo is from the mentor lunch with Dr. Michael Griesser.

ISBE 2018 ANNUAL GENERAL MEETING

The ISBE General meeting in 2018 was held at the Minneapolis Convention Centre on Wednesday 15 August during the lunch break. There were 15 people in attendance. The new ISBE president Andrew Cockburn chaired the meeting, following the transfer of presidency from Ben Hatchwell at the ISBE Executive Meeting earlier in the week.

In his opening address, Andrew began by announcing changes to the ISBE Executive, with the retirement of Past President Nina Wedell, as well as Councillors Doug Emlen and Mariella Herberstein. Andrew thanked them for their service on behalf of the Society and also welcomed Rebecca Kilner as incoming President, and Dan Blumstein and Claire Spottiswood as new Councillors.

During the president report, Andrew reiterated the two main functions of the Society, which is to publish the journal Behavioral Ecology and to organise the ISBE Congresses. Andrew outlined the Society's commitment to raising the profile of early to mid career researchers, with several new initiatives being investigated for the next ISBE Congress, including competitive awards. Processes that can help to alleviate the burden of Society administration and to better facilitate management of the Society are also being explored by Council.

The Treasurer's report was presented by Andrew in Trish Schwagmeyer's absence (For details, please see the next page of this issue). The report re-emphasised the importance of the income generated by the Society's journal, Behavioral Ecology, which dwarfs the income generated from membership fees and investments. The bulk of the Society's expenditure goes to supporting awards for students as well as delegates from developing nations. Andrew reaffirmed the Society's commitment to supporting these important initiatives. Indeed, following the meeting of the Executive Council, the Society would like to explore ways to increase the number of applicants and delegates from developing nations with plans to include awardee profiles on the

Society's website as a way of promoting the award to prospective applicants. Lastly, in regard to the Society's finances, Andrew highlighted the fine job that Trish has been doing in increasing investment return to boost the reserves, which are crucial for the health of the Society and to plan for contingencies.

Leigh Simmons, as the Editor-in-Chief of Behavioral Ecology, then took the stage to go through the Editor's report (see pages 10-14). Briefly, Leigh discussed changes to the editorial board and thanked the outgoing editors for their service. Leigh also discussed the journal's impact factor, presented data on manuscript submissions and processing times, and outlined the many key initiatives he has put in place to boost the esteem and impact of the journal. After the presentation, Andrew thanked Leigh for his commitment in contributing to the outstanding success of the journal.

Finally, Andreas Svensson, as newsletter editor, reiterated the primary function of the newsletter as an important forum for the dissemination of information that is relevant and of interest to the membership of the Society. In addition to book and conference reviews, advertisements, scientist profiles and conference calendars, Andreas would also like to see more opinion and perspective pieces from early career researchers and senior scientists. Given that the newsletter is only published twice a year, in an environment of rapid news turnover, Andreas has also been working very closely with Anna Hatzisavas (website) and Kate Umbers (twitter) to ensure that urgent information is conveyed to the membership of the society in a timely manner.

Bob Wong
Secretary, ISBE
Monash University, Australia

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Editor-in-chief Leigh Simmons at the meeting



Andrew Cockburn, president of the ISBE

TREASURER'S REPORT

2018 ISBE Treasurer's Report

2016 ending balance			\$550,266.10
	2017 Income	2017 Expense	
Postage		\$26.77	
Safe for archived materials		\$178.52	
Archivist honorarium 2015-16		\$500.00	
2016 Travel award replacement checks		\$2,800.00	
ISBE 2018 Local Committee loans		\$30,000.00	
VA exemption application fee		\$10.00	
2016 Pitelka Award		\$1,000.00	
website 2017-2018: Anna Hatzisavas		\$396.01	
BOA wire transfer fee with credit		\$10.00	
OUP 2016 membership income	\$14,985.00		
OUP 2016 profit-share	\$173,217.00		
VG dividend and interest income	\$12,150.29		
VG gains/losses in share prices	\$39,084.40		
2017 ending balance (transactions)	\$239,436.69	\$34,921.30	\$754,781.49
BOA checking account	12/31/2017		\$21,578.70
VG Federal Money Market	12/31/2017		\$282,769.30
VG Tot Int Bond Index	12/31/2017		\$69,139.63
VG Int Stock Index	12/31/2017		\$88,660.54
VG Tot Bond Market Index	12/31/2017		\$161,110.45
VG Tot Stock Market Index	12/31/2017		\$131,522.87
2017 ending balance (accounts)			\$754,781.49

Trish Schwagmeyer
University of Oklahoma, USA
pls@ou.edu

The last two years have been a period of growth for the journal. We have experienced an increase in submissions suggesting that the journal is increasingly perceived as an attractive place to publish. Increased submissions have allowed us to become more selective and drive up the impact and quality of the journal. *Behavioral Ecology* is currently delivered to 2,447 consortia customers with access to the journal via the OUP Collection and over 5,500 institutions in developing nations access the journal through OUP's philanthropic initiatives.

Editorial Team

There have been a number of changes to the Editorial team since my last report. Ian Sherman our Publishing Editor at OUP was replaced in 2016 by Neil Scriven, who then left in 2017 for a new position at Springer Nature. Our new Publishing Editor at OUP is Cailin Deery. Jenny Fulford continues to be our Editorial assistant.

Some of our Editors have finished their terms of office, including Paco Garcia Gonzalez, Shinichi Nakagawa, Bob Wong, Johanna Mappes, Marc Thery, Madeleine Beekman, Naomi Langmore, David Stephens and Suzanne Alonzo. I would like to formally thank each of these individuals for their hard work and dedication to the journal. Accordingly, we recruited 10 new Editors, Luke Holman, John Skelhorn, Anna Lindholm, Michael Taborsky, Andrea Griffith, Dan Papaj, Ulrika Candolin, Amanda Ridley, John Quinn and Per Smiseth. I am extremely grateful to these individuals for agreeing to offer their time and expertise to build upon the strength of our journal over the coming years.

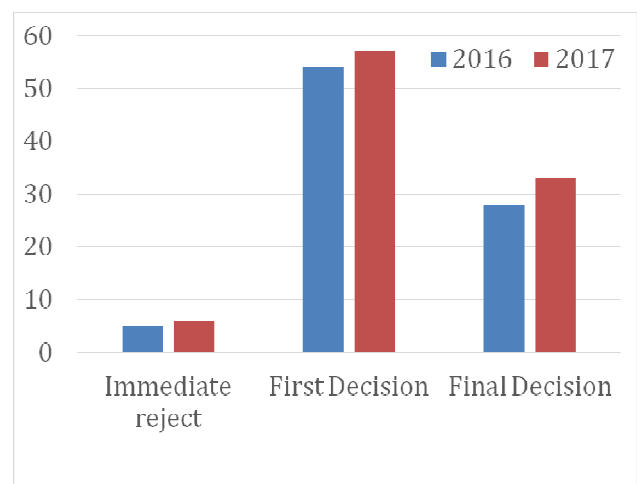
We have also seen changes to our Editorial Board. My thanks go to Jens Krause, Bruce Lyon, Nina Wedell, Mandy Ridley, Hanna Rowland, Tim Caro, Elizabeth Tibbetts and Neil Metcalfe who have all completed terms on the Editorial Board, and I welcome new members Sigrunn Eliasson, Noa Pinter-Wollman, Lynne Sneddon, Terry Ord, Kate Umbers, Oded Berger-Tal, Rebecca Kilner and Daniel Sol. Our editorial board provide rapid reviews on up to 10 manuscripts per year, and serve as adjudicators when necessary. Lynne Sneddon is our specialist animal ethics consultant and Kate Umbers manages the *Behavioral Ecology* Twitter account. Our editorial structure aims to afford a broad area of expertise in behavioral ecology research, to be gender balanced and to represent the international community. We currently have 17 male and 13 female Editors from 12 Countries, that provide a broad coverage of research areas and taxonomic specialities.

Manuscript Submissions, Decisions, and production

During 2016 (2017) *Behavioral Ecology* received 615 (605) Original Articles. We also Invited 3 (12) Reviews with associated Commentaries, and 5 (3) Ideas. During the same periods decisions were made



on 645 (653) submissions. Of these 71% (73%) were rejected (32% (35%) without review) and 29% (27%) were accepted for publication.



Decision times have remained steady, for the immediate reject category at just under a week. Time to first decision averaged ~55 days. The Editorial Board will be working on ways to reduce this decision time, however it should be noted that the major rate limiting step in decision timing is the time it takes our referees to return their reviews. Resubmission to final decision is lower at ~30 days.

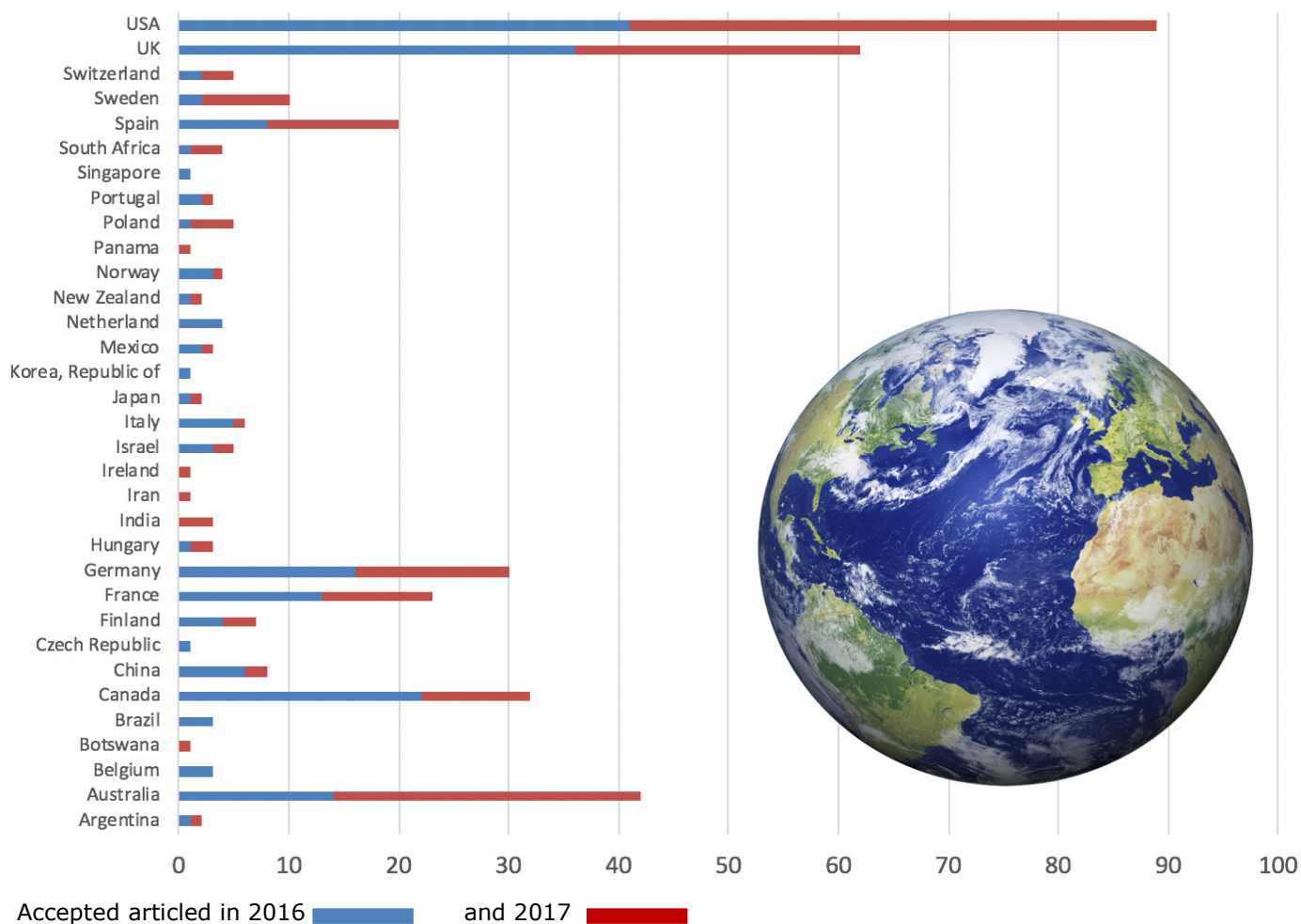
The time from final acceptance to publication in advance of print is ~4.5 weeks.

Published Volumes

Volumes 27 and 28 of *Behavioral Ecology* appeared in 2016 and 2017 respectively. Volume 27 comprised a total of 1896 pages with 210 original articles, 5 Invited Reviews with associated commentaries, and 1 Comment & Response. Volume 28 comprised a total of 1563 pages with 168 original articles, 1 Invited Review with associated Commentaries, and 3 Invited Ideas. Collectively these articles have received 1347 citations, an average of 3.11 citations per article, with the most cited being Jean-Nicolas Audet and colleagues article in volume 27 issue 2, "The town bird and the country bird: problem solving and immunocompetence vary with urbanization".

For each issue in 2016 and 2017 one article was highlighted as Editor's Choice. These articles were made free to view and archived in a collection that can be accessed via the electronic journal homepage. Editor's Choice articles are also highlighted on the

journal's FaceBook page with a lay summary outlining their significance to the general public. Our authors come from 33 countries, with continental Europe, the USA and the UK still the largest represented groups.



Electronic Journal

The electronic journal had a complete make-over in 2017, when OUP migrated all of its journals from the old HighWire platform to the new Silver Chair platform. This provided the journal with a fresh and aesthetically modern visual appeal. The transfer was not without its problems, resulting in the loss of content from archival issues and broken links to online supporting material. These problems were worked through in 2017 and are now mostly corrected. However, authors and readers are asked to alert the Editor-in-Chief to any persistent issues with links to supplementary material or pdfs that might still be broken.

Full text HTML and pdf downloads have continued to rise from ~700,000 in 2016 to 939,732 in 2017. This represents a 46% increase on the previous reporting period (2014-2015).

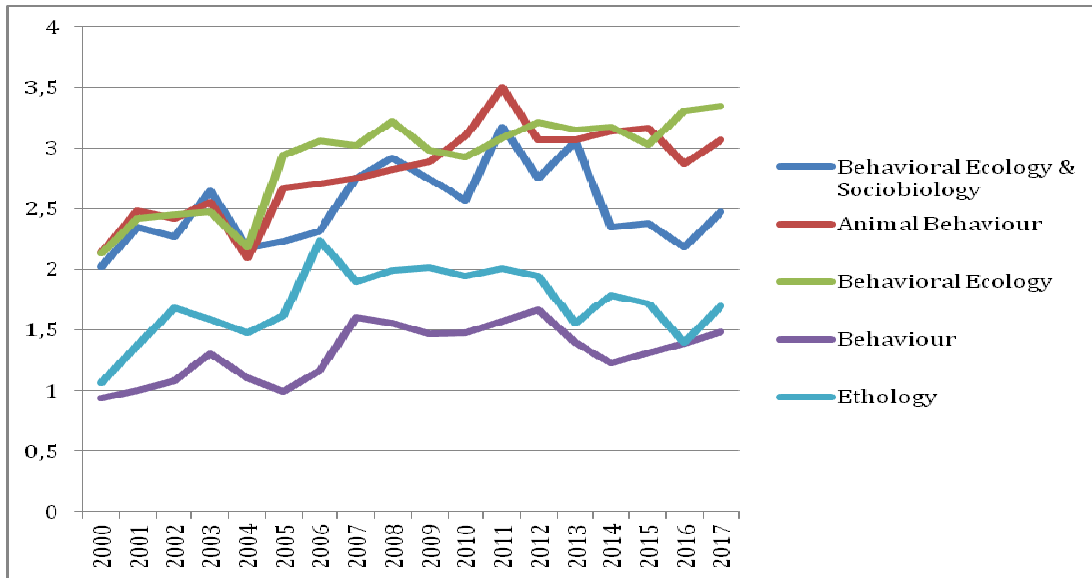
The journal currently has 6,173 email Table of Contents (eTOC) registrants, an increase of 7.8% upon the previous period. *Behavioral Ecology* also has a further 1,727 individuals signed up to receive

Advanced Access (AA) e-alerts, an increase of 9% from 2015.

Journal Impact

The ISI Impact Factor for *Behavioral Ecology* rose from 3.029 in 2015 to 3.311 in 2016 and 3.347 in 2017. This is a record high for the journal and has placed it as the leading journal in our field. *Behavioral Ecology* is currently ranked 10/51 in Behavioral Sciences, 41/158 in Ecology and 7/166 in Zoology.

The top 10 cited papers that have contributed to the success of the journal include a mix of Invited Reviews and Original Articles with Bob Wong and Ulrika Candolin's Invited Review on *Behavioral responses to changing environments* being the highest cited contribution to the 2017 Impact Factor.



Changes in ISI impact factor of journals in our field.

Top 10 cited papers in Behavioral Ecology

First Author	Title	Year	Article Type	Citations in 2017	Total Citations
Wong, BBM	Behavioral responses to changing environments	2015	Invited Review	40	96
Hinde, K	Cortisol in mother's milk across lactation reflects maternal life history and predicts infant temperament	2015	Original Article	21	47
Dougherty, LR	The effect of experimental design on the measurement of mate choice: a meta-analysis	2015	Invited Review	18	58
Audet, J-N	The town bird and the country bird: problem solving and immunocompetence vary with urbanization	2016	Original Article	17	26
Edward, DA	The description of mate choice	2015	Invited Review	14	38
Myles-Gonzalez, E	To boldly go where no goby has gone before: boldness, dispersal tendency, and metabolism at the invasion front	2015	Original Article	14	22
Arct, A	Genetic similarity between mates predicts extrapair paternity—a meta-analysis of bird studies	2015	Invited Review	13	32
Harrison, PM	Personality-dependent spatial ecology occurs independently from dispersal in wild burbot (<i>Lota lota</i>)	2015	Original Article	13	28
Cassidy, KA	Group composition effects on aggressive interpack interactions of gray wolves in Yellowstone National Park	2015	Original Article	13	27
Skelhorn, J	Multicomponent deceptive signals reduce the speed at which predators learn that prey are profitable	2016	Original Article	12	26

New initiatives

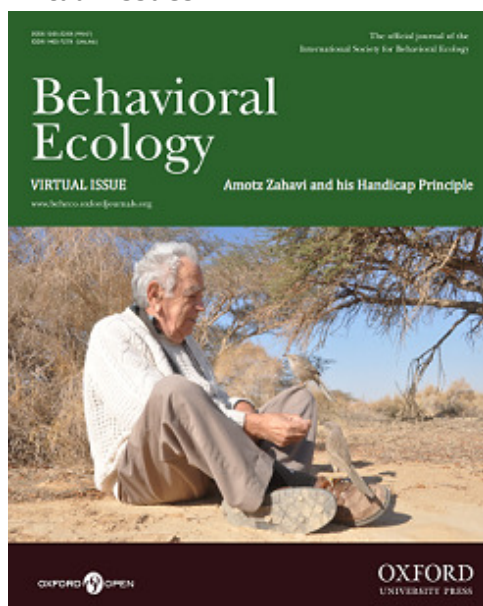
In the interests of adopting the highest standards of scientific rigor *Behavioral Ecology* adopted mandatory data archiving for all manuscripts accepted for publication after Jan 1st 2016. Data archiving is provided in DRYAD at no charge. Following on from this initiative, in 2017 *Behavioral Ecology* invited an Idea piece for the Forum of the journal, from the organisers of a symposium at the 2016 ISBE in Exeter on Transparency and Openness in behavioral ecology. This Invited Idea offered practical guidelines for behavioural ecologists striving

for transparent and credible research and addressed issues around data archiving, preregistration and replication. The Invited Idea was followed by a series of Invited Commentaries that debated the issues raised. The journal formally adopted the Transparency and Openness guidelines of the Centre for Open Science, with an Editorial outlining reasons for support for these guidelines.

Finally, in 2018 we moved to using ORCID IDs for corresponding authors. ORCID IDs provide a

persistent digital identifier that distinguishes authors from every other researcher and facilitates integration in key research workflows such as manuscript submission. This puts journal practice in line with the latest initiatives in digital publishing.

Virtual Issues



Behavioral Ecology publishes two Virtual Issues a year. In general these are built around one of our Invited Reviews. In 2016 we published *Sexual Conflict Over Parental Care* built around Paquet and Smiseth's review on maternal effects as a mechanism of manipulating male care, and *Aposematism and Mimicry* built around Skelhorn and colleagues review on Learning about aposematic prey. In 2017 we published *Animal Personality: a new paradigm?* built around Beekman & Jordan's critical appraisal of the animal personality literature, and a Virtual Issue to celebrate the life and work of Amotz Zahavi.

Our virtual issues are proving highly effective in promoting research published in the main journal. For example, our most recent Virtual Issue on *The Behavioral Ecology of Color Vision* published in March 2018 resulted in an increased usage of publications in the collection of 79%. The articles chosen for Virtual Issues are a mix of older articles and articles published within the previous 2 years. They are provided free to view, and the aim is that the increased usage of the more recent articles will feed through to increased rates of citation with consequences for the journal's impact factor.

Impact

Facebook

The journal's facebook page @behecol serves as our public face, and a mechanism with which to promote our research to the broader public so as to increase the impact of behavioral ecology research. The number of followers is currently 8,108, an increase of 31% over the last 2 years. The page is used to highlight new articles in the journal that are particularly newsworthy. When each new issue of the journal is released a lay summary of the Editor's Choice is posted, along with a "Focus on Issue" post with images accompanied by author provided lay summaries. Shares of second party blogs or news media on *Behavioral Ecology* articles typically reach an audience of ~1500 people. Our own posts, such as the Editor's Choice or announcements of new Virtual Issues generally attract greater attention, with reaches as high as ~7000. The page is also used to post society information, such as ISBE conference announcements and the newsletter.





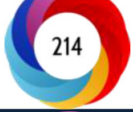
Twitter

The journal's twitter account @BehavEcol is also used to promote papers in the journal as they are published. The *Behavioral Ecology* twitter feed is curated currently by Editorial Board member Kate Umbers. The feed has ~4500 followers, an increase of 114% on the last reporting period. 49% of our followers are male, and 51% are female. 23% of our followers are from the UK, 24% USA, 7% Australia, 8% Canada, and <2% from each of countries such as India, France, Germany, Spain, Japan, Sweden, and South Africa.

Since July 2016 we have had an average of 34,325 impressions per quarter, which resulted in an average of 216 link follows predominantly to our journal articles. Our tweet announcing the ISBE 2018 in Minneapolis reached 75,600 twitter feeds and 431 recipients clicked through to the ISBE 2018 website. Our hope is that we can strengthen our use of social media to increase attention to ISBE, behavioural ecology research and citation of work published in the journal.

Oxford University Press are also actively engaged in promoting our journal material on social media, through their own twitter feed, and through press releases and features on the OUPblog. Editors identify accepted articles of particular note and direct these to our marketing team who work with authors in preparing blog posts.

Top 5 papers based on altmetric score

Score	Title
 838	Why is the giant panda black and white? T Caro Volume 28, Issue 3, 1 May 2017, Pages 657–667
 334	The town bird and the country bird: problem solving and immunocompetence vary with urbanization J-N Audet Volume 27, Issue 2, 1 January 2016, Pages 637–644
 267	Fear of the human “super predator” far exceeds the fear of large carnivores in a model mesocarnivore M Clinchy Volume 27, Issue 6, 1 November 2016, Pages 1826–1832
 234	A lover or a fighter? Opposing sexual selection pressures on men’s vocal pitch and facial hair TK Saxton Volume 27, Issue 2, 1 January 2016, Pages 512–519
 214	The carotenoid beta-carotene enhances facial color, attractiveness and perceived health, but not actual health, in humans YZ Foo Volume 28, Issue 2, 1 April 2017, Pages 570–578

Altmetrics

The impact and reach of the research reported in *Behavioral Ecology* beyond traditional academic venues is captured by altmetric data. The altmetric score is a measure of the amount of attention an article has received online, in social media and news sites. Our highest scoring article was Tim Caro’s paper, *Why is the giant panda black and white?* which has an altmetric score of 838. The article was picked up by 92 news outlets, 8 blogs, 77 tweets and 4 facebook pages. To put these values into some perspective, altmetric scores of 20 or more are in general receiving significantly greater impact than other papers, being in the top 5% of all research outputs scored by altmetrics.

In summary I can report that the journal is moving from strength to strength, and that we are striving to offer the best possible platform for our authors and readers. *Behavioral Ecology* should be the journal of choice for researchers in our field, and I would like to take this opportunity of reminding authors of the benefits of publishing with a not-for-profit society journal such as *Behavioral Ecology*. The ISBE and OUP have an equal financial share in the journal and the ISBE returns its share in any surplus revenue to its members in the form of travel grants to attend the biennial ISBE Congress. Thus, unlike non-society journals, any revenue generated is used directly in promoting the scientific discipline. OUP are themselves a department of the University of Oxford, and their share of any surplus revenue is returned to education, research and other philanthropic activities. There is increasing interest in open access publishing, and *Behavioral Ecology* offers this option at very competitive prices. The numbers of open access articles are increasing in the journal. OUP discounts online subscription prices based on OA uptake, so that the more OA content that is published in the journal, the lower the future online subscription prices will be. OUP have been praised for this approach, as it avoids ‘double dipping’ where publishers charge twice: once to the author for the OA charge, and once to the librarian for the subscription.

Leigh W. Simmons

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THE 2018 PITEKLA AWARD

The Frank A. Pitelka Award for Excellence in Research, was established in 1996 and is administered through the ISBE. It is given to an early-career researcher that is the sole or first author of an outstanding article in Behavioral Ecology.

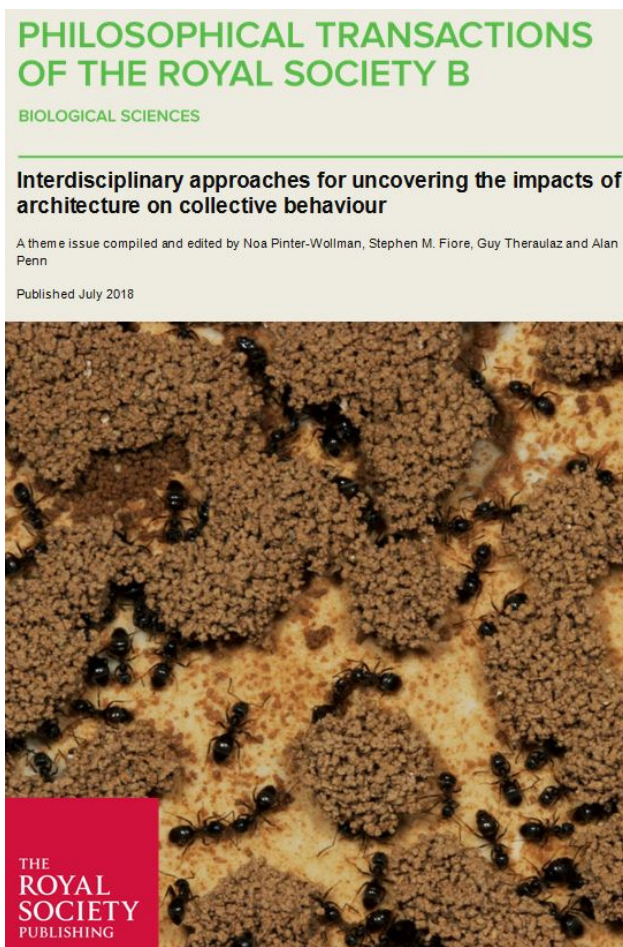
The Pitelka award winner for 2016/17 was announced at the ISBE congress in August. The winner was Yimen Araya-Ajoy who was awarded the prize for the paper on great tits:

Yimen G. Araya-Ajoy, Niels J. Dingemans, Bart Kempenaers. 2016. Timing of extrapair fertilizations: within-pair fertilization trade-offs or pair synchrony spillovers? *Behav Ecol* 27: 377-384.

Lay summary:

Many bird species reproduce in monogamous pairs. Male reproductive physiology and behavior are finely tuned to the fertile cycle of their social partner to ensure successful reproduction. However, it is now very well known that in many bird species males engage in extra-pair reproduction outside their social bond. In this study we aimed to understand at what point during the fertile cycle of their female are males more likely to engage in extra-pair reproduction. We found that male Great tits engage in extra-pair reproduction when their social partner is fertile. We argue that this is because a male's "willingness" to copulate with its social partner spills over to its extra-pair reproductive behavior.

NEW SPECIAL ISSUE FROM THE ROYAL SOCIETY



Royal Society Publishing has recently published a special issue of *Philosophical Transactions B* entitled *Interdisciplinary approaches for uncovering the impacts of architecture on collective behaviour*, compiled and edited by Noa Pinter-Wollman, Stephen M. Fiore, Guy Theraulaz and Alan Penn. This content can be accessed at <http://bit.ly/PTB1753??> and the articles at: <http://rstb.royalsocietypublishing.org/content/373/1753>

A print version is also available at the special price of £35.00. You can order online via the above web page (enter special code TB 1753 when prompted) or, alternatively, you can contact: debbie.vaughan@royalsociety.org

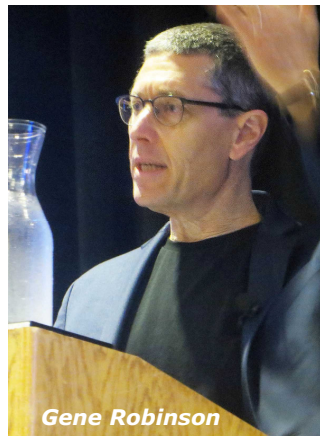
Felicity Davie
Royal Society Publishing

REVIEW OF ISBE 2018 IN MINNEAPOLIS

The 31st International Society for Behavioural Ecology Conference took place in Minneapolis, Minnesota, a pretty mid-Western city located along the banks of the iconic Mississippi River. ISBE 2018 was host to 570 behavioural ecologists, representing 33 different countries across six continents. A total of 371 talks were presented.

It was a conference with a soundtrack! And what a soundtrack it was, featuring songs by local artists of the likes of Bob Dylan, Prince, and Semisonic. This year the charismatic yodelling of the common loon, the Minnesota State bird, was used as the cue for speakers to wrap up their talk. Session rooms were no more than a minute walk from one another, so there was no need to rush between rooms. Generous lunch breaks gave delegates time to refresh themselves, catch up with colleagues and friends, and explore. The conference, located at the Minneapolis Convention Centre in the heart of downtown Minneapolis, meant an array of eateries and food trucks were only a short walk away. The city is connected by interesting network of 'skyways', a series of 2nd-floor walkways ideal for a city that experiences extremely cold winters. The chatty Minneapolis locals welcomed delegates to their city with a typical Minnesotan hospitality and shared local history and travel tips whenever they had the chance.

A friendly opening social in the convention centre's front garden—under a pleasant Minnesota summer sun—set the tone for the conference. The evening was filled with some exciting local music, lively discussion, and cold drinks.



The next morning, the head of the conference organising committee, Marlene Zuk, formally welcomed delegates to Minnesota. Continuing a growing legacy of outstanding plenary talks, this conference's selection of speakers spanned a variety of topics from the aims and methods of ethology, from cellular energy mechanisms that restrain brain size, to the adaptive responses to nest predation, and the evolutionarily conserved genes across taxa.

The first plenary was given by Gene Robinson, taking delegates on a tour through his work on the genes involved in regulating social organisation and providing the evolutionary building blocks for complex social life. Robinson and his team have

found shared gene regulation and expression influencing social organisation in some vertebrates and invertebrates. Karen Warkentin, an expert in behaviour and decision-making in vertebrate embryos, gave the next plenary. Warkentin shared her decades of experience exploring what makes embryos tick in tropical frogs. Through a series of increasingly refined experiments, Warkentin and her team have shown that many species of frog hatch prematurely to escape a predator or avoid drowning.



On the second day, Johanna Mappes gave a fascinating plenary talk on polymorphic warning signals in butterflies and moths. Mappes showed that, in the aposematic Tiger Moth, different colour morphs may be more effective at deterring predators in different light environments and encouraged further research into the mechanisms driving polymorphism in warning signals. The following plenary speaker was Regina Macedo, who shared her detailed natural history and deep understanding of Grassquit breeding ecology. Macedo showed that male displays alert predators to the location of nests and affect nest predation rates, highlighting the natural selection and sexual selection trade-offs that play out in nature and she urged researchers to inform lab studies with detailed field observations.

On wednesday morning, Simon Laughlin discussed the energetic costs of neural function. He explained that the capacity for memory and the ability to learn are an innately costly component of the overall energy consumption of organisms because the necessary associational network must be maintained and must be constantly attentive to stimuli. The second plenary of the day was by Rui Oliveira. Oliveira gave an interesting talk on social modulation of fear responses in zebrafish. His lab has studied the interaction between genes and social environment during development on the establishment of social phenotypes, assessing how developmental effects can be carried across generations to impact on the evolution of social behaviors.

As in previous years, the majority of the contributed talks and posters focused on cognition, communication, and learning; sexual selection and

conflict; and the evolution of social behaviour (Figure 1). This year saw an increased focus on the role of hormones and genes in behaviour, and a stronger applied focus considering behavioural responses to anthropogenic disturbance (e.g. climate change, land transformation, light, chemical, and noise pollution) and conservation planning outcomes. The taxonomic groups represented across talks were similar to those observed over the past decade of ISBE conferences, with birds being the most strongly represented group, followed by insects, mammals, fish and, lastly, reptiles and amphibians (Table 1). Over the past decade there has been a slow but steady decline in the proportion of talks dedicated to birds (sorry bird lovers), and an associated increase in invertebrate, mammal, fish, reptile, and amphibian studies. If we see a similar trend heading into 2020, insects may knock the birds off their perch. However, it is not just bad news for bird lovers. Fish also saw a drop in representation this year so let's hope that ISBE 2020 will see an increase in 'fishy' research.

Table 1. Percentage representation of broad taxonomic groups (mammals, birds, reptiles/amphibians, fish, insects and others) across talks at ISBE 2008, 2012 and 2018.

	2008	2012	2018
Mammals	12	15	17
Bird	48	37	33
Reptiles and Amphibians	3	5	6
Fish	12	15	9
Insects	17	26	29
Other	8	3	7*

* For 2018, "Other" included all other kingdoms outside of Animalia, as well as research that did not have a specific taxonomic group (i.e. statistical modelling or broad theoretical work).

A much-needed mid-week break in the talks saw delegates taking in one of the organised field trips or exploring Minneapolis on their own steam: visiting a local farmers market, running along the river, or attending a baseball game. A trip to the beautiful Afton State Park included hiking and swimming. While the trip was a bit short, and in the middle of the day so not optimal for bird-watching, birders enjoyed sightings of Northern Flickers, American Goldfinch, Cedar Waxwing, and Black-capped Chickadee. Tuesday afternoon also saw the more active attendees take to the local soccer ('football') pitch for the traditional ISBE soccer match. Despite the summer sun delegates took the opportunity to showcase their soccer 'tekkers'.

The ISBE provided extensive support to students, early-career researchers, researchers from developing countries, and researchers with families, including discounted registrations and the provision of onsite childcare facilities. Additionally, the ISBE gave generous travel grants that enabled 148 people from 25 different countries to participate in the event. With 85% of participants hailing from developed countries, we hope that future ISBE conferences will secure greater participation from Africa, Asia, and South/Central America. In addition to financial support, the organisers arranged a series of structured networking events, including faculty-mentoring lunches in which early career researchers (51 postdocs, 167 graduate students and 11 undergrads) could meet others with similar interests and pepper one of 77 senior researchers with all of their research and career questions. Other networking events included themed luncheons and drinks for delegates interested in building diversity, LGBTQ+, and postdoctoral research networks. This year's Frank A. Pitelka Award for Excellence in Research, a prize for the best research article by a postgraduate student published in Behavioural Ecology between 2016 and 2017, went to Yimen Araya-Ajoy of the Max Planck Institute for a paper on the timing of extrapair fertilisations in Great Tits.

The traditional closing Hamilton Award lecture was given by accomplished scientist David Queller, who explained applications of kin selection and social evolution theories to microbes, social insects, and plants. Queller fused mathematical theory and applied research in an eloquent narrative which was understandable even to those of us with a strong case of mathematical anxiety. The talk was a fitting conclusion for the conference, spanning a diversity of taxonomic groups, and highlighting new paths for

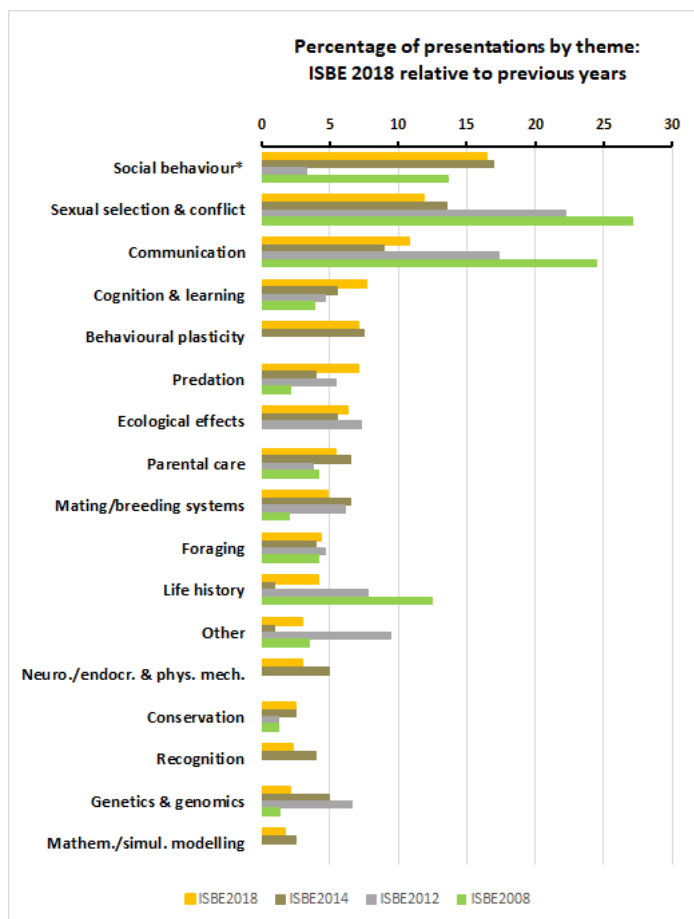
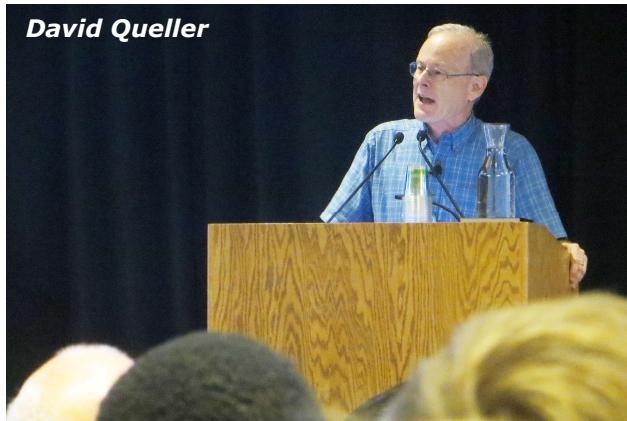


Figure 1: The major categories of talks at the ISBE in 2018 as compared to previous ISBE conferences.

* Social Behaviour includes talks categorised as Applied Animal Behaviour for comparison with previous years

behavioural research in micro-organisms and plants, in addition to the more traditional model organisms.



David Queller

during teaching semesters, so that those who will attend may want to organise time off in advance.

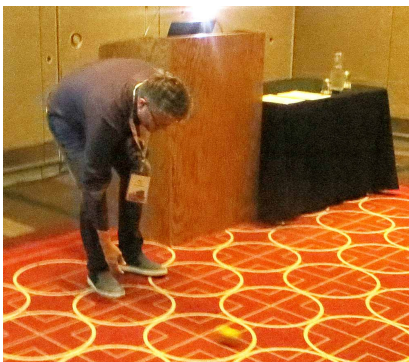
The conference closed as it began, with sociable snacks in an impressive setting at the Bell Museum of Natural History. The Museum houses more than 4 million specimens, across a number of taxonomic groups. Pleasingly generous bartenders meant the long queues for food and lack of music to end off such an otherwise musical week did not dampen the mood. After the event, many delegates took the opportunity to explore Minneapolis' nightlife, and it's safe to say that there were yodelling loons of a different sort to be heard around the city that night.

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After the Hamilton lecture, Bob Wong delivered the pitch for ISBE 2020 in Melbourne. Wong truly showcased Melbourne, from bustling laneways, coffee shops (some of the best in the world), and five-star Michelin restaurants, to the beautiful beaches and adorable fairy penguins. To make ISBE 2020 as accessible as possible, Bob revealed that \$20,000 Australian dollars will be allocated to childcare. Melbourne's meeting will be held on the 27th September to 2nd October, which will fall



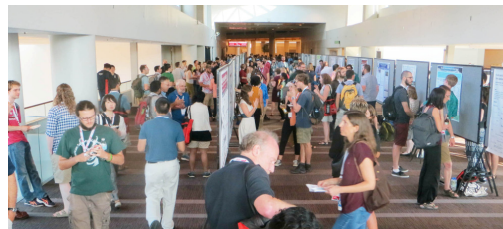
Mark Hauber rolls fruit on the floor to illustrate egg shape evolution



Wildlife in a Minneapolis beer garden



A young poster contributor explains his findings



The Monday poster session



Delegates lining up for coffee



Happy biologists at the closing social

Wednesday field trip to the Afton State Park



Issues of diversity in STEM fields are often discussed, though frequently presented as secondary to research. The reality is that the strength of our science depends on a diverse workforce that examines the world from varied viewpoints. As Audre Lorde puts it in her 1979 speech *The Master's Tools Will Never Dismantle the Master's House*, "difference must not merely be tolerated, but seen as a fund of necessary polarities between which our creativity can spark like a dialectic." Issues of diversity are not secondary and need to be tackled with vigor alongside other prominent task list items.

What does diversity mean in the context of an international society like ISBE? Do we focus on racial and ethnic diversity? Gender? Sexual orientation, economic, ability-based? What about diversity of countries represented or diversity in research topics? There are many options, each with their own sets of issues. Some of us were recently given a space to examine these issues together. At the ISBE 2018 meeting in Minneapolis, thirty-seven people participated in a lunch to informally discuss the diversity-related issues in our fields and the society. Within the group, twenty-eight universities and ten countries were represented, along with a broad distribution of faculty, graduate students, and postdocs.

While the discussion was mostly informal, we followed a few guiding questions: what are the most pressing diversity-related issues in our fields? What are some of the efforts made by ISBE, other societies, and our home institution to address these issues? Where can ISBE and academia overall improve on diversity-related issues? In an attempt to push these discussions forward to all members of the society and prompt broader discussion, we are submitting a summary of the main points of note:

• **Questions of accessibility in Academia & ISBE**

Financial accessibility: How accessible is an academic STEM career for people from different economic backgrounds? How accessible is an ISBE meeting?

Academia: A major point of discussion was about the morality of using volunteer help in the form of unpaid work or volunteers, which excludes many people from lower or middle class income backgrounds, many of who are from underrepresented racial groups as well. The practice also decreases expectations for good salaries and devalues the nature of the work itself. The same principle can be applied to the increasing prevalence of self-funded PhD's, in which those who have the means to pay their way through grad school are disproportionately more likely to get spots in graduate programs. Other barriers to financial accessibility in STEM include the strict barriers that some travel grants place on how money can be spent, such as not permitting payment toward expensive visas.

ISBE: Financially, the society is taking great steps in offering widespread travel grants to attendees from diverse countries. Many people at ISBE 2018 were able to attend because of these grants. How can we continue this momentum? We brainstormed a few ideas. Firstly, it could be helpful to publish short biographies and highlight the research of these grant recipients as a way of showing the diverse research programs in the society. It could also extend more travel grants to undergraduates or people in gap years, as these groups often do not get much in the way of funding support. Lastly, given the rapidly decreasing number of grants available through government sources, it also may be worth opening up ISBE research and outreach grants that people can directly apply to.

Need-based services and accommodations: What can we do to make academia more accessible for differently abled people, or those with particular needs? How are need-based services accommodated in both the Academy and ISBE?

Academia: Suggestions for need-based services included an emphasis on speaking and listening aids. Sign language is critically underused in many academic settings. Ways to emphasize its importance and increase ability-based accessibility include inviting more deaf speakers to give plenaries or talks. Tangentially, we discussed the need for more international guest speakers and the necessity of providing translators in these situations. Other need-based services include normalizing the need for mothers to pump breast milk or nurse during the work day. Providing a space for pumping or nursing in academic office settings and conferences is incredibly important.

ISBE: ISBE 2018 very helpfully provided childcare services so that more participants could attend. We discussed some other ways that need-based services could be addressed at meetings (in addition to all of the points above). Perhaps there could be designated signers at meetings that sign talks when audience members request it, and more ways in general for deaf members to participate in meetings. Additionally, since ISBE is an international society, volunteer translators could sign up to help with communication. Perhaps conference organizers should reach out to ESL (English as Second Language) speakers and ask if they need any services of the sort. Readily accessible information about these services should be available at the registration desk. Another need-based issue associated with being an international society includes providing access for people in countries banned from travel to the host country. Could we film talks and put them on the ISBE website? Doing so runs the risk of airing unpublished data, but there are ways to navigate around the issue.

● **Integrating discussions of diversity into our everyday proceedings**

Integrating multiple dimensions of knowledge within scientific programs

We discussed the importance of integrating the history of the science itself within talks and sessions and highlighting problematic narratives. In doing so, we can pick away at the myth that science is a wholly objective process. On this note, a plenary at every meeting that focuses on issues of equity and diversity (backed by social science studies and data) in the field could be a great way to make diversity a more prominent topic.

Recruiting diverse researchers into the Academy and ISBE

Workshops: Holding more workshops on informational topics such as how to recruit more diverse lab techs, undergraduates, and grad students could be a good takeaway for attendees. Attendees requested specific workshops for faculty members on diversity related topics as well. Publishing/sending out the resources provided during these workshops for people who could not attend would make the ideas more accessible. The strong, unambiguous promotion of workshops is key. This involves describing the objectives, necessary materials, and who is allowed to attend for total clarity and maximal attendance. Providing food at these lunches makes them far more accessible as well.

Mentor/mentee relationships: ISBE 2018 beneficially paired faculty and students in mentor/mentee lunches. A bigger emphasis on the importance of these connections, as well as written guidance by ISBE to the mentor on potential effective mentoring during these lunches can prompt easier networking opportunities for both students and faculty. An offshoot of this kind of event could be a signup for official mentor/mentee relationships that begin at a meeting and continue outside of them. We could even host formal events in a workshop setting to meet several potential mentors and mentees and find one that you might work best with. Other ways to foster mentor/mentee relationships could be competitions for poster and presentation prizes (such

as lightning talk challenges) so that early career researchers can connect with advanced career researchers for feedback and engagement.

Visible representation in ISBE: Visible representation is crucial to recruiting a more diverse generation of researchers. We need to push for diversity in ISBE invited speakers, panels, etc. From top to bottom, we need to see a wider representation of diversity in the positions of power. A tangential (but equally important) aspect to recruitment is outreach and engagement. It would be a great idea to engage a broad diversity of students in the general public with research by hosting accessible outreach events for the public during meetings.

● **Conduct and outcomes at ISBE meetings: do members feel safe in the society?**

We recommend a code of conduct in place for the actual society and its members, not just at meetings. A standing committee would exist to implement this code, and have actionable items on its agenda. Such a code would include concrete guidelines on what constitutes harassment and other misconduct, as well as real outcomes for these behaviors, and a clear reporting structure.

● **Concluding thoughts**

The points discussed here are all for the purpose of prompting further discussion and expanding the way that we think about diversity in academia and within ISBE. Overall, we need to think critically about how to broaden the participation of diverse researchers at all career stages. Doing so involves grappling with issues in our labs, our societies, our disciplines, and ourselves across the board. One way to prompt such introspection is to emphasize diversity and social skills training as part of a career in academia, part of which involves engaging in discussions such as these. There is still much work left to maximize our racial, ethnic, national, gender, sexual orientation, and ability-based diversity. We hope that some of these discussion points will prompt dialogue within the society and the home institutions of our members.

Mounica Kota
University of Minneapolis, USA

While ISBE presumably has always included members identifying as lesbian, gay, bisexual, transgender or queer (LGBTQ+), regular conference events of this community only started at the 2014 New York meeting with relaxing drinks and dinner by the water. The social drinks at Exeter (2016) were somewhat side-tracked by our search for a suitable pub - what better combination than a brisk walk followed by a pint and a yarn. During the ISBE meeting in Minneapolis in August 2018, LGBTQ+ members of the society met up for drinks at a nearby bar and held an informal lunch meeting in the city. These events, along with other social events, were announced by conference host, Marlene Zuk, at the start of the day.

We are very proud and appreciative to have had an LGBTQ plenary in Minneapolis with Karen Warkentin, and want to emphasize the significance of this. We would like to suggest that the society and future conference organizers expand the concept of diversity beyond binary gender diversity.



Karen Warkentin during her plenary

LGBTQ+ members contribute not only to the social diversity of the society, but also to diversity in STEM. Role models for LGBTQ+ students and early career researchers are important as is breaking stereotypes and clichés associated with this group (see also <https://www.500queerscientists.com/>).



LGBTQ+ @ ISBE

For the next conference meeting in Melbourne, in 2020, we want to continue the informal social get-togethers of LGBTQ+ behavioural ecologists, and Melbourne surely offers great venues for this. In addition, we would like to propose hosting a more formal meeting, including allies of LGBTQ+ identifying members to increase our visibility in ISBE and STEM in general, and to discuss issues and topics that are of interest to the society. For example, could Behavioural Ecology make useful contributions to understanding human sexual behaviour?

If you want to get in touch with the LGBTQ+ community of ISBE, would like to promote LGBTQ+ issues in behavioural ecology or if you are interested in contributing to the organization of the LGBTQ+ meeting during the 2020 conference, please do not hesitate to contact us!

Daniela C. Röbler
Marie E. Herberstein
David W. Stephens

Contact
E-Mail: roesslerdaniela@aol.com
marie.herberstein@mq.edu.au
dws@umn.edu
facebook group: LGBTQ+@ISBE

NEGOTIATION AND TRADING WORKSHOP

The Behavioral Ecology Division of the University of Bern is pleased to announce a 3-day workshop focusing on Negotiation and Trading in Animals. This workshop is part of the Doctoral Program in Ecology and Evolution (DPEE), which is subsidized by the Conference Universitaire de Suisse Occidentale (CUSO). The workshop is designed particularly for PhD students in evolutionary behavioural ecology.

When? August 2019 (3 days; exact dates T.B.A)

Where? Arolla in the high alps of Switzerland

Participants: 30

Language: English

Costs: To be determined

Contact: sacha.engelhardt@iee.unibe.ch

Background: Cooperation is widespread in animals, and often partners in cooperative interactions are not related (Taborsky et al., 2016). Recent theoretical and empirical evidence suggests that animals are frequently trading same or different commodities among one another (Hammerstein & Noë, 2016; Quinones et al., 2016; Gfrerer & Taborsky, 2018; Schweinfurth & Taborsky, 2018). This process typically involves some sort of negotiation, which may promote cooperation when individuals make behavioral decisions based on a recursive process of reciprocal observations (Ito et al., 2016). The evolution of trade-based cooperation cannot be fully explained by mutual benefits, since individuals can reject a particular trade if future returns are uncertain or if the benefits of trading with a different partner are better (Hammerstein & Noë, 2016). This 3-day workshop will search for optimal approaches towards unravelling the behavioral and evolutionary mechanisms underlying negotiation and trading among social partners. Eminent evolutionary and behavioral ecologists, theoreticians, anthropologists and psychologists will give keynote presentations and guide the discussions among students and other

workshop participants in order to develop a multidisciplinary framework for the study of negotiation and trading.

For updates on dates, invited speakers, registration details, and the workshop program see <http://behav.zoology.unibe.ch/index.php?p=56>

We hope to welcome you in Arolla, Switzerland!

Michael Taborsky and
Sacha Engelhardt

Literature

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AVAILABLE POSITION

The Department of Biology at Stephen F. Austin State University (SFA) invites applications for two tenure-track faculty positions at the Assistant Professor rank, beginning in Fall 2019. The focal areas for these hires are molecular biology and aquatic ecology - further details are provided below.

The following conditions are relevant to both positions: Candidates must have a strong commitment to excellence in teaching, and mentorship of student research. Preference will be given to individuals with postdoctoral appointments, experience mentoring students, and a record of grantsmanship and peer-reviewed publication. Salary is based on a 9-month contract, and commensurate with qualifications and experience. Participation in outreach and service is expected, including involvement with program assessment and appropriate student organizations. The individuals hired for either position must maintain a research program that involves undergraduate and M.S. students, and results in peer-reviewed publications. Applications must be received before 5 November 2018 in order to receive full consideration.

For the position in molecular biology:

At the time of hire, the successful applicant must have a Ph.D. in the biological sciences with experience in molecular genetics and genomics. The successful applicant will teach courses in introductory biology, cell biology, genetics, and molecular biology, and upper-/graduate-level courses in the applicant's area of expertise. The ability to teach a physiology course is desirable. Collaboration with faculty within and external to the department is encouraged; opportunities also exist to mentor M.S. students in the department's biotechnology program. Applications must be made through SFA's Human Resources website at the following URL: <http://careers.sfasu.edu/hr/postings/3507>

For the position in aquatic ecology:

At the time of hire, the successful applicant must have a Ph.D. in the biological sciences with an emphasis in field-based aquatic biology. The successful applicant will teach courses in introductory biology, general ecology, limnology/aquatic biology, and upper-/graduate-level courses in the applicant's area of expertise. Collaboration with faculty within and external to the department is encouraged. Applications must be made through SFA's Human Resources website at the following URL: <http://careers.sfasu.edu/hr/postings/3442>

SFA is a regional comprehensive university located in Nacogdoches, Texas, a growing city of ~33,000 people located in the Pineywoods region of the eastern portion of the state. The campus is within convenient driving distance to three national forests and three metropolitan areas. Facilities within the department include a greenhouse and herbarium, an animal care facility, and entomology and vertebrate collections. Equipment available to support research includes an electron microscope facility, a molecular core facility, and a fleet of trucks and boats.

Stephen F. Austin State University is an affirmative action/equal opportunity employer committed to diversity. SFA is committed to achieving excellence through cultural diversity. The university encourages applications and/or nominations of women, persons of color, veterans and persons with disabilities.

Last Date to Apply: Nov 5 2018

Stephen J. Mullin, Ph.D.
Stephen F. Austin State University
Nacogdoches, TX, USA
<http://mullinlab.weebly.com/>

AVAILABLE POSITION

Cornell University: Assistant Professor in Evolution of Behavior

The Department of Neurobiology and Behavior (NBB) invites applications for a tenure-track position as Assistant Professor of Behavior. We seek broad thinkers with a strong understanding of evolutionary biology who can show how their research helps answer major questions in animal behavior and why they are particularly suited to tackle these questions. We encourage candidates whose aim is to discover general principles of animal behavior that link to other areas of biology. The successful candidate is expected to establish a vigorous, externally funded, internationally recognized research program, and to teach at the graduate and undergraduate levels.

Apply:

<https://academicjobsonline.org/ajo/jobs/11444>.

Questions can be directed to Prof. Kerry Shaw, Search Committee Chair, NBB, Cornell University, Ithaca, NY 14853, jkh222@cornell.edu. Application deadline, including 3 letters of recommendation: 1 November 2018.

Diversity and Inclusion are parts of Cornell University's heritage. Cornell is an employer and educator recognized for valuing AA/EEO, Protected Veterans, and Individuals with Disabilities.

AVAILABLE POSITION

Position in Behavioral evolution or Ecology, University of California, Davis

The College of Biological Sciences, University of California, Davis invites applications and nominations for a tenure-track position in the Department of Evolution and Ecology at the ASSISTANT PROFESSOR level. Candidates must have a Ph.D. (or equivalent) in the biological sciences or related fields. We seek candidates with research interests that will complement and build upon existing faculty strengths in ecology and evolutionary biology; this may include but is not limited to the study of mechanisms of behavior, behavioral evolution using comparative methods, modelling, or the impacts of behavior on ecological processes. We welcome a broad spectrum of applicants, spanning diverse systems and approaches. We seek a colleague who is committed to participating in the departmental community through collaborative teaching, research, service and graduate mentoring and who will embrace UC Davis' Principles of Community. Letters of recommendation should specifically address this aspect of the application. The successful candidate will be expected to teach in undergraduate and graduate programs, and should be committed to mentoring and fostering diversity.

Applicants should submit materials online at <https://recruit.ucdavis.edu/apply/JPF02427> which

contains additional information about the position. The application should include: curriculum vitae, description of current and projected research, summary of teaching interests and experience, and three publications. Applicants should also provide contact information for three referees. Once entered, referees will be prompted by email with upload instructions for their letters.

Closing Date: November 5, 2018. Open until filled, but all application materials, including letters of recommendation, must be received by November 5, 2018 to assure full consideration.

Administrative contact: Korie Martinez
(kmartinez@ucdavis.edu).
Faculty contact: Gail Patricelli
(gpatricelli@ucdavis.edu).

The University of California is an affirmative action/equal opportunity employer committed to excellence through diversity and strongly encourages applications from all qualified applicants, including women and minorities. UC Davis is responsive to the needs of dual career couples, is dedicated to work-life balance through an array of family-friendly policies, and is the recipient of an NSF ADVANCE Award for gender equity.

AVAILABLE POSITION

EEB President's Postdoctoral Fellowship at the University of Minnesota.

The Department of Ecology, Evolution, and Behavior is seeking applications for a postdoctoral position supported by the University of Minnesota President's Postdoctoral Fellowship program. The President's Postdoctoral Fellowship, based on a highly successful program launched at the University of California, aims to attract outstanding scholars from groups historically underrepresented in higher education earlier in their careers. The program offers promising postdoctoral candidates a pathway to a faculty position while providing the community and mentoring needed to

support success. The successful candidate will complement the department's existing strengths in the areas of animal behavior and population biology (especially animal population biology). Preference will be given to candidates whose research integrates ecology, evolution and behavior.

Learn more here: <https://cbs.umn.edu/info/postdocs/postdoctoralfellowships>

Questions? Contact CBS Human Resources at cbsshr@umn.edu.

Application deadline: November 1, 2018

AVAILABLE POSITION

Field technicians needed for work on wild horse and burro ecology

The United States Geological Survey (USGS) and Colorado State University (CSU) are conducting scientific research to assist the BLM in management of free-roaming wild horses and burros on public lands. Research projects are led by Dr. Kate Schoenecker (USGS/CSU) and Dr. Sarah King (CSU). We are seeking field technicians to work on projects involving radio telemetry and behavioral observations of wild horses and burros in remote sites in the western United States. These positions provide a great opportunity to learn and polish wildlife monitoring techniques and assist with research on wild horses and burros. More information about our research projects can be found at:

www.fort.usgs.gov/wildhorsepopulations

Description:

Field work in 2019 is part of several five-year studies examining the demography and behavioral ecology of wild horses and burros in the American west. The successful applicants will use radio telemetry to locate wild horses or burros to determine demographic parameters, and/or conduct behavioral observations. Positions available will focus on behavior and demography of either wild horses or wild burros.

Due to the remote desert and mountain habitats of the Herd Management Areas where the animals are located, the field work is rigorous – it requires extensive hiking across rugged terrain, frequently off-trail on high slopes. Large amounts of time are also spent in work vehicles locating radio marked animals. Work may be conducted under variable weather conditions at elevations above 6,000 feet, with the potential for both extreme heat and temperatures below freezing (even within the same week). Independence and a tenacious work ethic are essential at all sites. Behavioral observations require a great deal of patience and ability to spend many hours watching animals simply graze or rest. The positions are located in remote field sites, necessitating excellent teamwork and flexibility, good communication skills, and a positive attitude. Basic housing is provided at the field sites. This consists of small shared trailers, some of which do not have constant electricity. There may be extended tent camping, which would require periods without access to electricity or running water. No internet service is available in the housing, and cell service is patchy in most locations.

We have openings for field technicians that can commit for the entire field season: mid-March through September 2019. We may also have availability for a position in Arizona starting in December. Please state your availability in your application, as well as your desire to work with wild horses versus wild burros if you have a preference. We are unlikely to accept applicants who would start after April.

Field technicians will be employed by Colorado State University. Fieldwork is conducted in 10 day field sessions (salary is \$14/hr, equating to \$1,120 per 10-

day field session). Each field session is followed by a 4 day break which allows time to explore the spectacular scenery near field sites or simply rest up thoroughly. Due to the nature of field work there may be long work days. These positions are not eligible for paid sick leave, paid vacation, or paid holidays. Field technicians are eligible for health insurance through CSU under the Affordable Care Act, with some options at no cost to the employee. We can only hire candidates with legal permission to work in the United States, unless currently registered as a student at a foreign university.

Duties and responsibilities (depending on position):

- Locating radio-collared or radio-tagged individual animals using radio telemetry.
- Collecting demographic data, recording data, and entering it in to a database.
- Collection of behavioral data using an ethogram, recording data, and entering it in to a database.
- Maintaining databases and proofing data that has been entered.
- Participation in related field research projects as needed (this may entail travelling to a different HMA).

Skills needed:

- Familiarity with use of GPS and/or map and compass.
- Maintaining and safeguarding personally assigned and project equipment.
- Assistance in routine maintenance of lodging.
- Ability to drive 4WD vehicles across varied and rugged terrain.
- Ability to complete necessary USGS safety courses and certifications once hired.
- Excellent communication skills required to maintain contact with remote supervisor during protracted fieldwork.

Minimum qualifications:

- One year of laboratory or field research, or any equivalent combination of experience, training and/or education.
- A state driver's license valid during period of employment (any US state).
- Ability to hike in backcountry covering 4-5 miles each day while carrying a 35lb pack.

Preferred qualifications (in addition to above):

- Bachelors degree in wildlife science, biology or related discipline.
- Experience with radio telemetry in field conditions.
- Experience with behavioral observations of mammals under natural conditions.
- Understanding of animal behavior and ecology.
- Experience driving 4WD vehicles in the back country.
- Ability to manage and maintain a computer database.

To apply send both a letter of interest and CV with contact information for two references to Sarah King at sarah.king@colostate.edu. Clearly state how your experience qualifies you for this position, and your availability. Deadline for receipt of applications is Nov 9, 2019.

Biological Invasions and Animal Behaviour

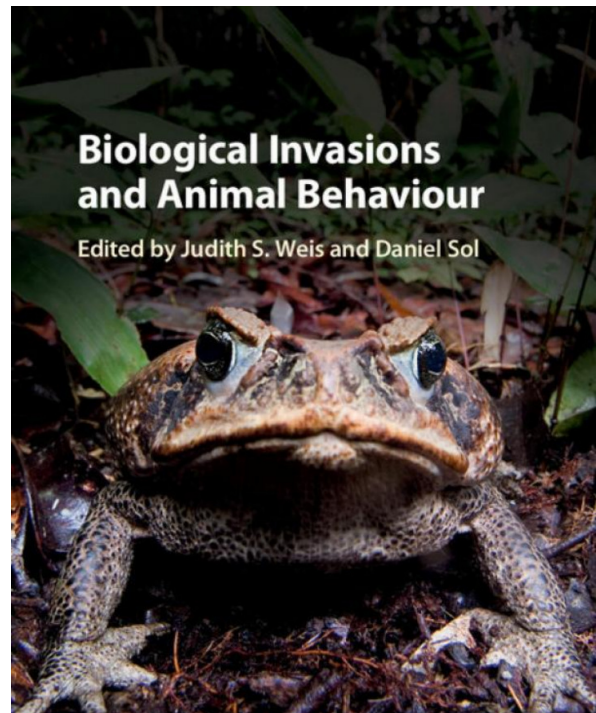
Edited by: Judith S. Weis & Daniel Sol

Cambridge University Press. 2016. 353 Pp. ISBN: 978-1107077775

Biological invasions are an important ecological and economic issue globally, their spread often occurring as a result of human activity and human-induced habitat change (Vitousek et al., 1997). Behaviour is the first line of response an animal has to the environmental conditions it faces, playing an essential role in determining the establishment and spread of a species into a new habitat (Holway et al., 1999). This book brings together basic and applied research into the role of behaviour in biological invasions, with the inclusion of detailed case-studies from a variety of study-systems.

The first part of the book deals with the role of behaviour in the invasion process, including the significance of behavioural variation at the individual and population level. The first chapter contains contemporary discussions regarding the role of inter-individual behavioural variation at different stages of invasion into new habitats, offering suggestions for research priorities and highlights the gaps in understanding of the role of behavioural variation at early stages of the invasion process. Subsequent chapters in this section explore the possible cognitive processes, cognitive abilities and hormonal mechanisms responsible for phenotypic and behaviourally flexible traits that possibly allow some species (or some individuals) to cope with novel and anthropogenically transformed environments. Chapters in this section provide strong arguments for the importance of incorporating behaviour into understanding animal invasions, with authors providing critical reviews of classical theories, whilst also offering solutions to extend these into contemporary ecology and animal behaviour to broaden our understanding of the role of behaviour at all stages of invasion. These six chapters highlight that there may not necessarily be a cognitive or behavioural 'rule of thumb' predicting whether a species will become a successful invader, with the final chapter emphasizing the need for greater inclusion of life-history into studies of cognition and behaviour of animal invasions in novel environments.

Part II focuses the role of behavioural interactions between native species and non-native invading species. Research in this area tends to consider competitive interactions between native and non-native species at the same tropic level, however the first chapter in this section addresses an area of pressing ecological and economical concern: the relationship between exotic plants and native pollinators. This chapter explains some of the initial benefits to foraging pollinators where exotic plants provide diversity of food resources, yet can lead to



significant costs where exotic plant species ultimately outcompete native flora, reducing diversity. The next chapters deal with novel host-parasite relationships, including brood parasitism and novel predator-prey relationships, all providing food for thought to the reader as to how biological invasions can provide opportunities for behavioural ecologists to test hypotheses regarding mechanisms involved in the co-evolution of these relationships.

The final section of the book offers case studies from a range of taxa, and although there are differences between species, these case studies all seem to support the current view that behavioural flexibility is a key feature of invasion success (Sol et al., 2002). Although this section does not include case-studies from mammal or reptiles, which at first seemed surprising given the high profile examples available, however the examples from studies of insects, birds and fish are equally important and fascinating. The section begins with a review of behaviours mediating the global spread of ant invasions. These case studies provide discussion of a range of human and environmental issues interacting with the dynamics of ant invasions, including dispersal from anthropogenic activities such as global trade and transportation, climate change and urbanisation.

The next chapter discusses a species of huge human health and economic impact: Mosquitoes - with particular reference to *Aedes aegypti*, a species providing a clear example of the role of behavioural flexibility and invasion success at different stages of the life cycle. The following chapter provides examples from Poecillids deliberately introduced as a means of mosquito control. Poecillids being a well-studied group, within evolutionary ecology, much is known about them. The authors highlight how this provides a wealth of opportunity to utilise 'natural experiments' to delve further into the role of behavioural characteristics in successful invasion under novel conditions. Following on this theme, the

next chapters give further examples from other aquatic systems, crayfish and Lionfish, with both providing examples of the significance of behavioural flexibility in the context of increased competition and responses to novel predation regimes. The final chapter in this section highlights the key role of human activity in the spread and introduction of invasive species, with particular reference to trade in exotic birds. Here the authors provide discussion of the differences in behaviour between wild caught and captive bred birds, and how this contributes to differences in cognitive and behavioural flexibility in response to novel and human-dominated habitats.

Overall this book provides a thorough review of animal behaviour at all stages of biological invasion, providing the reader with case-studies, and offers exciting avenues for research in evolutionary biology and behavioural ecology. Furthermore, it provides applied insights valuable to wildlife management and conservation issues. A great read for students

interested in the ecology and behaviour of invasive species.

Kristin Thompson
Center for Ecology and Conservation
University of Exeter, U.K.

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BOOK REVIEW

Nests, eggs, & incubation: New ideas about avian reproduction

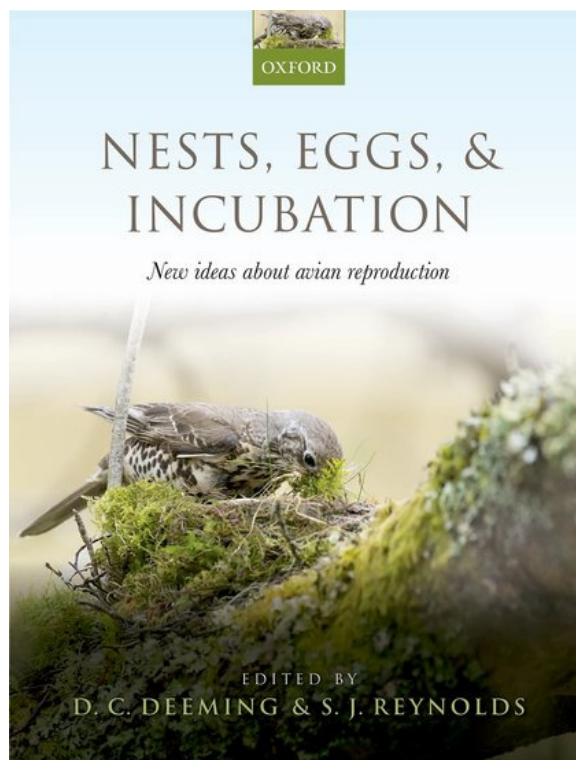
Edited by D. Charles Deeming and S. James Reynolds

Oxford University Press

Executive summary: Target audience is narrow, but said audience will find useful information and have a reference to consult.

This book will appeal almost exclusively to ornithologists. Even within their ranks, most will find this book fairly specialized. However, there is content that should provoke some thought, and many would profit from in depth reading of some chapters, as I certainly did. As a reference, the book does provide plenty of useful information one might like in one place. There are 60 pages of references (i.e., > 2000; even this leaves out a few that I was surprised to find absent), half of them published after 2002. The editors indicate that this volume is to be considered more than just an update of Deeming (2002) (a book I have not read) but rather should be viewed as explorations of newer ideas.

Uneven content is to be expected in a compendium of edited chapters; I think this book challenged me more than most because of the unevenness, not so much because of quality but because of the breadth of approaches and topics. The 18 contributions range from shopping list reviews (where at times the writing left me wondering if examples were being hand-picked versus being representative) to new hypotheses to new tests of data sets. At times, I found coverage of the content of some references was superficial and necessitated tracking down the source. Another complaint is that some information



is repeated in multiple chapters. None of this should be a strong disincentive to reading the book.

Chapter 1 by Reynolds and Deeming partially sets the stage for the rest of the book; it intends to elevate focal topics to hypothesis-testing. They also argue that concerns about negative effects of disturbing nesting birds are overstated. It also notes the explosion of literature in recent decades. Here and elsewhere, Hansell's (2000) (a book I have read) detailed comparative work on nest architecture is regularly cited; Reynolds and Deeming note that nest descriptions are still lacking for many species. The next chapter by Deeming considers the very

paltry fossil record available to chart evolutionary paths to above-ground nesting and contact incubation, rather novel adaptations of birds. There is a useful table of fossil discoveries since 2002, and evaluation of evidence for evolution of incubation-sharing strategies; the lack of sufficient data is repeatedly highlighted. Healy, Morgan, and Bailey next emphasize environmental influences on nesting behavior, pointing out that the paradigm has favored instinct as the sole contributor to nest construction. They credit Alfred Russell Wallace for being anti-paradigm in 1867, and then review evidence for birds learning aspects of nest-building. While I welcomed the review of the environmental influences on nesting behavior, I was left wondering what percent of nesting behavior would be ascribed to environmental vs. genetic influences. I am not convinced that the emphasis should not remain on instinct as the major contributor. The chapter closes with a fascinating assessment of relationships between nests and brains; I anticipate further interesting discoveries in this area.

In Chapter 4, Deeming and Mainwaring cover functional properties of nests; some of this information necessarily overlaps with Hansell (2000) but there are also novel elements. For example, they provide a table of structural contents of various bird species' nests and discuss thermal properties of nests and methods of evaluating them. They review literature on investments in collecting materials with insulatory properties, and determine that despite patterns, there is limited evidence that this effort has significant effects on nest success. Next, Mainwaring, Reynolds, and Weidinger explore the influence of predation on the location and design of nests. Topics include nest orientation, substrate, accessibility, and concealment, and tradeoffs among these options. There is much diversity among species in strategies pursued, and they review conflicting evidence within species for costs and benefits of decisions. One topic I found interesting was how parents could compensate behaviorally for poor nesting habitat decisions. The topic of olfactory concealment (Conover 2007) is mentioned; this is an area where I expect significant research investment in the near future given that many avian nest predators are reptiles and mammals that may make limited use of vision.

Chapter 6 by Mainwaring is about how climate change may affect nesting. Although warmer temperatures may be the first thought one has, he points out that flooding will likely be the most serious direct threat. He also discusses how temperature variation can lead to sex-biased offspring production in brush turkeys (also called moundbuilders and megapodes) as a result of differential survival. Not surprisingly, Mainwaring points out that effects of climate change will be complex and operate on entire communities, which obviously makes predictions difficult. Layered on this is the degree of behavioral plasticity by which birds may be able to compensate. West, Cassey, and Thomas provide an intriguing review of nest and egg microbiology, and anti-microbial adaptations of birds to prevent embryos and young from succumbing to disease. The microbiome of nests is complex and has

antagonistic, commensal, and mutualistic interactions; gram+ bacteria predominate because they are more tolerant to desiccation. Avian adaptations to microbes include maintaining optimal humidity, adding aromatic plants with anti-microbial properties to nests, and at the molecular level producing anti-microbial substances in egg shells and uropygial secretions. Chapter 8 by López-Rull and Macías Garcia follows in a similar vein, but is about invertebrate symbionts in nests. These organisms have been the subject of lots of ecological scrutiny in recent years. One early section details the ideal environment a nest provides for inverts, including temperature and a rain of nutrients. Much of the chapter is a review of the various taxa found in nests, with concluding sections on bird defenses against them.

The next chapter by Birchard and Deeming is perhaps the densest; it stands out as being in the style of a data-rich journal article rather than a review, using data from 234 species in 19 orders. The chapter analyzes egg allometry in the context of the altricial-precocial continuum using rigorous comparative analyses. It is full of significant associations that could probably be mined even further.

Chapter 10 by (T.D.) Williams and Groothuis covers carryover effects from egg production to fledging and speculates beyond. Can embryos and young recover if their female parents short change them on yolk, or testosterone, etc., and is there an optimal combination of egg components that varies with, for example, egg sequence? Can embryos decouple effects of different egg components, such as immunoglobulins and lysozyme? Although short term physiological effects have attracted some attention, consequences to long term survival and reproductive success are poorly understood. In a review of egg signaling, Brulez, Pike, and Reynolds consider various sensory modalities. Sound is perhaps the best studied, but visual and olfactory communication have attracted interest in recent years. There are several, not mutually exclusive, hypotheses for egg coloration (aposematism was not a hypothesis considered here; it probably could only apply to a very small number of species). The evidence is equivocal that egg color says anything about female quality, although there have not been very many studies of the topic.

The 12th chapter by Marasco and Spencer covers incubation behavior, including external and internal abiotic and biotic influences. A nice schematic of the way each of these interact is presented that crystallizes the organization of the chapter. The authors conclude with a few topics needing attention, including effects that partners may have on each other's incubation behavior, and endocrine influences other than steroids. Nord and (J.B.) Williams update the literature on costs of incubation; a well-respected pioneer in this field in the 1970s convinced many ornithologist that these costs were trivial. More recent experimental evidence suggests that costs of incubation can be as much a chick-rearing. The current authors emphasize latitude, body mass, and clutch size as important elements in these costs, and

provide a useful tabular summary of the recent literature.

Chapter 14 by Hepp, DuRant, and Hopkins reviews studies showing narrow tolerance of embryos to variation in incubation temperature, and subsequent effects on phenotype, including metabolism, growth, and immune function. Effects range in duration, but there has been limited study of whether this translates into survival costs. Smith, Cooper, and Reynolds follow the previous two chapters summarizing technological developments for studying incubation. Each technology has its advantages and disadvantages; variables include cost, mass, effects on parents, and in general the quality of data obtained. I have had nothing but grief with trail cameras for tree swallows, and iButtons® for Leach's storm-petrels; this review would be instructive if one is deciding on approaches.

The 16th chapter by Deeming and Jarrett is about incubation science and conservation. This and the next chapter did not fit easily into the flow of the book, but were nonetheless interesting reads once one's brain got past the whiplash. The start of the chapter challenges conventional wisdom about different species of birds having identical incubation requirements; if one is forced to artificially incubate eggs of an endangered species, one should probably become familiar with data presented here. The end of the chapter describes a case study of efforts to save Madagascar pochards and how tailoring information about incubation likely improved hatching success. The next chapter by Cooper, Bailey, and Leach is about citizen participation in studies of avian incubation, which one may initially believe somewhat tenuous. However, the authors

convincingly cite examples of how amateurs have made important contributions to the field, particularly via nest record schemes that have provided extremely important data on phenology, re-nesting, and so on.

A short final Chapter 18 by Deeming and Reynolds provides a schema of important factors that underpin nests and eggs and their outcomes, broadly falling under the categories climate, ecology, adult physiology, nest construction, parental incubation behavior, genes, egg quality, and embryo quality.

There were a few places where one could be confused by the way information was presented; for example, sometimes figure captions required multiple reads to understand. I am also not a fan of the word "utilize", but this is just nitpicking. Overall, this book will be handy to have on the shelf if any of the preceding topics interests you.

Dave Shutler
Department of Biology
Acadia University, Nova Scotia, Canada

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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 Feb 28, 2019.

Available from Oxford University Press

Book title

Animal Physiology: an environmental perspective (2018)
Anthrozoology: human-animal interactions in domesticated and wild animals (2018)
Avoiding attack: The evolutionary ecology of crypsis, aposematism, and mimicry (2018)
Sexual Selection: A Very Short Introduction (2018)
Insect Behavior: From Mechanisms to Ecological and Evolutionary Conseq. (2018)
Animal Locomotion, Second Edition (2018)
The Spaces Between Us: A Story of Neuroscience, Evolution, and Human Nature
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