

ISBE Newsletter

International Society for Behavioral Ecology

www.behavecol.com

Supplement to *Behavioral Ecology*

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FROM THE NEWSLETTER EDITOR

Spring is again upon the Northern Hemisphere and busy times await all of us that work on reproductive behaviours. Really, who *did* decide that the university year should end exactly when birds and beasts go bananas outside?

I would like to thank all who have contributed to this Newsletter, especially those reviewing books.

Remember to sign up for the ISBE congress in Exeter! I hope to see you there, and don't hesitate to approach me regarding contributions to the the Newsletter, or feedback on its content.

P. Andreas Svensson,
ISBE Newsletter editor
Linnaeus University, Kalmar, Sweden
andreas.svensson@lnu.se

WANTED: Reviewers of the ISBE Congress

The next issue of the Newsletter needs a review of this summer's big event in Exeter.

Young scientists are encouraged to volunteer for this task. If interested, email the newsletter editor!

For inspiration, see Vol 22:2, 24:2 and 26:2
in the newsletter archive:
www.behavecol.com/pages/society/news/previous.html

How to contribute to the Newsletter

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

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

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

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

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

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BEHAVIORAL ECOLOGY E-MAIL ALERTS

Don't miss the latest news from your journal!

Exciting things are happening with ISBE's official journal, Behavioral Ecology. From new articles to Editor's Choice articles, to virtual issues; make sure you don't miss out. Sign up to receive email *Table of Contents* and *Advance Access* alerts today, and remember to tick to receive news and offers from Oxford University Press to hear about virtual issues and article collections.

Sign up now:
www.oxfordjournals.org/en/connect/email-alerts.html



ISBE CONGRESS 2016 IN EXETER

The 16th International Society for Behavioural Ecology Congress will be held in Exeter, UK, 28 July - 3 August.

Registration for ISBE 2016 is open. You can register at the website www.isbe2016.com

- Go to www.isbe2016.com to submit an abstract for a poster or oral presentation.
- Note! Deadline for consideration as an oral presentation is 31st March.
- Standard registration remains open until early June with discounts of over 30% still available for students and delegates from developing world countries.

ISBE 2016 kicks off on July 28th with an Opening Ceremony headlined by Richard Dawkins, and we have an exciting line-up of plenary speakers: Naomi Pierce (ISBE Hamilton Lecture), Rosemary Grant, Malte Andersson, Dorothy Cheney, Tim Clutton-Brock, Hopi Hoekstra, and Trevor Price.

We hope to welcome as many of you to Exeter as possible.

All the best,
The ISBE 2016 organizing committee

ISBE PHOTO COMPETITION

Enter your best photos to the ISBE photo competition!

The 2016 photographic competition is now open. Please send your photos to isbephotocomp@gmail.com by June 1st 2016. The winner and runners up will be announced in the ISBE Newsletter.

Prizes will include book prizes from Oxford University Press for winning entries for each of the three categories. The winning photographs will be published on the ISBE website (www.behavecol.com).

Categories

Behavior and interactions:

Photos should depict aspects of behavior or behavioral interactions between organisms.

Behavioral Ecology in action:

Photos should relate to conducting research in behavioral ecology and could include field work or experiments.

Student Prize:

This category is only open to current (2016) student members of ISBE. Photos should depict any aspect of behavior and behavioral ecology.

Competition rules

- The competition is open to current (2016) ISBE members only
- Applicants can only submit one photograph per category and the same photo can not be submitted for more than one category
- All photos must be accompanied by an entry form available from www.behavecol.com that describes the species name and a description of the scene.
- Entries must be digital images saved in TIFF, JPEG or RAW file.
- Digital enhancements must be kept to a minimum and must be declared. Both the original and the enhanced image must be submitted.
- All submitted files must include the entrant's surname in the file name.
- A panel of judges appointed by the ISBE executive will judge the entries and their decision is final. Winning entries will be announced in the ISBE Newsletter and displayed on the ISBE website. Winners will be notified by email.
- It is a condition of entry that all submissions are entered under a Creative Commons License (creativecommons.org/licenses/by-sa/3.0/deed.en_GB), will be displayed on the ISBE website and may be used for non-commercial purposes.
- The ISBE does not accept any responsibility should an entry be lost, damaged or the submission be delayed. Only electronic submissions will be accepted.
- The closing date for entries is 1st of June 2016.



Photo: Ricardo San Martin

PUBLISHER'S REPORT

Here follows some highlights from the Behavioral Ecology Publisher's report for 2015

Ian Sherman is the Oxford University Press publishing editor with overall responsibility for the journal, assisted by Bethany Kershaw. It has been a quieter, post-anniversary year with the various initiatives introduced by Leigh during his initial term as EiC now running smoothly. As predicted, submission rates have increased (from 45-50 papers per month in 2013 to 55-60 papers per month in 2015) as the journal becomes increasingly perceived as a more attractive place to publish. The number of original research papers published has remained steady (164 in 2015, compared with 160 in 2014, and 158 in 2013) but only because we have retained papers on Advance Access so as not to exceed the agreed printed page budget. A significant backlog is now building up and the journal will inevitably grow further in the short term, but need to further increase its selectivity in the longer term.

Looking ahead, we should endeavour to maintain our "Top 10" status in the ISI Zoology category ranking and "Top 20" status in the ISI Behavioral Sciences ranking, whilst maintaining the current balance between submissions, acceptance/rejection rates, and agreed page budget, all set within the context of ISBE policy.



OXFORD
UNIVERSITY PRESS

**Top Cited Articles
(2012-13 papers with the most citations in 2014, i.e. contributing to the impact factor)**

First Author	Title	Year	Vol	Iss	Citations in 2014	Total Citations
Simmons, Leigh W.	Resource allocation trade-off between sperm quality and immunity in the field cricket, <i>Teleogryllus oceanicus</i>	2012	23	1	13	24
Dochtermann, Ned A.	Behavioral syndromes as evolutionary constraints	2013	24	4	12	29
Pinter-Wollman, Noa	Nest site and weather affect the personality of harvester ant colonies	2012	23	5	12	23
Ban, Miklos	Simultaneous viewing of own and parasitic eggs is not required for egg rejection by a cuckoo host	2013	24	4	12	21
Fawcett, Tim W.	Exposing the behavioral gambit: the evolution of learning and decision rules	2013	24	1	10	44
Barnett, Craig A.	Educated predators make strategic decisions to eat defended prey according to their toxin content	2012	23	2	10	21
McCullough, Erin L.	Costs of elaborate weapons in a rhinoceros beetle: how difficult is it to fly with a big horn?	2012	23	5	10	18
Atwell, Jonathan W.	Boldness behavior and stress physiology in a novel urban environment suggest rapid correlated evolutionary adaptation	2012	23	5	9	37
Munoz, Nicole E.	Multisensory perception in uncertain environments	2012	23	3	9	26
Montague, Mary J.	Phenotypic plasticity affects the response of a sexually selected trait to anthropogenic noise	2013	24	2	9	15

Introducing DRYAD

The Dryad Digital Repository is a curated resource that makes the data underlying scientific publications discoverable, freely reusable, and citable. OUP is a charter member of Dryad and consequently eligible for reduced subscription fees. Payment plan advice and likely costs were obtained during 2015 and the Society decided to proceed with full integration with effect from January 2016. Leigh's Editorial describes the journal's new mandatory data deposition policy and further practical details are available in the Instructions to Authors. OUP and ISBE have invested in a 3-year subscription to Dryad which allows unlimited data deposition at no cost to authors. With 225 research articles being published per year, our

expectation is that data deposition will increase from the current 5-10% level to nearer 80%. The journal recognizes that in some cases authors may need to embargo public release of data for a period following publication. Behavioral Ecology will respect a 12 month embargo on publically archived data should it be required, and on consultation with the Editor-in-Chief will consider periods of embargo longer than 12 months provided that a fully detailed and justified data release plan is reported under the Data Accessibility section. We also recognise that some qualitative details may be highly sensitive, such as the locality of IUCN Red Listed species, and will not mandate the release of such information.

Top 10 Most Accessed Articles in 2015

First Author	Article	Year	Vol	Iss	Article Type	Downloads
G. D. Ruxton	The unequal variance t-test is an underused alternative to Student's t-test and the Mann-Whitney U test	2006	17	4	Forum	12,143
S. Kuukasjärvi	Attractiveness of women's body odors over the menstrual cycle: the role of oral contraceptives and receiver sex	2004	15	4	Article	9,256
J.-G. J. Godin	Predator preference for brightly colored males in the guppy: a viability cost for a sexually selected trait	2003	14	2	Article	6,401
B. J. Dixson	Beards augment perceptions of men's age, social status, and aggressiveness, but not attractiveness	2012	23	3	Article	5,185
S. Nakagawa	A farewell to Bonferroni: the problems of low statistical power and publication bias	2004	15	6	Forum	4,433
M. J. Rantala	Preference for human male body hair changes across the menstrual cycle and menopause	2010	21	2	Article	3,738
R. Thornhill	Major histocompatibility complex genes, symmetry, and body scent attractiveness in men and women	2003	14	5	Article	3,271
G. D. Ruxton	Time for some a priori thinking about post hoc testing	2008	19	3	Forum	2,784
P. Weeks	Red-billed oxpeckers: vampires or tickbirds?	2000	11	2	Article	2,606
K. Woodward	The parental investment model and minimum mate choice criteria in humans	2005	16	1	Article	2,567

FIELD HERPETOLOGY WORKSHOP

The Southwestern Research Station (SWRS) is pleased to offer our annual workshop focusing on field herpetology, called "Field Herpetology of the Southwest". This 9-day course will introduce participants to an outstanding diversity of amphibians and reptiles of Arizona's Chiricahua Mountains and surrounding deserts. Labs and lectures will focus on identification and ecology of herps. The majority of time will be spent in the field, hiking through low and high elevation habitat.

Where and When:
Southwestern Research Station (SWRS), Portal, Arizona, 22 July to 31 July 2016.

Participants:
The course is designed for students, conservation biologists, and other individuals who have some background in biology at the college level. It will emphasize taxonomy, ecology, and field identification of reptiles and amphibians of southeastern Arizona and parts of southwestern New Mexico. The course will include lectures, field trips, and lab exercises. Collection of specimens during the course will be limited to instructors; no private collecting permitted.

Fees:
Tuition for the 9 night COURSE is \$1170 to be paid by all participants on being informed of their acceptance.

Tuition covers fees for the course, and room and board at SWRS. The fee is payable to SWRS by credit card, certified check, or money order. Transportation costs between home and Tucson (air) or SWRS (auto) are to be borne by all participants; once the course is underway, most transportation is provided. As participants register, we will obtain email addresses and send them out to all participants so that they can arrange carpooling to and from the station.

How to Apply:
The application form is available on the course web site:
<http://www.amnh.org/our-research/southwestern-research-station/education/field-herpetology-of-the-southwest>

For logistics or information about the SWRS you can contact:

Attn: Administrative Assistant
Southwestern Research Station
P.O. Box 16553
Portal, Arizona 85632
swrs@amnh.org; 520-558-2396

Deadline for applications: 22 May 2016
If accepted into the course, fees are due by 22 June



PHD POSITION AVAILABLE

Host-Symbiont Evolution and *de novo* speciation at the Medical University of Vienna

A PhD position funded by the Austrian Science Fund (FWF) is available to study the impact of the endosymbiotic bacteria *Wolbachia* on physiology, sexual behavior and *de novo* speciation of the model system *Drosophila*.

This intracellular bacterium is well known as the prime reproductive parasite of insects by causing cytoplasmic incompatibilities, feminization, parthenogenesis or male killing, but depending on their evolutionary stage, it also can provide adaptive fitness benefits to insect hosts, such as nutritional provisioning or pathogen protection. We recently found that in some *Drosophila* species *Wolbachia* specifically colonize defined host brain regions that orchestrate sexual behavior of male and female flies. Furthermore we found that even slight perturbations of this intimate host-symbiont homeostasis can foster *de novo* speciation of *Drosophila* in the wild plus under experimental conditions in our laboratory.

In this newly started FWF research project we aim to decipher the temporal and functional dynamics of this *Wolbachia-Drosophila* symbiosis in two different

Drosophila systems, which are currently under speciation in the Neotropics.

The successful candidate will be embedded in the highly multidisciplinary and collaborative environments at the Department of Cell and Developmental Biology of the Medical University of Vienna.

Applicants should hold a master's degree in biology, genetics, microbiology, or a related discipline. We are looking for enthusiastic scientists with proficient communication skills, who are good team players.

Previous experiences with DNA & RNA techniques, sequence analyses, fly work, FISH assays, immunocytochemistry and/or microscopy techniques are advantageous.

Please send applications (including CV, a letter of intent and contact information of at least two referees) to the address below. Informal enquiries are welcome.

Contact: Wolfgang Miller, Lab Genome dynamics, Center of Anatomy and Cell Biology, University of Vienna, Austria
E-Mail: wolfgang.miller@meduniwien.ac.at
Website: <http://www.meduniwien.ac.at/celldev/miller/>

ANIMAL BEHAVIOUR INTERNSHIP WANTED

I am looking for an internship of at least 3-4 months in animal behaviour, starting around March-April 2017. I am a French student in my first year of Master in Animal and Human Behaviour (in France, MSc takes two years). My University offered me the opportunity to have a gap year between my first and second year of master to get experience through an internship or working in the field of my studies - ethology - for a few months.

Education: Currently 1st year of Master in Animal and Human Behaviour, University of Rennes 1, France. Bachelor's Degree in Biology of organisms 2015 from University of Rennes 1, France.

Sincerely, Maëva Manet

For full CV, contact Maëva Manet +33 (0)6 66 53 93 80, 6E cour de la Ballangère . 17440 Aytré, France
maeva.manet@etudiant.univ-rennes1.fr

WEBSITE COMPILING POST-DOC POSITIONS

Are you an early career researcher (ECR) or are you supervising ECRs?

Do you find it hard to know which fellowships are available in specific countries or fields?

Here is a website compiling postdoc fellowships in biology available across the world:
<http://biologypostdocs.weebly.com/>

This initiative started from an ECR meeting at the Australian National University and hopefully will be of great help to many ECRs.

If you notice missing postdoc fellowships, feel free to contact us.

Thomas Merkling, The Australian National University

SUMMER SCHOOL - MONITORING HORMONES

Summer School: Non-invasive Monitoring of Hormones

The course is suitable to colleagues/students who are not familiar with non-invasive techniques and will allow participants to gain practical experience in techniques of non-invasive endocrine monitoring including sample workup preparation, performance of enzyme immunoassays (EIA), data collection and interpretation.

When: Sunday 23 October - Friday 28 October 2016
Where: Endocrine Research Laboratory, University of Pretoria, South Africa. The course language is English.

Course lecturers:

- Prof. A. Ganswindt, Endocrine Research Laboratory, University of Pretoria, South Africa
- Dr. M. Dehnhard, Institute for Zoo and Wildlife Research, Berlin, Germany
- Prof. C. Touma, Department of Behavioural Biology, University of Osnabrück, Germany

Course registration fee is 450 Euro per person. The course is limited to 14 participants. The registration fee covers expenses for all instructions, laboratory supplies, use of equipment, lab manuals, meals and accommodation for 5 nights. Vacancies will be filled on a "first come, first serve" basis.

Deadline for pre-registration: 31 May 2016. A minimum of 9 persons is required for conducting the summer school. Work, learn, take lunch and live on the University campus. Relax and enjoy the warm early summer sun during the breaks.

Contact

Prof. A. Ganswindt
Endocrine Research Laboratory, Department of Anatomy and Physiology, Faculty of Veterinary Science University of Pretoria, South Africa
Phone: +27 12 529 8429
Cell: +27 78 312 9872
Email: Andre.Ganswindt@up.ac.za
http://www.up.ac.za/en/anatomy-physiology/news/post_2224391-9th-summer-school-non-invasive-monitoring-of-hormones

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E-mail: dehnhard@izw-berlin.de
Web: www.izw-berlin.de
<http://www.izw-berlin.de/summer-school-717.html>

WORKSHOP ANNOUNCEMENT

Conflict, Competition, Cooperation & Complexity: Using Evolutionary Game Theory to model realistic populations

June 28-July 1, 2016, Prague, Czech Republic

This is the first workshop of the European Union's Horizon 2020 research and innovation programme Four-C-modelling (No 690817) under the Marie Skłodowska-Curie grant agreement. The workshop will consist of talks, discussion, and break out sessions that focus on the following aspects of evolutionary game theory:

1. Multiplayer games in structured populations,
2. Complex foraging games and time constraints,
3. Modeling pandemics as complex systems,
4. Modeling cancer as a complex adaptive system.

This event is open to researchers whose areas of expertise complement these themes. A limited number

of positions is reserved for PhD students and junior researchers working/interested in evolutionary game theory and their applications within the scope of this project.

The workshop fee is 350 Euro and the reduced fee is 150 Euros (meals are included). Partial funding from the RISE project has been secured for travel awards for junior researchers/PhD students.

If you want to be a part of this exciting event, send a short motivation e-mail (indicating whether you want to present a talk/poster) to Prof. Mark Broom at mark.Broom.1@city.ac.uk not later than April 30, 2016. Selected candidates will be notified shortly after.

Website:
<http://www.city.ac.uk/department-mathematics/mathematical-biology/FourC-Modelling>

SUMMER SCHOOL ON STABLE ISOTOPES

International Summer School on Stable Isotopes in Animal Ecology

For graduate or postgraduate students interested in learning techniques related to the analysis and interpretation of stable isotope ratios in the study of animal ecology.

Students will be involved in all aspects of sample preparation and analysis as well as data interpretation. Used instruments include conventional gas mass spectrometers (Thermo) and laser spectrometers (LGS, Picarro)

Organising Institution: Centre for Stable Isotope Ecology in Berlin-Brandenburg

When: 12-16 September 2016

Where: Leibniz Institute for Zoo and Wildlife Research (IZW), Germany (www.izwberlin.de)

Costs: 350€ per participant (includes consumables in laboratory, BBQ, coffee breaks)

Content:

- Stable nitrogen and carbon isotope ratios as markers for animal diets and trophic positions
- Analyses of stable hydrogen isotope ratios for the study of animal migration (includes application of isoscape origin models)
- Use of labeled compounds in eco-physiological studies
- Use of multiple isotopes in the study of food webs and trophic interactions
- Use of stable isotope approaches in paleo climate reconstructions

Instructors and lecturers:

- Stuart Bearhop (U of Exeter): Stable isotope ecology of seabirds
- Alexandre Courtiol (IZW): Statistics for stable isotope data (e.g. Bayesian models)
- Keith Hobson (U of Western Ontario): Stable isotopes in animal ecology
- Stephanie Kramer-Schadt (IZW): Isoscape origin models
- Ulrich Struck (Natural History Museum Berlin): stable isotopes and paleoecology
- Christian Voigt (IZW): Ecophysiology of mammals
- Len Wassenaar (IAEA, Vienna): Global patterns of stable hydrogen isotope ratios
- Roland Werner (ETH, Zurich): Stable isotope ratios in plants
- Elizabeth Yohannes (U of Konstanz): Stable isotopes in limnology

Registration: Deadline: 1. June 2016; The course is limited to 16 students.

Applications should include a CV, a statement of interest and 2 reference addresses (not letters). Please send applications or inquiries to Dr. Christian Voigt at voigt@izw-berlin.de



**Leibniz Institute for Zoo
and Wildlife Research**

IN THE FORSCHUNGSVERBUND BERLIN E.V.

SPOTLIGHT ON A YOUNG SCIENTIST

Name: Jessica Rendle

Education: BSc (Hons) Veterinary Health (2004) University of Northampton, UK. MSc Animal Welfare (2013) University of Northampton, UK. PhD Candidate (2014-2017) Murdoch University, Australia.

Current address: Conservation Medicine Program, College of Veterinary Medicine, School of Veterinary and Life Sciences, Murdoch University, Murdoch, WA 6150, Australia. Tel: +61 (0) 8 9360 6718; Mob: +61 (0) 449 838710; Email: J.Rendle@murdoch.edu.au

Research interests: Effects of captivity on the health and behaviour of macropods. Inter- and intra-species interactions in zoo housed animals. Behavioural response to captive stressors. Enclosure use in zoo animals. Behavioural and physiological responses to enrichment in production animals. Maternal and post-natal behaviour in dairy cows.

Selected papers:

- Rendle, J., Ward, S. and McCormick, W. Behaviour and welfare in single and mixed-species groups of parma wallabies (*Macropus parma*). Manuscript in preparation.
- Rendle, J., B. Jackson, K. Warren, S. Ward (2015) Captive management and husbandry practices: influence on macropod health and behaviour. 34th International Ethological Conference, Cairns Convention Centre, Cairns. 9th-14th August 2015
- Rendle, J. and McCormick, W. (2014) Behaviour and enclosure use of captive parma wallabies (*Macropus parma*): An assessment of compatibility within a mixed-species enclosure. Australian Mammal Society Conference, Melbourne Zoo, Melbourne. 7th-10th July 2014
- Rendle, J. (2013) Behaviour and enclosure use of captive parma wallabies (*Macropus parma*): An assessment of compatibility within a mixed-species enclosure. MSc Thesis, University of Northampton, supervised by Dr Wanda McCormick.

ASAB Easter Conference 2016

Mar 30 - Apr 1, 2016, Aberystwyth University, UK.
www.asab.org/conferences/

International Congress of Neuroethology

Montevideo, Uruguay March 30 – April 3, 2016.
<http://www.icn2016.uv/>

The European Human Behaviour and Evolution Association (EHBEA) conference. 5-8 April 2016 in London, UK. <http://ehbea.com/>

EMBO|EMBL New Model Systems for Linking Evolution and Ecology Symposium. Date: 8–11 May 2016. Heidelberg, Germany. <http://www.embo-embl-symposia.org/symposia/2016/EES16-03/>

Ecological and Evolutionary Ethology of Fishes, (EEEE) Meeting. June 14-16, 2016 Florida State University (FSU), Tallahassee, Florida, USA
<http://www.marinelab.fsu.edu/eeef/>

Evolution 2016. A joint conference of the American Society of Naturalists, the Society for the Study of Evolution, and the Society of Systematic Biologists. June 17-21, 2016 in Austin, Texas, USA.
<http://www.evolutionmeetings.org/evolution-2016---austin-texas.html>

Ecology and Behaviour The 12th meeting (for PhDs and Postdocs), in Lyon from the 27 June - 1 July 2016. <http://eb2016.sciencesconf.org/>

Human Behavior and Evolution Society conference. June 29 – July 2, 2016, Vancouver, Canada. www.hbes.com/hbes2016/

Society for Molecular Biology and Evolution meeting Gold Coast, Queensland, Australia July 3-6. <http://smbe2016.org/>

Arachnology meeting. Joint meeting of the International Society of Arachnology and the American Arachnological Society. July 2-9, 2016. Golden, Colorado.
<http://arachnology.org/20th-ica-2016.html>

The Society of Experimental Biology Annual Meeting. Brighton, UK. 4-7 July 2016.
<http://www.sebiology.org/meetings/>

Australasian Society for the Study of Animal Behaviour meeting Katoomba, NSW, Australia 5-8 July 2016. www.assab.org

Society for Conservation Biology 4th Oceania Congress (OCCB). July 6-8, 2016 in Brisbane, Australia. <http://brisbane2016.scoceania.org/>

International Society for the Study of Behavioural Development, 24th biennial meeting, in Vilnius, Lithuania. July 10-14, 2016
www.issbd2016.com

The 8th European Conference on Behavioural Biology (ECBB2016) July 12- 15, 2016, in Vienna.
<http://ecbb2016-vienna.com/>

International Society for Applied Ethology, 50th international Congress. 12-16 July 2016 in Edinburgh, UK. [/www.isae2016.co.uk/](http://www.isae2016.co.uk/)

ISBE 2016: International Society for Behavioral Ecology congress. Exeter UK, 28 July - 3 Aug 2016.
[ttp://www.isbe2016.com/](http://www.isbe2016.com/)

ABS meeting. 53rd Annual Conference of the Animal Behavior Society. 30 July - 3 Aug 2016 - University of Missouri, Columbia, Missouri, USA.
<http://www.animalbehaviorsociety.org/>

Human Ethology Congress. The 23rd Biennial Congress on Human Ethology. Aug 1 - 5 2016 University of Stirling, Scotland.
<http://ishe.org/stirling-2016/>

8th World Congress of Herpetology. 15 - 21 August 2016. Hangzhou, China.
www.worldcongressofherpetology.org

International Congress of Entomology September 25-30 2016, Orlando, Florida, USA
www.ice2016orlando.org

ASAB Winter Meeting 2016 Dec 1-2, 2016. "Animal navigation: from quantum physics to global migration."
www.asab.org/conferences/2016/12/1/asab-winter-meeting-2016

Society for Integrative and Comparative Biology (SICB) - Annual Meeting 2017: 4-8 January, New Orleans, Louisiana, USA

Behaviour 2017 The 35th International Ethological Conference, July 30 - Aug 4, 2017 in Estoril, Portugal.
www.behaviour2017.org

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

Animal Social Networks

Edited by: Jens Krause, Richard James, Daniel W. Franks, and Darren P. Croft

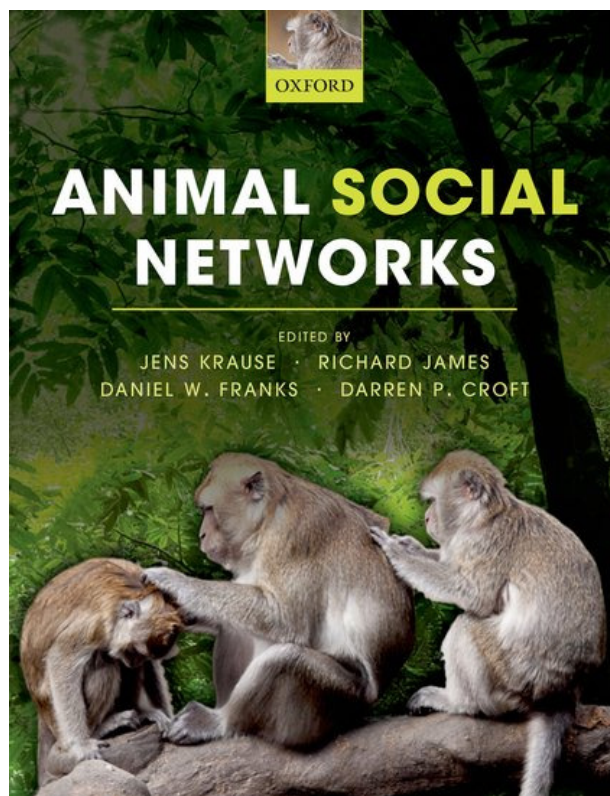
Oxford University Press. 2015. 260 Pp. ISBN: 978-0-19-967904-1 (hardcover), 978-0-19-967905-8 (paperback)

According to www.wearesocial.com, there are approximately 2.3 billion active social media users, representing an astounding 31% of the world's human population. Thus, interest in social networks is very strong among human primates. The term social networking has taken on a life of its own, almost to the point that it has become passé in everyday parlance. It was for this reason I think that, at first, I was not very excited about the use of social networking to study non-human organisms. It seemed to me like a fad that was jumping on the bumper of the proverbial bandwagon. Or, so I thought.

Fast forward to June 2015 to the Animal Behavior Society meeting in Anchorage, Alaska. As outgoing ABS president, Dan Rubenstein had organized a full-day Presidential Symposium on Social Networks. Wait a minute, if the esteemed Dan Rubenstein is hopping a ride on the social networking bumper, maybe I needed to give this subject a second look. I attended the full day symposium and became a convert. Thus, I was interested in reading more about the field in *Animal Social Networks*.

This edited volume includes 19 chapters with a mix of newcomer and veteran authors. Interestingly, three of the four editors published a similarly themed book in 2008, *Exploring Animal Social Networks* (Princeton University Press) but the present authors indicate that the first book was more focused on methodologies, whereas the new book examines the biology of taxa and a synopsis of what new ground has been discovered since social network theory was applied to the study of animal behaviour.

This edited volume is divided into four unequal sections. Section 1, *Introduction to Animal Social Networks*, consists of one main chapter that provides a primer of networkology, largely for those unfamiliar with terms used in this field. Section 2 of the book features nine chapters that use a conceptual approach to examine patterns and processes common to network theory. Section 3 consists of seven chapters that cover taxon-specific summaries (primates, cetaceans, fishes, insects, birds, ungulates, and lizards), emphasizing unique characters or challenges associated with each taxonomic group. The final section is merely a conclusion that discusses new analytical as well as methodological advances that will likely form the backbone of future network approaches.



Despite network theory being applied as early as the 1950s, animal behaviorists were not introduced to reviews on the topic until 2007-2008. The editors argue that network analysis is now "firmly embedded in behavioural biology". They define a social network as any number of individuals interconnected via social ties between them. Advocates argue that group dynamics will affect individuals and thus studies at the individual level will not reveal group-level phenomena, and thus a network approach is needed.

James' chapter (*ch 2, A networks primer*) describes networks as directed/undirected with weighted/unweighted edges. These networks can be depicted diagrammatically or as matrices. Networks can be characterized by either node-based or network-level measures of structure. He goes on to provide other details on communities and model networks and network models.

Croft et al. (*ch 3, Assortment in social networks and the evolution of cooperation*) discuss the evolution of cooperation and relate it to Hamilton's rule. While cooperation among kin has been examined in detail, this chapter attempts to look at dynamic social groups where individuals interact with both kin and non-kin. Game theory has a long tradition of examining cooperation among non-kin and has resulted in numerous reciprocity models. This chapter's main focus is on mechanisms that determine the structure of social networks and how this structure relates to the evolution and maintenance of cooperation. The authors examine how individuals often assort themselves within populations to facilitate cooperation.

McDonald and Pizzari (*ch 4, Mating behaviour: sexual networks and sexual selection*) examine the

relationship between social network theory and sexual selection, referred to as sexual networks. Structuring of mating networks has obvious implications for selection on sexual traits. Nightingale et al (*ch 5, Quantifying diffusion in social networks: a Bayesian approach*) describes a Bayesian approach to quantifying social transmission of information. Most typically, social transmission involves the process by which behavioural traits spread through groups. The transmission of the behavioural trait can be measured as the time of acquisition or the order of acquisition. The authors offer up an alternative to using random effects under maximum likelihood. Rather, they argue for including random effects within a Bayesian framework by using Markov chain Monte Carlo methods.

Wilson and Krause (*ch 6, Personality and social network analysis in animals*) discuss animal personalities, otherwise known as consistent differences among individuals in their behavioural responses to ecological stimuli. Rather than focusing on simplistic dyad associations, the authors argue for the utility of a network approach. This theme is repeated throughout the book. McDonald and Dillon (*ch 7, Temporal changes in dominance networks and other behaviour sequences*) focus on the temporal sequence of events and how they relate to dominance states. They compare among ten algorithms used to assess ranks among individuals. But, the most important message I took away from their chapter was their comment that social network studies are often descriptive and without hypothesis driven tests or novel insights into social dynamics. They caution against making too much out of spurious patterns that may emerge, particularly if they are not relevant to the biology of the species.

Bode et al (*ch 8, Group movement and animal social networks*) relate group movement patterns to animal social networks. Collective motion is used to reference synchronized motion of groups of organisms. But, these collective motions are likely a function of local interactions. Local interactions are mediated through interaction networks that structure the flow of information between individuals. They extend this to individual, group, and population levels and discuss how social and interaction networks typically function at different timescales.

McGregor and Horn (*ch 9, Communication and social networks*) introduce the reader to communication networks and argue that these types of networks are not the same as social networks. Communication networks are typically several individuals within signalling and receiving range of one another. The authors also discuss the role of eavesdroppers and corresponding audience effects, topics that have received much attention in recent years.

Drewe and Perkins (*ch 10, Disease transmission in animal social networks*) comment on how disease transmission networks were one of the first networks to be studied. They focus on parasite transmission processes to illustrate this point. The two main elements in disease transmission include the probability of acquiring infection and the contact rate between infectious and susceptible hosts. Of course,

many pathogens are transmitted in the absence of parasites and the presence of this intermediate vector likely changes the contact rate compared with other transmission not involving parasites.

Beisner and McCowan (*ch 11, Social networks and animal welfare*) provide a chapter on animal welfare. They divide their treatment of this subject into physical and psychological/social well being. There was some overlap with the previous chapter in their discussion of disease transmission. They discuss how these factors are exacerbated when animals are held in captivity. Likewise, stress can lead to illness and reduced immune function. Much of the discussion uses examples from the non-human primate literature, likely due to publication bias of primate studies and associated animal welfare.

Macdonald and Voelkl (*ch 12, Primate social networks*) comment on the 370 species of primates and how the study of non-human primates differs from what social scientists study in humans, mainly due to the fact that self-reporting is not available for non-human primates. Gero and Rendell (*ch 13, Oceanic societies: studying cetaceans with a social networks approach*) focus on how cetaceans are widely known for their cognitive abilities, rivalling or even exceeding those of primates. The authors point out that acoustic environments in aquatic conditions favour lower frequencies, travel costs are typically lower with little evidence of territoriality, and cetaceans operate at larger spatial and temporal scales. Strangely lacking from this chapter was any comment on the 33 species of pinniped taxa, a large group of mostly oceanic mammalian vertebrates that have been well studied.

Krause et al. (*ch 14, The network approach in teleost fishes and elasmobranchs*) reveal that there are over 25,000 species of fishes yet social network analysis has only been applied to a small number of taxa (the authors list ten species). Some of the most well studied taxa include model organism such as guppies or sticklebacks. Of course, insect taxa far exceed those of fishes and as Naug (*ch 15, Social networks in insect colonies*) indicates, the social structure of many insect species have been studied in detail. Ironically, however, network approaches are relatively rare among insects. Naug argues that this is due to technical and statistical challenges associated with studying large colonies.

Garroway et al (*ch 16, Perspectives on social network analyses of bird populations*) speak of the paucity of data on individual interactions in birds. Of those investigators that have attempted to follow individual birds, the usual methods include colour bands, PIT tags, or some form of telemetry. Of particular note are newer technologies that allow tags to communicate with one another. But, strikingly, there are not very many examples of social network theory being used in birds. Similarly, Rubenstein (*ch 17, Networks of terrestrial ungulates: linking form and function*) indicates that only a handful of ungulate taxa have been studied in a manner conducive to network analysis. Of those taxa that have been studied, Rubenstein argues that four important conclusions have been reached: individual social systems are adapted to particular features of the environment, hierarchical societies have strong bonds at lower levels

but are more plastic at higher ones, dynamic social structure analyses do a better job than static methods when attempting to define a community, and societal structure shapes function.

Godfrey (*ch 18, Linking lizards: social networks in reptiles*) states that reptiles are not typically thought of as social taxa and thus network theory has rarely been used in their study. In fact, only ten studies on four taxa (a skink, a tuatara, and two lizards) have been published, as of the writing of this book.

The editors conclude by stating that the application of network theory to animal social systems is not new - primatologists and epidemiologists were using such methods in the 1950s. The last decade though has really seen an increase in quantitative approaches to network analyses. The major finding being that network structures are non-random and dynamic. With

the development of complex dataloggers and other means of mass data collection, methods of analyses are becoming much more complex. Individuals can be recognized and tracked as never before.

So, who is the audience for this book? The back cover suggests that it is for graduate students and researchers. I would agree that it is a good "first blush" treatment of network theory and its application to animal behaviour. For those looking for a "how to" guide to network analysis, they won't find it in this volume. But, with over 1200 references provided, an interested reader will have plenty of fodder to go forth. If you are interested in social network theory, this edited volume is a must have.

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BOOK REVIEW

Divided Brains: The Biology and Behaviour of Brain Asymmetries

By Lesley J. Rogers, Giorgio Vallortigara, and Richard J. Andrew.

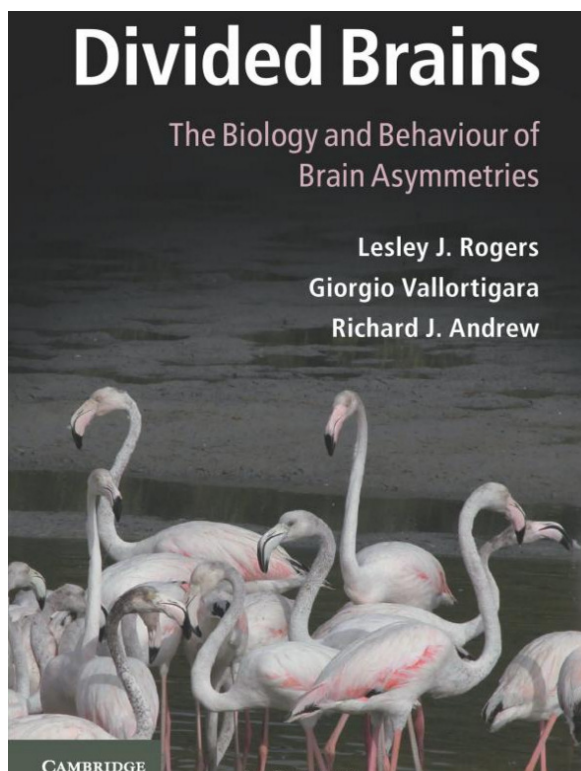
Cambridge University Press, 2013. 229 pp.

As I learned through Larry Dill, behaviors sort into the 4 F's: feeding, fleeing, fighting, and reproduction (see Pribram 1960, Ydenberg & Dill 2015). *Divided Brains* details how all of these sorts of behaviors are influenced by asymmetries in the brain. As a rule for vertebrates, search for food is more effective with the right eye and detection of predators more effective using their left eye using their right eye. Vertebrates are also more likely to attack a rival when they see it with their left eye. Finally, social interactions often show a bias toward left eye, including face recognition and processing of novel and emotional information.

Across the careers of the authors, they have played leading roles in documenting evidence for asymmetries in brains and behaviors. Feeling that vast published results were scattered and not fully appreciated, they wrote this book to provide a framework for understanding the vast literature on such asymmetries.

The organization for the book is straightforward and attractive to students of animal behavior: Sandwiched between introductory and concluding sections, the authors use the perspective of Tinbergen's four questions to organize the heart of the book into chapters on *Function, Evolution, Development, and Causation*. As expected from using Tinbergen's four questions, study organisms and behaviors are often revisited from different perspectives in different chapters.

The chapter on *Function* is most obviously important to behavioral ecologists. Here both individual asymmetry and the population distribution of asymmetries deserve



attention. Individual asymmetry may function to allow specialization on different aspects of sensory tasks, either at the level of information gathering or at the level of information processing. For example, it may be hard to carefully measure differences in brightness between neighboring points within view of an eye and to quickly detect changes in average brightness across the field of view. Although it would seem that having one eye specialized for detecting attacks would be a disadvantage for attacks coming from the "wrong" side, evidence shows that escape responses are faster for fish with more asymmetric brains. I am still pondering these results as both speed and direction can matter for escaping.

Given an individual advantage to asymmetry, what mix of asymmetric individuals should we expect in the

population? The easy answers would be 100% if one way is inherently best or positive frequency dependence, and 50: 50 if either way will do and there is negative frequency dependence. Although both of these outcomes occur, we often observe something in between: a solid majority asymmetric in one direction and a substantial, persistent minority asymmetric the other direction. Theoretically this can come about through joint actions favoring a common direction of asymmetry and agonistic interactions giving a frequency dependent advantage for individuals going the other way. More work is clearly needed to test the social consequences of asymmetries in nature.

The field has produced more results for vertebrates than for invertebrates. Nonetheless, the book highlights many results from invertebrates. I especially enjoyed how the *Evolution* chapter endeavored to understand behavioral asymmetries across the full diversity and history of animal life. We might not be surprised that snails are asymmetrical inside their spiraling shells, but this chapter is full of genuine surprises and delights. My favorite is still the deep-sea squid, *Histioteuthis*, which apparently points its large left eye upwards to scan for predators and points its small right eye down to look for glowing prey.

The chapter on *Development* gives details important for behavioral ecologists both in their own right and as the basis for experimental studies. We can experimentally alter asymmetry during development. In various birds and fish, asymmetry depends on exposure to light at critical periods in development. Asymmetries can be suppressed by keeping the young in darkness during these periods and can be reversed by reversing which eye receives more light. In birds this requires carefully cutting through the eggshell and easing out the chick's head to expose the eye usually tucked inside next to the body. This no doubt requires steady hands, but has effects almost like performing brain surgery without touching the brain. Much progress in the field has come about by experimentally altering asymmetries in combination with limiting animals to using one eye during initial learning or subsequent performance of the task. For domestic chicks, experimentally altering sensory input can be done with a removable patch over the eye. This basic

technique has been adapted for other animals that are not quite so fluffy or easy to handle.

The chapter on *Causation* packs in plenty of details while revisiting behaviors such as a left eye preference for scanning for predators and a right nostril preference for dealing with aversive and arousing odors. Because input from the eyes goes mainly to the opposite hemisphere of the brain while input from the nose goes to the closest hemisphere, these results point to fear and escape being processed preferentially by the right hemisphere. This causal circuit includes even notable differences between the left and right sides of the amygdala. Knowing this circuit raises many questions about how animals coordinate directional information coming in through the eyes, noses, and other senses, and how they consolidate this information into memories that can guide future actions.

The lesson of this book is that we should expect asymmetries in behaviors. This book is a great resource for behavioral ecologists in connecting the behaviors we study to the sorts of tasks and brain structures known to show asymmetries. Readers using the book this way should know that this slender volume is not itself an encyclopedia of what is known about asymmetries in brain and behavior. Instead it is more of an annotated abstract for a virtual encyclopedia that is still being written. That said, this book is clearly the place to start when accessing the literature in the field, and each section yields nuggets to treasure and use. It is a book that deserves to be savored and dipped into repeatedly. Though I have read it twice in preparing this review, I know I am not nearly done using it.

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The Domestic Cat: The Biology of its Behaviour, third edition

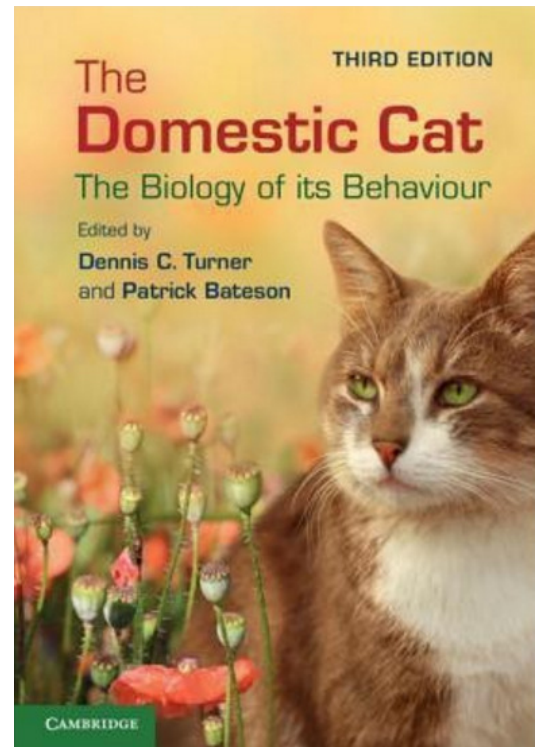
By: Dennis C. Turner & Patrick Bateson.

Cambridge University Press, 2014. 279 Pp. ISBN 978-1-107-02502-8 (paperback)

Domestic cats hold a unique and sometimes ambiguous place in human society. Throughout history, they have been both worshipped and reviled. In many countries today, they have become the most common pet and are ubiquitous in popular culture. And yet cats simultaneously continue to embody a sense of wildness, or at least independence, generating debate over "how domesticated" they actually are, and in many respects their behavior remains surprisingly mysterious and poorly studied. These are themes that run throughout the third edition of *The Domestic Cat: The Biology of its Behaviour*, edited by Dennis C. Turner and Patrick Bateson, a book that assembles authors from diverse fields including behavioral ecology, veterinary medicine, animal welfare, and breeding and showing animals. Almost 15 years had elapsed since the last edition of this book, and thus a stated goal of the current edition was to update and incorporate information from more recent research. With the ambitious breadth of topics "intended for all those, whether specialist or general reader, who love or are simply intrigued by these fascinating animals" (preface), the book sets out to tackle the many questions about the behavior of cats and our human relationship to them.

After a brief introduction, Section II entitled "*From Kitten- to Adulthood*" includes three chapters on development, reproductive behavior, and communication. These chapters did an excellent job of presenting their respective subjects in a clear and engaging manner, providing extensive descriptive information that was placed in general scientific and evolutionary context on the topics, not just in cats. Chapters 3 and 4 on reproduction and communication, respectively, jointly raised intriguing issues about the ongoing integration of cats into our human world has introduced evolutionary mismatches or oddities due to changing selective pressures. For example, human intervention to save kittens in the face of "problematic" maternal behavior that would have been strongly selected against in nature are reducing this selection and possibly changing the norms of parental behavior in domestically bred cats. Also, communication in cats is necessarily a product of a long pre-human history of largely asocial living mixed with more recent evolution with humans that is actively shaping current communication patterns.

The next section covers "*Social Life and Ecology*". Chapter 5 on socio-ecology was of particular interest to me as a behavioral ecologist, and it generally provided intriguing descriptions and insights into the behavior of free-ranging cats. However, I felt that the



treatment of major topics in the ecology of social organization (such as resource availability, dispersal, and consequences of group living) was so brief as to be slightly unsatisfying because it only skimmed the surface. Perhaps because it is such a large topic area to attempt in one chapter, there also seemed to be fewer references to general literature outside of cats. Chapter 6 on the social behavior of cats in human homes surveys seminal studies available on this topic. While less focused than other chapters (the first author sadly passed during the writing), this chapter raises questions and highlights that much of the behavior of animals that live in such close proximity in our lives remains a mystery.

Section IV consists of three chapters on "*Cats and People*" and delves more specifically into several aspects of the role that cats play in human lives. It nicely highlights how labile our perception of and interaction with cats is and how much of the dynamic is a reflection of ourselves. Chapter 7 on the domestication and history of cats stood out as a delight to read. It is written in an insightful and narrative tone, which weaves evolution, history, and anthropology seamlessly to provide fascinating views as much on human history and culture as on cats. Chapter 9 on the interaction of human and cat personalities will be of interest to any reader who has ever watched a cat interacting with its owner and wondered about the individual personalities involved. A number of interesting scientific questions were raised, but I could not help but notice that cat "personalities", in this case, were never measured independently, but only in conjunction with a feeding interaction with the owner. Thus, the study is really more about owner personalities, and an open question remains as to how the cats' personalities, measured in a context independent of the owner, can influence the interaction. While the topic of Chapter 8, *Exploring cultural*

differences in human-cat relationships, is certainly interesting, I was uncomfortable with the reduction of entire countries' attitudes to survey responses, and to me, this further highlights the complexity and difficulty of understanding human-animal interactions.

Next, Section V tackles a number of specific applied topics in "Cat Breeding and Cat Welfare", including general welfare issues, breed differences, showing cats, individual and environmental effects, and behavioral problems and solutions. As someone who has volunteered in shelters, Chapter 10 on the assessment and management of welfare in shelters and countries was particularly illuminating to me in terms of what kinds of management programs are successful. Chapter 14 on addressing behavioral problems in the home provided an excellent example of applied animal behavior based on understanding of ecology. Chapter 12 on showing cats was one of the least familiar topics to me, and I found it an unexpectedly fascinating glimpse into a novel world. From the whimsical nature of early cat judging to the sometimes reluctance to accept new breeds to the existence of prize categories for household pets at cat shows, it seemed yet another commentary on human nature more so than cat biology. However, certain statements made without reference (for example, that domestic cats have been outcrossed with bobcats and lynx, page 182) raised doubts for me, and I would really have liked to see the sources from which these conclusions came.

The book ends with two chapters in a section entitled simply "The Future". Chapter 15 goes into more depth on cat population management and what kinds of strategies seem successful. It highlighted the difficulties of even defining much less handling populations of interest for management, and attempted to link levels of management spanning engaging individual cat carers to passing legislation. Finally, Chapter 16 presents a series of questions and some answers about cat behaviors and concludes that, naturally, research has answered many questions while opening up many more questions.

I was somewhat surprised at how little mention of ecological impacts of cats on other animals there was, and the brief mentions seemed potentially defensive that negative effects of domestic cats on wildlife have been overstated. Perhaps this contentious issue was largely avoided unwittingly or considered outside of cat behavioral biology. However, multiple chapters noted that domestic cats generally remain very effective hunters, so it seemed odd that there was not more attempt to discuss potential negative effects on other animal communities. Some other minor issues were that the tone and pacing of information, including how many references were provided, among chapters was sometimes uneven and the overall organization of chapters into sections sometimes seemed rather arbitrary, with some redundancy and relatively little cross-referencing between chapters. However, these issues generally more distracting than detracting, and readers might just keep in mind to treat chapters separately and not expect the sections to provide strong thematic groupings, as well as following up questions with more reading from primary literature.

In the end, this book was reasonably successful at providing an enjoyable and informative resource for a broad audience. It seems geared towards non-specialists with strong general interest in cat behavioral biology, who want more insight into behavior of or might want a jumping off point towards primary literature on specific topics. Ultimately, a discussion of domestic cat behavior is inevitably linked to a discussion of human behavior and society, and this book is a fitting reflection of the varied roles that cats occupy in human society.

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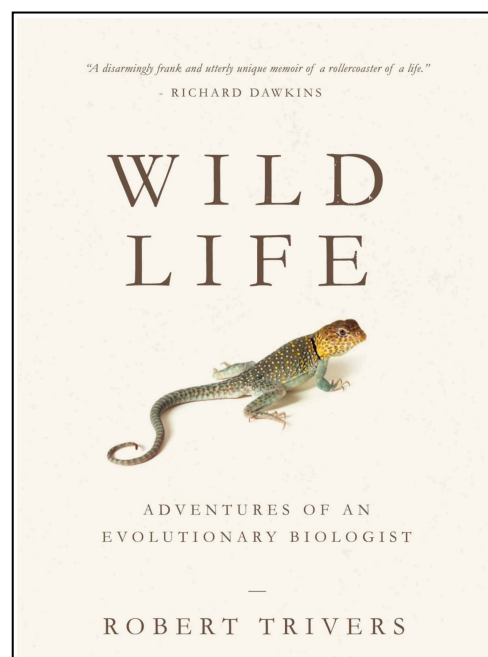
BOOK REVIEW

Wild Life: Adventures of an Evolutionary Biologist

By: Robert L. Trivers

Biosocial Research, New Brunswick, NJ
2015, 225 pages

To dispense with preliminaries, I have interacted with Robert L. "Bob" Trivers intermittently since I was in graduate school but have never been in his "inner circle." I requested a complimentary copy of *Wild Life* from Robert, telling him that I intended to review it for a journal that was, at the time, undetermined. Robert was enthusiastic about the idea and sent the memoir. I have reviewed a number of books for ISBE Newsletter so it was logical for me to consider it as the venue for publication, particularly, since I speculated that many



readers would be interested. I appreciate Andreas Svensson for giving me this opportunity.

In addition to several other biologists (e.g., Louise Emmons, Dan Janzen, Russ Lande, Nancy Moran, Steve Stearns, Mary Jane West-Eberhard, Don E. Wilson), I consider Trivers to be a National Treasure. Against numerous odds, he has risen to the top of his field, having published papers that are fundamental contributions to Social Biology, generators of immeasurable bodies of systematic and informal research and publications, as well as, continuing streams of productive thought—among his peers, other scientists, educators, students, journalists, and the general public. Many persons in and outside the scientific community will purchase a copy of *Wild Life* hoping, even, expecting, to find inside their names or mention of one of their vivid memories with Robert. Most of these men and women will be crushed, and I can think of four or five who will never recover. Robert's new book should have included a detailed index, not only for reference purposes, but, also, to prevent time wasted by some who would otherwise rifle through the book in search of evidence that Trivers considers them worthy of mention.

In the literary world, a memoir belongs to the genre, Creative Nonfiction. *Wild Life*, however, for the most part, appears to be uncontrived, a convincing example of a brilliant, though, controversial, figure telling it as he truly sees it. As the saying goes, "What you see is what you get," though Robert is clear to point out that he is unable to measure the full extent to which deception and self-deception influenced this project. After reading *Wild Life*, I was left with several messages, one being that its author has written a memoir hoping to determine the arc of his legacy. With the exception of Chapters 14 and 15, he crafts his story, as he has presented all of his ideas, with clinical, even, scapular, precision. There is a sense in which the dominant theme of the book can be summarized by a single observation expressed on page 186 when speaking of W.D. Hamilton: "I thought of Bill as perhaps the greatest evolutionary theorist since Darwin. Certainly, where social theory based on natural selection is concerned, he was our deepest and most original thinker." Many would place E.O. Wilson in second place. However, in *Wild Life*, as well as, elsewhere, Robert seems of the opinion that Wilson is greatly overrated (an opinion with which I disagree). Though he does not say so explicitly, Trivers likely considers himself to hold second rank after Hamilton, a self-assessment that many would challenge if only because of the author's non-normative record of behavior. Nonetheless, as Robert told a reporter at Rutgers University in 2014, "I don't want to sound immodest, but I am one of the greatest social theorists in evolutionary biology alive, period."

Wild Life, dedicated to Robert's teacher, William H. Drury, Jr., comprises fifteen chapters, seven of which, in addition to numerous additional remembrances, concern his life and research in Jamaica. He reports, with obvious pride, that all of his five children are "American/Jamaican," referring to himself as an "out-breeder" created by his peripatetic experiences as the son of a career diplomat. For decades, I was an obsessive reader of the print-version of *The New York*

Times. One day in 1987, scanning the obituary page, I noticed the name, Howard Trivers [sic, no middle initial], and, because, at that time, I had received second-hand reports of Robert's life from one of his close friends, I determined from relevant details that the deceased was the evolutionary biologist's father. Among other prominent roles in the U.S. Department of State, Howard Trivers had been Director of its Office of Research and Analysis. It was impossible not to note that the diplomat's obituary included no personal information—no mention of parents, a wife, or other family members. I had been told that Robert had a very contentious relationship with his father, in part, because of the latter's profession. Robert has only mentioned his father to me once, in passing; thus, I was not totally surprised to find virtually no reference to his family, including his mother, in *Wild Life*. For this reason, combined with the, sometimes shocking, even, disturbing, particulars of his life, Robert would provide a Freudian scholar with copious material and room for speculation (e.g., Oedipal failure?). In addition to passing mention of his "family of origin" and his children, the Preface expresses the author's opinions about the conventional lives of scientists ("This kind of life never appealed to me."), and the remaining few paragraphs introduce the reader to themes that follow.

Chapter 1 is revealing to all students of Trivers' work. He documents his early precocity in mathematics, particularly, *The Calculus*. I consider myself an amateur student of the thinking strategies of famous scientists. Many population ecologists, for example, think like physicists, characterizing genes and other events as mass flowing in space and time. Ecosystem ecologists, on the other hand, are likely to think, not only spatially, but at multiple scales at once. Robert's mind is that of a quantitative modeler expertly identifying and manipulating decision rules. A limitation but, even, more, a strength, of his mostly verbal theories is that they bypass complexity to identify fundamental principles of natural selection for mechanisms and functions of general import. Trivers reveals that Drury taught him to begin with interesting questions about human behavior, and Robert has exhibited a remarkable ability to choose topics basic to non-human, as well as, human, Social Biology, always cognizant of intra- and inter-individual conflict (-of-interest) and of genetics operating at the level of individuals, constrained by Hamilton's Rule. While I imagine there is intuition and art involved in Trivers' generative processes, I think his successes can be attributed, primarily, to his cogent choice of topics and his ability to write with laser clarity, as close as verbal models can come to mathematical ones. In my humble opinion, Robert is a better verbal modeler than Charles Darwin.

Chapters 2 and 3 describe early experiences conducting fieldwork and the impact of Drury and Ernst Mayr, respectively, on the development of the memoirist's early thinking, publications, and career. Robert convincingly communicates the extent to which he honors these men, and he shares with candor the pivotal role they played in the formation of some of his most important ideas. Trivers has reason to be confident that his acknowledgments of others' inputs will not reduce his reputation and that, though some critics may attempt to diminish his project, particularly,

posthumously, Robert's theories are not subject to claims that they are derivative. Chapter 4 is titled, "*I Become a Lizard Man in Jamaica*," describing how he became "a green lizard freak" after accompanying Ernest Williams there as a research assistant. Some readers will be offended by both men's evaluation of primatologists and, by implication, Anthropology as a field (but, see Chapter 6). In another chapter he denigrates Psychology, and it is clear throughout the memoir that Robert's opinion about what constitutes a Science is a narrow one.

Wild Life is peppered with interesting facts about lizards and other animals, as well as, snapshots of geography and human nature. Chapters 5, 7, 8, 9, and 10 recount a variety of experiences in Jamaica, some of them life-threatening, as well as, significant friendships, mostly with men. The only women who receive a lingering nod in the memoir are "mother-in-law," "Miss Nini," and her daughter, Robert's "wife," Lorna, mother of four of his children. Even though these chapters, and a few other accounts, document Robert's capacity for deep, sincere, and reciprocated feelings, he sometimes refers to friends using clinical, seemingly detached, language.

Chapter 11 is an interesting one in which the author reminisces about his relationship to Huey Newton and the Black Panther Party, and Chapter 12 continues descriptions of his entanglements with intra-specific conflict, including, incarceration. Robert seems not to have learned a litany from Behavioral Ecology that the costs of aggression (or, spite) usually outweigh its benefits (see the self-analysis in Chapter 15, and Parker 1974). Chapter 13, titled, "*Vignettes of Famous Evolutionary Biologists*," suggests that, in addition to Drury, Mayr, and Williams, Richard Dawkins and W.D. Hamilton, effectively, complete Trivers' list of illustrious figures in the field who have influenced him and his ideas, and in this chapter, Robert includes a few sarcastic paragraphs about Stephen J. Gould that I consider gratuitous and unnecessary.

The final two chapters are intimate in nature, Chapter 14 is titled, "*Ambivalence About Jamaica*," describing the unsettling and increasing rates of violence there. Some readers will find the final chapter haunting since Robert candidly assesses personal failings and outlines his burial plans. I was surprised that he had nothing to say about politics or the state of the world (e.g., climate change, income inequality, racism, biodiversity loss, terrorism), if only to inform the reader about how his opinions and values might have changed since his Black Panther days ("One man's terrorist is another man's freedom fighter.", as the CIA used to say). His life is not as dark as it may appear, however, since Robert has recently outlined several proposals for future research, specifically, speciation processes (with Koos Boomsma); evolutionary heterogamety; natural selection of honor killings; evolutionary dynamics of homosexuality; and, human evolutionary genetics.

It would be remiss and unrealistic not to provide some academic critique of Trivers' work, and I consider it appropriate to suggest a couple of limitations. Since I was introduced to his publications in the 1970s by Behavioral Ecologists at Cornell, it has concerned me that Robert's research fails to reflect the importance of

Evolutionary Ecology, particularly, evolution in changing environments about which there is a significant literature pre-dating Robert's first publication (e.g., Levins 1968, Lewontin 1957). Though Evolutionary Ecology is relatively recent as a systematic discipline, Robert has a terrific grasp of Population Genetics and G x E interactions, an operation receiving limited treatment, at best, in his publications (e.g., How do "selfish" genes and social traits behave when conditions vary or along gradients? When and under what conditions is social behavior situation-dependent? ...flexible?). Furthermore, his "feel" for statistical thinking is that of an expert, and I would expect more treatment of variation and deviations from central tendencies in his canon.

On the other hand, one way that Trivers' work achieves elegance, is by simplifying complex phenomena; thus, environmentally-focused, realistic theories might not have been as successful, productive, or fundamental. In a sense, the author's insights are primitive in the deep, honorific sense that the word is employed to describe some treatments in pure mathematics. Nonetheless, all theoretical work of import is subject to vetting by subsequent theory, models, experiments and other empirical tests. Already, a few researchers have modified certain details of Trivers' theory of sex ratio selection, and his ideas about parental investment and sexual selection have been challenged by some feminist biologists. Related to any discussion of Robert's legacy, in Wild Life, the memoirist states how important the appreciation of conflict (genetic and whole organism, intra- and inter-individual) has been to his success. In my opinion, this observation confirms Trivers' understanding that asymmetries produce differential "fitness optima" and that differential (asymmetric) phenotypes are exposed to environments upon which selection may act. I strongly recommend Wild Life to all who are interested in Ecology and Evolutionary Biology, not only, for its explication of "wild" experiences, but, also, for insights into how a stunning mind works.

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- Parker GA (1974) Assessment strategy and the evolution of fighting behaviour. J Theor Biol 224: 115-126.

BOOKS FOR REVIEW

If you are interested in receiving *and* reviewing any of these books, please email the newsletter editor: andreas.svensson@lnu.se. Please include postal address. The due date for the review is Sep 15, 2016.

The following titles are available for review from Springer

Title	Editors
Chemical Signals in Vertebrates 13	Schulte, BA., Goodwin, T.E., Ferkin, M.H.

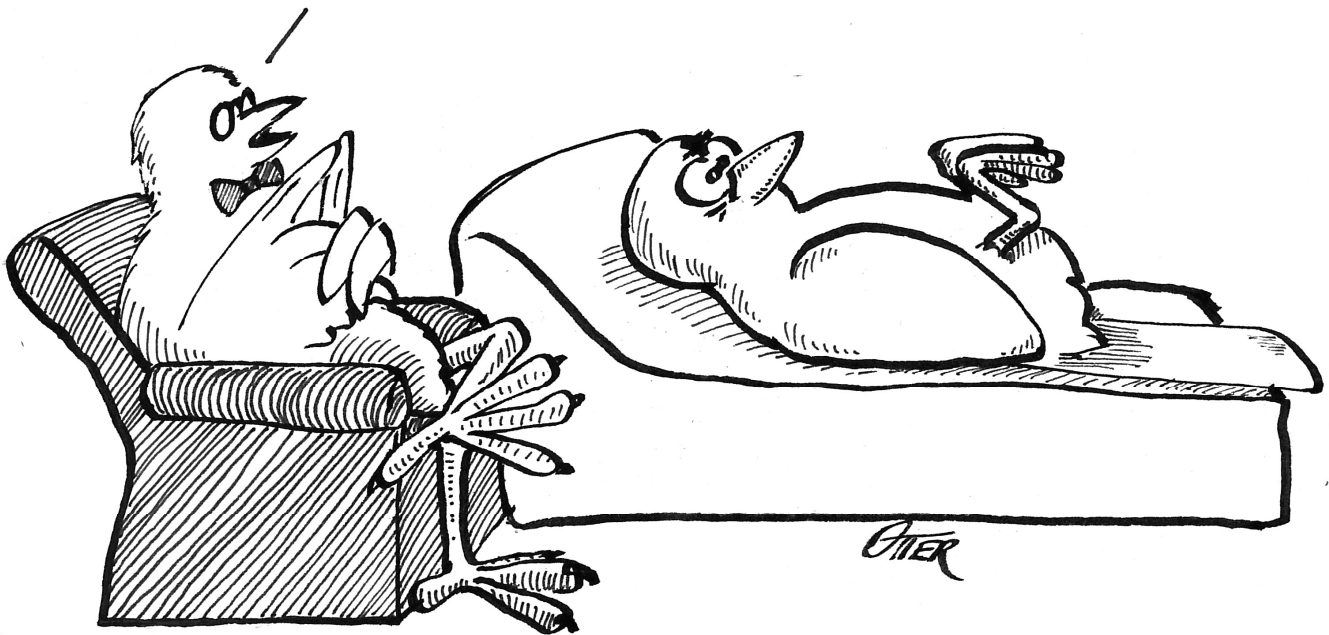
The following titles are available for review from Oxford University Press

Title	Author
Aquatic Entomology	Lancaster & Downes
Dog Behaviour, Evolution, and Cognition 2e (December 2014)	Miklos
Free-Ranging Dogs and Wildlife Conservation	Gompper
Plant Behaviour and Intelligence (August 2014)	Trewavas
Quantitative Genetics in the Wild	Charmantier, Garant, & Kruuk
Shallow Subterranean Habitats	Culver & Pipan
The Evolution of Insect Mating Systems	Shuker & Simmons
The Evolution of Sex Determination	Beukeboom & Perrin

The following titles are available for review from Cambridge University Press

Title	Author
Animal Teeth and Human Tools	Turner II
Anthropological Perspectives on Tooth Morphology	Scott
Behavioral Genetics of the Mouse 1 Genetics of Behavioral Phenotypes	Crusio
Behavioral Genetics of the Mouse 2 Models of Neurobehavioral Disorders	Pietro Paolo
Bioarchaeological and Forensic Perspectives on Violence	Martin
Biosocial Becomings	Ingold
Causes and Consequences of Human Migration	Crawford
Cephalopod Cognition	Darmaillacq
Evolutionary Biology and Conservation of Titis, Sakis and Uacaris	Veiga
Evolving Human Nutrition	Ulijaszek
Extractive Industries and Ape Conservation	Arcus Foundation
From Clone to Bone	Asher
How the Snake Lost its Legs	Held, Jr
Human Evolution	Finlay
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Passive Acoustic Monitoring of Cetaceans	Zimmer
Pheromones and Animal Behavior	Wyatt
Play, Playfulness, Creativity and Innovation	Bateson
Primate Communication	Liebal
Primate Tourism	Russon
The Boreal Owl	Korpimäki
The Foragers of Point Hope	Hilton
The Politics of Species	Corbey
The Politics of Species	Corbey
The Social Life of Greylag Geese	Scheiber
Tool Use in Animals	Sanz
Tooth Development in Human Evolution and Bioarchaeology	Hillson
Understanding Evolution	Kampourakis
Wild Cultures	Boesch

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Artwork by Ken Otter
University of Northern British Columbia