

A close-up photograph of an elephant's head and trunk, showing the textured, wrinkled skin and a small tusk. The elephant is looking towards the left.

# *The* Bulletin

YOUR MAGAZINE FROM THE BRITISH ECOLOGICAL SOCIETY



British Ecological Society

## inFOCUS

**Photo:** Craig Turner

*Seeing is believing – 'frogging' in the forest of Papua New Guinea can involve hard work and long wet nights, but sometimes you don't have to look too hard!*



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June 2014

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## PUBLISHING IN THE BES BULLETIN

The *Bulletin* is published four times a year in March, June, August and December. Contributions of all types are welcomed, but if you are planning to write we recommend you contact one of the editorial team in advance to discuss your plans (Bulletin@BritishEcologicalSociety.org).

Material should be sent to the editor by email or on a disk in Word or rtf format. Pictures should be sent as jpeg or TIFF (\*tif) files suitable for printing at 300dpi.

Books to be considered for review should be sent directly to the Book Reviews Editor Peter Thomas.

Cover: Eye contact with a large mammal is always a moving experience.

Photograph by Alan Crowden,  
Zambia 2013

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## WELCOME

# Communicating our science



One of my favourite anecdotes about science communication is probably apocryphal, but is no less enjoyable for that. A physicist at a prestigious American university was asked to explain his work in laymen's terms. "But I don't know any laymen's terms" he replied, exasperated. Closer to home, my wife's predisposition to explain is supplemented with the experience of a lifetime of teaching, and she can patiently convey mathematical concepts to our young grandchildren while my efforts to explain anything at all to them usually end up with an exasperated "because it just is, that's why". We are not all natural communicators, but despite the exigencies of life for a modern ecologist, there are lots of reasons to try to reach a wider audience beyond the academic and professional community. As ecologists it is all too easy to forget that everyday words, language and concepts of the lecture hall and lab can be opaque to those we are seeking to influence, be they decision-makers with powers to act on the evidence we are able to provide, or an attractive non-ecologist who we are trying to impress at a party.

Communication is a recurring theme of this issue. In the President's Piece (p5) Bill Sutherland contemplates some of the communication problems surrounding the recent flooding of the Somerset Levels. Dredging, or lack of it, dominated media coverage when the issues are of course far more complex. The BES tries to help the communication process between ecologists and politicians by offering members the chance to spend time in the UK parliament via schemes such as the POST Fellowship; Danny Heptinstall reports on his 4 months in the corridors of power on p21. Another way of engaging the wider public with science is to get people involved; Murray Thompson and his co-authors describe the potential advantages of involving the general public as citizen scientists for environmental monitoring projects (p42); elsewhere Emma Sayer interviews ecologists who have participated in Soapbox Science events (p32). The most overt call to arms on the communication front comes from Peter Thomas (p38) who suggests a number of ways that members could contribute to the public understanding of science.

Of course we don't completely ignore the traditional peer to peer communication that is at the core of our Society. Our annual awards for outstanding journal papers published by Young Investigators are announced here (p6) and there are significant developments on the journals front reported in our Publishing News (pp 52, 54). Irma Allen reports on progress with the Natural Capital Initiative (p34) and Nick Isaac has an update on the National Biodiversity Network (p36).

It seems that with every issue of the *Bulletin* we are making new announcements about speeding or enhancing the communication of ideas via our journals, Facebook page or Twitter feed. John Wiens' contribution takes us back to the dark ages before email (p48). While making a serious point about paradigms which can "exert a deep hold on the scientific mind", the inclusion of scans of good old-fashioned letters reminds us of an age gone by. In the good old days you could send off a letter confident that there would be a few days or weeks to have a bit of a think before a reply came back. Yearning for the more leisurely past soon fell away when I realised that I've never read R. H. Whittaker's classic text on communities and ecosystems cited in John's article; it took about 2 minutes to locate and pay for a secondhand copy on a website and the book duly arrived a couple of days later. Perhaps progress has its advantages.

Alert readers will have noticed in the last issue the arrival of a new member of the *Bulletin* team. Sarah Taylor of Keele University is now assisting Peter Thomas with the book review section. We are grateful to Sarah for her help, as we are to all the many people who have contributed to this issue.



**Alan Crowden / Editor**

Bulletin@BritishEcologicalSociety.org

The British Ecological Society is the oldest ecological society in the world, having been established in 1913. Since 1980 it has been a Registered Charity limited by guarantee. Membership is open to all who are genuinely interested in ecology, whether in the British Isles or abroad, and membership currently stands at about 3700, about half of whom are based outside the UK.

The Society holds a variety of meetings each year. The Annual Meeting attracts a wide range of papers, often by research students, and includes a series of informal specialist group discussions; whereas the Annual Symposium and many other smaller meetings are usually more specialised and include invited speakers from around the world.

Proceedings of some of these meetings are published by the Society in its Ecological Reviews book series. The Society distributes free to all members, four times a year, the *Bulletin* which contains news and views, meeting announcements, a comprehensive diary and many other features. In addition the Society produces five scientific journals. The *Journal of Ecology*, *Journal of Animal Ecology*, *Journal of Applied Ecology* and *Functional Ecology* are sold at a discounted rate to members. *Methods in Ecology and Evolution* is free to BES members. The Society also supports research and ecological education with grant aid. Further details about the Society and membership can be obtained from the Executive Director (address inside back cover).

The *Bulletin* circulates exclusively to members of the British Ecological Society. It carries information on meetings and other activities, comment and other topical items. Unsigned commentaries are the responsibility of the Editor and do not necessarily represent the views of the Society.

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It came to light recently that messages sent to the generic email address for the *Bulletin* were not getting through. At least a couple of offers of contributions to the *Bulletin* were left hanging in the ether and apologies have been offered to the authors concerned. When the blockage was cleared it released a deluge of unsolicited press releases from the community of marketers incapable of distinguishing ecological science from environmentalism, but I think we extracted all the real messages from the writhing mass of irrelevance. But if you have tried to contact the *Bulletin* in recent months and not had a reply please accept our apologies and send again directly to alan.crowden@ntlworld.com.

## PRESIDENT'S PIECE

# Floods of opinions

**William J Sutherland** / President of the British Ecological Society

@Bill\_Sutherland



To the astonishment and amusement of much of the world, the UK news headlines over the past winter were dominated by the fact that it rained. Perhaps not obviously news for the UK, but it did rain with unprecedented intensity. This became persistent headline news, rather than a curious statistic, due to the fact that the downpour resulted in our floodplains flooding. The period was depressing, not just for the perpetual rain, but also for the obvious failings of politics, the media and science. Can we do better next time?

The Somerset Levels and Moors, in south western England, comprises a verdant blanket of soggy grassland, made fertile by its history of flooding, interspersed by clusters of houses on any higher land and drained by a series of waterways that flow indecisively into the nearby sea. For example, the River Parrett descends a mere 1 in 5,280 slope but at high spring tides the sea may be three metres above the land level, pushing the water upstream.

When heavy runoff from the hilly watershed combines with high tidal levels the water enters both ends of the river, filling the river channel then eventually spilling over the banks. This year, with the exceptional rainfall, the resulting lake covered 65 km<sup>2</sup>, with horrible consequences for the poor occupants of the forty flooded homes.

The widely accepted cause of the flooding reported by the media was the lack of dredging, a conclusion reached on the basis of the simplistic argument that the rivers are now dredged less frequently and the flooding was worse than in the recent past. The media mainly focussed on who to blame for deciding to stop dredging with a brief interlude when the environment minister arrived to visit a flood site without his wellies (waterproof boots).

The need to attribute blame was amusing, but shocking, to watch. There was a clumsy political attempt by the responsible minister to shift responsibility ("We made a mistake, there's no doubt about that and we perhaps relied too

much on the Environment Agency's advice." "I am really sorry that we took the advice ... we thought we were dealing with experts."), but this badly backfired once it became clear that the Environment Agency had done all they could within the funding rules set down by government.

The Prime Minister viewed the unfolding public relations disaster of back stabbing replacing action and took personal responsibility, sweeping the minister aside. This was, however, followed by hastily constructed long term policies, rather than the text book crisis management approach of solving the immediate problems followed by review and careful assessment of the long term solutions.

It was remarkable how science was largely missing from this debate. In the media it seemed largely unquestioned that the flooding was caused by a lack of dredging, and that was caused by a misguided shift to broader environmental goals. The Environment Agency was understandably concentrating on solving the emergency but surely will now reflect on how it can also ensure the science case is heard in future crises. Other scientists seemed rarely consulted.

It will not surprise some readers that I consider part of the problem to be our continual dependence on having evidence collated after the event not beforehand. A publically available review of the effectiveness of the various options for flood management could have resulted in a more informed discussion.

Much of the problem seems to arise from the belief in simple solutions to environmental problems. However, be it flooding, badgers, sustainable food production or climate change, it is likely that a package of measures is required, with careful assessment of the effectiveness of each component.

Professor Paul Bates, a hydrologist at nearby Bristol University, identifies a litany of other factors contributing to the Somerset floods: the shift from summer grazing to maize growing with resulting silting of channels, enhanced run off from the uplands due to deforestation, peat stripping lowering the land level, fewer traditional willow plantations, high use of nutrients enhancing the growth of aquatic plants so blocking the waterways, and greater erosion in the watershed from a host of practices ranging from cultivation of arable crops on steep slopes to excessive stocking densities on land vulnerable to erosion. Of course sea level rise will make the problem worse year by year.

With this wider perspective the appropriate solution is likely to entail a complex programme including some dredging (although that also has problems, including bank erosion and that the tidal surge moves inland more easily), improved catchment management, improving the flood protection of vulnerable houses and establishing refuge areas that can store flood water.

# Young Investigator Prizes 2013

The BES Young Investigator Prizes are awarded annually to the best paper by a young author at the start of their research career, in each of the Society's five journals. Each 2013 prize winner has received £250, a year's membership of the BES, a year's subscription to the relevant journal, and free registration to the BES Annual Meeting in Lille in December.

First authors, who are less than 30 years old, or in the early stages of their research career, can nominate themselves when their paper is accepted for publication. The winners are then selected by the journal Editors at the end of each year.

The winning papers and two highly commended papers from each journal have been compiled into a freely available Virtual Issue which you can access from the journal websites. The Editors and the BES would like to congratulate the winners and highly commended authors on their outstanding papers.



**WINNER OF THE HARPER PRIZE 2013**

**Nitin Sekar**

The 2013 Harper Prize winner is Dr Nitin Sekar for his paper *Waiting for Gajah: an elephant mutualist's contingency plan for an endangered megafaunal disperser* co-authored with Raman Sukumar (*Journal of Ecology*, 101: 1379–1388).



Dr Nitin Sekar's paper has been chosen as this year's Harper Prize winner as an excellent example of well conducted field ecology. With colleague Raman Sukumar, their study rigorously investigated the dispersal ecology of a megafaunal fruit, chalta tree (*Dillenia indica*), in the face of potential extinction of its principal disperser, the Asian elephant (*Elephas maximus*). Using a combination of focal tree watches, camera trapping, fruit aging trials, dung seed counts, and germination trials in an Indian tropical moist forest, Sekar and Sukumar were able to demonstrate that although elephants were observed to consume 63% of fruit removed from camera traps, *D. indica* has a risk-spreading dispersal strategy that will hopefully allow it to persist despite declining numbers of its primary megafaunal disperser.

Nitin Sekar is a doctoral student in Ecology and Evolutionary Biology at Princeton University. He is interested in the functional ecology of endangered species, the links between ecosystem services and poverty, and policy related to wildlife conservation and equitable development in the Global South. His dissertation aims to reveal whether Asian elephants (*Elephas maximus*) are functionally redundant as seed dispersers in a disturbed forest ecosystem in India. Nitin is also a candidate for an environmental policy certificate from the Woodrow Wilson School and Princeton Environmental Institute, where he researches the Indian government's scheme to promote voluntary village relocation for tiger conservation.

**WINNER OF THE ELTON PRIZE 2013**

## Chuan Zhao

The 2013 Elton Prize winner is Chuan Zhao for his paper *Predatory beetles facilitate plant growth by driving earthworms to lower soil layers* co-authored with John Griffin, Xinwei Wu and Shucun Sun (*Journal of Animal Ecology*, 82: 749–758).



In the paper, Zhao and colleagues tested the hypothesis that predators will have negative effects on plants by suppressing detritivores in a Tibetan alpine meadow, and they did this by manipulating predatory beetles and examining indirect effects transmitted through their earthworm prey. The Editors particularly liked the neat design of this experimental study and the interesting results that emerged, which did not accord with conventional theory – the authors discovered that predators actually enhanced the positive effects of detritivores on plants. Moreover, the Editors appreciated that the authors had worked to demonstrate a plausible and interesting mechanism to explain this counter-intuitive result: a non-consumptive effect, by which the largely aboveground predatory beetles drive earthworms deep into the soil in a bid to escape predation risk, leading to increased porosity, water content and available nutrients in the otherwise barren lower soil layer. Overall, this work also adds a completely novel aspect to the highly topical issue of how predators influence plants and ultimately ecosystem functioning in terrestrial ecosystems.

The paper formed part of Chuan Zhao's PhD dissertation and he designed the experiment with his advisor, performed all the experimental procedures and examinations, and wrote the first draft of the manuscript. He is currently a research assistant in Chengdu Institute of Biology, Chinese Academy of Sciences, and plans to continue studying trophic interactions in the alpine detritus system.

## WINNER OF THE HALDANE PRIZE 2013

### Kyle Demes

The 2013 Haldane Prize winner is Kyle Demes for his paper *Survival of the weakest: increased frond mechanical strength in a wave-swept kelp inhibits self-pruning and increases whole-plant mortality* co-authored with Jonathan N. Pruitt, Christopher D.G. Harley and Emily Carrington (*Functional Ecology*, 27: 439-445).



Survival of the weakest seems an unlikely title for paper in ecology, but this is exactly what Demes *et al.* found. They studied intra-specific variation in mechanical properties in the kelp species *Egregia menziesii* in an intertidal habitat and found that weak individuals succeeded. Intertidal habitats (areas between high and low tides) are mechanically among the most stressful in the world, as the hydrodynamic forces to which plants are exposed are considerably larger than wind forces on terrestrial plants. Intriguingly Demes *et al.* showed that plants benefited from mechanical weakness rather than strength. In weak plants fronds were readily lost under hydrodynamic forces, reducing their exposed area and thus the magnitude of the force. Strong plants, on the other hand, held on to their fronds until the build-up of force was so large that the whole plant collapsed. Thus the weak prevailed.

During undergraduate studies at the University of South Florida, Kyle was inspired by the incredible diversity of form and function among seaweeds and has been enamoured with their biology ever since. He completed a M.Sc. at Moss Landing Marine Laboratories in California with Michael Graham, where he examined the relative contributions of shifting environmental factors on sexual vs. asexual reproductive investment in wave-swept kelp. After battling oceanic waves for data collection during his Master's, Kyle began researching the morphological and mechanical adaptations of seaweeds that allow them to thrive in the wave-swept intertidal, one of the most mechanically hostile habitats on the planet. His PhD, with Chris Harley at the University of British Columbia, focused on integrating mechanical principles into ecological processes.

Kyle is now a post-doc at Simon Fraser University, assessing biotic and abiotic control of kelp forest dynamics along the coasts of British Columbia.

## WINNER OF THE SOUTHWOOD PRIZE 2013

### Kulbhushansingh Suryawanshi

The 2013 Southwood Prize winner is Kulbhushansingh Suryawanshi for his paper *People, predators and perceptions: patterns of livestock depredation by snow leopards and wolves* co-authored with Yash Veer Bhatnagar, Stephen Redpath and Charudutt Mishra (*Journal of Applied Ecology*, 50: 550-560).



Kulbhushansingh Suryawanshi's paper combines robust social science with cutting edge ecological research to generate novel insights with direct lessons for management of human-wildlife interactions. Papers that contain each of these four components are still very rare and are exactly the type of research that the *Journal of Applied Ecology* aims to promote. The paper compared people's perceptions of the risk factors for predation by snow leopards and wolves on their livestock with data on actual predation incidents. The research also involved the authors in substantial ecological fieldwork to estimate wild prey numbers. Fascinatingly, the correlates of people's perceptions of risk were not the same as those of actual predation mortality. The paper's findings call into question the suggestion that snow leopard killing of livestock would reduce if wild prey numbers were increased, and suggest that work is needed better to align perceived and actual risk and to engage better with people about how best to address carnivore depredation of their livestock. There is a lot of literature on human-wildlife conflict, but the careful and thorough interdisciplinary approach taken to the issue by Dr Suryawanshi and his colleagues is still far too rare. The Editors congratulate him on his excellent paper.

Kulbhushan is currently working as a Regional Ecologist with the Snow Leopard Trust, Seattle, US and as a Research Scholar with the Nature Conservation Foundation (NCF), Mysore, India. For his PhD with the NCF, he worked on the impact of wild-prey availability on the

population and diet of the snow leopard (*Panthera uncia*) with implications for livestock predation by this endangered carnivore. He is interested in the application of science-based problem solving to conservation conflicts. He is also interested in the applications of Population and Behavioural Ecology to species conservation.

## WINNER OF THE ROBERT MAY PRIZE 2013

### Will Pearse

The 2013 Robert May Prize winner is Will Pearse for his paper *phyloGenerator: an automated phylogeny generation tool for ecologists* co-authored with Andy Purvis (*Methods in Ecology and Evolution*, 4: 692-698).



Although ecologists frequently want to make use of phylogenies, they often lack the skills to create detailed phylogenies of their study taxa. *phyloGenerator* greatly simplifies the process of creating a phylogeny, automating the download of DNA data and the use of modern phylogenetic software to produce a dated, defensible phylogeny. By linking together a number of existing tools into a single command-line interface and providing an extendable Python library, *phyloGenerator* is also a useful tool for phylogeneticists wishing to use an open, reproducible phylogenetic workflow. The Editors commented that, "this is an exciting idea that makes phylogenies almost immediately accessible to any researcher needing to use them. It is also a terrific example of the power of what we can achieve when data are made open and accessible."

Will studied Zoology as an undergraduate at the University of Cambridge, then completed an MSc in Ecology, Evolution and Conservation, and later a PhD at Imperial College London supervised by Andy Purvis and David Roy (Centre for Ecology and Hydrology, Wallingford). His PhD focused on how the phylogeny of species in a community can be used to understand the ecological assembly of that community, and how phylogeny informs our understanding of communities undergoing change. Will is now a post-doc in Jeannine Cavender-Bares' lab at the University of Minnesota, where he studies urban plant communities.

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## SOCIETY NEWS: FORTHCOMING BES MEETINGS

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# *DICE and BES Joint Symposium:* Considering the future of conservation

*25-27 June, University of Kent, Canterbury*

#ConSym14

### Conference organizers at the University of Kent:

Dr Zoe Davies, Senior Lecturer in Biodiversity Conservation

Dr Bob Smith, Senior Research Fellow

Dr Freya St John, Research Associate

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The discipline of conservation has evolved rapidly in recent decades, and it is time to consider the lessons learnt and look towards the future. While we bemoan the fact that protected areas are not adequately protecting many important species and habitats, much progress has been made and should be celebrated. However, our accomplishments remain vulnerable, as the threats to biodiversity persist and grow.

Conservation is an interdisciplinary endeavour demanding an understanding of both ecological and human systems. Evidence should underpin the development and implementation of conservation interventions, thereby increasing the likelihood of success and ensuring that limited resources are invested effectively. With this in mind, we are delighted to announce an exciting joint symposium between DICE (Durrell Institute of Conservation and Ecology) and BES (British Ecological Society), which will bring together natural and social scientists, from both academic and NGO sectors, who are interested in high quality research that supports conservation policy and management decision-making.

The aims of the meeting will be to:

- Reflect on the importance of applied research in conservation
- Critically evaluate how conservation must move forward as a discipline

The symposium, running over two and half days, will feature world-class invited speakers presenting talks grouped into four key themes: (i) threats to biodiversity; (ii) protected areas; (iii) human behaviour and conservation; and, (iv) conservation in the wider

landscape. During the meeting there will be plenty of networking opportunities, providing everyone with an opportunity to exchange ideas, engage in stimulating debate and share high quality science.

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### SPEAKERS INCLUDE:

#### **Andrew Balmford** (University of Cambridge)

Andrew is Professor of Conservation Science in the Department of Zoology at the University of Cambridge. His main research interests are the costs and benefits of effective conservation, and exploring how conservation might best be reconciled with activities such as farming. To have most impact he focuses his research in developing countries and collaborates closely with conservation practitioners and with colleagues in other disciplines.

#### **Richard Barrington** (Executive Director of Transparency International)

Robert's expertise includes the Bribery Act, integrity in the private sector and corruption within the UK. Recent projects and publications include 'Anti-Bribery Due Diligence for Transactions', 'Adequate Procedures – Guidance to the UK Bribery Act' and 'Corruption in the UK'.

#### **Luigi Boitani** (Sapienza University of Rome)

Luigi is Professor of Conservation Biology and Animal Ecology at Sapienza University of Rome and a leading expert on carnivore conservation, species threat assessment and protected area planning and management. His main focus has been on the use of scientific data and methods in the practice of conservation, with a particular emphasis on reducing the science-policy gap. Luigi is the President of the Institute of Applied Ecology in Rome, Chair of the Large Carnivore Initiative for Europe and of the SSC/IUCN Wolf Specialist Group and Past President of the Society for Conservation Biology.

#### **Dan Brockington** (University of Manchester)

Dan is Professor of Conservation and Development at the Institute for Development Policy and Management and works on diverse aspects of environment and development with a particular focus on conservation. His general project is to understand the ways in which conservation and capitalism are intertwining, and the consequences of the alliances resulting for people and nature.

**Dr Peter Brotherton**  
(Deputy Chief Scientist for Natural England)

Pete has worked in the statutory conservation sector for 15 years, and has a particular interest in the interface between science and policy. As Natural England's Deputy Chief Scientist, he is responsible for ensuring that the organisation's advice and decisions are evidence-based. In recent years he was lead advisor to the government on the England Biodiversity Strategy, 'Biodiversity 2020'; supported the development of the Natural Environment White Paper; and led the secretariat for the influential 'Making Space for Nature' review of England's ecological network, chaired by Sir John Lawton.

**Trent Garner (Institute of Zoology)**

Trent Garner is a senior research fellow and the theme leader of evolution and molecular ecology at the Institute of Zoology, ZSL. He and his group study infectious diseases of amphibians in an effort to determine when these pose a conservation threat to frog, salamander and caecilian populations and species. Through this work, and through collaborations spanning the globe, Garner helps develop strategies to limit pathogen introduction through trade and invasive species and methods for limiting the impact of threatening infectious diseases in both captive and wild amphibian populations.

**Peter Kareiva (Chief Scientist for TNC)**

Peter Kareiva is the Chief Scientist for The Nature Conservancy, where he mentors 600+ staff engaged in conservation science in over 35 countries around the world. Peter's research concerns the connection between human activities and changes in ecosystem services, as part of the Natural Capital Project which he co-founded with Gretchen Daily, Steve Polasky, and Taylor Ricketts. He is Director of a new collaborative effort entitled Science for Nature and People or SNAP, and head of an international postdoctoral Conservation Fellows Program entitled, NatureNetFellows.

**Matthew Linkie**  
(Fauna and Flora International)

Matthew Linkie is the Regional Conservation and Development Adviser for Fauna & Flora International's (FFI's) Asia-Pacific Programme. Matthew is tasked with improving the science in

FFI's portfolio of projects in Asia while ensuring that this complements the daily realities of managing these often complex projects under demanding field and socio-political conditions.

**E.J. Milner-Gulland**  
(Imperial College London)

E.J. is Professor in Conservation Science at Imperial College London. Her research is at the interface between ecology and human behaviour. Her research is both grounded in practical action and based within a strong theoretical and analytical framework, is genuinely interdisciplinary, using methodology from both natural and social sciences, employing both empirical and modelling approaches, and examining problems that scale between the individual and landscape levels, and between hours and decades.

**Camille Parmesan**  
(University of Plymouth)

Camille Parmesan was recently appointed to the National Marine Aquarium Chair in the Public Understanding of Oceans and Human Health at University of Plymouth, UK. Her work focuses on the current impacts of climate change on wildlife, from field studies of American and European butterflies to synthetic analyses of global impacts on a broad range of species on land and in the oceans. Camille has been active in the Intergovernmental Panel on Climate Change (IPCC) since 1997.

**Steve Redpath**  
(University of Aberdeen)

Steve holds a Chair in Conservation Science at the University of Aberdeen. His work is increasingly focused on linking ecology with the social sciences to find sustainable solutions to conservation conflicts in the UK as well as abroad (India & Brazil), and he continues to strive for a long-term, workable solution to the hen harrier-red grouse controversy.

**Chris Sandbrook (UNEP-WCMC)**

Chris is a Lecturer in Conservation Leadership at the United Nations Environment Programme World Conservation Monitoring Centre and the University of Cambridge. He works to build capacity for conservation leadership through his teaching, and conducts interdisciplinary research on biodiversity conservation and its relationship with society. His current research addresses trade-offs between conservation and

development at the landscape scale in developing countries, and the role of values and evidence in shaping the decisions of conservationists and their organisations.

**Robert Stoneman**  
(Chief Executive of Yorkshire Wildlife Trust)

Rob is Chief Executive of Yorkshire Wildlife Trust. The day job revolves around business management of an expanding Wildlife Trust with a staff of 100 and a membership of 36,000, that is currently investing about £6M per year into the conservation of Yorkshire's wildlife. Rob holds a passionate interest in peatland conservation – chairing the IUCN-UK Peatland Programme and the Yorkshire Peat Partnership – but also retains a deep interest in urban nature conservation and marine conservation.

**Juliet Vickery (RSPB)**

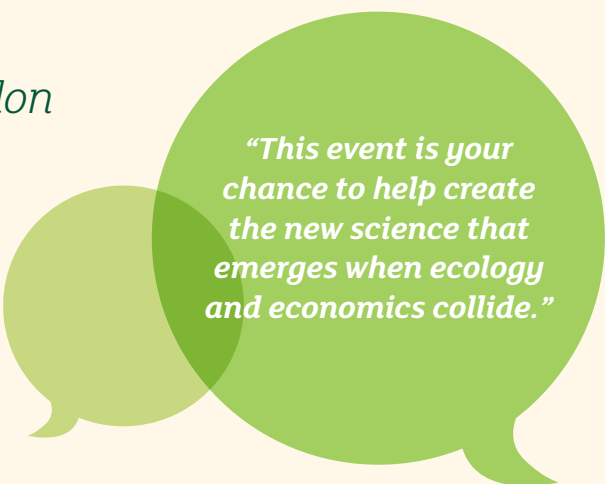
Juliet is Head of the International Research Section in the Centre for Conservation Science and the Royal Society for the Protection of Birds. The section is responsible for research that underpins the conservation of threatened sites, species and habitats throughout the world, and her personal interests include the conservation of Afro-Palearctic migrant birds, the impact of tropical agriculture on biodiversity and impact on non native invasive species on island ecosystems. The International Research Section works particularly in Africa, SE Asia, Europe and the UK Overseas Territories and is committed to building the scientific capacity of the in-country partner organizations.

**James Watson**  
(WCS and University of Queensland)

James Watson has recently taken up a Principal Research Fellowship at the University of Queensland (in the school of Geography, Planning and Environmental Management) and at the same time leads the Wildlife Conservation Society's Climate Change Initiative. James is president-elect of the Society for Conservation Biology, Chair of the IUCN's climate change specialist group, and sits in the leadership committees for the Science for Nature and People (SNAP) Initiative and the Smith Fellowship Conservation Leadership program.

# ECO\*\*2 Symposium

8 – 10 September 2014. BMA House, London



*“This event is your chance to help create the new science that emerges when ecology and economics collide.”*

## Organisers:

Drew Purves, Ecologist, Microsoft Research

Jean-Pierre Zigrand, Economist, London School of Economics

Economics and ecology – the two sciences of interactions – don’t interact enough. How many useful ideas must there be in ecology that have yet to be applied in economics, and vice versa? How much more could we discover about human, social or natural systems by combining insights from these two subjects?

It is crucial that these two fields work together to address the most pressing global challenges; economic policy could continue to seek welfare optimization through chasing a single approximating metric of success – GDP growth – if not for inevitable limits imposed by the Earth System. We could easily develop policies to solve every environmental problem, if not for inevitable limits on finance. And what about problems like food security or the spread of infectious disease, which are fundamentally part ecological / part economic?

This event is your chance to help create the new science that emerges when ecology and economics collide. Our event is designed to foster as much interaction as possible between these two fascinating sciences with an equal mix of ecologists and economists.

If the above intrigues you in any way, then please do come along to the BES symposium ‘Eco\*\*2: exploring the fundamental links between ecology and economics’, which we’ll be running in collaboration with the London School of Economics in London, this coming September. It’s your chance to help create the new science that emerges when we collide ecology and economics.

Everything about the symposium is designed to foster as much interaction as possible between these two fascinating sciences. The attendees will be an equal mix of ecologists and economists. In place of the usual 15-minute-talks-with-no-time-for-discussion, we’ll have moderated panel discussions (facilitated by twitter, so everyone gets a question and anyone can answer); and problem solving sessions, where small mixed groups will work up answers to hard questions (answers will then be filmed and / or written up and made available afterwards). Yes, we’ll have exciting plenaries, but even those will be followed by moderated discussions. Of course, we’ll have a great mixer. And we’ll be having ‘interactive lunches’ and ‘mingling teas’. No, we’re not dead sure what that means either but we’ll work something out. All round, we can guarantee you will not feel anonymous at Eco\*\*2! And we suspect strongly that you will never look at your sister subject, or your own, in the same way again.

A special flavour of Eco\*\*2 is to examine the fundamental, conceptual links between these two sciences. These links are much deeper than most ecologists or economists appreciate, and they must be explored if we are to

apply these two sciences properly to address pressing global issues. But we’ll not be shying away from discussing these issues either, whether it’s climate change, food security, disease, human migration, conservation. On registration, attendees will be invited to submit ideas for problems for the problem solving sessions (we expect to tackle over 60). If selected, you will pitch the problem to a room half full of economists and half full of ecologists, then see where the discussion leads. Similarly, attendees will be invited to submit ideas for topics for panel discussions (in which case you may want to moderate the session) or short talks for panel discussions. Problems, topics and short talks can be conceptual, technical, or applied in nature, so long as they will spark a fruitful discussion between economists and ecologists.

We hope that you will be supportive of us trying this unusual, exciting format, for this unusual, exciting symposium. We’re very much looking to seeing you there! Registration opened 19th May 2014. – See more at: [http://www.britishecologicalsociety.org/events/current\\_future\\_meetings/2014-annual-symposium-eco2/#sthash.XHcbCv7O.dpuf](http://www.britishecologicalsociety.org/events/current_future_meetings/2014-annual-symposium-eco2/#sthash.XHcbCv7O.dpuf)

# Joint 2014 Annual Meeting: British Ecological Society and Société Française d'Ecologie



9 – 12 December, Lille Grand Palais, France

The British Ecological Society and the French Ecological Society are pleased to invite you to Lille for a joint conference which will bring together for the first time ecologists of our two countries. The aim of the conference is to promote exchange and debate on major advances in scientific ecology and strengthen cooperation between the French and British researchers of tomorrow.

The meeting will be held on 9 – 12 December at the Lille Grand Palais, France. Lille is the largest city in French Flanders; it is the principal city of the Lille Métropole, the fourth-largest metropolitan area in France after those of Paris, Lyon and Marseille. The city is situated on the Deûle River, near France's border with Belgium and is the capital of the Nord-Pas de Calais region and the prefecture of the Nord department.

It was the European Capital of Culture in 2004 and has a wide array of architectural styles, strongly influenced by Flemish design. There are many places of interest, including Lille Cathedral, the Citadel of Lille, Palais des Beaux-Arts de Lille and the Jardin botanique Nicolas Boulay botanical garden. The latter is one of three botanical gardens in Lille, the others being the Jardin des Plantes de Lille and the Jardin botanique de la Faculté de Pharmacie at the Université de Lille 2.

See more at: [www.britishecologicalsociety.org/AM2014](http://www.britishecologicalsociety.org/AM2014)

Abstract and early bird booking open in June

*The Thematic Symposia topics have now been chosen and organisers are busy confirming the line up for each session. Topics accepted for inclusion and a provisional description of each session follows:*

## **ACCELERATING ECOLOGY AND BIODIVERSITY RESEARCH VIA ECOMETAGENOMICS: SPECIES, COMMUNITIES, AND ENVIRONMENTAL DNA**

Organised by Simon Creer (School of Biological Sciences, University of Bangor, UK); Holly Bik (University of California Davis, USA); W. Kelley Thomas (Hubbard Center for Genome Studies, University of New Hampshire, USA); and Dorota Porazinska (BioFrontiers Institute, University of Colorado at Boulder, USA).

### **Proposed keynote Speaker:**

**John Colbourne (University of Birmingham, UK): *The model species Daphnia: A Genome for Ecology and the Environment***

The goal of this session is to catalyze cross-disciplinary discussions between the ecology and environmental sequencing communities and showcase the opportunities that currently exist for 21st Century ecologists. This session will begin with an overview of environmental

sequencing approaches, introducing participants to the methods, data types and current advantages and limitations of DNA-based studies. This session would stimulate critical discussion related to the 2014 meeting theme of "Biodiversity and Ecosystem Services," with interdisciplinary links to other international and EU-focused topics (Marine, Freshwater, and Agro-ecology). Since community-based molecular genetic analysis represents an emerging ecological discipline, it is important to enhance linkages between the environmental DNA community and those focusing on contemporary ecological challenges, to facilitate high-throughput ecological research that will be relevant at the European scale. Our proposed speakers emphasize such interdisciplinary linkages across a broad range of ecological topics, including metabarcoding, fungal ecology, microbial biogeography, and ancient DNA. Our keynote speaker (Colbourne) will underscore links between ecological work in the model organism community (*Daphnia* spp.) and applied science and environmental monitoring approaches, and further discuss how environmental genomics can be leveraged to guide research priorities and policy directives at the EU level.

## **BIOLOGICAL IMPACTS OF CLIMATE CHANGE: RECONCILING MACRO-SCALE PATTERNS WITH LOCAL-SCALE PROCESSES**

Organised by Richard Pearson (University College London) and Blake Suttle (Imperial College London and Grantham Institute).

### **Proposed keynote speaker:**

**Jose Montoya (CSIC Barcelona, Spain):**  
*The integration of climate change, biogeography and ecological networks*

Research into ecological responses to climate change points to a clear discrepancy in the predictability of impacts with scale. Studies focused on understanding impacts at macro-scales generally reveal common and predictable trends, such as pole-ward shifts in species distributions and advances in regional spring green-up. By contrast, studies at the local scale of individual field sites often show complex and more idiosyncratic responses to climate change. This symposium aims to bring together different perspectives on this discrepancy to ask *How do simple, large-scale patterns emerge from complex local behavior?* Addressing this question will require integration of research undertaken at different spatial scales, and increased dialogue in an agreed, shared vocabulary, between researchers working in disparate fields including biogeography, macro-ecology, community ecology and population biology.

We propose to bring together leading thinkers on the ecology of climate change to synthesize the current state of knowledge on spatial scaling of climate change impacts and illuminate priority areas for future research, while providing a platform for collaborative advances into these areas. Improved understanding of climate change impacts across spatial scales holds promise for improving management of biodiversity and ecosystem services under climate change (a Horizon 2020 Societal Challenge), for example by helping to integrate national conservation policies with on-the-ground conservation practice.

## **ECO-EVOLUTIONARY FEEDBACKS: THEORETICAL AND EMPIRICAL PERSPECTIVES**

Organised by Florence Débarre (University of Exeter, UK) and François Massol (CNRS, Lille, France)

### **Proposed keynote speaker:**

**Richard Gomulkiewicz (Washington State University, Pullman, WA, USA):**  
*Direct and indirect effects of evolution on the assembly of ecological communities*

One of today's great challenges for the understanding and conservation of species and ecosystems is the integration of trait evolution in species dynamics. Evolution has long been deemed a slow process, and thus was considered to be of little relevance to the response of ecological systems to perturbations, but it is now acknowledged that evolutionary and ecological responses can occur on similar timescales. Moreover, evolutionary and ecological processes are expected to be strongly linked by explicit feedbacks, e.g. through stabilization (or destabilization) of population dynamics as a result of trait evolution or through the evolutionary rescue of declining populations. This symposium will focus on recent developments, both theoretical and empirical, dealing with eco-evo feedbacks in different ecological contexts and at different spatial and temporal scales. By doing so, this symposium will provide hints and hopefully solutions to the issue of disentangling evolutionary and ecological factors affecting population and community dynamics, and thus will help foster ideas on how to plan the preservation of biodiversity.

## **MÉNAGE À TROIS: ECOLOGICAL CONSEQUENCES OF INTRICATE INTERACTIONS BETWEEN PLANTS, MICROBES AND INSECTS**

Organised by Enric Frago (Laboratory of Entomology, Wageningen University, The Netherlands) and Arjen Biere (Department of Terrestrial Ecology, Netherlands Institute of Ecology, Wageningen, The Netherlands)

### **Proposed keynote speaker:**

**Marcel Dicke (Laboratory of Entomology, Wageningen University, The Netherlands):**  
*Ecological consequences of three-way interactions between plants, microbes and insects*

Plants engage in interactions with both microorganisms and insects. These interactions have important consequences for the dynamics, biodiversity and functioning of terrestrial ecosystems. Plant-microbe and plant-insect interactions have traditionally been studied within the separate domains of plant pathology and entomology,

respectively. However, it is increasingly recognized that these interactions take place in a larger community-context, since microbes are crucial modulators of plant-insect interactions and vice versa. This has led to the development of the new and exciting field of plant-microbe-insect interactions, which studies the consequences and community-wide impacts of three-way (rather than two-way) interactions between plants, microbes and insects.

Recent studies in natural systems have shown that plant pathogens can structure plant-based insect communities and that acquisition of microbial endosymbionts has facilitated radiation and host-range expansion of their insect hosts. In cropping systems, acquisition of microbial symbionts can turn benign herbivores into pest insects, and spread of latent crop viruses can suddenly take off after introduction of invasive insect vectors. On the other hand, plant symbionts often not only enhance plant nutrition but also their defence against herbivorous insects and their interactions with pollinators. This illustrates the role of plant-microbe-insect interactions in structuring natural communities (biodiversity) and providing important ecosystem services, as well as services to society, especially in agro-ecology, through their potential to enhance crop protection. In the proposed symposium we will bring together experts that can highlight the role of insect- and plant-associated microbes (as "hidden players") in plant-insect interactions, and the ecological implications thereof.

## **ECOLOGICAL IMPLICATIONS OF TREE DISEASES**

Organised by Ruth Mitchell (The James Hutton Institute, Craigiebuckler, Aberdeen)

### **Proposed keynote speaker:**

**Professor Steve Woodward (University of Aberdeen):** *Alien invasive pathogens: the major threat to forest ecosystems*

The ecological implications of alien invasive plants and animals are well studied. However the ecological implications of non-native tree diseases is currently receiving little attention with most research focused on the genetics of the disease, controlling the disease or finding resistant varieties of the tree species affected.

Tree diseases are a global problem with many tree diseases spreading throughout Europe, once established. In the UK and France the recent arrival of ash dieback has highlighted the potential problems caused by tree diseases but this is only one of many diseases threats our trees are currently facing; for example the oak processionary moth, *Thaumetopoea processionea*, is present in the south-east of England, and the range is expanding northwards and westwards and *Dothistroma septosporum* has recently damaged the native Scots pine in parts of Scotland. There are many other tree diseases which are not yet present in Europe but are likely to establish soon for example: the emerald ash borer, *Agilus glabripennis*, a bark borer of Asian origin, which has already invaded North America, where up to 100 million ash trees have been killed is currently spreading across Russia.

The aim of this symposium is to bring together those working on the ecological implications of tree diseases, to present an overview of current knowledge and to highlight to BES and SFE members areas where future ecological research in this highly topical area is required.

### ECOLOGICAL NETWORKS: FROM DESCRIPTIONS TO PREDICTIONS

Organised by Timothée Poisot (Département de Biologie, Université du Québec à Rimouski, Rimouski, Canada); Sonia Kéfi (Institut des Sciences de l'Évolution, Université Montpellier 2, Montpellier, France); Daniel B. Stouffer (School of Biological Sciences, University of Canterbury, Christchurch, New Zealand)

#### Proposed keynote speaker:

**Owen L. Petchey:** *Advances and challenges predicting ecological consequences of environmental change*

For decades, researchers have sought to link the structure of ecological networks to key ecosystem properties (community stability, resistance to invasion, buffers against extinctions). Much of this work has sought to understand or explain ecological phenomena. Given the many possible drivers of ecological change, it is unfortunate this knowledge has seldom been mobilised to make predictions as well. In this session, we will discuss how networks represent a unique opportunity to make unified predictions because they are a compact way to describe a diverse range of ecological processes (e.g. the

interplay between species distribution and interactions, the dependence of interaction rates on species traits, or the flow of biomass along ecological interactions). The contributed talks will address the double problem of (i) building on existing conceptual knowledge to provide answers to conservation and stewardship issues, and (ii) adapting and expanding our methodological toolbelt to deal with recent advances in ecological network theory. Whereas classical network studies in ecology often focus on trophic interactions, the contributors use a variety of systems and approaches (field work, statistics, modelling) to address these questions. An additional intention of the organisers is to take advantage of this symposium to produce a synthesis paper, describing the state-of-the art of the field.

### EXTENDING FRESHWATER MANAGEMENT BEYOND SHORELINES BY LINKING AQUATIC AND TERRESTRIAL ECOSYSTEMS

Organised by Andrew J. Tanentzap (Department of Plant Sciences, University of Cambridge)

#### Proposed keynote speaker:

**Michael L. Pace** (Department of Environmental Sciences, University of Virginia, USA): *Watershed subsidies drive aquatic food webs*

Watershed subsidies drive aquatic food webs Human activities are degrading the state of the world's surface freshwater. Many of these changes are linked to watershed disturbance as aquatic ecosystems are fuelled by biogeochemical cycles that initiate on land. But terrestrial land use and disturbance are frequently overlooked when managing freshwater supplies. In fact, the EU Water Framework Directive lacks explicit mention of protecting land for freshwater lakes, despite considering their reciprocal influence on terrestrial processes. This link can no longer be ignored: improving water chemistry in isolation, such as through pollution control, does not always protect or improve the biodiversity and vital ecological services delivered by freshwater. The supply of organic matter from terrestrial landscapes is critically important in supporting aquatic food webs, chelating toxic compounds, and regulating thermal properties. A broader watershed-level science is needed that integrates across the management of land and water resources.

The symposium will bring together leading proponents of a new synthesis in freshwater ecology that combines terrestrial and aquatic perspectives. We will showcase leading-edge research demonstrating how the biology, chemistry, and physics of lakes are controlled by their surrounding catchments.

### GENOMICS IN MARINE MONITORING: NEW OPPORTUNITIES FOR ASSESSING MARINE HEALTH STATUS

Organised by Matthias Obst, (Göteborg University, Sweden) and Renzo Kottmann, (Max Planck Institute for Marine Microbiology, Bremen, Germany)

#### Proposed keynote speaker:

**Neil Davies** (CNRS – EPHE Centre de Recherche Insulaire et Observatoire de l'Environnement (CRIOBE), Moorea, French Polynesia): *Biodiversity genomics and its applications in marine ecology and monitoring*

This symposium assesses the use of genomics as a cost effective technology for measuring marine biodiversity and marine health status in European waters. Genomic methods can yield faster results from monitoring, provide easier and more reliable taxonomic identifications, and deliver quicker and more information-rich assessments of the environmental status in marine waters. The use of such modern approaches in future monitoring programmes has the potential to improve the ecosystem based management in the marine environment, and helps achieving the goals of the Marine Strategy Framework Directive (MSFD) as well as other marine legislations world-wide.

The symposium brings together leading scientists from the fields of marine genomics and marine ecology, all representing major European initiatives in the field of environmental monitoring. We will use the meeting to discuss the scientific progress of marine biodiversity genomics and its utility for at least four major descriptors of the Marine Strategy Framework Directive (biological diversity, non-indigenous species, populations of commercially exploited fish/shellfish, and elements of marine food webs). The outcome of the meeting will be accelerated integration of marine genomics and ecological research programmes in European waters.

### PAN-EUROPEAN PARASITE ECOLOGY: LINKING EARLY-CAREER RESEARCHERS

Organised by Jon Bielby (Institute of Zoology, Zoological Society of London) and Inês Fontes (The Natural History Museum, London).

#### Proposed keynote Speaker:

**Dr Nathalie Chabonnel, (Centre for Biology and Centre for Populations (INRA/IRD/Cirad/Montpellier SupAgro), INRA Montpellier, France):** *Immune changes along invasion roads: theoretical predictions and real patterns observed in wild populations of *Mus musculus domesticus* in Senegal.*

Over the next century, parasites and pathogens will play a key role in the global status of human health, food security and ecosystems services. Understanding the ecological and evolutionary processes underpinning interactions between hosts and parasites, and also their ecosystem, is therefore of the upmost importance to the well-being of society as a whole.

By their very nature, parasites and pathogens are difficult to study, requiring the application of a disparate range of disciplines, techniques and skills to disentangle the complexities of their ecology and evolution. Further, as a result of the expansion of travel and trade in the late 20th Century, the opportunity for the global spread of parasites and pathogens has increased greatly. Efforts to understand and mitigate their impacts will therefore require collaborations that cross political, geographic and linguistic boundaries. The specific aims and objectives of the symposium are:

- To highlight recent developments in research into the ecology and evolution of parasites and pathogens
- Bring together promising scientists at early career-stages to illustrate the high quality of scientists within Europe today,
- To provide a forum in which exchange and cross-fostering of ideas may take place amongst early-career stage scientists,
- To serve a platform for the development of future collaborations and research networks across the EU, and beyond.

### REFORMING AND IMPLEMENTING THE COMMON AGRICULTURAL POLICY, THE ROLE OF SCIENCE AND THE NEED TO UNDERSTAND POLICY-MAKING

Organised by Piero Visconti (Microsoft Research Computational Ecology Lab. Cambridge); Tim Graham (Yorkshire Wildlife Trust); Andras Baldi (MTA Centre for Ecological Research, Institute of Ecology and Botany, Hungary) and Guy Pe'er (Helmholtz Centre for Environmental Research, Leipzig, Germany).

#### Proposed keynote speaker

**Tim Benton (University of Leeds, UK)**  
*Making the case for policy in sustainable agriculture: the right evidence is necessary but not sufficient.*

Agricultural intensification and the loss of semi-natural habitats seem to be slowing

down in some countries of north-western Europe, reflecting positively on some taxa. However, the expansion of the European Union (EU) and the European common market are continuing to drive rapid agricultural intensification in the rest of Europe. Aided by the financial incentives of the Common Agricultural Policy (CAP), agricultural areas are still subject to increasing agrichemical inputs, abandonment of marginal land, increasing scale of agricultural operation and associated loss of the landscape heterogeneity. Consequently, European farmland biodiversity continues to decline. In this symposium, we to look at the 'bigger picture' of agricultural policy by understanding how political decisions are made, and what kind of scientific evidence is required by policy makers to take decisions.





# BES and SFÉ Joint Annual Meeting

9–12 December, Lille, France

## OVERVIEW

#AM14 [BritishEcologicalSociety.org/AM2014](http://BritishEcologicalSociety.org/AM2014)

### Your favourite Oral Sessions and Posters

- Ecosystem Ecology
- Climate Change & Ecosystem Services
- Soils & Agricultural Ecology
- Forest and Aquatic Ecology
- Evolutionary and Physiological Ecology
- Biodiversity, Conservation & Ecosystem Services
- Parasites, Pathogens, Predators, Pollinators and more Ps!

### Keynote Speakers:



**Pedro Jordano:**  
Heads Spanish panel for the National Research Plan, Ministerio de Ciencia e Innovación



**Anne Larigauderie:**  
Head of Science in Society at the International Council for Science



**Camille Parmesan:**  
In her capacity as a Lead Author, she shared the 2007 Nobel Peace Prize to IPCC

## JOIN US!

### Workshops and Social Events:

- Special Interest Groups from France, UK and more
- Careers, Grants, Policy, Publications, Statistics etc. Workshops
- Gala Dinner with Warblefly (live music)
- Innovative, fun networking events

### 10 Thematic Symposia:

- **Ecological networks: from descriptions to predictions**  
*Sonia Kéfi, Timothée Poisot, Daniel B. Stouffer*
- **Eco-evolutionary feedbacks: theoretical and empirical perspectives**  
*Florence Débarre, François Massol*
- **Ecological Implications of Tree Diseases**  
*Allison Hester, Glenn Iason, Ruth Mitchell, Andy Taylor*
- **Pan-European Parasite Ecology: Linking Early-Career Researchers**  
*Jon Bielby*
- **Ménage à trois: ecological consequences of intricate interactions between plants, microbes and insects**  
*Arjen Biere, Enric Fraga*
- **Accelerating ecology and biodiversity research via ecometagenomics: species, communities, and environmental DNA**  
*Holly Bik, Simon Creer, Dorota Porazinska, W. Kelley Thomas*
- **Reforming and Implementing the Common Agricultural Policy, the role of science and the need to understand policy-making**  
*Andras Baldi, Tim Graham, Guy Pe'er, Piero Visconti*
- **Biological impacts of climate change: Reconciling macro-scale patterns with local-scale processes**  
*Richard Pearson, Blake Suttle*
- **Extending freshwater management beyond shorelines by linking aquatic and terrestrial ecosystems**  
*Andrew J. Tanentzap*
- **Genomics in marine monitoring: New opportunities for assessing marine health status**  
*Matthias Obst, Elisabeth Paymal*

## MORE SOCIETY NEWS



Kate Harrison and Katherine Maltby help visitors to the BES stand at SCCS in Cambridge

### THE BES AT SCCS

In March each year the Department of Zoology at the University of Cambridge plays host to dozens of young and young-at-heart conservation biologists for the Student Conference in Conservation Science. This year's event was the fifteenth in a series which has now expanded to embrace similar events in Australia, Bangalore, New York and Hungary, forming the only series of international conferences in conservation science aimed entirely at students. SCCS provides a wonderful learning and networking experience for a truly international gathering of young conservationists. Over three days delegates attend plenary lectures from senior figures in the field, listen to and present student talks and poster sessions, and take part in workshops. 'Meet the conservationist' sessions give delegates the opportunity to network with professionals from leading UK and international conservation bodies.

The BES takes a display stand at this meeting each year to promote the work that the Society does in supporting research, publications and student education, and of course delegates

are encouraged to take advantage of membership of the Society. Membership Officer Bill Bewes was particularly pleased to meet Susanna Mason during the conference. As announced in the last *Bulletin*, Susanna was the lucky winner of a free lifetime membership of the BES in our Centenary membership drive, so we can look forward to seeing Susanna at BES meetings for many years to come.



Yanchen Lin explains to BES Membership Officer Bill Bewes how he took the wonderful photograph that adorns the BES membership banner on the right of the picture.

The next SCCS in Cambridge is scheduled for 24-26 March 2015 and the deadline for applications is Friday 24 October at 10.00 GMT. More information from <http://www.sccs-cam.org/>

## 100 INFLUENTIAL PAPERS

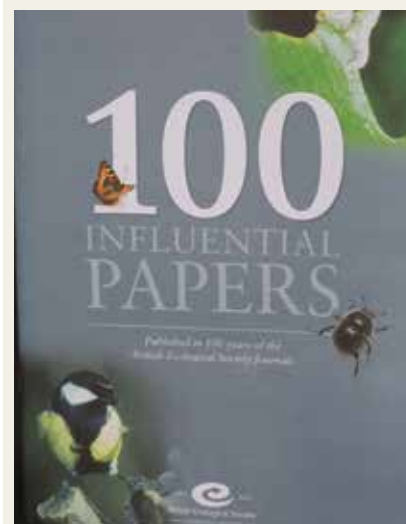
In early 2012, the working group planning our Centenary asked Peter Grubb and John Whittaker to prepare the scientific content of a booklet bringing together a selection of the most influential papers published in our journals.

We are incredibly proud to announce this unique book is now available online: [www.BritishEcologicalSociety.org/100papers/100InfluentialPapers.html](http://www.BritishEcologicalSociety.org/100papers/100InfluentialPapers.html)

In selecting the papers Peter and John chose a mix of criteria, including numbers of citations and downloads. The editors also placed strong emphasis on the suggestions of respected ecologists around the world; they felt that, as researchers and teachers, they could detail what had most influenced them in their thinking.

The selected papers represent a great spread over the ten decades, with an average of six per decade in the first 50 years and 13 per decade in the last 50 years.

We encourage you to log in and leave comments on each chapter – as well as suggestions for our next anniversary book!



# THE BEST PHOTO COMPETITION 2014

The popular photographic competition is running again this year, but at the time we go to press the details of this year's event have not been finalised. Every year the competition offers prizes to winners in several categories as well as an overall winner, and all receive very worthwhile prizes as well as appearing in a future edition of the *Bulletin*. Watch the website and regular *eBulletin* mailings for news of this year's competition. We reproduce here a winning entry from the recent past and there is an utterly unhelpful set of useless tips from the *Bulletin* editor at the end of this issue (p68).



Photograph by Ute Bradter

## ECOLOGY EDUCATION AND CAREERS

### A practical change



**Karen Devine** / BES Education Manager  
Karen@BritishEcologicalSociety.org

On April 9th 2014 the Department for Education and Ofqual, the body charged with maintaining standards and confidence in qualifications, published their final reforms for GCSE and A-level sciences. The changes due to take place in assessment of these subjects will have significant impacts for students and schools.

Students currently undertake an assessment of their practical skills which counts towards their final grade: from 2017 students will obtain A-level grades based entirely on written examination. Practical work will be reported as a separate pass/fail grade.

Ofqual themselves in the documentation assert that many undergraduates arrive at university without practical skills because they are not taught them as part of their A level study

#### THIS CHANGE AIMS TO ADDRESS A NUMBER OF ISSUES:

- Practical assessment has led to narrow teaching
- Students obtain very similar results, usually at the high end of the scale
- Students usually get better results in practical assessments than written examinations
- They are open to malpractice

In order to pass the practical element of their course, students must at least carry out a minimum of 12 practical activities. Students may be further tested on their practical knowledge through their written exam.

In an ideal world, students will do more practical work than they do currently across a broader range of biological conceptual knowledge. This is an improvement over the initial proposals, which had placed no expectation on the number of practicals students should undertake, but it is important to know that students may fail their practical assessment and still obtain a Grade A.

University admissions tutors have noted that the pass/fail is unlikely to be picked up through current HE admissions processes. Whilst high performing schools have noted that if HE admissions do not require a pass in the practical assessment and failing it does not bar students from the highest grades, they will not invest too heavily in ensuring students pass.

The BES will continue to work with the learned societies, Society of Biology and SCORE to ensure that fieldwork is included in the 12 practical activities that students should routinely undertake.

Further work is currently being undertaken on the content of courses.

# Kick-start your ecological career!

*BES Undergraduate Careers Conference 2014*

**Juliette Linford** / University of Sheffield  
@JulietteLinford



*Some of the organisers of the student conference*

This February, aspiring young ecologists from across the UK gathered at Charles Darwin House, London for the much anticipated British Ecological Society's Ecology Careers Conference 2014.

The conference, now in its third successful year, was organised and run by the BES's Undergraduate Fellows. Their objective: to help other young ecologists learn more about the prospects and opportunities within the field of ecology. Designed especially for undergraduate students and recent graduates looking to kick-start their careers, the conference

featured a series of stimulating talks by professionals from a wide range of ecological sectors, including policy, communication, consultancy and research. As if that wasn't enough, the day also included panel discussions and short talk sessions covering an array of career management strategies. Most importantly, the conference provided a fantastic opportunity for participants to meet other budding ecologists, guest speakers and undergraduate fellows.

BES president Professor Bill Sutherland kicked-off the day with his plenary talk 'Why we need the next generation of ecologists'. His upbeat and interactive talk emphasised the importance of striving towards a 'new' type of ecology which has the ability to work alongside businesses in a more inter-disciplinary fashion.

So what was Bill's top piece of advice for young people looking to become part of the next generation of ecologists? Get something you've written published, no matter how large or small, in anything from journals and newspapers to online blogs. It shows you are passionate and interested in the subject – good advice I think!

A series of talks followed, exploring various career pathways in ecology, including opportunities at the science-policy interface (Professor David Raffaelli, University of York), careers in science communication (Robin Bisson, Science Media Centre), ecological research careers (Dr Cat Morrison, British Trust for Ornithology and Dr Johnathan Green, University of Liverpool) and ecological consultancy (Claire Wansbury, Atkins).

The morning session concluded with a panel discussion, providing participants with a great opportunity to 'ask the experts' about any aspect of their talks and/or careers. The panel shared a wealth of fantastic advice and guidance, and with so many questions to be answered, the informal Q & A session continued well into the lunch break!

Sandwiches devoured, the conference continued with the second plenary talk of the day: 'Managing a modern ecological career' with Julia Clause from the University of Rouen, France. Julia's motivating talk highlighted the key tools for success in an ecological career, such as communication and networking skills. She encouraged the audience to 'build their own toolbox' of skills unique to them and concluded the talk by offering her best pieces advice: listen, dare, be a life-long learner, seize opportunities and explore!

Following swiftly on with yet more nuggets of information was Ross Mounce from the University of Bath. His talk on the importance of social media for managing and developing your career was packed full of tips and guidance on how to utilise social media, such as Twitter, Facebook and LinkedIn, to boost online presence and improve career prospects.

Next up, it was time for the short talks session – as if our brains weren't already overflowing with information! This series of quick-fire presentations covered a range of career management strategies, including CV tips and tricks (Sarah Blackford, Society for Experimental Biology), finding the right Masters/ PhD (Dom Andradi-Brown, University of Oxford and Operation Wallacea), joining a learned society (Mark Edwards, University of Lincoln) and becoming part of the International Network of Next-Generation Ecologists, INNGE (Julia Clause, University of Rouen).

With the short talks session complete, a second panel discussion followed, giving participants a final chance to ask the panel any last burning questions they might have. Once the room was eventually exhausted of questions, it was time to wrap up the conference.

I know that I am not alone in saying, a day well spent.

### So, what were the main take-home messages from the day?

- Relevant voluntary and paid work experience is vital for getting a foot on the ecological career ladder;
- Social media, networking and blogging are all useful tools for improving your career prospects and making invaluable contacts;
- Get writing! – published work displays passion and commitment; and
- Be brave and grasp the opportunities that come your way!

This fantastic conference would not have been possible without the hard work and commitment of the Undergraduate Fellows who organised the event, and of course, the guest speakers who shared their time and knowledge. I would personally like to say a huge thank you to everyone involved in making the event such a success.

You can find more advice and resources from the day on the BES website: [www.britishecologicalsociety.org/careers](http://www.britishecologicalsociety.org/careers)

Juliette Linford is an undergraduate at the University of Sheffield, Industrial Placement Student at Atkins and an *Aspiring ecologist*

*Julia Clause encouraged the audience to develop a suite of skills*



## SCIENCE POLICY

# As I was telling the Nobel Laureate....

**Danny Heptinstall** / University of Aberdeen  
d.heptinstall@abdn.ac.uk

Danny Heptinstall, an ecology PhD student researching the population expansion of red kites at the University of Aberdeen, spent 4 months as a science advisor in the Parliamentary Office of Science and Technology (POST) thanks to the annual BES POST Fellowship scheme. Below he tells us a little bit about what he got up to and the opportunities the scheme provides.

***“...the thing is, in the chamber, we don’t often debate issues to which science is relevant...”***

*a quote from an anonymous MP...*

While sat in the MP in question’s office, deep within the Palace of Westminster, I was confidently assured of the above. The implication being, while it’s nice to hear the views of scientists every now and again, it’s really not that relevant to the work of an MP!

Few quotes from my time in Parliament better illustrate the gap that exists between scientists and parliamentarians – that is, MPs and Peers. But the quote also demonstrates one of the many fascinating and unique opportunities the BES POST Fellowship scheme can provide – the somewhat surreal chance to have a one on one chat with a politician about the role of science in society.

The scheme, open to 2nd and 3rd year ecology PhD students who are also BES members, allows you to spend 3 months on the front-line of the science:policy world, in the offices of the Parliamentary Office of Science and Technology. Despite the rather clunky name, POST staff are expert communicators – continuously distilling complex scientifically-derived information into accessible and easy to read “POSTnotes”. These are 4 page briefings that cover all areas of the physical, biological and social sciences, spanning policy topics as wide ranging as

the effects of e-cigarettes to the impacts of non-native plant species.

As POST is an independent, non-political office of both Houses of Parliament, its briefings are always neutral, merely describing the evidence base as it is, rather than providing opinions on what policies should be implemented – that’s for the politicians to decide after all! It’s this level of neutrality and impartiality that results in POST being held in such high esteem by many MPs and Peers, as well as the wider science:policy community.

During my time at POST I was tasked with producing a POSTnote on an aspect of the climate system that may affect climate mitigation policies, “climate feedbacks”. Three months may sound an excessive amount of time to write a 4 page note but when you consider the IPCC’s 5th Assessment Report, a synthesis in itself, contained several hundred pages on climate feedbacks – you start to see it’s no trivial task.

And if I’m honest – the thought of condensing a whole sub-field of academic research into 4 pages, while making it relevant to the decisions parliamentarians will have to make, was extremely daunting. Especially when you consider my previous knowledge of the climate system could have been written on the back of a napkin...

But the POST team are old hands at producing POSTnotes and there’s a pretty standard procedure to follow – first, background reading to get up to speed with the relevant terms and issues; then interviewing leading academics in the field to fill in the gaps, the second

stage being a real highlight for me, as how often do you get a personal tutorial with a leader of an academic field?

For me at least, not very often, but in the production of a POSTnote you talk to as many leaders in the field as you can. And it turns out; there really is no better way to understand a topic than to sit, undisturbed for an hour, with a whiteboard and a Fellow of the Royal Society expert in that area.

But the opportunity to learn about a new topic in a very short space of time, while honing your science communication skills, is not all the BES POST scheme offers. It also provides that most coveted of objects – a parliamentary security pass.



*The Calm before the storm at the Palace of Westminster*

This pass allows you access to pretty much all of Parliament, including many of its fine bars! Getting to hobnob with MPs and Peers (I accidentally elbowed Neil Kinnock out of the way while fighting my way to the Lords bar...) is a novelty which doesn't wear off quickly – neither does the opportunity to explore one of the world's great buildings at your leisure.

But more than the architecture and the bars, the pass also allows you to attend myriad parliamentary events, everything from champagne receptions toasting the publication of a new report to informal and intimate discussions with experts and policy makers. Sitting in a room with 20 other people to discuss the work of UNESCO with the UNESCO Director General was an experience I'll never forget. Nor am I likely to forget meeting Nobel Prize Laureate Professor Peter Higgs (see photo), or discussing biodiversity protection with 5% of the population (all 2 of them) of Pitcairn Island, the world's most remote inhabited island.

One of the strengths of the BES fellowship is that you are required to organise a parliamentary briefing event to complement the launch of your POSTnote. Organising this introduced me to the concept of the 'breakfast briefing', an ingenious idea that managed to get 12 parliamentarians and several leading climate change experts

and stakeholders to sit around a table for an hour to discuss the policy implications of climate feedbacks.

There was agreement from all that the breakfast was a success, with one MP wondering why politicians and academics didn't engage like this more often, a good question indeed! While another, having enjoyed the chance to interact with scientists so much, suggested it should be a funding condition that grant-holders must attend one 10 minute slot at their constituency MP's surgery each year. This certainly got me thinking; as considering my opening quote, imagine the impact it could have if all grant-holders discussed the policy implications of their research once a year with their local MP?

All in all it was an incredible experience and one that I am so grateful for BES, BES staff and BES supporters for providing. I have learnt an incredible amount that has not only improved my understanding of the role of science in Parliament and wider society, but has also caused me to look at my own research in a different light. I would strongly encourage all eligible PhD students to apply as it really is a once in a lifetime opportunity.

The BES POST Fellowship is open to 2nd and 3rd year PhD students who are interested in communicating science to politicians and policy makers. Applications for the 2014 scheme are now closed, but 2015's scheme will open in January. See <http://bit.ly/BESPOSTfellowship> for more information.



An opportunity to meet scientists who have shaped research – Danny chatting with Peter Higgs

## **SHADOWING SCHEME**

Our shadowing scheme offers early career researchers the opportunity to spend two days with MEPs and Ministers, finding out more about their day-to-day activities and how they utilise scientific evidence in their work. In recent years, participants have been able to shadow Defra Ministers, the Chief Scientific Adviser to Defra, natural environment Ministers in Wales, and MEPs from a range of political parties in Brussels. The experiences of a recent participant of the scheme, Stuart Auld, (Research Fellow at Stirling University) are available on the BES blog – <http://bit.ly/sauldblog>.

## **POLICY INTERNSHIP**

We offer three policy internships each year to individuals who are interested in learning more about science policy and communicating scientific evidence to policy makers. Interns work with the policy team at the BES for a period of 3 months and are able to build on their existing skills and develop new ones through writing blog posts and *Bulletin* articles, attending events, and assisting the team in developing policy reports and consultation responses.

*"This internship is a fantastic opportunity for anyone who has an interest in how science can influence policy and who wishes to learn more about the interaction between ecologists and policy makers. By attending events such as All-Party Parliamentary Group meetings at Westminster, I was given the chance to learn about legislative processes and how science can effectively inform policy. As someone who is passionate about both science communication and science-policy interactions, this internship has been a great learning experience and chance to interact with experienced and informative ecologists within the science-policy industry."*

**Gabrielle Flinn,**  
policy intern





Danny with just some of the millions of records from both Houses in the Parliamentary Archives

## CURRENT AND FUTURE BES MEETINGS

# Forthcoming BES and Special Interest Group Events 2014

Compiled by **Amelia Simpson** / BES Events Manager  
Amelia@BritishEcologicalSociety.org



### JUNE

DATE TBC

#### Peatlands SIG

Sphagnum Mosses Seminar

2ND – 4TH

#### Ecological Genetics SIG

Morphometrics and Multivariates

3RD – 5TH

#### Forest Ecology SIG

Continuous Cover Forestry

8TH

#### Citizen Science SIG

Open Farm Day

25TH – 27TH

#### BES Annual Symposium Joint Meeting with DICE

Considering the Future of Conservation

Location: University of Kent, Canterbury

### JULY

8TH – 9TH

#### Macroecology SIG

Annual Meeting

10TH – 11TH

#### Macroecology SIG

Software Carpentry Bootcamp

Location: TBC

21ST – 25TH

#### Aquatic SIG:

Early Careers Day, SIG Reboot and Detrital Dynamics in Aquatic Systems

Location: Charles Darwin House, London

### SEPTEMBER

DATE TBC

#### Conservation SIG

Landscape Delivery Scale

Location: Charles Darwin House, London

3RD – 5TH

#### Peatlands SIG

In the Bog

Location: Sheffield Showroom and Workstation

8TH – 10TH

#### BES Annual Symposium

ECO\*\*2

Location: BMA House, London

8TH – 13TH

#### Plant Environment Physiology SIG

International Workshop

Location: Portugal

### OCTOBER

2ND

#### BES Policy Training Workshop

(run by the Scotland Policy Group, jointly with Scotland Biodiversity Strategy Science and Technical Group)

Location: Edinburgh

3RD

#### BES Policy One-Day Conference

(run by the Scotland Policy Group, jointly with Scotland Biodiversity Strategy Science and Technical Group)

Location: Edinburgh

15TH-16TH

#### Conservation SIG

Invertebrate Ecology with AES

Location: Charles Darwin House, London

24TH – 25TH

#### Forest Ecology and Peatlands SIG

Waxcap Symposia

Location: Sheffield Hallam University & Longshaw, Peak National Park, Derbyshire.

### NOVEMBER

6TH – 7TH

#### NCI: Valuing Our Life Support Systems

Location: British Library, London

### DECEMBER

9TH – 12TH

#### Joint BES and SFE Annual Meeting

Location: Charles Darwin House

### DATES AND LOCATIONS TO BE CONFIRMED

Citizen Science SIG: 'Fit for Purpose'

Conservation SIG: Applied Dispersal Ecology, Conservation Evidence Workshop

Invasive Species SIG: Invasive Science Workshop, Evening Public Lecture

Macroecology SIG: Manifesto Workshop

Parasite and Pathogen SIG: BSP Symposium, Early Careers Event, Autumn Symposium

Plant Environmental Physiology SIG: 3rd Annual Symposium

Tropical Ecology SIG: Early Career Research Meeting

Computational and Macroecology SIGs: Software Carpentry Bootcamp

Macroecology and Citizen Science SIGs: 'Bridging the Gap'

Plant, Soils, Ecosystem and Plant Environmental Physiology SIGs: 'Cycling from Plants to Ecosystems'

Agriculture and Conservation SIGs: PME Training

As always, up to date information is posted on the BES website at [www.britishecologicalsociety.org](http://www.britishecologicalsociety.org)

# SPECIAL INTEREST GROUP NEWS

## ECOLOGICAL GENETICS

**Paul Ashton**  
ashtonp@edgehill.co.uk

It was sunshine on the Tyne rather than fog that greeted delegates at the 58th Ecological Genetics meeting, held at the Copthorne Hotel, Newcastle from 14th to 16th April and organised by Dr Kirsten Wolff and her excellent team. The varied programme included presentations from first time attendees through to seasoned EGG goers and covered the usual range of concepts and taxonomic groups. Arranged by broadly themed sessions (sometimes very broadly themed!), Wednesday opened with invasions, ploidy level changes and hybridisation to be followed by mating systems, selection and genome dynamics. Before the gruelling demands of the evening meal and the pub quiz, delegates took advantage of the fine weather with a stroll across the Tyne by the swing-bridge and back over the Millenium bridge.

Tuesday's sessions featured the excellent work on Aspen (*Populus tremula*) by invited speaker, Professor Per Ingvarsson of Umea University. Per summarised his work on gene flow, selection and post glacial history influence adaptation across the range of the species. Related talks covered polar bears, species rich grassland and pine trees (I said it was broad!). The final Wednesday morning sessions had a fishy component examining migratory patterns and genetic structure of salmonids in river systems while similar problems were addressed in lime trees and ash trees with the last talks outlining the extent and applications of barcoding.



EGG delegates on the Tyne

The Tuesday afternoon excursion was to the Northumberland Wildlife Trust reserve at Hauxley. This is an ex-industrial site adjacent to the sand dunes at the northern end of Druridge bay. Following the end of open cast mining the area was landscaped to provide a lake with islands, plus fen woodland, scrub and patches of grassland. The visit led by Dr. John Richards and undertaken in glorious sunshine enjoyed a tour of the reserve and also took in the peat deposits on the beach, a relict of the Mesolithic woodland and a suitable reminder of the colonisation pathways identified by genetic markers elsewhere at the meeting.

Identification of the Best Student Talk, sponsored by Oxford University Press, proved as difficult as ever. Voting revealed that Ben-Gurion University of the Negev provided both winners and runners-up for the talk, with Gili Greenbaum's piece on the importance of allelic diversity as a measure of diversity just ahead of Sharon Renan's presentation on genetic



EGG Prizewinners left to right; Elizabeth Donkin (Best Student Poster, Aberystwyth); Natasha de Vere (Best Non-student talk, NBG Wales); Gili Greenbaum (Best Student Talk, Ben-Gurion University of the Negev) Per Ingvarsson (Invited speaker, Umea University); Rebecca Kyle (Best Student Poster, Queen's), Kirsten Wolff (Organiser, Newcastle) and Raj Whitlock (Best Non-student poster; Liverpool).

*The Macroecology group's first event of 2014  
at the Natural History Museum, London*



variation in the Israeli populations of the reintroduced Asiatic wild ass. The Best Student Poster proved even more difficult with a tie between Elizabeth Donkin (Aberystwyth) and Rebecca Kyle (Queen's). Elizabeth's poster was on the optimal strategy for insects to find a host plant in a complex environment while Rebecca explained how genetic monitoring of the endangered freshwater pearl mussel (*Margaritifera margaritifera*) can inform ex-situ conservation strategies. An innovation this year was the introduction of prizes for established researchers with Raj Whitlock (Liverpool) and Natasha de Vere (NBG Wales) winning the best poster and talk prizes respectively.

This was a good conference, maintaining the EGG tradition of an excellent learning experience for new researchers while ensuring that established staff had abundant material to keep their knowledge up to date. In addition the field visit, pub quiz and the ceilidh added to the enjoyment and offered the opportunity to discuss work outside the usual sessions.



## MACROECOLOGY

Tom Webb  
@besmacroecol

Building on successful meetings in London (2012) and Sheffield (2013), we're delighted to announce that our 2014 Annual Science Meeting will be held at the University of Nottingham on 8th–9th July. More details on the programme and registration procedures will be available soon via the usual channels (see below), but we can already confirm that Dr Catherine Graham, from Stony Brook University, will be this year's keynote speaker.

The annual meeting will be followed immediately by a Software Carpentry Bootcamp, again in Nottingham, which we are running together with the Computational Ecology SIG. So if you want to develop your computational skills, look out for further announcements (we expect this event to be very popular, and places are limited!)

*Hot off the press: news from our first event of 2014.* On 1st April, the BES-PalAss sponsored meeting *Challenges in Macroecology: Scaling the Time Barrier* took place at the Natural History Museum, London. The aim of the meeting was to bring together macroevolutionary researchers from paleontological and neontological communities to forge new collaborative links, explore ideas and identify research priorities. To try and do more than just play lip-service to the notion of collaborations and cross-fertilization between fields we decided to take an experimental approach, mixing up traditional keynote speakers (David Jablonski, Lee Hsiang Liow, Kathy Willis), with lightning talks (17 of them!), breakout discussion groups and – most controversially – speed-dating across timescales. A risky strategy, perhaps, but it worked. By the end of the day breakout groups had identified five core challenges, and five research priorities in macroecology, and there was both considerable overlap in the topics identified (more on this soon) and a sense of community commitment to addressing them. Discussion continued well into the wine reception (kindly sponsored by BMC Ecology) and hopefully will continue to do so. *The BES Macroecology SIG Committee would like to offer our sincere thanks to the organisers, Isabel Fenton, Victoria Herridge, Phil Jardine and Adriana De Palma, for all their hard work in making this event such a success.*

Finally, we would like to draw your attention to a new article in *Frontiers of biogeography*, "Where next for macroecology: citizen macroecology?" by Laura Graham, Joseph Bailey, Adam Algar, and Richard Field. This is both a report of the 2013 Sheffield meeting, and an opinion piece about the value of citizen science data for macroecological research, and is well worth a read! You can download it from: <http://www.escholarship.org/uc/item/43d114jb>

To keep up to date with all our activities, see our websites <http://www.britishecologicalsociety.org/getting-involved/special-interest-groups/macroecology/> and <http://macroecologyuk.weebly.com> for details, mailing list instructions, etc.; or follow us on Twitter: @BESMacroecol (over 800 of you already do!)



## PLANTS, SOILS, ECOSYSTEMS

**Franciska de Vries**  
[franciska.devries@gmail.com](mailto:franciska.devries@gmail.com)

A one-year-old BES special interest group on plant-soil interactions, with a focus on biogeochemical cycling, community dynamics, and ecosystem functioning.

### Aims

- To promote research on plant-soil interactions and their role in ecosystems through workshops, symposia, and events at BES meetings
- To provide opportunities for networking and collaboration among researchers involved in the study of plant-soil interactions and ecosystem ecology
- To serve as a platform to discuss and share techniques, expertise, and data
- To promote research across scientific disciplines to students, facilitate training opportunities in different techniques, and provide support for early-career researchers

### Committee

The organizing committee currently consists of Franciska De Vries, The University of Manchester (Secretary: [franciska.devries@gmail.com](mailto:franciska.devries@gmail.com)); Ellen Fry, The University of Manchester; Mike Whitfield, Lancaster University; and Sarah Pierce, Imperial College, as student representative. Also affiliated

are Emma Sayer, The Open University; Paul Kardol, Swedish University of Agricultural Sciences; Tim Daniell, The James Hutton Institute; and Dave Johnson, Aberdeen University. Richard Bardgett, The University of Manchester, supports the committee in an advisory role.

**Plants, Soils, Ecosystems online journal club!**  
[besplantsoileco.wordpress.com](http://besplantsoileco.wordpress.com)

The Plants, Soils, Ecosystems journal club blog has been running for nearly two months now. The idea behind the journal club is to highlight interesting papers in the field of plants, soils and ecosystems (potentially a very broad topic!) and stimulate discussion about the papers. The discussion does not necessarily have to focus on the scientific content of the paper – it could also look at the ways in which papers have been written, or data presentation techniques, for example.

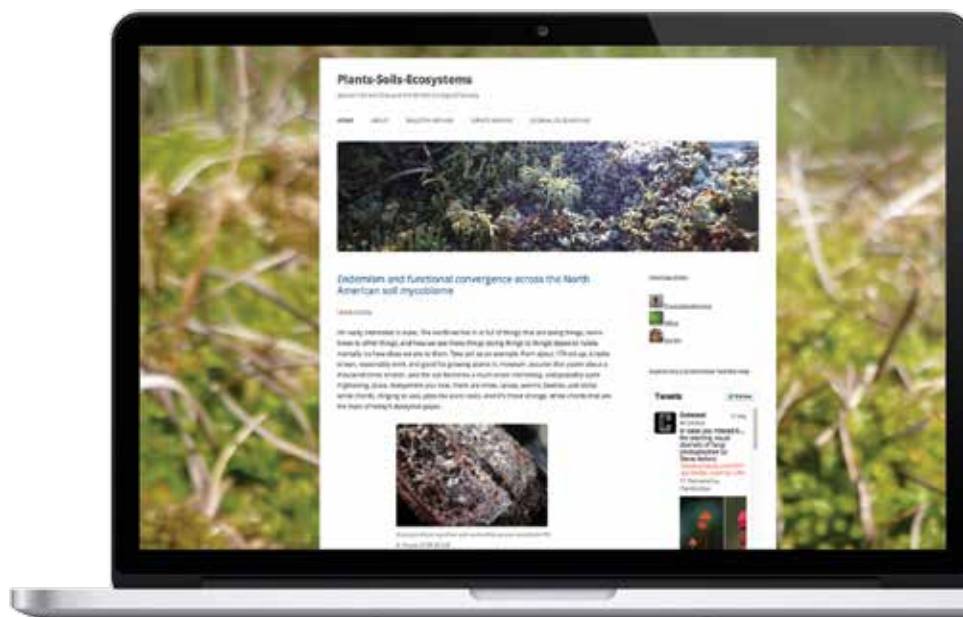
The journal club has attracted a fair amount of attention. So far we've covered three papers – 'Mycorrhiza-mediated competition between plants and decomposers drives soil carbon storage' by Averill et al., 'Eutrophication weakens stabilizing effects of diversity in natural grasslands' by Hautier et al (both in *Nature*), and 'Interactions with soil biota shift from negative to positive when a tree species is moved outside its native range' by Gundale et al. (in *New Phytologist*).

The blog has attracted over 1000 hits from 34 countries! We've had some great comments on the website, and some interesting interactions on Twitter (hashtag #psejclub), including responses from the authors of the papers discussed. But we'd love to see more people getting involved in the discussions!

If you haven't seen it yet, you can find the blog at [besplantsoileco.wordpress.com](http://besplantsoileco.wordpress.com). We're aiming to post about a new paper every two to three weeks. So far, three of us have suggested papers and contributed posts, but we'd welcome suggestions and/or posts from anyone else who is interested. You can get in touch with us via Twitter, Facebook, the blog, or email.

### Plants, Soils, Ecosystems Bulletin

Plants, Soils, Ecosystems not only sends interesting emails about job opportunities, studentships and meetings regularly to those who signed up for our email list, we also compile a two-monthly *Bulletin*, which involves everything of interest to ecologists interested in plant-soil interactions, and is compiled by our committee member Sarah Pierce. If you also want to stay up to date with everything that is happening in Plant-Soil-Ecosystem world, sign up for the newsletter! But more importantly, the success of PSE depends on you, so keep sending us your jobs, studentships, and interesting facts.



The new Plants, Soils, Ecosystems online journal club blog.

## 2014 Activities

We are full of plans for 2014, but still finalising the specifics. The things you can expect from us this year:

Two-day PSE-PEPG meeting 'Carbon cycling: from plants to ecosystems', The University of Manchester, UK, 16-17 October 2014. This meeting will be jointly organised with the BES Plant Environmental Physiology Group, and will focus on carbon cycling processes from the individual plant level, including photosynthesis and root exudation and their effects on soil C cycling processes, to the ecosystem level, including plant community controls on ecosystem carbon budgets. Talks will also address how global change, including climate change, affects these processes across scales. Registration will open soon. Keynote speakers still have to be confirmed, so keep an eye out for us on twitter (@BESPlantSoilEco) or sign up for our email list (see below).

## GSBI CONFERENCE IN DIJON, FRANCE, 2-5 DECEMBER 2014.

The First GSBI Conference – Assessing Soil Biodiversity and its Role for Ecosystem Services, is organised by the GSBI (Global Soil Biodiversity Initiative) and Ecofinders and held in Dijon, France, December 2-5th, 2014. This will be a dynamic international meeting summarizing the current state of knowledge and recent advancements in the science of soil biodiversity.

The conference will provide a venue to meet and discuss current research efforts in soil biodiversity and its links to earth processes, and to promote interdisciplinary collaboration. The goal of this meeting is promote scientific research on the role of soil biodiversity for ecosystem functions and ecosystem services, and to integrate such understanding into international environmental agendas, sustainable policy and land management decisions.

Of course, Plants, Soils, Ecosystems will be present and active at this great conference. We will organise an informal drinks reception/ mixer on the evening of Tuesday the 2nd of December, and we are likely also organising a session – keep an eye out for details!

## JOINT BES-SFÉ ANNUAL MEETING IN LILLE, FRANCE, 9-12 DECEMBER 2014.

Still a long time away, but as at every Annual Meeting, of course Plants, Soils, Ecosystem will be present this year! Unfortunately, our proposed symposium didn't make it, but keep an eye out for our social activity, which will hopefully take place in an atmospheric French café somewhere in Lille. This is the ideal opportunity to get to know us and to get involved in the special interest group, as we will make plans for 2015 during this meeting. You can have your say!

### Join us!

Sign up for our email list by sending an email to [listserv@jiscmail.ac.uk](mailto:listserv@jiscmail.ac.uk) Subject: BLANK Message: SUBSCRIBE PLANT-SOIL-ECO Firstname Lastname, follow us on twitter @BESPlantSoilEco, or like us on facebook.



## CITIZEN SCIENCE

Helen Roy

### Meeting updates

The new Citizen Science SIG is planning two meetings in the coming months to follow on from our inaugural meeting at Charles Darwin House in November. The first is a two day meeting in July, the first day will be hosted by CEH Wallingford and the second by Oxford University. The theme of the meeting is "Citizen Science Fit for Purpose", which we will be considering from the perspectives of scientists, policy makers and participants.

The second meeting will be held jointly with the BES Macroecology SIG in London in September, recognising the fact that data collected by volunteers underpins many studies in large scale ecology. The meeting will bring

together professional ecologists, "citizen scientists" and third sector organizations and will cover general themes of 'challenges and opportunities' and highlight case studies of successful collaboration between professional scientists and volunteer groups.

In addition we have been invited to collaborate on two further meetings. One will be with the Invasive Species SIG and the other with the Conservation Ecology SIG. We are looking forward to developing the plans for these over the coming months.

Keep an eye on the BES website for further details of these meetings and information about how to register. If you would like to join our mailing list, please email [citizenscience@ceh.ac.uk](mailto:citizenscience@ceh.ac.uk)

# OF INTEREST TO MEMBERS

## OPEN FARM SUNDAY

In June 2014, the Centre for Ecology and Hydrology (CEH), alongside the Bumblebee Conservation Trust (BBCT) are running the Pollinator Survey for LEAF Open Farm Sunday (<http://www.farmsunday.org/ofs12b/home.eb>) 2014. The BES Citizen Science Special Interest Group is kindly supporting this event which will see ecologists from across the UK visiting farms and working alongside members of the public to record insects visiting flowers in crop and non-crop habitats. This survey was initiated by CEH and LEAF in 2012 and has run annually since then.

The survey was established to demonstrate the diversity of insects on farmland to people visiting farms on Open Farm Sunday. It provides an opportunity to explain the importance of these insects in farmland ecological processes. The Open Farm Sunday pollinator Survey has been extremely popular over the last few years, with over 1000 participants in 2012 and 2013 recording over 25,000 insect sightings, and we are hoping that even more people will get involved this year.

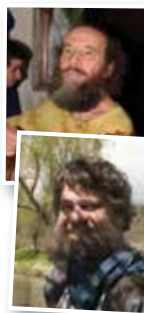
Open Farm Sunday has been running since 2006 and attracts thousands of visitors every year. It is a fabulous opportunity for BES members and others to engage with the farmland visitors and share their enthusiasm for farmland and ecology.

If you would like to know more about this survey, or if you would like to volunteer as one of the farm ecologists, please contact the CEH OFS coordinator Jodey Peyton [joyt@ceh.ac.uk](mailto:joyt@ceh.ac.uk)

## MULTIVARIATE ANALYSIS OF ECOLOGICAL DATA USING CANOCO 5

**Course tutors:**  
**Jan Lepš & Petr Šmilauer**

Applications are now being accepted for this course, to be held at the Faculty of Science in Ceske Budejovice, Czech Republic, from 27 January – 6 February 2015. This popular course, offered regularly since 1997, focuses



on major modern approaches to the analysis of multivariate data, and is specially designed for researchers and students in all fields of ecology and conservation. In-depth lectures and practical sessions cover the following topics:

- Classical ordination methods (PCA, DCA, PCO, NMDS)
- Constrained ordination methods (CCA, RDA), including partial analyses, variation partitioning, principal response curves, and permutation tests of multivariate hypotheses
- Tuition on the interpretation of various ordination diagrams, and on the efficient use of Canoco software; all practicals are run with Canoco 5 (<http://www.canoco5.com>)
- Course participants are expected to bring data from their own projects and will be given time to apply methods mastered during the course to their own datasets. The course lecturers will be available to provide individual assistance.

The course follows the structure of our book Šmilauer & Lepš (2015): *Multivariate Analysis of Ecological Data using Canoco 5*, 2nd Edition, Cambridge University Press.

Further information about the course can be found at <http://regent.jcu.cz> and you are also welcome to address any enquiries to the course manager, Petr Šmilauer, at his e-mail address: [petrsm@jcu.cz](mailto:petrsm@jcu.cz)



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# DR MARK A JERVIS

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*Our friend and colleague Mark Jarvis passed away on Tuesday 11th March 2014. He was a world-renowned entomologist and an expert in insect life histories and integrated pest management. He was a Senior Lecturer within the School of Biosciences and was regarded both as an outstanding teacher and researcher.*

Mark obtained a first class degree in Zoology from Royal Holloway and then came to Cardiff in 1973 as a demonstrator. He went on to do his PhD (awarded in 1978) on the Hymenoptera and Diptera parasitoid community attacking Typhlocyinae leafhoppers on woodland trees, under the tutelage of Professor Mike Claridge. Mark published regularly and his over 100 peer-reviewed articles attest to this fact. From his earliest publication on the taxonomy of a group of parasitic insects to his most recent publications, Mark's scholastic capabilities were clear. His study, with Neil Kidd, of host-feeding strategies in parasitic wasps, published in 1986, set a standard influential to this day. His papers during the last decade, published with Peter Ferns and colleagues, which used the ovigeny index to assess reproductive investment, are also of real importance. Mark continued to be active and in April 2012, he published another landmark paper with colleagues Annika Moe and George Heimpel on "*The evolution of parasitoid fecundity: a paradigm under scrutiny*" in *Ecology Letters*.

His book, first co-edited with Neil Kidd and later as sole editor, on *Natural Enemies* remains the essential text for many undergraduate courses. Mark was also Editor of the *International Journal of Pest Management*. He also sat on other Editorial Boards, but *IJPM* was the main focus of his interest and efforts. Strategically he built up the journal to become one of the most respected publications in its field. More recently, he had also developed a fascination with the history of science; the work of Robert Hooke and Henry Power had captured his imagination. Mark was due to give a public lecture at the Royal Society on Robert Hooke's Micrographia, on the Friday of the week he passed away.

With Mike Claridge and others, Mark was instrumental in setting up an internationally recognised Masters course in Applied Insect Taxonomy. His undergraduate teaching contributions in animal diversity, integrated pest management, evolution and ecology impacted on a whole generation of zoology undergraduates and judging from the reaction we have received from Cardiff zoology alumni, it must reach across the globe. He will be profoundly missed.

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**Mike Bruford** / School of Biosciences, Cardiff University  
**Hefin Jones** / School of Biosciences, Cardiff University  
**Mike Wilson** / National Museum Wales

# DR REBECCA LEAPER



1972—2013

Last month, marking an undergraduate essay, one reference cited stood out: Leaper & Miller 2011. What struck me was that, in all the personal memories of good times with Becs which poured onto Facebook<sup>1</sup> from all over the world following her tragic death last year, it was rather overlooked that she – Dr Rebecca Leaper – was a considerable ecologist too, a stalwart of the BES, as well-regarded by her professional peers as she was by her many friends. Becs was just 41 when she died, and her career had certainly been hindered by her health, yet she leaves a body of work encompassing some key topics in fundamental and applied ecology.

Her PhD, with Dave Raffaelli (then at Aberdeen), focused on the role of body size in marine food webs, and combined arduous fieldwork in the mud of the Ythan estuary with clever tests of emerging ecological theory. It was, in Dave's words, "a superb piece of work", with publications in *Ecology Letters*, *Journal of Animal Ecology*, and elsewhere a testament to its quality. Subsequent to that, she worked at the Marine Biological Association in Plymouth where she contributed to their exceptional long-term time series of intertidal species. And on moving to Tasmania, she shifted focus again to Southern Ocean ecosystems and to whale research and conservation, where her contributions to International Whaling Commission meetings were particularly appreciated.

Throughout, Becs set enormously high standards for herself. Seldom have I met a scientist with the same furious commitment to get things *absolutely right*. Frequently she would be up until the early hours re-running and double-checking analyses for a talk she was due to give the following day. This obsessive attention to detail probably caused her to publish less than she might have; but when she did deem something up to scratch, you could be pretty confident that it was.

Spending time with Becs was never boring. She was generous, funny, infuriating, and constantly on the verge of crisis, traits that carried over into her work. As Dave puts it, Becs was "one of the most challenging and most rewarding students to work with. No easy ride for a supervisor. One moment I would be rightly assaulted over some loose ecological statement I had carelessly made and which she decided it was her sole mission to instantly refute and (usually correctly) correct. The very next moment she was absolutely certain that she wasn't worth an intellectual fig and I'd spend the next hour convincing her that she really was the best thing since sliced bread in ecology (as she was). A delightful mixture of genius and vulnerable child and I loved her to bits – who couldn't?" Who indeed? The reward outweighed the challenge every time.

In late March, a group of us gathered at Forvie Nature Reserve to plant a rowan tree in Becs' memory overlooking one of her former field sites on the Ythan. If you're up that way, drop by and say hello; raise a drink to her, why not? We did. The international ecological community has lost a significant talent. We've lost a friend.

Tom Webb / School of Animal and Plant Sciences, University of Sheffield



## REFERENCES

<sup>1</sup> If you knew Becs and would like to read the many Facebook tributes to her, please contact either myself (t.j.webb@sheffield.ac.uk) or Alison Holt (a.holt@sheffield.ac.uk) and we can invite you to the group.



# SOAPBOX ON SPEED



Soapbox science (featured in the April 2013 issue of the *Bulletin*) is now in its fourth year and the project has been such a huge success that it's being rolled out at other cities across the UK and Ireland.

We sent our 'speed interview' questionnaire to women ecologists who are/have been involved with Soapbox Science, asking them to send short responses to the following questions:

- How or why did you get into ecology?
- What is your area of research and why do you find it fascinating?
- What do you think is the biggest challenge to women in Ecology?
- Why did you decide to do Soapbox Science?
- Finally, who is your favourite super-hero(ine)?

So without further ado, please allow us to introduce four soapbox scientists (in alphabetical order)...

## FIND OUT MORE

Find out more about Soapbox Science on the website <http://soapboxscience.org> or follow them on Twitter: @SoapboxScience



### EMILY BELL UNIVERSITY OF BRISTOL

@emilyfbell



#### I got into ecology because...

Since I can remember I have always been fascinated with the natural world. I spent many happy hours hunting for bugs, catching butterflies and pouring over natural history books. Going on to study the ecology and evolution of these organisms was just a natural step for me, allowing me to indulge my geeky fascination at a whole new level!

#### My research area...

Technically by trade I am a behavioural ecologist. My work focuses on understanding the evolution of social behaviour in insects, in particular the behaviour of tropical paper-wasps in Panama. My research aims to improve our understanding of how ecological and environmental factors influence insect behaviour not only at the phenotypic level but also right down to the molecular level. When you spend as many hours as I do watching nests of wasps you realise just how similar to humans they can be. They fight, bicker, show wonderful parental care and divide up the work perfectly between them.

Understanding more about this behaviour and trying to find the genes behind them is the ultimate fascination.

#### The biggest challenge for women ecologists is...

Female scientists remain extremely underrepresented at the highest ranks of academia, which is still a male-biased world. I think that one of the biggest challenges facing women in ecology today (and of course the other science subjects too) is having equal opportunities to reach these positions.

#### I did Soapbox Science because...

I started my PhD at the Institute of Zoology where both Soapbox co-founders, Natalie and Seirian, were working and started the project. Their enthusiasm about promoting the role of women in science is infectious. They are so passionate about Soapbox that you cannot help but want to be involved. It is such a great cause, I feel fortunate to be a woman in my position with the opportunity to conduct the work I do and wanted a chance to share this.

#### My favourite super-hero is...

Possibly my favourite heroine from scientific history is the palaeontologist Mary Anning. Whilst combing the Dorset coastline she discovered some of the first specimens for ichthyosaurs and plesiosaurs that dramatically influenced our scientific thinking about prehistoric life on Earth. As a woman in the 19th Century she was often not recognised for her scientific discoveries but this did not prevent her dedicating her life to her love of palaeobiology.

**YVONNE BUCKLEY**  
**TRINITY COLLEGE DUBLIN**

@y\_buckley



**I got into ecology because...**

I grew up surrounded by nature and wanted to find out what made it work and how to manage it. I particularly enjoy working on plants because they stay still to be counted (mostly!).

**My research area...**

I work on discovering what makes populations increase, decrease or stay stable through time. I'm particularly interested in how management actions to conserve threatened species or control problematic species affect populations. I find it fascinating because it sounds like a simple question but is in fact quite complex and requires a broad understanding of ecology in general, interactions between species and an understanding of the human aspects of management like social structure, economics and even individual psychology!

**The biggest challenge for women ecologists is...**

I think that in the past there has been a fairly singular way of doing ecology, led by a single investigator who builds a group and succeeds in that way. There are now more diverse approaches that can, and are, being taken in ecology that go beyond the single-investigator model. Having a diversity of approaches, which can happen by attracting a diversity of different kinds of people into ecology, is powerful and could lead to major progress in the field. Women are well-represented in ecology and have risen to senior levels, we need to make sure that their achievements are recognized, whether they take the single-investigator route or make their contributions in more unconventional ways.

**I did Soapbox Science because...**

I enjoy communicating my science and Soapbox Science taps potentially quite a different audience to the people I'm

used to communicating with. It has been important in my own career for me to see women succeeding in ecology, so increasing our visibility I think will have an impact on attracting women into the field and retaining them.

**My favourite super-hero is...**

My friend Joslin Moore (another female ecologist) gave me a book for my daughter called "The power of cute" which is about a little girl with a super power: she's super-cute, and she uses this to make the big scary monster tiny and cute and puts him in a home for cute little monsters. I love it as it subverts a quality that we traditionally think of as not powerful (being cute) and makes it powerful.

**RUTH CALLAWAY**  
**SEACAMS PROJECT,**  
**SWANSEA UNIVERSITY**



**I got into ecology because...**

Going on holidays to the Baltic Sea as a child. I wanted to get a 'proper job', but whenever there was a decision to be made I opted for the one leaning toward ecology and particularly the coastal marine environment.

**My research area...**

I am a marine benthic ecologist. The ecology of each benthic species is so different, so unique, that it is mindboggling to understand how they live. Their communities are complex systems and it is important to understand how they respond to natural and man-made changes.

**The biggest challenge for women ecologists is...**

Increasing the numbers of women in senior positions.

**I did Soapbox Science because...**

It seems just the right mixture of a terrifying challenge and fun.

**My favourite super-hero is...**

Alfred Russel Wallace

**NATALIE COOPER**  
**TRINITY COLLEGE DUBLIN**

@nhcooper123



**I got into ecology because...**

I've always been fascinated by nature and I like trying to solve problems, so ecology is a perfect fit.

**My research area...**

I work at the intersection between macroecology and macroevolution, so I think about how ecological processes have shaped broad spatial and temporal scale patterns in biodiversity. I love it because I get to take methods from ecology and apply them to evolutionary questions and vice versa. It also gives me great freedom to work on different systems and questions, for example I'm currently working on squirrel parasites, tenrec echolocation and fossil primates.

**The biggest challenge for women ecologists is...**

Implicit bias. Even though there are lots of amazing female ecologists, whenever you ask someone (male or female) to name their favourite ecologists inevitably they name men. This means fewer women get invited to give seminar talks, join workshops, talk at symposia, get nominated for prizes etc., which has knock-on effects for their careers.

**I did Soapbox Science because...**

I've been aware of Soapbox Science for years and think it's a great way to increase the visibility of women in science. So when Nathalie and Seirian approached me to see whether I'd be willing to run a satellite event in Dublin I jumped at the chance! It's also a good way to network. Meeting the speakers and volunteers has been great!

**My favourite super-hero is...**

Buffy the Vampire Slayer! She was strong, smart and surrounded by other really strong women. That's rare in superhero land!

# How ‘natural capital’ has moved biodiversity conservation into the mainstream



**Irma Allen** / Development Officer, Natural Capital Initiative  
Irma@BritishEcologicalSociety.org

In 2009, the BES joined forces with the Society of Biology and the Centre for Ecology & Hydrology to form the ‘Natural Capital Initiative’. The aim of the initiative is to support decision-making based on sound science that results in the sustainable management of our natural capital by informing and creating opportunity for cross-sector dialogue. In 2012 the James Hutton Institute joined us, with the Chief Executive stating that “We see this venture as being hugely significant as the world continues to come to terms with the impact of environmental change.” Natural capital was gaining ground. At the end of 2013, I undertook an exercise for NCI to map this emerging landscape, identifying leading initiatives and organisations now working in this increasingly busy space. There were over 100 relevant initiatives, from research programmes to business

coalitions, government committees to NGO-led projects. That’s a lot of capital in natural capital.

But back in 2009, the language of ‘natural capital’ was relatively new in mainstream fora. Why has ‘natural capital’ shot forward to claim central place in the sustainability agenda by researchers, policymakers, business leaders, and civil society representatives alike?

Finding ways to communicate the complex relationship between humans and nature has always been a challenge. The Brundtland Commission (1987) famously set out the accepted definition of ‘sustainable development’ – “development that meets the needs of the present generation without compromising the ability of future generations to meet their own needs.” Ecological limits to human activity were

being recognised. In 1992, the United Nations Conference on Environment and Development reinforced the Brundtland message and inspired the establishment of the Convention on Biological Diversity, which advocates the ‘ecosystem approach’ – a “strategy for the integrated management of land, water and living resources that promotes conservation and sustainable use in an equitable way”. Perhaps due to the approach’s technical language, however, it failed to achieve widespread adoption beyond conservation circles. ‘Sustainable development’ has had greater success, but still has not managed to spur the solving of neither global poverty nor biodiversity loss, leading to politicians and activists alike describing the Rio+20 sustainable development summit in 2012 as “insipid” and a “failure of leadership” (Black, 2012).

The concept of 'ecosystem services' was, according to Gómez-Baggethun et al (2009), created in order to increase public and policy interest in biodiversity conservation through utilitarian framing. The term took off in the 1990s leading to the implementation in 2001 of the Millennium Ecosystem Assessment, which brought together the knowledge of more than 1,360 scientific experts worldwide to quantify ecological degradation on a global scale. Published in 2005, the Millennium Ecosystem Assessment contributed greatly to putting the language of 'ecosystem services' on the political agenda, achieving greater support for conservation. Further quantification of the economic benefits of environment, and the growing cost of biodiversity loss and ecosystem degradation, was published in 2008 and established the TEEB (The Economics of Ecosystems and Biodiversity) as a global initiative advocating that for businesses to be viable in the long term the ecosystems and resources they depend on must be maintained. Business was increasingly pricking up its ears.

The concept of 'natural capital' denotes the stocks of natural assets that yield flows of benefits (services) to people, speaking in the lingua franca of economics terminology. A former senior colleague within the sustainability world once commented that the reason the concept was adopted was that economists were again trying to find a way of pushing 'ecosystem services' through the political spheres further onto the policy agenda – from broad recognition to action and change in practice. Again a communications gap and action bottleneck called forward new language and new concepts. This time, the metaphor struck a resoundingly resonant chord. Testament to this lies in the fact that the TEEB for Business Coalition has this year re-branded itself as the 'Natural Capital Coalition' – gone is the reference to 'TEEB' with its technical terms such as 'biodiversity' and 'ecosystems'. Today, academia, business, policy, and the non-profit world are using this terminology of 'natural capital', reflecting its ability to unite formerly competing sectors around a call to action that makes both commercial and social sense.

While nature is indeed priceless, it is not, and should not be, valueless. The concept of natural capital attempts to address the

problem of increasing biodiversity loss and destruction by putting nature on an equal footing with other, more familiar and embedded forms of capital (financial, manufactured, social, and human) that underpin our economy. The premise is that no longer shall nature be subservient to the other capitals, thus exploited and damaged: but by putting a value on the benefits it provides, the formerly invisible will become tangible, enabling nature's inclusion and protection within decision-making frameworks heavily based on economic considerations. Yet the challenge is to express value without necessarily quantifying it always in monetary terms. Natural and social scientists have a central role to play in researching and communicating the state of natural capital, identifying and developing the indicators to measure this, and examining and ascertaining the critical thresholds at which services decline. They also have a key role to play in ensuring policy frameworks and practical methodologies related to natural capital are based on the best available, rigorous scientific evidence. This is what NCI seeks to promote.

It is still early days in the trajectory of the natural capital approach. As blog posts by NCI Secretariat members have highlighted following November's World Forum on Natural Capital in Edinburgh, where NCI hosted two sessions, there is still much work to be done to put the flesh on the bones of how this is implemented in practice, and what the implications are on the ground. There are some concerns that this approach could result in unintended negative consequences. These concerns must be aired: however, the joint motivation is a positive one – to seek to halt and reverse the decline of our natural assets.

In an OECD paper (Strange and Bayley, 2008) reflecting on the rise and effectiveness of 'sustainable development' as a policy approach 20 years after its introduction, the authors question whether 'sustainable development' is a guiding principle or an end goal that can be "measured, valued and achieved"? The natural capital approach may well be the measurable part of the equation that enables us to achieve what sustainable development as a guiding principle points towards – an economy grounded in ecological possibility. However, as

the authors state, translating big ideas into concrete practices "always involves multiple experiments, learning, failures, mistakes and a constant effort at adapting and refining our methods." As with 'sustainable development', so too with 'natural capital'. The Natural Capital Initiative seeks to sustain and propel this effort placing science at its core.

For more information about the Natural Capital Initiative visit [www.naturalcapitalinitiative.org.uk](http://www.naturalcapitalinitiative.org.uk)

*On 6 and 7 November 2014 we will be pursuing this agenda by launching our second 'Valuing our Life Support Systems' natural capital summit, hosted by the British Library. This will bring together 250 influencers from across academia, policy, business and civil society in order to derive a shared understanding of what natural capital means; understand the social and natural science behind it; find ways in which sectors can work together to apply it; and identify ways of ensuring responses have scientific rigour. We hope you will join us. Please contact [secretariat@naturalcapitalinitiative.org.uk](mailto:secretariat@naturalcapitalinitiative.org.uk) to register your interest in attending the summit.*

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# BIODIVERSITY DATA FOR ALL

**Nick Isaac** / Centre for Ecology & Hydrology, Wallingford  
njbi@ceh.ac.uk



Have you ever wished there was a species list for your field site, or wondered how to get hold of a distribution map for your favourite species? If so, the National Biodiversity Network is here to help.

The UK is renowned as the cradle of natural history. Ever since Gilbert White started observing wildlife at Selborne, British naturalists have been recording faster than anywhere else on the globe. Today around 13% of the occurrence records on the Global Biodiversity Information Facility (GBIF) are from the UK<sup>1</sup>. These records are conveyed to GBIF by the National Biodiversity Network (NBN).



*Mike Hassell delivered the introductory address at last year's NBN conference. Photograph courtesy of NBN Trust*

Confusingly, the term NBN is used in three different contexts. The 'true' NBN is a confederation of organisations with an interest in the collection, storage and use of biodiversity data. These organisations include data providers such as BTO, statutory bodies such as Natural England, as well as the BES. There's also the NBN Trust, which has a small number of employees including a directorate. The third and most visible part of the NBN is the NBN Gateway, which provides access to over 90 million species records via a range of sophisticated web services, including mapping tools.

Recently, the NBN has been seeking greater interaction with the scientific community, under the leadership of NBN Trust Chair and former BES President Michael Hassell. This has prompted considerable debate within the NBN community and among researchers who use NBN data, most recently at a one day workshop hosted by the Natural History Museum<sup>2</sup>. Research scientists have different requirements from other NBN users, such as planners and environmental consultancies, and this presents a number of challenges for both sides. But it also represents a real opportunity for BES members to shape the direction of NBN activities.

The biggest issue with NBN data among research scientists is data quality. Scientists need to know that the data they use are reliable for the questions they hope to ask, and data quality is a complicated and multi-faceted problem. One problem is biased coverage: three quarters of the records on NBN are of birds, Lepidoptera and vascular plants. The coverage of many less charismatic groups is extremely patchy. There's also a big problem of scale, because records on the NBN Gateway come from a mixed bag of data sources, including local-scale intensive surveys and extensive national schemes, much of it collected by volunteers. The sampling intensity of these data types are vastly different, making it difficult to know how they should be combined. Many of the extensive data were gathered with the primary purpose of producing static

maps of species' distributions at 100 km<sup>2</sup> resolution. Increasingly these data are being used to address questions about species' fine-scale habitat preferences and temporal trends in status, and it's not clear whether this is really appropriate.

Fortunately, considerable effort is going into quantifying these biases especially in my own recent research<sup>3</sup>. Making NBN data amenable to modelling would help scientists and the statutory organisations such as JNCC that report on the state of the nation's biodiversity. These developments might one day feed into the way NBN data are presented on the NBN Gateway, such as displaying modelled species distributions alongside the raw data. Another example is that species lists for user-defined sites could include species that are expected to be present, given their distribution elsewhere and the sampling intensity in the reserve, in addition to those actually recorded. This kind of output could be branded somehow (a BES logo?) to indicate that the modelling conforms to a reputable scientific standard.



*Volunteer recorders searching for Adonis blue butterflies. Photograph courtesy of Richard Comont*

There are other ways in which BES members can shape the future of the NBN. Biodiversity data are increasingly being applied to questions that impinge on government policy, where the burden of proof is high and the scrutiny intense<sup>4</sup>. This has led to demands for new records to be collected in ways that are informed by ecological sampling theory, and ecologists can play an important role in this process. Whilst nobody is suggesting that volunteers should be expected to follow Bill Sutherland's *Ecological Census Techniques* to the letter, there are many ways in which the recording process could become more systematic. The BTO's BirdTrack<sup>5</sup> system has led the way in asking recorders to tick a checkbox if the species records constitute a complete list of all the birds that were observed, as opposed to a subset that the recorder found most interesting. In the near future, records submitted by smartphone apps could include metadata about the extent and duration of the survey. Interactions between volunteer and professional ecologists, perhaps assisted by social scientists, will determine which kinds of innovations are adopted, and which are not.

Access to NBN data used to be complicated, but has been streamlined in recent years. Research use of NBN data will soon become easier still, thanks to the rNBN package<sup>6</sup> that is now in beta. Interactions between NBN and BES could one day become mutualistic: the open science agenda mandates scientists to make their data available to all, and the NBN has the potential to develop into the data repository of choice for UK research ecologists.

So watch this space. The NBN Trust has recently appointed a new Chief Executive and the strategic priorities are being actively debated. The voice of BES members should be active in shaping that debate.

#### FOOTNOTES

<sup>1</sup><http://code.google.com/p/gbif-occurrencestore/wiki/IndexDataAnalysis>

<sup>2</sup><http://www.nbn.org.uk/News/Latest-news/Research-Applications-of-the-National-Biodiversity.aspx>

<sup>3</sup><http://dx.doi.org/10.6084/m9.figshare.974552>

<sup>4</sup><http://ianboyd.wordpress.com/2013/02/07/the-great-british-moth-decline-or-is-it/>

<sup>5</sup><http://blx1.bto.org/birdtrack>

<sup>6</sup><https://github.com/JNCC-UK/rnbn>



A screenshot of the iRecord Butterflies app. The free app guides the user through the identification process and provides a direct way of submitting data to the national butterfly recording schemes run by Butterfly Conservation, the Centre for Ecology & Hydrology and the British Trust for Ornithology.

# Communicating ecology to the non-expert



**Peter Thomas** / University of Keele

How many times have you sighed over comments in the media made by the public about ecological matters when it's clear they have the wrong end of the stick but are quite happy to pontificate?

All those letters from 'a Mrs Trellis of North Wales' who plainly doesn't understand a thing about climate change but knows what she believes. And the quality of journalistic rantings can be no better. I think we'd all agree that bringing science to those outside academia and research is increasingly important as we face big environmental issues from flooding versus canalisation, through to the effects of our profligate use of energy, to the need to reduce plastic waste floating in oceans.

What's the solution? Sighing and muttering does nothing, so we need to do something positive. Often the simplest first step is to offer to talk to a local society – the National Trust, RSPB, Wildlife Trust group or local gardening society. It's not glamorous, it won't get you brownie points for the REF (if you have to worry about such things) and

it won't get you promotion. Nor will it make you rich or famous. But think of it as giving something back. It can also be an absolute delight to talk to a captive audience about your research or passion, and equally rewarding to see the spark of interest and understanding in someone's face. It may not be earth-shattering in scope but it's a start; the next time those people read the papers they will have more understanding – you're adding to their education.

In this category I would also put things like University or research institute community days or the like, when the doors are thrown open to the public. The temptation can be to show people how clever we are with an overwhelming amount of detail but what an opportunity of getting the excitement and benefits of our research beyond the ivory tower or front gates.

It's also possible to put on specialised events showcasing your research where the sky is the limit – a road show, a one-off extravaganza, a day of talks, renovating a woodland (and explaining why it needs doing)... the list is endless. One barrier to doing this may be the cost involved. Well, don't forget about the BES Outreach Grants, worth up to £2,000, given for just this sort of thing.

With a bit more investment of time how about running a course or two, perhaps for the Field Studies Council, a private field centre, a local education authority and, if you're lucky, even for the odd Adult Education unit still surviving at some universities. But, best of all, every community now seems to have a University of the Third Age (U3A) group, offering courses to retirees with time on their hands. The benefit of doing a course is that there is more time to develop a theme, and the punters are more likely to be interested in the subject rather than just coming to listen because they always go to the monthly meeting of the Chrysanthemum and Dahlia Club. You might think, 'Why on earth would I want to be involved in educating a bunch of wrinklies?' Three reasons. Firstly, they have a lifetime's experience and can often give insights you wouldn't otherwise see – so you gain (I speak from first-hand experience; I gained a whole new understanding of soil water movement from a retired water engineer). Secondly, these people may not have much influence in the world but they have children and grandchildren to whom they will talk, and who may themselves be tempted to study ecology at University. Finally, one day we'll all be wrinklies and wouldn't it

*Taking ecology to music festivals: the Sex & Bugs roadshow in 2013*





Explaining your subject to people from different backgrounds helps spread ecological understanding in the wider community and helps build support for threatened species and habitats.

be nice when we get that far if someone could be bothered to talk to us about the latest bit of ecological research?

I started my career in an Adult Education department, running courses for the public in church halls, civic centres and back rooms in pubs at unsociable hours. The change in people's knowledge and perceptions over the weeks and years was a joy to behold. One retired English teacher who came to a number of plant ecology courses, who knew nothing of plants when he started, received a research grant from the BES to study the distribution of the hybrid bilberry (*Vaccinium x intermedium*). He was as proud as Punch, and did a very good job. Others gave up good careers to take degrees, and one young lad gave up a lucrative career in finance to eventually get a PhD in plant science. Isn't that rewarding in itself?

Or how about writing something? How about articles for newspapers, glossy magazines, the local wildlife trust magazine or even the local church newsletter? It's usually quick and fun

and you are guaranteed to get your message into someone's home. A little more specialised, how about an article for *British Wildlife*, a magazine that's been going 25 years now and has carried articles from many an eminent ecologist (see [www.britishwildlife.com](http://www.britishwildlife.com))?

If you're feeling adventurous, how about writing a book? It's a big undertaking and not to everyone's taste. But if it can be written simply (without being simplistic or patronising) then it can kill the two proverbial birds with one stone (if an ecologist is allowed to say that). It can be suitable as an undergraduate text, and so earn you those elusive brownie points, and also be accessible to the non-specialist. This does tend to reach mainly those who are interested in your topic already, because they're the ones who take the time to flick through your book and then buy it, but who knows what they'll learn and pass on?

Obviously not every book can be of this ilk. Otherwise we would not get tomes aimed at the expert, or they would be of an impossible length if everything had to

be explained for beginners. Perhaps the answer sometimes is to write two books. In thinking here of Charles Gimingham's *Ecology of Heathlands* for the experts and *An Introduction to Heathland Ecology* for the uninitiated; quite old books but still good role models. I would suggest that virtually any topic in ecology, even theoretical and mathematical ecology, is suitable for the non-specialist treatment.

In the current age of pressurised work I know that it can be hard to fit any of this in. And there is always the temptation to think 'I've not trained in doing this sort of stuff' or 'That's someone else's role, I couldn't do it'. Yet surely very few people couldn't give a simple talk on their research. And if we're not prepared to get involved we can't really complain at the witterings of Mrs Trellis.

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# Walking the Walk?

## *Trees: Their Natural History. Second edition*



**Alan Crowden** / Bulletin Editor and former publisher

Ecologists come in all shapes, sizes and characteristics. Just as some theoreticians would be appalled at having to go into the field to collect data, and certain field biologists dismiss the use of models as an unnecessary abstraction, the idea of communicating with a wider public beyond the community of ecologists doesn't appeal to everyone.

In the preceding pages Peter Thomas writes with authority on the ways in which ecologists can convey information to an interested but not necessarily scientifically literate audience: he's done all of them at one time or another, including the most time-consuming activity of them all, book writing.

Some readers will wonder if it is entirely a coincidence that this contribution appears just as Peter has a new book coming out, a second edition of *Trees: A Natural History*. Well, coincidence it is not. I bribed Peter to write the article with a promise that I'd write about his book at the same time. It seems only fair to make sure the book gets some coverage: Peter has looked after the Book Reviews section ever since stepping down from his long and successful tenure as *Bulletin* Editor. As fewer and fewer journals include book reviews, the *Bulletin* provides a real service with broad coverage of the ecological book literature, alerting potential readers to the range of new publications on offer. We make a conscious decision to go for speed and breadth of coverage rather than the in-depth analysis of a limited range of titles that we acknowledge some readers might prefer.

So here's the challenge. Peter encourages you that book writing is an important activity with advantages to both reader and author. Brave talk, but at the risk of annoying some readers with a buzzphrase, can he walk the walk?

I do not pretend to be an impartial reviewer by any long stretch of the imagination. Apart from the fact that Peter and I are currently *Bulletin* colleagues and friends, I was head of biology publishing at Cambridge University Press at the time of publication of the first edition and therefore not an entirely uninterested observer. The book was not directly my responsibility though I was quick enough to claim credit for it (sorry Maria) as sales soared into five figures, putting it way beyond the normal circulation for an academic biology book from a university press. The book was (of course) very professionally prepared for publication but CUP didn't exactly throw money at the production and marketing of the book; it was a success on its merits which were often communicated by word of mouth.

So what is the secret of producing a successful science book accessible beyond 'the academy'? Well, for a start, you can fool some of the people some of the time. *A Brief History of Time* is said to have sold over 10 million copies but I have serious doubts as to how many people read and understood the book. It became a fashionable accessory for the coffee table, a glistening nugget that set off a gold rush of publishers signing up eminent scientists for books that in many cases never got written. It turns out to be quite hard to write about complex technical topics in a way that neither talks down to readers nor requires them to sit with a dictionary of scientific terms at their elbow.

Obviously an intrinsically interesting topic helps. A search for 'trees' on the botany and plant science section of Amazon produces a list of 8000 hits, which suggests that the number of tree books published is enough to have taken out a few forests, and that either publishers are completely deluded about their market, or that a wider public shares our values when it comes to woods and trees. The likes of Oliver Rackham have written elegantly and lucidly on woodlands and landscape, the Fitters have produced field guides that combine accuracy and accessibility, and there are picture books galore on forests and trees. The unique selling point of *Trees* is that it disassembles the tree, and bit by bit tells you how the different parts fit together to make the magnificent towering artefacts that enhance the landscape in myriad ways, providing food and drink, shelter and shade, fuel and building material, not to mention inspiration for artists and photographers. Trees are, to most of us, simply pleasing on the eye. Yet while the book was extensively illustrated there were barely half a dozen representations of entire trees; we can all imagine our favourite tree, so the economy of style here is to illustrate what the reader doesn't know, rather than what she or he can already see in their mind's eye.

The secret formula of the book is that the author knows his readers, having engaged with a wide range of people from undergraduate students suffering

some degree of compulsion to pay attention or fail their exam, to adult education learners who choose to give up their evenings or weekends to attend classes or come out on field trips. The groups all need to end up with the same basic facts, and all are prepared to make an effort, but none of them want to climb a wall of jargon to get to the facts. Here's an example, genuinely picked at random (p184 in the new edition). The heading is 'Seeds without pollen: apomixis but not parthenocarp': I'm old enough and abotanical enough to have forgotten those terms, if ever I knew them; but in the space of a page I pick up the meanings without reading the explanation twice, and come away with some recognisable examples of plants in each camp. The terms now mean something.

So what are the other strengths of this new edition? Above all else, it builds on the success of the original. The first edition is compact at just under 300 pages, illustrated with numerous line diagrams and photographs, all in black and white. Write a successful book and the production budget goes up. The second edition of *Trees* is 400 pages and illustrated in colour throughout, though in a restrained way that allows this to be a book with pictures rather than pictures with some supporting text. Somehow even the simplest line diagrams are enhanced with a splash of colour and the photographs are redolent of a well-travelled author who knows he 'might need a picture of that' one day. There are more whole-tree pictures this time, but well chosen examples that do not leave you feeling you are paying for padding.

The new version comes along 14 years after the original so there are plenty of new developments to write about, but the new material fits seamlessly with the old. The much abused term 'well-written' sits very comfortably here; you could buy this book for an aspiring young biologist, a relative with an interest in trees, your local landscape architect or planner wanting to build a less brutal urban landscape. You can recommend this to students and have a chance they won't come bleating at your door that they don't understand. Or just buy a copy for yourself; all that is required is an interest in trees. If you bought the first edition, this one is newer and better. If you didn't buy it last time, think again.



*Trees: Their Natural History*, second edition by Peter Thomas is published by Cambridge University Press in paperback at £27.99 and US \$42.99

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# CITIZEN SCIENTISTS – THE NEXT GENERATION OF ENVIRONMENTAL SENTINELS

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The increasingly rich flow of information between the public and environmental scientists is generating a revolution in how science is being conducted. Science-savvy citizens are actively engaging; to address bottlenecks in biomonitoring and scientific development, filling voids left by a lack of funding, or simply satisfying their own curiosity about the natural world.

Not only are the public donating their time (e.g. crowd-sourcing <http://www.climateprediction.net/>, or <http://www.edgeofexistence.org/instantwild/>), but they are also taking part in national and international initiatives to collect targeted field data. Examples include the UK BioBlitz events (<http://www.bnhc.org.uk/home/bioblitz/>), where participants record on a National database all forms of life they can find in 24 hours, a worldwide study of oceanic phytoplankton abundance, (<http://www1.plymouth.ac.uk/marine/secchidisk/Pages/default.aspx>); and long running initiatives, such as the breeding bird survey organised by The British Trust for Ornithology, which has been coordinating volunteers across the UK for over 50 years. Citizen scientists are also rapidly filling new roles as environmental sentinels, by tracking the spread of invasive species, such as the USA iMapInvasives partnership (<http://www.imapinvasives.org/>), or by monitoring the proportion of pollution-intolerant freshwater invertebrate taxa, providing early warnings of pollution

events (e.g. <http://www.riverflies.org/rp-riverfly-monitoring-initiative>).

The Riverfly Monitoring Initiative is a good example of a successful citizen science project focussing on UK rivers. This consists of a network of over 600 active monitoring groups coordinated by the Riverfly Partnership and trained by experts to sample, count, and identify key invertebrate taxa (i.e. Ephemeroptera, Plecoptera, Trichoptera and *Gammarus*) to assess water quality. Each monitoring group takes monthly samples, often from multiple sites along a single river, and, by allocating a score based on the number and diversity of the target taxa, can alert the Environment Agency if a threshold is breached and water quality has been compromised. These data complement those routinely collected by regulatory agencies, but also increase the likelihood that a pollution event or other perturbation will be detected. For instance, in July 2013 a catastrophic point-source insecticide spill wiped out macroinvertebrate populations along about 15 km of the River Kennet in

Wiltshire, UK. Action for the River Kennet (ARK) volunteers, who regularly monitor riverfly life, were the first to detect the pollution (Figs 1, 2). The Environment Agency was alerted immediately, enabling them to isolate the point at which the pesticide was entering the river and prevent further release. Subsequently, a consortium of scientists funded by the Natural Environment Research Council (NERC), have been collaborating with the Environment Agency, ARK and other stakeholders, including fishing interests, to gain deeper insights into the full ecological impact of the pesticide spill and how it permeates through the food web over time, as well as tracking the trajectory of recovery (<https://sites.google.com/site/kennetrecovery/home>). This intimate linking of citizens-government agencies-academic institutions has repaid the initial investment by each community: data collected by citizen scientists has led to increased understanding of the functioning of the river ecosystem by the various stakeholders and ultimately fuelled more research.

Despite its burgeoning appeal and increasing priority in both science and policy, citizen science should not be viewed as a simple and inexpensive panacea to fill under-resourced regulatory requirements or of filling scientific knowledge gaps. Significant investment (of both time and money) is often necessary for quality-assurance and data-checking, for instance, and these costs are largely hidden by the voluntary nature of much of the work. The need to standardize sampling methods requires the development of monitoring protocols, which also involves specialist expertise, and the material and administrative costs of training and maintaining the monitoring groups are not trivial. To help overcome this problem, some new initiatives, such as uBiome (<http://www.nature.com/nbt/journal/v31/n2/full/nbt0213-90a.html>), which analyses human ecology, have looked to crowd-funding to support their research. Participants collect samples, but they also donate money in return for individual feedback about their ancestry and state of health and uBiome have already raised over \$120,000 in this way.

With regard to biomonitoring, tools designed for citizen scientists often rely on 'structural' measures (e.g. taxon presence/ absence and/or taxonomic diversity). These work well for detecting changes in community composition and in engaging participants in the identification of species and measuring biodiversity. However, this only provides a partial picture, revealing an ecosystem's components but does not demonstrate processes that underpin the system. We believe there is scope in Citizen Science projects for both the public and scientific communities to develop a deeper understanding of ecosystem processes. For instance, 'functional' measures (e.g. detrital breakdown) have not yet been incorporated into the Riverfly Monitoring Initiative, and the Environment Agency typically responds only after the taxonomic diversity and/or abundance of a sampled community drops below a threshold. This works well as an environmental early warning system following a catastrophic event (as it was conceived), but the chronic, sub-lethal effects of pesticides, which may manifest at a functional-level, cannot be assessed with structural measures alone.



(Photograph copyright Savemake Fishery)

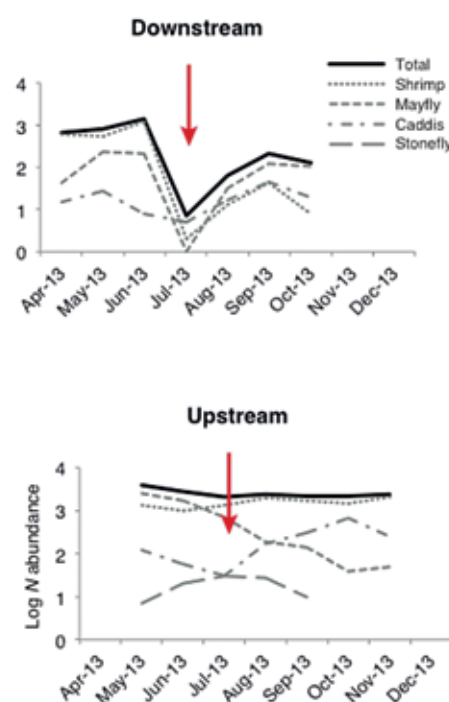
**FIGURE 1**

The River Kennet with map showing ARK study sites, Stonebridge lane and Elcot Mill, upstream and downstream respectively of the point at which pesticide entered the River Kennet in July 2013. Comparing data collected between these sites, has meant the biological impact and recovery following the pollution can be assessed



**FIGURE 2**

ARK riverfly monitoring data collected during 2013 from Stonebridge Lane, and Elcot Mill, upstream and downstream of the point of pollution respectively. The red arrow indicates the timing of the pollution





ARK volunteers and fishermen collecting invertebrates for biomonitoring at one of the routine sampling sites on the River Kennet

For this reason there is scope to design new approaches (e.g., simple measures of ecosystem process rates, such as detrital breakdown, together with the routine 'structural' sampling and diversity measures) which could be measured on a huge scale by Citizen Scientists with relatively little training. This would be of benefit to both science and society but are not yet embedded into the current regulatory or biomonitoring framework.

Functional measures are not the only potential avenue that could be developed for citizen science involvement. Recent progress in the collection and processing of DNA and RNA material for the identification of taxa through next-generation sequencing mean that traditional biomonitoring methods, which require taxonomic skill to identify species, could soon become superseded by automated processing of, for example, soil or water samples (see review by Baird and Hajibabaei 2012). This could mean that specialists may be freed from the need to collect the samples, and focus on processing, analysing, interpreting and collating the huge volumes of 'ecoinformatics' data being generated from samples sent in by citizen monitors.

Citizen 'sentinels' offer a fantastic resource as they can transcend geographic boundaries usually imposed

by the considerable financial and logistical challenges associated with despatching specialist teams of scientists to collect data. However, rather than simply acting solely as sample collectors, volunteer monitors are often keen to understand how scientists frame and address a research question, and develop sampling protocols. This familiarisation of the general rules of the scientific process is key to demystifying science and increasing public engagement and promoting informed discussion.

There is huge scope for national and global networks of citizen scientists to measure ecological responses to environmental change at appropriate scales and to contribute to our understanding of, and ability to make predictions about, future global change. The potential to utilise Citizen Scientists to scale-up sample collection in both time and space could ultimately help to unpick the complex responses of natural systems to multiple stressors, which are currently difficult to untangle in small, spatially constrained datasets typical of most professional scientific studies. This potential increase in predictive power could help refine the thresholds for more effective monitoring and management of natural systems in ways we are only just beginning to glimpse: citizen science is clearly here to stay, but its vast potential has still yet to be fully realised.



ARK volunteers, fishermen, John Hounslow (Savernake Flyfishers riverkeeper) and the lead author, Dr Murray Thompson (Imperial College London) collecting timed invertebrates kick samples to help standardize sample collection for QA purposes.



An Environment Agency fish survey in action on the River Kennet following the catastrophic pesticide spill. Data from these surveys can be combined with ARK invertebrate data in order to understand the direct (i.e. toxic) and indirect effect (i.e. loss of prey) of the pollution on fish populations. (Image copyright John Sutton, john.sutton@environment-agency.gov.uk)

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## COMMENT

**Helen Roy** / Centre for Ecology & Hydrology, UK  
BES Citizen Science Special Interest Group

Citizen science, the involvement of volunteers in science, isn't new (Roy et al., 2012; Tweddle et al., 2012). Indeed within the UK we have a long tradition of scientific discovery by dedicated volunteers and much of our current understanding of UK wildlife is based on inspiring contributions from the naturalist community. However, there has been a recent explosion in the number and diversity of citizen science approaches globally (Roy et al. 2012). The article by Murray et al. eloquently outlines a number of these initiatives, many of which build on the legacy of biological recording.

The importance of citizens as "sentinels" providing monitoring and surveillance for early warning of alien species and pollution events is becoming increasingly recognised. The proposed European regulation on invasive alien species highlights the requirement for surveillance and the UK is in an excellent position to ensure effective early warning of alien species. In 2010 Recording Invasive Species Counts (RISC), an on-line system for capturing information on alien species, was launched following on from the success of the Harlequin Ladybird Survey ([www.ladybird-survey.org](http://www.ladybird-survey.org)), which engaged tens of thousands of people in tracking the spread of an alien ladybird. RISC has now been extended to an alert system for invasive alien species of particular concern to the UK ([www.nonnativespecies.org/alerts/index.cfm](http://www.nonnativespecies.org/alerts/index.cfm)) and is proving extremely successful in terms of numbers of sightings of concern reported (and thankfully most prove not to be invasive alien species). However, it is important that we ensure there are opportunities for both citizens as sentinels and scientists; the latter involving volunteers in every part of the scientific process sharing the creativity and delight of scientific discovery.

The Biological Records Centre (part of the Centre for Ecology & Hydrology) celebrates 50 years of biological recording throughout 2014. The inspiration provided by the many schemes and societies, including those within the Riverfly Partnership, have been inspiring people for decades and provide a rich legacy for citizen

science. The Bees, Wasps and Ants Recording Scheme (BWARS: <http://www.bwars.com/>) is one such scheme. The enthusiasm and generosity of the group of volunteers involved in BWARS has ensured that we have access to records collated by them and shared through the NBN Gateway (<https://data.nbn.org.uk/>). The decline of pollinating insects, such as bees, is a major concern and such long-term, large-scale volunteer-collected data is critical in contributing to our understanding of the ecology of these insects and the magnitude of their decline. The Big Bumblebee Discovery (<http://jointhepod.org/campaigns/campaign/31>), launched this year, is a collaborative project between the Centre for Ecology & Hydrology, the British Science Association and EDF Energy. The Big Bumblebee Discovery provides an opportunity for people across the UK to address the question of how landscape factors influence the diversity of bumblebees. The LEAF Open Farm Sunday Pollinator Survey (being run in collaboration with the BES in 2014) also invites people to get involved in recording insects that might be important pollinators. We hope these projects will inspire the next generation of scientists and perhaps some of the participants will become BWARS members and develop the taxonomic expertise and field skills needed to effectively monitor these important insects.

As Murray et al. highlight the potential of citizen science is vast. It will be exciting to see how we can reveal this potential, through mass participatory, collaborative and co-created approaches (Bonney et al., 2009), with scientists and citizen scientists working in partnership using so-called "big data" to address the challenging ecological questions we face. The new BES Citizen Science Special Interest Group will provide an exciting forum for citizen science and we welcome the involvement of all.

For more information: <http://www.britishecologicalsociety.org/getting-involved/special-interest-groups/citizen-science/>

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# **Supporting Online Material: What is the point?**

**Rant &  
Reason**

**William D. Gosling**

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*After a noticeable absence of angry ecologists in the last issue of the Bulletin, Will Gosling has a good rant about supporting online material – apparently written in the early hours of the morning in between nappy-changing and trying to make head or tail of a particularly frustrating paper. Bob O'Hara, senior editor of Methods in Ecology and Evolution, literature buff and oenophile, provides a measured voice of reason.*



I am not against the principle of Supporting Online Material (SOM), but I am against the use of SOM to accommodate poor scientific focus, lazy editing and inappropriate choice of format for submission of scientific manuscripts. SOM has a critical role in modern academic publishing and is at its most useful when it contains *material* that *supports* the publication within the electronic *online* format; i.e. there is a clue in what it should do in its name!

***“What I do not want is a long article that has been sliced and diced to fit into a short format.”***

As a ‘consumer’ of scientific journal publications, like most of my colleagues, I am suffering from an increasingly short amount of time available to browse the shelves of my university library, and relax in the evening with a glass of red wine and a paper copy of my favourite journal. Therefore, what I want from a journal article (especially short-format papers that I am picking up quickly between meetings) is a quick *hit* of science fun and, if possible, brilliance in a nice easy-to-understand format. What I *do not* want is a long article that has been sliced and diced to fit into a short format. “See additional discussion in SOM 84” is not what I want to come across, and the inevitable jumping between documents (to find out just what the authors have done and/or are really on about) does not make me happy.

So why is this happening and whose fault is it? In part I blame the current culture in academia of worshipping the *high impact* short-format papers, and the commensurate devaluing of longer specialist articles. These so-called ‘*high impact*’ articles may reach a large number of people but in most cases their impact is essentially the popularisation of a technique/method/study region rather than considered detailed scientific advancement. I think that the challenge from academics should go out to the bibliometric world to find a method for quantifying the *deep impact* of any scientific publication, i.e. are people building on the science undertaken or just reporting the headline when citing an article?

The other part of the blame I put on authors and editors. The purpose of short-format high-impact papers is to convey a key scientific message. The key word in the last sentence is “a”. To get more than one point across in around 2000 words is almost impossible. Focus your submissions. If your article requires 4000 or 8000 words to explain what you are doing, if it is an elegant and exciting study with multiple elements and twists and turns, then please give it the space to breathe and choose a publication format that allows you to explore your study in full; don’t slice and dice it up into multiple SOM sections so that you can shoehorn it into a shorter publication. Admittedly once published you will then have to fight harder to get people to read your article, but promotion to the scientific community online is now really very easy (blogs, tweets etc.), and once picked up by your scientific community then the level/depth of scientific impact and satisfaction at having published a comprehensive article will be higher.

## Supporting Online Material

Bob O'Hara

Like many good rants, Will Gosling's contains a kernel of truth. Poorly constructed papers are a pain to read, requiring something rather stronger than a glass of red wine. A well-constructed paper, even with SOM, should be able to be read on its own. I assume that when Will goes to *Methods in Ecology and Evolution* for his science, he wants a quick hit, not a convoluted narrative closer in spirit to (but not as funny as) *Tristram Shandy*. But in order to provide this hit, details sometimes have to be removed. Some of these can be summarised briefly, e.g. the precise conditions used in amplifying your DNA are rarely necessary for the story, although they are if one wants to replicate the process.

The problem with SOM is not that it exists, but that it is used poorly. Papers should be narratives: one should be able to read the paper on its own (or at least along with a glass of red wine),

without having to check references or supporting material. How long a paper is then depends on the story being told. But even here there is flexibility: if your tale of exploration is long and winding, it might actually be better to shorten it. That way you can focus on the story, and not the minutiae of the experimental design. For other studies, it might be the experimental design you want to show off, in which case it should be up front (and you might want to cut the discussion down to two paragraphs).

If you have sliced and diced a long paper to fit into a short format, and you need to write “See additional discussion in SOM p84” then you are doing something wrong. At the very least “[T]here is no disputing against Hobby-Horses (see SOM Vol. 1, Ch 7)” is better: assure the reader that the story can be understood (if not fully evaluated) without the online material, tell them where to go for their fix of pedantic detail, and move on.

I think the deeper point here is more difficult to fix. The use of the passive voice is proscribed by some journals, as a way to make papers more readable. Like most simple fixes, it doesn't work. Writing well is a skill, and a hard one to learn. Constructing papers that are logical and can be followed, and where online supplements (no, not THAT sort!) actually support rather than hinder, is a skill that has to be learned. It requires practice, as well as thought, not just about content but about form too. This is not easy, and you will not please everyone with your choices, but you can give your reader a quick *hit* of science fun and, if possible, brilliance in a nice easy to understand format if you are careful in making sure that your paper is communicating to the reader.



*William Gosling is a Senior Lecturer at The Open University, but will soon be escaping to become head of Paleo & Landscape Ecology within the Institute for Biodiversity & Ecosystem Dynamics at the Universiteit van Amsterdam.*

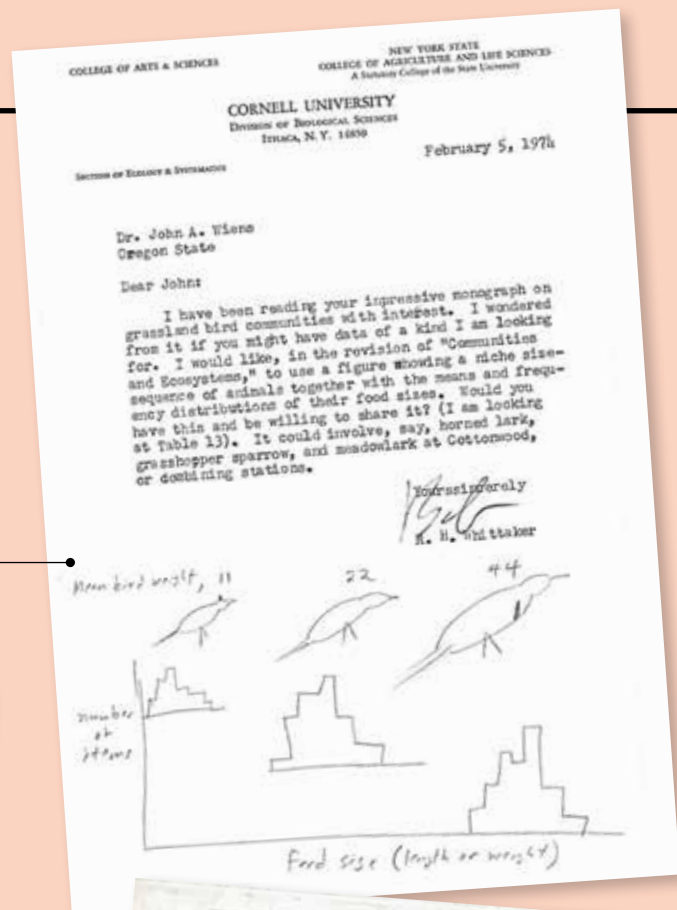
*Bob O'Hara is a statistical ecologist at BiK-F in Frankfurt, Germany. When he is not trying to be reasonable, he is Senior Editor of Methods in Ecology & Evolution.*

# The power of paradigms

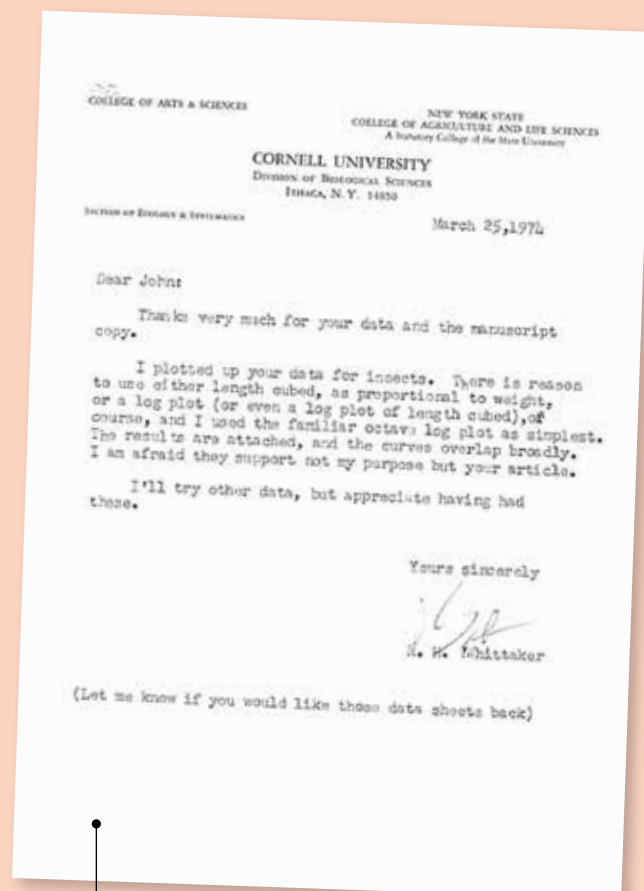
# John Wiens

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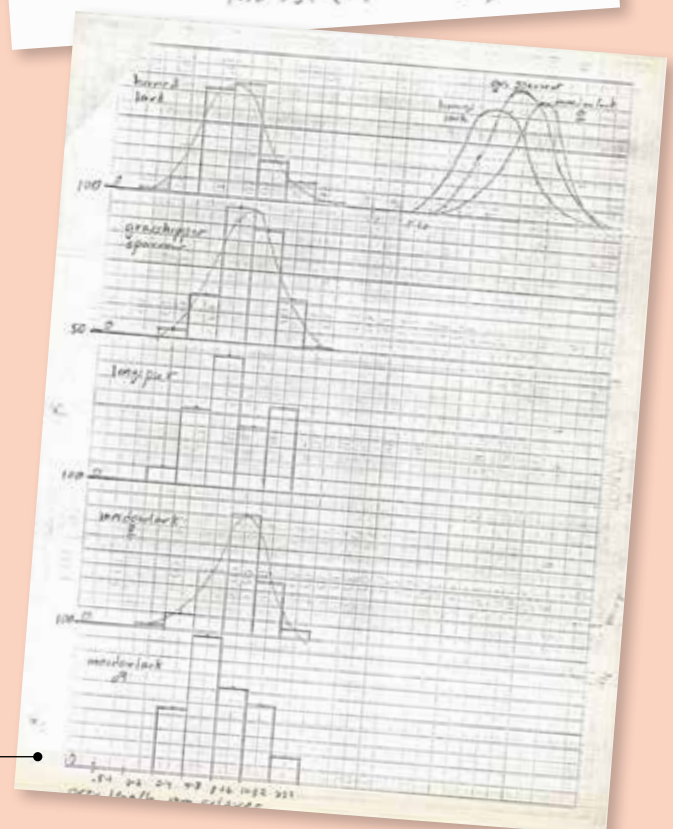
Some time ago, going through a long-forgotten box of papers, I discovered some old correspondence. My exchange of letters with Robert Whittaker in the mid-1970s prompted me to think about paradigms and to re-read Thomas Kuhn's book, *The Structure of Scientific Revolutions* (1962, 1970). In the very first paragraph of his book, Kuhn emphasized the pivotal role that textbooks play in reinforcing and promoting a paradigm.



### FIGURE 1



## FIGURE 2



### FIGURE 3

On first encountering the subject matter of a discipline, Kuhn argued, a student learns the concepts, methods, and problem solutions through textbooks and compelling (usually simplified) examples that align with the established paradigm. In this way, the paradigm “exerts a deep hold on the scientific mind” (1970, p. 5). It’s rather like a process of imprinting, in which, having been exposed to the worldview of the paradigm at a sensitive stage of development, the budding scientist finds it almost impossible to view the world in a different way. This makes it possible to rationalize ignoring anomalous or contrary observations, strengthening the belief that the paradigm explains more than it actually does.

Whittaker was working on the revision of his textbook, *Communities and Ecosystems* (1975, first published in 1970) and had read my paper on grassland bird communities (Wiens 1973). He wrote to ask for data he could use to illustrate niche displacement among coexisting species—in this case, how species of different sizes partitioned the sizes of prey in their diets. He even drew a sketch of what he had in mind (Figure 1). Such niche partitioning was a central tenet of the competition paradigm that dominated animal community ecology at the time. Delighted that one of the leaders in American ecology would ask, I immediately sent the data. A few weeks later he replied (Figure 2). After carefully plotting my data (Figure 3), he concluded that it really wasn’t what he was looking for after all, so he would find a better example. And he did (Figure 4). My data presented an anomaly, an outlier observation that had no place in an introductory textbook. Other, more confirmatory examples were available.

But my story doesn’t end there. Some years later I was given a copy of the lecture notes Whittaker had used in his graduate-level community ecology class in 1976. I recently looked at the notes to see how Whittaker presented niche displacement. The neatly typewritten notes followed the treatment in his textbook, but he had penciled in a marginal note, under “qualifications”: “Wiens — summer grassland birds differ less in food-size, probably winter-limited in the tropics.” So he had found a way to reconcile my observations with the paradigm; the observations were just made at the wrong time and place, when conditions weren’t limiting

and the assumptions of the paradigm didn’t apply. The competition paradigm remained intact.

I don’t intend this story to disparage Whittaker in any way—far from it! He was a brilliant, gifted, and gracefully articulate ecologist who made wonderful contributions to plant ecology and died much too young, at the age of 59 in 1980. But he was writing a textbook. As Kuhn observed, textbooks “expound the body of accepted theory, illustrate many or all of its successful applications, and compare these applications with exemplary observations and experiments” (1970, p. 10). That’s what Whittaker did. Anomalous observations, such as mine, would only cloud the picture and confuse the student. They were not appropriate.

So what’s the message here? Paradigms can constrain thought and the exploration of novelties. At their worst, they suppress contrary observations that threaten to subvert the paradigm. At the same time, a well-established paradigm can unleash a flurry of research that converges about the pregnant questions and problems highlighted by a paradigm. The excitement is palpable.

That is how it was in the 1960s and 1970s, when Whittaker was writing his textbook and the paradigm of equilibrium communities structured by interspecific competition held sway. But that paradigm eventually lost its grip, eroded by a growing body of evidence that did not fit comfortably into its framework. Equilibrium views expanded to admit nonequilibrium conditions. Single-factor explanations morphed into multiple-factor explanations. But rather than experiencing a Kuhnian shift from one paradigm to another, community ecology became more pluralistic. Perhaps the ascendant ecological paradigm was “it all depends.”

Paradigms are not restricted to ecology, or to the physical and biological sciences. Economics is famous for its paradigms – Keynesian General Theory versus supply-side economics, for example. There are programming paradigms in computer science. There are paradigm salad dressings, paradigm nightclubs, paradigm plastic bottles, and paradigm wines. Paradigms are pervasive. Why, just this morning I heard a report on the shift away from the paradigm that has dominated the health sciences

for decades, that saturated fats in the diet are invariably bad, toward a view favoring a more diversified diet. In this case, the “fats are bad” paradigm had such a grip that studies finding contrary evidence had difficulty being published.

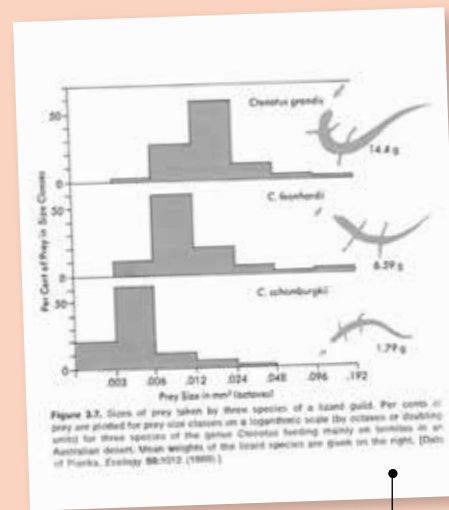


FIGURE 4

Why should this matter? My story, I think, should lead us to think carefully about what is written and widely accepted, not just in textbooks but in mainstream scientific papers. Paradigms, even old ones, may still “exert a deep hold on the scientific mind.” Some contemporary ecology textbooks still include examples of niche displacement not unlike the *Ctenopus* lizards in Whittaker’s figure. Although paradigms should not be abandoned willy-nilly on the basis of a few anomalies, neither should they shroud our thinking from contrary evidence and alternative explanations. There is no substitute in science for the open mind (Oppenheimer 1955).

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# The Chartered Institute of Ecology and Environmental Management



**Sally Hayns** CIEEM / Chief Executive Officer, Chartered Institute of Ecology and Environmental Management  
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## BIODIVERSITY OFFSETTING

CIEEM has been fully engaged in the Defra consultation process around introducing biodiversity offsetting into the planning process in England. At our Spring conference in Birmingham in March almost 300 delegates listened to the pros and cons of an offsetting approach, the experience of practitioners in cases (including Defra pilots) where offsetting has been applied both in the UK and abroad and discussed the merits of offsetting metrics.

For some there was a question mark as to whether biodiversity offsetting is a case of 'Emperor's new clothes' since the opportunity to offset unavoidable loss does already exist within the planning framework as compensation – the last resort of the mitigation hierarchy.

There was a widespread view that biodiversity offsetting will become part of planning policy in England in some form and that, whilst the metric is not perfect (what metric would be?), it is up to the profession to utilise its experience to test and refine the metric(s) so that we gain a better idea of what is appropriate and what is not. Provided of course that it remains the last resort.

## NEW MEMBERSHIP ELIGIBILITY CRITERIA

From 1st April we introduced new membership eligibility criteria for the professional grades of CIEEM membership. These criteria are based on the demonstration of the appropriate competence levels as set out in the CIEEM Competency Framework ([www.cieem.net/competency-framework](http://www.cieem.net/competency-framework)). Applicants must be able to evidence their claimed competence levels through reference to work-based experience and sponsor support.

This new approach is part of the ongoing work of the Chartered Institute to raise standards of professional practice.

## ACADEMIC DELIBERATIONS

Dr Eirene Williams, formerly of Plymouth University, and Dr Roland Randall, currently of the University of Cambridge, debated the value of CIEEM membership to an academic. They concluded that, whilst historically support for academics to join CIEEM has been lacking in some university institutions, there has been considerable benefit to their students from the links that have been made which have subsequently produced, for example, dissertation opportunities and even career opportunities.

Now that there are several CIEEM-accredited degree courses and degree pathways this provides an ideal opportunity for CIEEM to develop its services and resources to support academic members providing relevant courses for potential future CIEEM members.

Several of our academic members are now discussing establishing a CIEEM Special Interest Group for our academic members in order to ensure that their interests and membership needs are addressed for the maximum benefit of their students.

The full article can be seen at [www.cieem.net/membership](http://www.cieem.net/membership)

## HIGHER LEVEL APPRENTICESHIPS

For several months now CIEEM has been discussing the possibility of developing a postgraduate Higher Level Apprenticeship with LANTRA, the sector skills body for land-based industries and the Department for Business, Innovation and Skills (BIS). Higher Level Apprenticeships are something that the UK Government has been promoting through

their Trailblazers Scheme. The Higher Level Apprenticeship would give graduates the opportunity for 12-18 month's work-based learning with an employer whilst following a planned training programme and receiving a wage. The apprentices would be formally assessed at the end of the apprenticeship period.

The intention is that this would help to bridge the gap between university and permanent employment, allowing graduates who would otherwise seek voluntary roles to get a wage and further training as well as practical experience in the workplace. CIEEM has been liaising with employers and statutory agencies who have all expressed an interest in supporting the scheme and forming an expert panel to develop the syllabus and assessment process.

There are risks, in that we would want to be sure that it was not a means of employing 'cheap labour' and that it did not replace or undermine existing Graduate Trainee schemes. There has to be real benefit to the graduates and the scheme must not be a way of encouraging or requiring graduates to take on more debt. At the moment Government funding is uncertain and discussions with BIS are ongoing so it is not yet clear as to whether a sufficiently robust scheme can go forward.

## NEW FELLOW

A CIEEM member has recently been admitted as a Fellow of the Chartered Institute.

Lisa Kerslake has been a practising ecologist for over 25 years, during which time she has consistently demonstrated commitment to the promotion and advancement of ecology as an applied discipline, particularly in relation to raising standards of practice.

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During that time Lisa has held a number of positions in local authorities, NGS and in the public sector. Lisa has been very proactive in putting herself forward to lead or contribute to initiatives to raise professional standards such as representing CIEEM on the British Standard 42020 Steering Group. Lisa has delivered extensive training to others on ecological methods pertaining to habitat management and protected species and has been a guest lecturer on both undergraduate and postgraduate vocational courses.

Lisa is one of a handful of practitioners who pioneered the use of DNA analysis to identify species through bat droppings, an innovative approach that is now seen by Natural England as a standard for EPS licence work. As a result of offering this DNA analysis service to others in the UK (and abroad) our knowledge of the range of rare and difficult to identify species has been significantly enhanced.

#### FORTHCOMING EVENTS:

##### **Autumn Conference**

We are pleased to announce that this year's two-day Autumn Conference will be at the University of Edinburgh's John McIntyre Conference Centre on the 11th and 12th November. The theme of the conference is 'Progress in Effective Habitat Restoration and Habitat Creation'.

Accommodation on site at Pollock Halls is limited and can be booked on a first come first served basis online through <http://www.book.accom.ed.ac.uk> at a reduced price of £65.45 quoting the code CONF14.

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## PUBLISHING NEWS

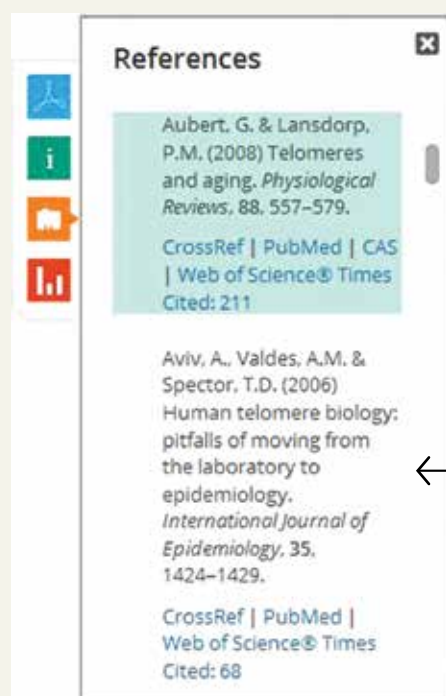
# Introducing the enhanced journal article (HTML)

**Samantha Ponton** / Assistant Editor, Methods in Ecology and Evolution

The PDF has been the standard format for reading journal articles for many years. However, as the number of online readers increases, along with the variation of available reading devices, HTML can offer more flexibility, the enrichment of article content, and the ability to link directly to related content online.

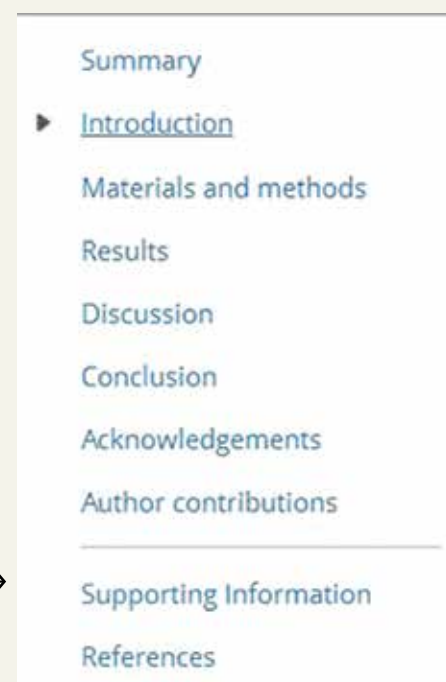
In response to this, Wiley has launched the **Anywhere Article** – an enhanced version of the HTML article. It allows readers to **view a journal article on any device** – whether at a desktop, or on the move with a tablet or smart phone, without losing any functionality. It is available when reading any article on Wiley Online Library, including all of those published in the BES journals. To view an article in this format, simply click on 'Enhanced Article (HTML)', above the abstract.





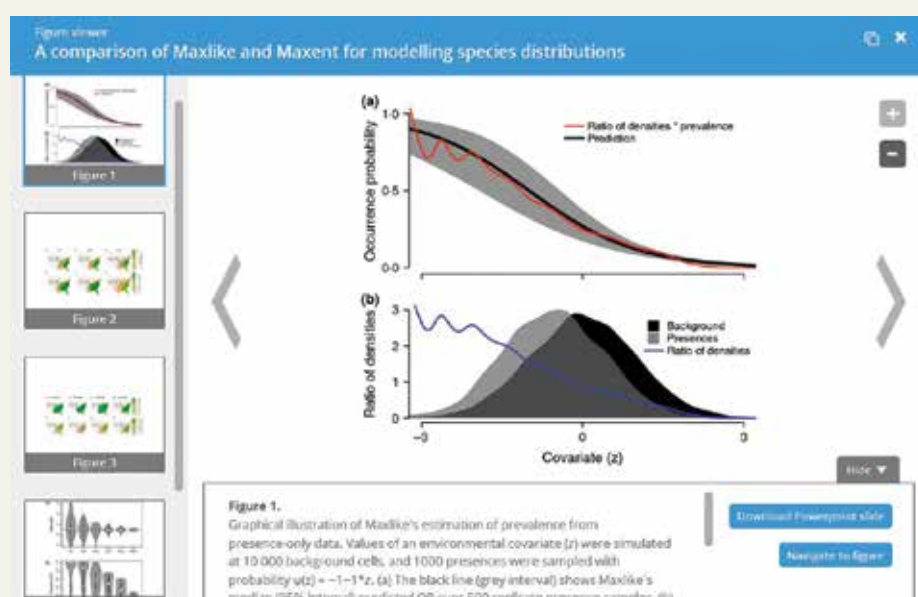
It also includes a **host of useful new features** e.g.:

- Superfluous information is kept tucked away under hyperlinks that readers can click on for further information e.g. an author's contact information and links to any of their previous publications stored on Wiley Online Library, which helps to give the article a clutter-free appearance.
- There is a pop-up panel on the left-hand side of the screen containing the article information, the reference list, a downloadable PDF, and the interactive figure viewer.
- There is a menu on the right-hand side of the screen that allows readers to easily move between sections.
- Readers can click on a reference within the article, and the full details will pop-up in the left-hand panel, along with links to the abstract online, and a link to details of its previous citations.
- Figures can be opened in the figure viewer, which allows readers to zoom in, download as a PowerPoint slide, and scroll between figures.



This is the first release of the Anywhere Article and there will be improved functionality and newer features to come in the future, e.g. article level metrics, citation tools, embedded videos and related content recommendations. If you have any feedback for Wiley, or any ideas for new features, you can click on “Enhanced Article Feedback” within an article at the bottom right-hand corner, or alternatively contact any of the BES journal staff who will be happy to pass your comments on to Wiley.

All BES journal articles on Wiley Online Library are free for BES Members and can be accessed by logging into the BES website, so why not check out the new Anywhere Article now!



## PUBLISHING NEWS

# Functional Ecology to go online only from 2015

Jennifer Meyer / Jennifer Meyer

In 2012, only 6% of *Functional Ecology*'s readers opted to subscribe to a print version of the journal. 94% of our readers were online only, and online usage of papers published in the journal has increased dramatically in the past few years, with full-text downloads doubling from 409,000 downloads in 2012 to over 800,000 downloads in 2013. Of the print subscriptions, 121 were subsidised subscriptions to BES members, 23 were gratis copies to editors and only 18 were institutional library subscriptions. More so than any of our sister journals (with the obvious exception of *Methods in Ecology and Evolution*), a higher percentage of our readers access the journal online only, either directly through Wiley Online Library, the e-alerts or, increasingly, through our lay summaries on [www.functionalecology.org](http://www.functionalecology.org).

Looking at trends in our print and online readership, the decision to go online-only had to be considered. We sent a survey to BES members who receive a print subscription of the journal. Of those that responded to the survey (26 of the 110 emailed), 73% read only a couple of articles a year and many commented that they don't find the print subscription as useful as it used to be. 80% prefer to read the journal in print, rather than online, with the chief comments being the ease of reading in print and the advantages of offline access. Wiley, our publisher, was clear on the advantages. A move to online only will reduce costs, reduce our environmental impact – and they are confident that the disadvantages will be minimal. Over the past few years

we have seen many of the advantages of print being taken up by e-reader devices with high-contrast electronic paper and easily portable tablets, including the added bonuses of more flexible reading formats and access to the new Anywhere Article – an enhanced version of the HTML article. *Methods in Ecology & Evolution* has already demonstrated alternative ways of promoting a journal at conferences and online, without being able to put an issue in someone's hands.

In the light of this, BES Council approved the decision made for *Functional Ecology* to go online only from 2015. As well as any potential financial savings, going online only will also give the journal greater flexibility in other areas – from 2015, we will move to publishing 12 issues a year, which will result in a reduced time to issue publication for authors. Smaller issues may also let us explore new ways of publishing our Special Features and promoting papers.

At *Functional Ecology* we are constantly looking for ways to improve our publishing and dissemination of research—we led the BES journals with the move to incorporate Data Archiving by integrating with Dryad, are the only journal to provide lay summaries for all our papers and over the last few years, have produced a range of videos and podcasts to promote our papers. The move away from print to online publishing will help *Functional Ecology* continue to grow and expand as one of the top-ranked ecology journals.

### BES PUBLICATIONS TEAM

The current BES Publications team are pictured below. Catherine Hill is currently on maternity leave.

Andrea Baier,  
Deputy Head of  
Publications



Liz Baker,  
Deputy Head  
of Publications



Peter Livermore,  
Assistant Editor,  
Journal of Animal Ecology



Erika Newton,  
Assistant Editor,  
Journal of Applied  
Ecology



Jennifer Meyer,  
Assistant Editor,  
Functional Ecology



Samantha Ponton,  
Assistant Editor,  
Methods in Ecology  
and Evolution



Lauren Sandhu,  
Assistant Editor,  
Journal of Ecology



Kate Harrison,  
Assistant Editor



# PUBLISHING NEWS

## Journals Update



[www.journalofappliedecology.org](http://www.journalofappliedecology.org)  
@JAppliedEcology

### FAREWELL TO E.J. MILNER-GULLAND AND INTRODUCING OUR NEW SENIOR EDITOR TEAM

At the end of March, E.J. Milner-Gulland stepped down as Executive Editor for the Journal. We were all very sad to say goodbye to E.J., who has been involved with the Journal for 13 years and who has been a highly dedicated and inspiring Editor. Most recently, E.J. has played a significant role in helping the Journal to engage with and support applied ecologists in emerging economies by organising a workshop at the INTECOL congress last year and through the Journal's 'Reviews in emerging economies' series. On behalf of the whole editorial team, we wish E.J. all the very best for the future.

We are pleased to announce that Marc Cadotte has taken on the role of Executive Editor and we also warmly welcome Phil Stephens to the Senior Editor team. Phil has a long association with the Journal and has stepped up to temporarily act as a Senior Editor in the past.

### IN THE NEWS

The papers published in *Journal of Applied Ecology* frequently receive press attention, and the past few months have been no exception. The paper on the impact of pesticides on body size of bumble bees by Baron, Raine & Brown (51:460-469) received widespread attention and was featured in *The Guardian*, *Farmers Weekly*, *ITV news*, and *the Evening Standard*, among others. Also on the topic of bees, the paper by Becher et al. (51:470-482) received some coverage for their BEEHAVE computer model created to investigate the causes of decline in honeybees and assist management actions to improve bee health. If you are interested in pollinator ecology, some recent notable papers from all the BES journals are available as

a Virtual Issue ([ow.ly/sSrvb](http://ow.ly/sSrvb)), which was compiled for the joint symposium by the BES, the Biochemical Society and the Society for Experimental Biology held in January. Finally moving away from bees and on to bats, Lewanzik & Voigt's paper (51:388-394) on the impacts of artificial light on dispersal of plant seeds by frugivorous bats in the tropics, which has implications for rainforest regeneration in areas with high levels of light pollution, was highlighted on BBC News.

For regular updates from the journal please visit the website [www.journalofappliedecology.org](http://www.journalofappliedecology.org). You can also follow us on Twitter (@JAppliedEcol), Facebook, or download the Journal app.

**Erika Newton**  
Assistant Editor

**Andrea Baier**  
Managing Editor  
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[www.functionalecology.org](http://www.functionalecology.org)  
@FunEcology

Our latest Special Feature on Defensive Symbiosis is now available online in issue 2. This Special Feature explores the diversity, mechanisms and consequences of defensive symbiosis mediated by micro-organisms to help organize and interpret the growing body of work and place it within a broader ecological and evolutionary context of mutualism and symbiosis. Leading researchers in the field synthesize their own and related research on defensive symbiosis and provide independent perspectives on the current state of the field and future directions – including identifying defensive symbiosis, especially difficult in complex communities of macro- and micro-organisms where it is a significant challenge to obtain direct evidence of defensive symbiosis. The Special Feature also looks at mechanisms of defence, costs and benefits of microbial symbiosis vs. innate defensive mechanisms, dynamics of defensive symbiosis,

mechanisms of symbiont transmission and community and ecosystem consequences of defensive symbiosis.

We have also been joined by several new Associate Editors. Natalia Norden is based at Pontificia Universidad Javeriana, Colombia, where she has been primarily working on plant regeneration in both pristine and human-impacted landscapes in several Neotropical countries, looking at the ecological forces that structure plant communities in both secondary and mature forests. Also new to the team is Sabrina Russo from the University of Nebraska, whose research addresses the mechanisms that govern how communities are assembled and how species coexist to maintain diversity, with an emphasis on forest tree communities. A third new Associate Editor, Emma Sayer (Lancaster University) joined us in April. Emma's research looks at how interactions between above- and belowground processes affect ecosystem function and includes a wide range of tools borrowed from biogeochemistry, plant-, soil, and microbial ecology. Emma also sits on the Publications Committee. Alison Bennett (The James Hutton Institute) and Arjen Biere (The Netherlands Institute for Ecology) were guest editors on our Plant-Microbe-Insect Interactions Special Feature last year, so we are excited to welcome them onto our editorial board as Associate Editors. Alison's research addresses fundamental ecological questions on mutualisms, such as how mutualisms are maintained, why invasive species are successful, and how mutualisms influence the evolutionary ecology of communities in a system. Arjen is interested in the evolutionary ecology of interactions between plants and their herbivores, pathogens and mutualists. His current research focuses on microbial mediation of plant direct and indirect defence against herbivorous insects. These new editors show *Functional Ecology's* continuing commitment to integrative and community ecology.



Issue 3, out in June, contains our latest FE Spotlight: *Road noise and signal divergence via developmental plasticity in an arthropod*, a commentary from – Francis Clinton on Lampe et al's *How grasshoppers respond to road noise: developmental plasticity and population differentiation in acoustic signalling* (also in this issue). Ulrike Lampe won the 2012 Haldane Prize for Young Investigator for her paper on *Staying tuned: grasshoppers from noisy roadside habitats produce courtship signals with elevated frequency components* (*Functional Ecology*, Volume 26, Issue 6: 1348-1354)

**Jennifer Meyer**  
Assistant Editor  
admin@functionalecology.org

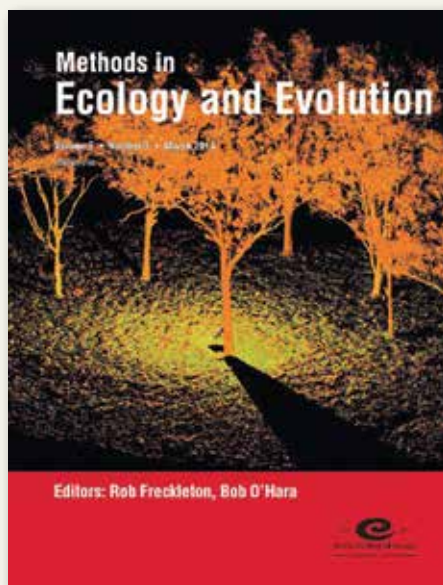


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evolution.org**  
**@MethodsEcolEvol**

Issues 5.4 and 5.5 are now available online. Why not browse our new issues using the new 'Enhanced Article' (HTML)? It allows you to view journal articles on any device, and it also offers lots of useful new features such as the figure viewer, and the ability to link directly to reference abstracts online.

We have a number of new, freely-available application articles, which are citable descriptions of new software, equipment, and other practical tools in ecology and evolution (methodsinecologyandevolution.org/applicationpapers). 'Synchrony' provides modern parametric and non-parametric methods for quantifying temporal and spatial patterns of auto- and cross-correlated variability in univariate, bivariate and multivariate datasets, in addition to assessing their statistical significance via Monte Carlo randomizations. 'MLST@SNaP' is a fast, user-friendly and automated process to convert thousands of MLST sequences or sequence types into SNaP profiles and vice-versa. 'RangeShifter' is a novel modelling platform which integrates

complex population dynamics and dispersal behaviour, includes plastic and evolutionary processes, and simulates scenarios on spatially-explicit landscapes. It provides functionality for a wide variety of modelling applications ranging from applied questions to theoretical studies. 'PopGenReport' is a new R-package that simplifies performing population genetics analyses in R, through the use of a new report generating function. The function allows users to perform up to 13 pre-defined and 1 user-defined analyses through the use of a single command line. New R functions simplify the importation of data from a spreadsheet file, examine allele distributions across populations and loci and identify private alleles, determine pairwise individual genetic distances, detect the presence of null alleles, calculate allelic richness, and test for spatial autocorrelation in genotypes.



Looking forward, keep an eye out for our upcoming joint Special Feature with the open access journal, *Ecology and Evolution*, on 'Modelling Demographic Processes in Marked Populations: Proceedings of the EURING 2013 analytical meeting'.

Last but certainly not least, we would like to congratulate to Will Pearse for winning the 2013 Robert May Prize, for his co-authored application 'phyloGenerator: an automated phylogeny generation tool for ecologists'; phyloGenerator allows non-specialists to quickly and easily produce robust, repeatable, and defensible phylogenies, without requiring an extensive knowledge of phylogenetics.

You can view Will's paper along with our 2 highly-commended papers in the BES Young Investigator Awards Virtual Issue (methodsinecologyandevolution.org/BESYoungInvestigator2013).

**Samantha Ponton**  
Assistant Editor  
coordinator@  
methodsinecologyandevolution.org



**www.journalofecology.org**  
**@JEcology**

### SPECIAL FEATURES

2014 is definitely the year of Special Features at *Journal of Ecology*. In issue 102:2 the *Journal* published a Special Feature entitled 'The Tree of Life in Ecosystems: Evolution of Plant Effects on Carbon and Nutrient Cycling' guest-edited by Hans Cornelissen and Will Cornwell. For those of you who attended INTECOL last August, this Special Feature is based on a symposium of the same name sponsored by the *Journal*. Lisa Donovan gave the keynote talk, which you can still listen to on the BES journals SoundCloud account. Thanks to everyone for their positive feedback on Twitter, via @JEcology, about the Special Feature, and have a look at the Special Feature online now to spot the "beautiful tree"!

The *Journal* also has a number of Special Features in the pipeline for the remainder of 2014. A Special Feature focussing on meta-analyses in plant ecology is planned for publication in the early summer months, guest-edited by Lorena Gómez Aparicio and Chris Lortie. Towards the latter end of the year the *Journal* also has Special Features planned on grassland-woodland transitions and on forest resilience. The forest resilience Special Feature is also based on two INTECOL symposia.

### JOURNAL OF ECOLOGY "IN THE PRESS"

The Swedish University of Agricultural Sciences distributed a press release about Cromsigt & te Beest's paper in the *Journal*, 'Restoration of a megaherbivore: landscape-level impacts of white rhinoceros in Kruger National Park, South Africa' (102:3). This paper was also chosen as the Editor's Choice for issue 3 of 2014. Visit the Journal of Ecology blog (<http://jecologyblog.wordpress.com/>) for some great photos associated with this

paper and to read a commentary written by Associate Editor Peter Bellingham.

The Biodiversity and Climate Research Centre – Frankfurt (BiK-F) produced a press release on a paper also published in *Journal of Ecology* earlier this year. This press release featured ‘Secondary dispersal by ants promotes forest regeneration after deforestation’ by Gallegos, Hensen & Schleuning (102:3). Again visit the *Journal of Ecology* blog to read a lay summary of the paper written by the authors.

### GUEST BLOG POSTS

As another summer conference season commences, please contact the *Journal's* Editorial Office via [admin@journalofecology.org](mailto:admin@journalofecology.org) should you wish to write about a particular conference that you have attended. If you are interested, but need inspiration, there are lots of posts still on the blog written by members of the *Journal* Editorial Board from last summer. Equally if you are giving a talk that you feel would be of interest to readers of the *Journal* please get in touch too.

### EDITORIAL BOARD

Finally, the *Journal* would like to warmly welcome to the Editorial Board Gabriela B. Nardoto (Universidade de Brasília) and Ellen Damschen (The University Wisconsin – Madison).

#### Lauren Sandhu

Assistant Editor  
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[www.journalofanimalecology.org](http://www.journalofanimalecology.org)  
[@AnimalEcology](https://twitter.com/AnimalEcology)

### CONTENT

As we reach the midpoint of 2014, we can reflect happily on the journal's performance in the first half of the year. Following on from a packed sample issue, the May issue (Vol 83, Iss 2) was likewise replete with stimulating contributions. While areas ranged from molecular to community ecology, this issue was particularly strong in the area of parasite and disease ecology, featuring topics such as life history effects, transmission networks and infection dynamics in taxa from bats to giraffes. This issue also included 3 open access articles, part of a wider trend of an increased uptake of

our OnlineOpen option compared with this time last year. Moving on to the most recent issue – May (Vol 83, Iss 3) – there are plenty of more thought-proving articles to feast upon. Heading the issue is another instalment in our highly popular ‘How to’ series written by Mark Rees, (our AE) Dylan Childs and Steve Ellner and entitled ‘Building integral projection models: a user's guide’ (open access). This paper provides a step-by-step walkthrough, including examples and R scripts, for developing integral projection models, which have recently garnered much attention owing to their utility in addressing a range of questions in ecology and evolution. In Focus is this time provided by our AE Eoin O’Gorman, who provides a commentary on Barrios-O’Neill et al.’s paper ‘Fortune favours the bold: a higher predator reduces the impact of a native but not an invasive intermediate predator’. This paper reports on a novel method to characterise important non-consumptive effects in predator-prey interaction research. Another of our AEs, Atle Mysterud, also contributes to this issue as an author, co-authoring the paper ‘Lasting effects of snow accumulation on summer performance of large herbivores in alpine ecosystems may not last’ which investigates the strong impact of melting snow on ecosystem function in alpine habitats. Finally, this issue also includes a paper entitled ‘Cascading effects of predator-detritivore interactions depend on environmental context in a Tibetan alpine meadow’ which was written by the 2013 Elton Prize winner Chuan Zhao and colleagues.

Looking forward, we have three virtual issues in the pipeline, covering food webs, molecular ecology, and insects, to add to the successful VI on African ecology edited

by Ken Wilson. In addition, we have a Special Feature currently in progress that will focus on current issues in the ecology of animal movement. This is another exciting area and should feature contributions from a range of leading experts in this field. Finally we hope to add to our range of videos on our Vimeo channel. Currently, the latest instalment is a video arising from the paper by Szostek et al. ‘Immigrants are attracted by local pre-breeders and recruits in a seabird colony’, which has already attracted a significant amount of attention.

### PERSONNEL

We regret to announce that Mike Boots has now stepped down as a Senior Editor of the journal after more than 7 years of dedicated service. We are indebted to Mike for his hard work and wide-ranging contribution to journal success over the years; in particular, he has been instrumental in developing JAE into a leading forum for wildlife disease ecology. However, we are pleased to say that we have found an excellent replacement for Mike: Jean-Michel Gaillard (Université Claude Bernard Lyon 1, France). Jean-Michel has broad interests across evolutionary and population ecology, although he is particularly interested in elucidating evolutionary processes and life history strategies in vertebrates using comparative analyses. He brings extensive previous editorial experience from his roles on *Oecologia*, *Ecology Letters* and *American Naturalist*, and the Editors believe he will be an asset to the journal going forward.

#### Peter Livermore

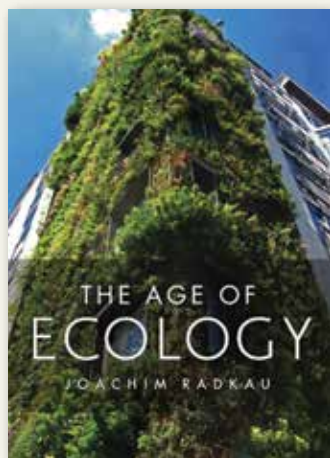
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Image from Atle Mysterud's paper on herbivores in alpine ecosystems

## BOOK REVIEWS

The book reviews are organised and edited by  
**Peter Thomas and Sarah Taylor**



### **The Age of Ecology**

Joachim Radkau (2014) Polity Press, Oxford. £30.00 (hbk)

ISBN 978-0-7456-6216-9

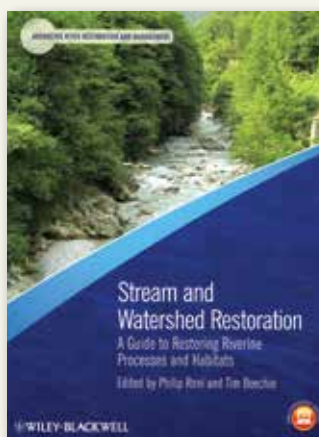
Do not be misled by the title. Much of what this book contains is not ecology *per se* but rather a history of environmental cultural change in which growing ecological awareness has been a driving force. Many of us probably think of Rachel Carson, Paul Ehrlich and even Max Nicolson as the progenitors of our current environmental awareness but Radkau's exhaustive research shows us to be sadly mistaken. We all know that the establishment of the BES in 1913 was a milestone but this history of environmental awareness and activism starts even earlier, in the late 19th century with the Romantic movement. For this author has written a very wide ranging history recording what some might think are peripheral events (like the growth of anti-division movements and the development of nuclear energy) yet woven them into the cultural development in a convincing narrative of how our perceptions and interests have changed. Whilst we may remember the importance of the first national park (Yosemite) established in 1890 and the founding of the Audubon Society (1886) and the Sierra Club (1892) as key

events, how many ecologists know about the founding of the German Society for the Protection of Birds in 1878 and that the first country to pass a conservation act was Sweden in 1909? Radkau sees elements of ecology and environmentalism not only in science but also in much more general societal developments. For him it is as necessary to understand the role of National Socialism, the activities of Greenpeace, the development of Green spirituality, eco-feminism and the anti-nuclear movement as it is to record the growth of green politics, the biological impact of Chernobyl, Carson's pesticide awareness campaign and the modern enthusiasm for recycling. He includes a great deal of detail about European, and especially German, activities that I had not been aware of and exhaustively documents his statements with almost 90 pages of chapter notes. An interesting feature is his "data clusters" where he provides lists of influential events with the first one from 1875-1914, the second from 1965-1972 and the third from 1986-1992.

This is a difficult book to review not only because the author has ranged so widely but his structure of just six chapters for 430 pages and a constantly moving time frame is hard work to follow. With sections entitled *On the ecology of ecologism* and *From nuclear power to the Spotted Owl* this is a different way of thinking to our more usual histories of ecology and, for me, more interesting because of this. Of course there are topics that any reader will feel are inadequately covered – for me these include lack of any real comment on the IPCC, little on the various forms of ecotourism and the impacts of the European environment directives, and an inadequate discussion of environmental

economics. On the plus side there are good profiles of often forgotten key figures like Petra Kelly in Germany and Wangari Maathai in Kenya, much on European activities that has not been well reported in English and some interesting links between disparate fields like urban planning and community objectives. His conclusion is we need clearer objectives, simpler regulations and a re-evaluation of how we can move to acceptable life styles in an unsustainable system dominated by consumerism. A very thought provoking book!

David Walton



### **Stream and Watershed Restoration: A Guide to Restoring Riverine Processes and Habitats**

Edited by Philip Roni & Tim Beechie (2013) Wiley-Blackwell, Chichester. £45.00 (pbk)

ISBN 978-1-4051-9956-8  
£100.00 (hbk)

ISBN 978-1-4051-9955-1

"When we play with nature, there are rules we must know". That's the particularly relevant quotation from Hervé Piégay in the foreword to this book, given the unprecedented flooding in the UK this winter. The editors encourage a move from opportunistic to strategic watershed restoration, and a process-based approach that tackles the root cause of

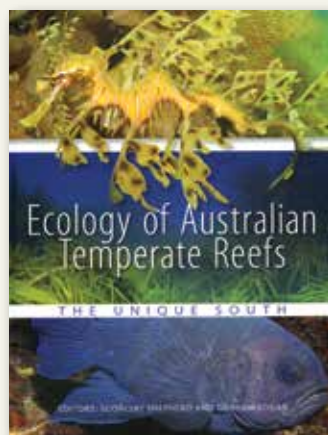
habitat degradation, and avoids costly, repetitious management interventions. The target audience are practitioners, educators and students, but anybody touched by the Water Framework Directive will gain from reading it.

There is practical advice on how to develop, design and implement restoration projects. However, design is not enough. The human dimension is given equal weighting, with an inspirational case study from the Varde River, Denmark. Watershed restoration is a long game, and whilst project teams come and go, the landowners and organisations that we rely on for implementation remain. It's vital to know how to build strong relationships with them. Finally, there is guidance on monitoring and evaluation, something restoration teams need to work harder at. Remarkably, simple methods such as before/after images are often absent from projects.

The writing is lucid and logical. The tables, diagrams, graphs and images in both black/white and colour are positioned with the related text, and are available from the free companion website. An extensive reference list is included after each chapter.

The book would, however, have benefited from a glossary. For example, what is a 'slash filter'? Additionally, given the holy grail of restoration to an original, undisturbed state, it would have been helpful to include some descriptions and images of such rivers to tee up the rest of this otherwise excellent guide.

Simon Bates



### **Ecology of Australian Temperate Reefs: The Unique South**

Edited by Scoresby Shepherd & Graham Edgar (2013) CSIRO Publishing, Collingwood.  
£115.00/AU\$ 130.00 (hbk)

ISBN 978-1-486-30009-9 (hbk)

Australian biology is characterised by high endemism (the presence of species which occur nowhere else) and species richness. Add to this, unique features of its coast and surrounding seas as well as inland, and any study of this biology needs to begin by establishing how the continent achieved this state. The story, as told here, begins about 70 million years ago with the separation of Australia from Antarctica and the consequent opening of the Southern Ocean. As Australia drifted northwards its coast shared much of the fauna of the fragmenting supercontinent of Gondwana of which it had been a part but its subsequent isolation allowed flora and fauna to evolve their unique character. Biogeography and its effect on biodiversity, therefore, feature large in this account. In addition to the continent's long isolation, emphasis is given to the importance of its stable environment (a consequence of relatively stable sea temperatures over the past 60 million years),

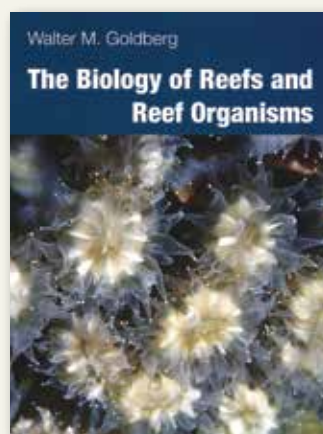
an absence of extinction events, cyclic changes in sea level encouraging allopatric speciation, its position in the path of currents bringing life-forms from elsewhere in the Indo-West Pacific, and of its varied geology, and consequent topography, offering enormous habitat richness.

Having established the framework, accounts follow of the main groups of marine species including the algae, crustacea, annelids, molluscs, echinoderms, the major groups of sessile fauna, bottom-feeding and reef-associated fish, and a few significant mammals. Details are given of the biology of many of the commonest 'signature' species as well as views of the effects on their ecology of human influence and climate change. The final chapters deal with food webs, conservation and management.

For a multi-author text it is encouraging that each section flows seamlessly into the next – a sign of good editing often missing in such works. Each section is rich in detail, well referenced and up to date. There is a block of colour plates at the start of the book but the individual pictures are small and sometimes lacking in clarity. Otherwise illustrations are sparse. These are small criticisms, however, in an otherwise excellent text.

Marine Biologists (especially those working in other habitats but curious about what these reefs have to offer), students, amateur divers, fisheries managers and even aquaculturists will all find something of value here. Although clearly aimed at the Australian market it would also be an excellent read for any biologist about to holiday on the Australian coast (although a field guide would also be useful!).

*Ian Lancaster*



### **The Biology of Reefs and Reef Organisms**

Walter M. Goldberg (2013)  
University of Chicago Press,  
Chicago. £38.50 (pbk)

ISBN: 978-0-226-30168-6

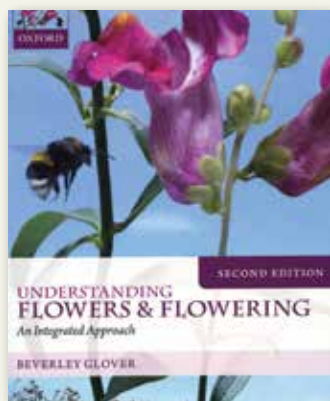
Coral reefs fascinated Charles Darwin since he first encountered them whilst voyaging on HMS Beagle in the 1830s, and he was one of the first naturalists to study and write about them in detail. This single-author text offers an equally enthusiastic review and reminds us how important Darwin's observations were to our present understanding of reef biology.

With excellent full colour maps, diagrams and photographs, the author begins by defining and outlining the formation of the major types of reefs, briefly covers the process of biomineralisation, and then proceeds to review the major groups of organisms associated with reef ecology. Individual chapters deal with cyanobacteria (including stromatolites), reef algae, sponges, cnidaria (including deep sea corals), annelids, molluscs, crustaceans, and echinoderms. Fish are covered primarily by way of their effects as coral feeders. There are fact boxes within each chapter providing further detail without breaking the flow of the narrative, and these can

stand alone or be ignored if only seeking an overview. Topics include cyanobacterial photosynthesis, relationships between calcification and photosynthesis, feeding classification, gastropod shell growth, the biology of stomatopods (mantis shrimps), trilobites, Palaeozoic corals, isotopes as climate indicators, and El Niño events. There is a brief review of the geological history of reefs and a prediction of how reefs are likely to change over the next century in light of climate change and the many other stresses they are being exposed to. Within the above chapters are details of classification, life cycles, basic anatomy and physiology, with ultrastructure included where necessary.

This is a most comprehensive review, particularly so as it is the work of one author, and would suit students on a range of marine biology courses. The text is well written, and covers a wide range of specialist and general marine biology topics. The illustrations are very high quality and well integrated into the text. There is a comprehensive list of references with each chapter and a detailed glossary of many of the key terms indicated in the text. An excellent addition to any department library.

*Ian Lancaster*



### Understanding Flowers and Flowering: An Integrated Approach (2nd ed)

Beverley Glover (2014) Oxford University Press, Oxford.  
£75.00 (hbk)

ISBN 978-0-19-966159-6  
£39.95 (pbk)

ISBN 978-0-19-966160-2

The first edition of this book won the BES Marsh Book Prize in 2009. Now updated, with new insights it is an even better book. The aim is to link what is known about the molecular and genetic control of how flowering works with the evolutionary and ecological drivers that control why they look the way they do. There's much here for anyone interested in flowers but also for those interested in their pollinators. For example, it is well-known that hummingbirds have a preference for red flowers, but why? They are not overly sensitive to red light and in artificial feeding experiments have no great preference for red feeders. The answer appears to lie with their competitors. Bees do not have photoreceptors for red light but their green receptors have a wide spectral sensitivity which covers red wavelengths. So bees can see red flowers but have a problem distinguishing them from the green background. It thus appears that humming birds visit red flowers because bees tend to overlook them and so they are likely to be better sources of nectar for the birds.

Virtually every page gives equally fascinating insights, from the genetic control of flower induction and the development of gametophytes, to ideas of how and why flowers have different shapes, colours and fragrances. It would be even better printed in colour since the black and white photos are reproduced in colour in a centre spread and, given the visual nature of the subject, it requires a constant flicking around. Nevertheless, this is a fascinating read.

*Peter Thomas*



### Sand Dune Conservation, Management and Restoration

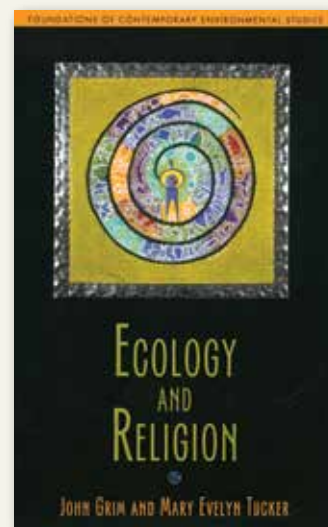
J. Patrick Doody (2013) Springer, Dordrecht. £90.00 (hbk)

ISBN 978-94-007-4730-2

The role of sand dunes as protective buffers from the effects of tides and waves is going to become more important as climate change-induced storm events increase and sea levels rise. This research synthesis represents an enormous body of work on the ecology of temperate coastal sand dunes. Since sand dunes represent highly dynamic systems, Doody sets sand dune ecology in a geomorphological context. This includes a discussion of

the fascinating origin of sand dunes towards the end of the last glaciation over 12,000 years ago, the active sand-sharing system of the beach/foredune interface and the complex dynamics of the terrestrial inland dune, which are driven by the height of the water table, sand movement, etc. The book focuses on dune systems in the northern hemisphere, with case studies from across Europe and North America, as well as consideration of southern hemisphere analogues. The text is divided into 12 chapters, and covers: impact of human activities (e.g. afforestation), nature conservation policies, ecosystem services, alien plant invasions, management and restoration. The final chapter examines present threats and future prospects, and emphasises the problem of 'sand dune squeeze' as sea level rise inland causes net landward migration of dune system, which can be especially problematic if urban development constrains the inland edge of the dune system. Each chapter stands alone, with its own reference list, and the text is accompanied by useful colour images and diagrams. This book will be a useful reference for professionals working in land management and conservation of sand dunes, as well as students and academics interested in dynamic systems.

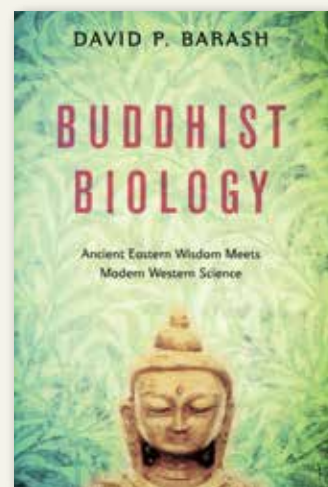
*Sarah Taylor*



### Ecology and Religion

John Grim and Mary Evelyn Tucker (2014) Island Press, Washington, DC. £18.99 (pbk)

ISBN 978-1-59726-708-2



### Buddhist Biology

David P. Barash (2014) Oxford University Press, New York. £19.99 (hbk)

ISBN 978-0-19-998556-2

Husband and wife team John Grim and Mary Evelyn Tucker are passionate advocates for "religious ecology", which they define as "providing a framework for diverse religious worldviews, symbol systems, rituals, and ethics as developed in relation to the processes of the Earth and the universe".

Together they organized a series of symposia on ecology and different religions between 1996 and 1998 at the Harvard Centre for the Study of World Religions, which led to a valuable ten volumes of data and analysis. They currently direct a Forum on Religion and Ecology at Yale. They are not ecologists or theologians; they can perhaps best be described as sociologists. The intriguing thing about this latest book of theirs is its inclusion in a series on the "Foundations of Contemporary Environmental Studies", edited by Peter Crane, former Director of the Royal Botanic Gardens. Its significance is showing how "contemporary environmental studies" extend well beyond the constraints of scientific ecology. As ecologists, we are mainly concerned with the mechanisms of biological systems, but we need also to recognize that solving the questions of "how" a system works often raises questions of "why" it functions the way that it does. This may lead us into new territory. We can deny the legitimacy of inconveniently cross-disciplinary questions, but that doesn't make them disappear. As Peter Medawar wrote years ago, "it is not possible to derive from the axioms and postulates of Euclid a theorem to do with how to cook an omelette or bake a cake".

Grim and Tucker are more concerned to describe the ways that different religions deal with ecology than examining the details of the various interactions between religion(s) and science. Their selection of subjects is somewhat idiosyncratic as well as Americo-centric. They note the Declarations on Faith and Nature launched from the Jubilee Celebrations of WWF at Assisi, but say nothing of their contents nor the Alliance of Religions and Conservation initiated that followed. The UN Declaration of Human Rights

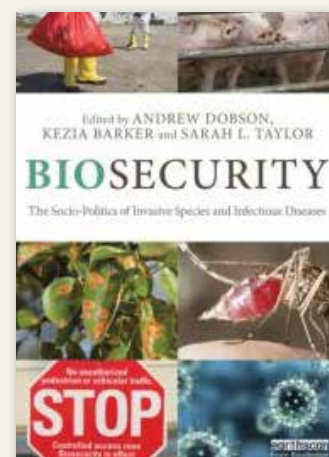
is mentioned, but not the World Charter for Nature nor the call by the UN Secretary-General for a declaration on the relations between humankind and nature (and a subsequent draft Covenant). The Justice, Peace and Integrity of Creation Programme of the World Council of Churches and the ethics work of IUCN are ignored, although they provided the background and much of the content of the Earth Charter – which is described in detail. The authors' backgrounds presumably lead them to trip over some historical facts: Tansley was not the founder of BES and it was his 1935 paper on the ecosystem which prompted a major critique of Clements's climax concept; Leopold's conservation ethos was sparked by Elton; ecology had moved from its 'organic, holistic roots' long before the 'late twentieth century'; the influence of the Odums on what is called the economics-based 'New Ecology' is omitted; Sir John Houghton is a physicist, not an 'Oxford biologist'; and so on.

*Ecology and Religion* will have performed a useful function if it persuades ecologists to take account of religious ideas (and vice versa), but it has too many flaws to be a truly seminal text.

*Buddhist Biology* is almost a mirror image of *Ecology and Religion*. The author is a biologist; he was a pioneer in sociobiological experimentation. He is now a professor of psychology at the University of Washington, where he has moved up the scale (as it were) from his early work with birds to the evolutionary psychology of humans and thence to Peace Studies. His starting point is an assumption that most religions are intrinsically irreconcilable with science, disagreeing with Steve Gould who argued that science and religion occupy separate realms of thought and therefore cannot conflict (NOMA or "non-overlapping magisteria"). Barash's claim is

that Buddhism is an exception, occupying POMA ("productively overlapping magisteria"). His book is an attempt to justify this – an exposition of the key concepts of Buddhism and claims of their concordance with biology, particularly (he argues) ecology. His thesis centres on the interconnectedness found in both biological systems (think food webs) and Buddhism, together with the idea that Buddhism, uniquely among religions but like scientific practice, depends on pragmatic testing and discipline rather than faith. There is no doubt that Buddhist respect for life and attitudes to conservation have attracted many naturalists, but I suspect that Barash is not a sure guide. For a start, he rejects reincarnation – which I have always assumed is a key feature of Buddhism. Indeed he calls himself a "Buddhist atheist". His advice is "to accept that there is no meaning to life.... and that we are better off choosing to live in direct resistance to our nature as contained in our genes". This seems to me just like any other sort of atheism.

Sam Berry



### Biosecurity: The Socio-Politics of Invasive Species and Infectious Diseases

Edited by Andrew Dobson, Kezia Barker and Sarah L. Taylor (2013)  
Earthscan from Routledge, Abingdon. £32.99 (pbk)

ISBN 978-0-415-53477-2

Biosecurity is not a new concern. Management of imported goods for pests and diseases has been a border activity in many countries for a long time, whilst the ease of air travel has made the transport of diseased passengers from one country to another much simpler and rapid, potentially resulting in pandemics. What is new is the increasing hysteria around biosecurity and its association with terrorism, concerns about the spread of invasive species both from conservation and economic view points, and the increasingly obvious impacts on ecosystems of previous ill-considered introductions to continents and islands around the world. This volume takes a very broad view of what they call the "lexicon of biosecurity" and ranges not just across ecology and health (both human and animals) but reviews in some detail the legal and geopolitical contexts in which change is occurring.

The recent introduction of ash dieback disease into the UK through infected young trees from The Netherlands illustrates the problems of controlling the spread of diseases in a

global economy. Whilst this book does have chapters like the one by Daniel Simberloff on the ecological damage caused by invasive species most of the book is devoted to non-ecological aspects of biosecurity, underlining the fact that this is a political and ethical issue not simply a biological and technical one. An excellent example of this is the discussion in Chapter 8 on the way in which the rules of the World Trade Organisation for free movement of goods are specifically at variance with control measures to protect ecosystems. Equally interesting is Chapter 4 where the integrated approach to biosecurity used in New Zealand, and paid for as a public good, is compared to the fragmented approach used in the UK where the focus is on cutting costs rather than public benefit. There are interesting discussions of human health and bioterrorism issues, questions as to whose data should be believed when making decisions (badgers and TB for example), what sort of language should be used in discussing biosecurity, is re-wilding completely at odds with biosecurity and if not why not, and what exactly is a “native” species in the final analysis?

This mixture of science, law, social science and politics asks some very difficult questions about what we need to do, why and how. The emphasis throughout is on managing risk but complex interactions demonstrate just how confusing this whole area is – not simply in terms of what actions are needed to reach our management objectives but how powerful different agendas (not least those of Business and “Homeland Security”) are likely to make some sensible resolutions almost impossible to achieve. The editors also remind us finally that climate change is taking much of the choice out of our hands.

*David Walton*



**Our Once and Future Planet: Restoring the World in our Climate Change Century**

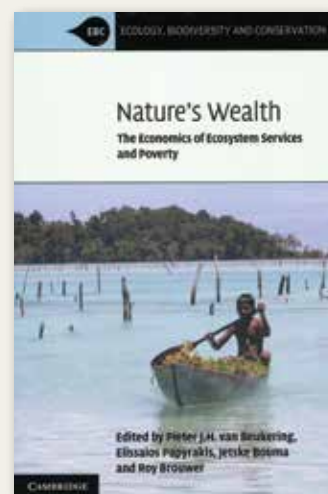
Paddy Woodworth (2013)  
University of Chicago Press,  
Chicago. £24.50 (hbk)

ISBN 978-0-226-90793-0

I believe that we have actually been practising ecological restoration for centuries but as an organised and focussed field of ecological science it is hardly thirty years old. Many BES members will be aware of the Society for Ecological Restoration and may well be involved directly in restoration projects so the stories here should not be new. Why then do we need them? This book is about restoration projects all over the world but as seen by a journalist rather than a scientist, and it does present a quite different picture of what can and is being achieved. This book is not really meant for ecologists – although I believe many could gain greater insight from reading it – but for the more general public with an interest in natural history and sustainability. He writes very fluently yet has taken the trouble to provide both a glossary and chapter notes throughout the volume that allow the reader to see the sources of his information. And the projects he reviews over an eight year period cover an enormous range – whooping cranes in the USA, invasive

species in South Africa, Irish woodland and peat bogs, jarrah forest in Australia, tropical forest in Costa Rica, and so on. What certainly distinguishes this book from more scholarly treatments is the way in which he treats the human elements, without which none of this work would be either possible or necessary. Explaining how the projects came about involves describing the people and their passion for the work, detailing the arguments not only with the government systems but also with colleagues who have different views, and with the public who like the alien species that need to be removed. In the New Zealand example he opens up the problems of land ownership and Maori claims, whilst in Ireland he discusses peat cutting rights. In Costa Rica success was achieved in part with tons of orange peel whilst in the US brush control was only possible by secretly ring-barking the trees. And in almost every case he records dissenting voices who object to change, criticise the end results as not a return to the previous habitat, or object to the killing of feral animals like cats that decimate wild bird populations. Restoration is a tough field! Perhaps the themes that characterises all of this are that ecological restoration rarely achieves its original goals, that prediction is a very inexact science in such complex systems and that there is still a major mountain to climb in making the public aware of what can be done to recover ecosystem characteristics from degraded land. His enthusiasm for the work is clearly evident and his broader view of the problems than the simply scientific makes for a very readable and interesting volume.

*David Walton*



**Nature's Wealth: The Economics of Ecosystem Services and Poverty**

Edited by Pieter J.H. van Beukering, Elissaios Papyrakis, Jetske Bouma & Roy Brouwer (2013) Cambridge University Press, Cambridge. £75.00 (hbk)

ISBN 978-1-107-02715-2

£35.00 (pbk)

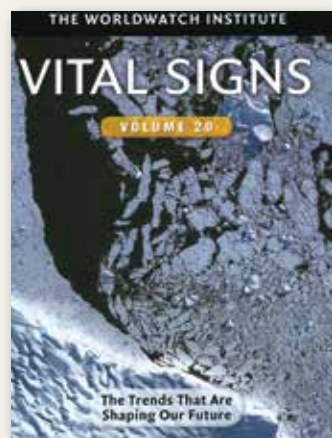
ISBN 978-1-107-69804-8

We certainly do not lack books on ecosystem services and how they might be valued and managed, but usually the emphasis is on examples from the developed world, often heavily skewed to the United States. Here is a refreshingly different approach through case studies from the developing world, providing examples from small communities rather than major urban areas, for people at the bottom of the heap for whom daily life is a constant struggle. It considers ecosystem services under five elements – biodiversity, marine, forest, water and land – each with three or four case studies. This book illustrates successfully that the relationship between poverty and ecosystem services is not simple and that to avoid further inadvertent disadvantages to the poor innovative management ideas are needed rather than further imposition of top down tools. Three key elements seem to be important in tackling

the problems everywhere – opportunity, empowerment (including education) and security (including legal rights and enforcement). For example, creating national parks to protect biodiversity or iconic species (like rhino or elephants) has driven those who have lost rights to land use to take up poaching. The case study on the Royal Chitwan National Park in Nepal shows that the answer lies in a mixture of incentives as landholding households are motivated by different opportunities to landless households. A study across four island countries demonstrates how the right management of marine protected areas can directly reduce local poverty and protect marine biodiversity, whilst a second case study from Vietnam shows how at the Hon Mun MPA it is the poor fishermen who have lost out and the wealthy ecotourist entrepreneurs who have benefitted. The complexity of forest management has been addressed in numerous texts but here the case studies demonstrate that it is poor enforcement of existing policies for charcoal supply which is a major cause of deforestation in Tanzania, whilst in Pakistan the rights of several different tiers of ownership of forests are in direct conflict, with little evidence that a generally acceptable scheme for forest management is possible. The final sections look at how managing water in arid countries, like Mali and Ethiopia, is complicated by institutional investment in large dams and the increase in malaria associated with increasing ponds for local use, whilst the problems with land management are highlighted through overgrazing in Mongolia and land degradation in Uganda, which has provided short term alleviation of poverty but without any long term policies to manage the future at community level.

This is a very interesting volume, providing a well-researched series of illustrations of the nexus between ecology, economics and sociology that underlies the future management of sustainable ecosystem services in a wide variety of cultures. Looking at the problems from the bottom up rather than from the top down gives a very different and more pragmatic perspective. Implementing sensible policies in developing countries with poor legal systems, expanding populations and endemic corruption is another thing entirely.

David Walton



### **Vital Signs Volume 20: The Trends that are Shaping our Future**

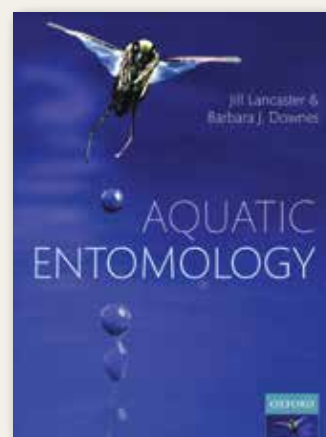
Worldwatch Institute (2013)  
Island Press, Washington, DC.  
£11.99 (pbk)

ISBN 978-1-61091-456-7

The Worldwatch Institute is one of several American NGOs whose role is to keep the public informed about global environmental trends. In fact its overall mission is even more daunting – to help move from consumerism to sustainability, to limit population growth, provide universal access to renewable energy and to nutritious food. For the last forty years it has been producing research reports on a very wide variety of subjects. *Vital Signs* is an annually published

volume of key trends and is supplemented by a series of continuously updated on-line postings. Each volume provides a selection of key topics in five areas – energy & transport, environment & climate, food & agriculture, global economy, population & society. This year key topics include trends in energy production, rising carbon dioxide emissions, increases in global grain production and farm animals, increasing water scarcity in many parts of the world, and the unstoppable progress of urbanisation. In all there are 28 topics, usually four pages long, which summarise the latest data from around the world. Not a book for reading but a valuable resource for teaching about human impacts at a global level. Whether it is aquaculture, carbon capture, climate migration or renewable energy investment you will find the data here, all carefully referenced.

David Walton



### **Aquatic Entomology**

Jill Lancaster & Barbara J. Downes (2013) Oxford University Press, Oxford. £

£75.00

ISBN 978-0-19-957321-9

£37.50

ISBN 978-0-19-957322-6

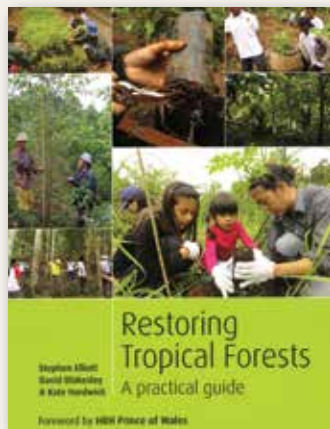
The authors are worried that managers and researchers who work with freshwater bodies are restricted by a lack of basic

understanding of insects, which make up such a predominant part of the fauna within them. Freshwaters are so vital and so threatened that many people work with them, and insects are used extensively as indicators of water quality but, despite a large but scattered library of research material, basic insect biology is not widely taught and known. This book is designed to fill this lacuna, rather than being restricted to the ecology of insects.

Consequently the sections and chapters cover the orders of insects and their body structure; evolution, biogeography and distribution; various environmental constraints on insect distribution; the sensory system, movement and dispersal; population dynamics in its widest context; and all aspects of trophic relationships. These general topics include within them more or less anything that you might want to know about insect biology. The text is illustrated with many very clear text figures and half-tone photographs and is supported by a huge range of references, so that it is possible to follow up any specific topic that becomes of interest. The authors are experienced entomologists and so the material is presented authoritatively but, restricted to a text length of just over 200 pages, each individual subject is inclined to be brief and at times rather superficial. Even so, with the use of the references, it is always possible to reach more deeply into the detail.

This is not designed as a book for general ecological reading, but it is a useful background reference for freshwater biologists who want to know about the animals that they are studying. In this context it is recommendable.

Mark Young



### Restoring Tropical Forests: A Practical Guide

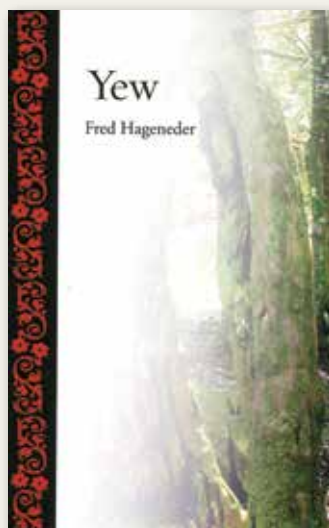
Stephen Elliott, David Blakesley  
& Kate Hardwick (2013) Kew  
Publishing, Richmond. £32.00  
(pbk)

ISBN 978-1-84246-442-7

This is very much a hands-on guide for improving degraded tropical forests based on tried techniques developed at Chiang Mai University in Thailand. It covers all aspects from site selection and engaging the local community through to practical prescriptions on planting and monitoring. To get new trees growing it advocates 'assisted' natural regeneration as the cheapest and most reliable method – helping new trees grow by reducing competition, using fertilisers through to adding perches to encourage bird-dispersed seeds. Where this produces <3,100 new trees per ha, then tree planting should be used to as a supplement. In this case the emphasis is on framework species, native species that grow fast and dense to shade out weeds and flower/fruit early to attract seed-dispersing wildlife. It covers many ingenious ideas for improving natural regeneration, and for collecting seeds, raising seeds and planting them effectively. Many, many examples could be selected but let me share just one: in one part of Thailand where it is difficult to collect enough seeds from desirable trees, each seed parent is designated as

a 'Treasure Tree' and children are encouraged to collect the treasure (seeds) for which they get stickers to put on a card which they can redeem when full for rewards. Wonderfully simple, cheap and very effective. The book is filled with good colour pictures of people in many different parts of the world happily engaging in all the steps given. If you have a degraded tropical forest this will give you all the ideas you need. If you don't happen to have the odd degraded forest to hand, this still makes a very valuable, applied teaching resource. And, unusually when looking world problems, this book gives a huge amount of encouragement that things can be made better.

Peter Thomas



### Yew

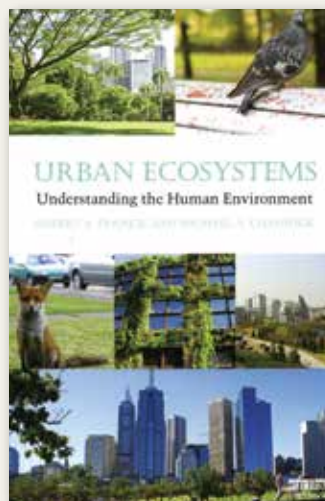
Fred Hageneder (2013) Reaktion  
Books, London. £16.00 (hbk)

ISBN 978-1-78023-189-1

This small, pocket-sized book is in *The Botanical Series* where each book deals with a different plant or set of plants – bamboos, lilies, pines, oak, and now the yew. These are designed as approachable, broader versions of the Biological Flora of the British Isles series published in *Journal of Ecology* in bringing together what is known about the biology and ecology of the plant, set within a social and cultural context.

Fred Hageneder is already well known for producing rigorous and readable books on the yew tree and this is a shorter distillation of these with particular emphasis on our long intertwined history with this long-lived tree. Although aimed at the general public it contains a good account of how yews work, from wood structure to reproduction to how the morphology of the woody skeleton of our longest lived native tree changes with time. With many colour pictures and well-written text this book is a joy to read and is guaranteed to contain things you didn't know before.

Peter Thomas



The review of *Urban Ecosystems* below appeared in the last issue of the *Bulletin* with the picture of the review below that of *Urban Ecosystems* (have a look and it will be clear). Our apologies to both sets of authors and the publishers.

### Urban Ecosystems: Understanding the Human Environment

Robert A. Francis & Michael A.  
Chadwick (2013) Routledge,  
Abingdon

£29.99 (pbk)

ISBN 978-0-415-69803-0

£85.00 (hbk)

ISBN 978-0-415-69795-8

I remember being intrigued in the late 70s when I was given a copy of Bunny Teagle's *Endless Village* report on wildlife of the urban West Midlands. Since then the development of urban ecology has been surprisingly slow and enthusiasm for urban conservation in the UK has waxed and waned. Might one conclude this is because ecologists and conservationists are more inclined to work on the more exotic and esoteric, or am I being too harsh? The recent publication of several books on urban ecology suggests the urban environment is more interesting than once thought and is achieving better focus.

Although there are several recent books published on urban ecology, so far as I am aware this is the first textbook. It provides an excellent overview of the topic and whilst the main focus is on ecology, there is enough information about the geographical and social context for this textbook to be of value not just in teaching ecologists, but also geographers, planners, engineers and others who influence the urban environment.

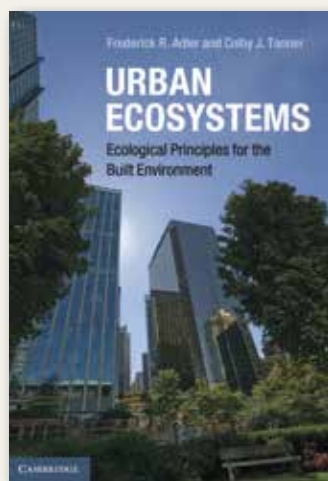
An early chapter in the book deals with the spatial character of urban areas, both in terms of i) settlement morphologies and how these evolve, and ii) the influence of resulting land use patterns on ecological processes; notably dispersal. It provides an interesting bridge between the traditional urban geographer's perspectives and those of the ecologist. Following a chapter dealing with ecological processes in urban areas there are chapters on urban green spaces (including rivers and lakes) and buildings. The chapter on urban species includes lengthy discussion of the particular role of generalist and non-native species in urban areas, as well as 'pest' species. The concluding chapters deal with nature conservation, urban planning and the future for urban areas.

The authors of this book have done an excellent job in bringing together in clear and purposeful text and well-chosen graphics the varied strands of urban ecology as a discipline. Like all good text books it is also an excellent introduction to the topic for the general reader, and I hope it will encourage the wider teaching of urban ecology.

## REFERENCE

Teagle W.G. (1978) *The Endless Village. The Wildlife of Birmingham, Dudley, Sandwell, Walsall and Wolverhampton*. Nature Conservancy Council, London.

John Hopkins



## Urban Ecosystems: Ecological Principles for the Built Environment

Frederick R. Adler & Colby J. Tanner (2013) Cambridge University Press, Cambridge. £38.00 (pbk)

ISBN 978-0-521-74613-7

Here we have another textbook, with almost the same title as Francis & Chadwick's book above. The emphasis here is on the functioning of the built environment – what makes urban ecosystems tick, mainly from the standpoint of a geographer rather than an ecologist. Consequently much of the first three chapters are on topics such as energy use, ecological footprints, urban climates and water and nutrient

cycles. This is perhaps the result of the authors' reflection in the Preface of what Salt Lake City looks like from the air. It certainly helps give a very good, broad overview of how urban ecosystems work and nicely supplements the narrower view of many ecology texts. At one point there is a comparison of how an ant colony works compared to a human city – although not hugely insightful it does bring out the remarkable similarities. The fourth chapter deals with urban organisms, again with a broad overview. So there is emphasis on the range of habitats and the effects of invasive/exotic species, and the traits that organisms need to survive in the concrete jungle. The last chapter is a very strong consideration of human ecology with excellent sections on human health and disease, and particularly the value of green space in keeping us healthy.

Each chapter has a long list of questions for discussion broken down into separate sections within the chapter, and a list of practical exercises. In chapter 4, the most ecological, there are 39 questions and 17 exercises. The former range from asking why urban ecosystems are sometimes more diverse than the surrounding area through to why humans are such a strong evolutionary force. The computational exercises include looking at the transmission of Lyme's disease, the effect of ambient noise on nightingales, rates of invasion of new organisms and many more.

If you want a text on urban ecology that excels in the big picture of how these ecosystems work, rather than the organisms found within them, then this would be a hard book to match.

Peter Thomas

## ALSO RECEIVED

### Ecosystem Services, Biodiversity and Environmental Change in a Tropical Mountain Ecosystem of South Ecuador

Edited by Jörg Bendix, Erwin Beck, Achim Bräuning, Franz Makeschin, Reinhard Mosandl, Stefan Scheu & Wolfgang Wilcke (2013) Springer, Heidelberg. £117.00 (hbk)

ISBN 978-3-642-38136-2

Written by a team covering natural, economic and social sciences, this gives a case study from the tropical Andes on the wide range of services provided and the likely impact of environmental and human change.

### Ecological Restoration and Environmental Change

Earthscan have just published a paperback edition of Ecological Restoration and Environmental Change by Stuart Allison. The hardback was reviewed in the *Bulletin* last year by John Hopkins, who considered the book a 'well considered and balanced perspective of the field'. The paperback is published at £25.99, ISBN 978-1-13-880456-2

# DIARY

## THE SOCIETY'S MEETINGS

(meetings of the Special Interest Groups are listed on p24)

### 2014

#### JUN 25-27

*BES and Dice Joint Symposium: Considering the Future of Conservation.* University of Kent, UK. Details from the BES website: [http://www.britishecologicalsociety.org/events/current\\_future\\_meetings/2014-annual-symposium/](http://www.britishecologicalsociety.org/events/current_future_meetings/2014-annual-symposium/)

#### SEP 8-10

*Eco\*\*2 Symposium.* BMA House, London. Details from the BES website: [http://www.britishecologicalsociety.org/events/current\\_future\\_meetings/2014-annual-symposium-eco2/](http://www.britishecologicalsociety.org/events/current_future_meetings/2014-annual-symposium-eco2/)

#### DEC 9-12

*Joint Annual Meeting British Ecological Society and Société Française d'Ecologie.* Grand Palais, Lille, France. Details: [http://www.britishecologicalsociety.org/events/current\\_future\\_meetings/2014-annual-meeting/](http://www.britishecologicalsociety.org/events/current_future_meetings/2014-annual-meeting/)

## THE SOCIETY'S COMMITTEE MEETINGS 2014

JUN 03 Council

JUN 26 ETCC (Birmingham, Priory meeting rooms)

SEP 09 Finance and Management Board

SEP TBC Membership

OCT 07 Meetings Committee

OCT TBC Publications Committee

OCT 16 PPC

OCT 23 ETCC (York, Brewery meeting rooms)

06 NOV Grants Committee

NOV 11 Finance Board

DEC 09 Council (Lille, France)

## OTHER MEETINGS 2014

#### JUN 8-13

*Biology of Host-Parasite Interactions.* Newport, USA. Website: <http://www.grc.org/>

#### JUN 14-17

*Evolutionary Biology of Caenorhabditis and other Nematodes.* Cambridge, UK. Details:

[https://registration.hinxton.wellcome.ac.uk/display\\_info.asp?id=390](https://registration.hinxton.wellcome.ac.uk/display_info.asp?id=390)

#### JUN 14-15

*Annual Field Trip The Linnean Society.* Dorset, UK. Details from: <http://www.linnean.org/Meetings-and-Events/Events/Annual+Field+Trip+2014>.

#### JUN 18-20

*Agronomic Decision Making in an Uncertain Climate.* Leeds, UK. Website: <http://www.aab.org.uk/>

#### JUN 23-27

3rd Asia-Pacific Coral Reef Symposium. Pingtung, Taiwan. Further details from: <http://apcrs2014.com/index.php>

#### JUL 1-4

*Society of Experimental Biology Annual Meeting.* Manchester UK. Details from: <http://www.sebiology.org/meetings/Manchester/Manchester.html>

#### JUL 1-4

*International Statistical Ecology Conferences.* Montpellier, France. Website details: <http://isec2014.sciencesconf.org/>

#### JUL 7-11

*International Institute of Fisheries, Economics and Trade Conference 2014.* Brisbane, Australia. Details from: <http://iifet2014.org/>

#### JUL 13-16

*2nd North America Congress for Conservation Biology,* Missoula Montana USA. Website: [www.xcdsystem.com/scbna/website/](http://www.xcdsystem.com/scbna/website/)

#### JUL 13-17

*BIOGEOMON 2014. 8th International Symposium on Ecosystem Behaviour.* Bayreuth, Germany. Website: <http://www.bayceer.uni-bayreuth.de/biogeomon2014/>

#### JUL 13-18

*The 27th Congress for the International Union for the Study of Social Insects.* Cairns, Australia. Website: <http://www.iussi2014.com/>

#### JUL 14-17

*2nd Annual International Conference on Ecology, Ecosystems and Climate Change,* Athens, Greece. Further details: <http://www.atiner.gr/ecology.htm>

#### JUL 14-18

*Network Tools in Biosciences.* Barcelona, Spain. Details from: <http://www.transmittingscience.org/courses/syst-bio/networks/>

#### JUL 15-18

*Systems biology and ecology of CAM plants.* Lake Tahoe, CA, USA. Details: <http://www.newphytologist.org/symposiums/view/5>

#### JUL 20-24

*Association for Tropical Biology and Conservation.* Cairns, Australia. <http://www.atbc2014.org/>

#### JUL 28-AUG 1

*Conference on Ecological and Ecosystem Restoration.* New Orleans, Louisiana. <http://www.conference.ifas.ufl.edu/CEER2014/>

#### AUG 3-8

*10th European Congress of Entomology.* York, UK. Details from: [http://www.royensoc.co.uk/meetings/20140803\\_ece2014.htm](http://www.royensoc.co.uk/meetings/20140803_ece2014.htm)

#### AUG 3-8

*9th IsoEcol Conference.* The University of Western Australia, Perth. Details <http://www.isoecol2014.org/>

#### AUG 3-8

*9th European Conference on Ecological Restoration,* Oulu, Finland. Further details: <http://chapter.ser.org/europe/upcoming-events/conferences-workshops/>

#### AUG 10-15

*From Oceans to Mountains: It's all Ecology – 2014 Annual Meeting,* Ecological Society of America. Sacramento, USA. Website: <http://esa.org/am/>

#### AUG 14-18

*International Marine Conservation Congress.* Glasgow, Scotland. Website: <http://www.conbio.org/mini-sites/imcc-2014>

#### AUG 18-24

*26th International Ornithological Congress.* Tokyo, Japan. Details: <http://ioc26.jp/>

#### AUG 19-22

*SCB ASIA 2014 — The 3rd Asia Regional Conference of the Society for Conservation Biology – Asia Section.* Melaka, Malaysia. Details from: <http://scbasia2014.org/>

#### AUG 25-30

*Combining experimental and theoretical approaches to understand biogeochemical interfaces in soil at the Goldschmidt*

Conference. Florence, Italy. Details from: <http://goldschmidt.info/2013/>

#### SEP 8

*Ecofil 2014. Ecology of Fish in Lakes and Reservoirs.* Ceske Budejovice, Czech Republic. Details from: <http://www.ecofil2014.wz.cz/>

#### SEP 8-12

*7th Annual Ecosystem Services Partnership.* Costa Rica. Further details from: [http://www.espconference.org/ESP\\_Conference](http://www.espconference.org/ESP_Conference)

#### SEP 8-11

*The Challenger Society for Marine Science 2014 Conference.* Plymouth University.

<http://2014.challenger-society.org.uk/>

#### SEP 14-18

*Wetlands2014 — Wetlands Biodiversity and Services: Tools for Socio-Ecological Development.* Huesca, Spain. Details from: <http://www.wetlands2014.eu/>

#### SEP 21-23

*Biodiversity and Economics for Conservation.* King's College, Cambridge. [http://www.bioecon-network.org/pages/16th\\_2014.html](http://www.bioecon-network.org/pages/16th_2014.html)

#### SEP 22ND -23RD

*3rd Annual International Conference on Geological and Earth Sciences (GEOS 2014).* Singapore. Website: <http://www.geoeearth.org/>

#### SEP 22-24

*First International Conference on Formal Methods in Macro-Biology.* New Caledonia. Details from: <http://fmmb2014.sciencesconf.org/>

#### SEP 25-26

*Are There Limits to Evolution?* Cambridge, UK. Website: [http://www.nature.com/natureevents/science/events/20748-Are\\_There\\_Limits\\_To\\_Evolution](http://www.nature.com/natureevents/science/events/20748-Are_There_Limits_To_Evolution)

#### SEP28-OCT 3

*Ecological Society of Australia Annual Conference,* Alice Springs NT Australia [www.ecolsoc.org.au/conferences/esa-2014-annual-conference](http://www.ecolsoc.org.au/conferences/esa-2014-annual-conference)

#### OCT 6-8

*Biogeochemical Interfaces in Soil – Towards a Comprehensive and Mechanistic Understanding Of Soil Functions.* Leipzig, Germany. Details from: [http://www.spp1315.uni-jena.de/Meetings+\\_+Events/International+Symposium+2014.html](http://www.spp1315.uni-jena.de/Meetings+_+Events/International+Symposium+2014.html)

#### OCT 12-16

*International World Congress in Marine Biodiversity.* Qingdao, China. Details from: <http://wcmb2014.csp.escience.cn/dct/page/1>

#### OCT 12-15

*Experimental Approaches to Evolution and Ecology using Yeast & Other Model Systems.* Heidelberg, Germany. Details from: <http://www.embl.de/training/events/2014/EAE14-01/>

#### NOV 16-20

*New Zealand Ecological Society Annual Meeting.* Palmerston North, New Zealand. Website from: <http://www.nzes2014.org/page.php?1>

#### NOV 17-21

*First MARES Conference Marine Ecosystem Health and Conservation.* Olhao, Portugal. Details from: <http://www.maresconference.eu/>

### TRAINING WORKSHOPS

#### JUL 14-18

*Network Tools in Biosciences.* Barcelona, Spain. Website: <http://www.transmittingscience.org/courses/syst-bio/networks/>

The Chartered Institute for Ecology and Environmental Management runs a wide variety of workshops for professional development. For further information and availability see [www.cieem.net](http://www.cieem.net) or e-mail [workshops@cieem.net](mailto:workshops@cieem.net).

The Centre for Research into Ecological and Environmental Modelling runs a variety of workshops on a regular basis. For further information and availability see [www.creem.st-and.ac.uk/conferences.php](http://www.creem.st-and.ac.uk/conferences.php)

University of Oxford Field Techniques for Surveying Mammals & Reptiles. Online course that can be taken for academic credit (10 CATS points at QCF Level 7) or not for credits. Details from <http://www.conted.ox.ac.uk/ftsmr02>.

# THE LIGHTER SIDE OF NATURE PHOTOGRAPHY

Alan Crowden

The BES Photocompetition is running again this year, but those sneaky folks at Charles Darwin House are racking up the tension and creating an atmosphere of excitement and anticipation by not releasing details in time for this issue. Details will be announced on the Society website and via the *eBulletin* and *Bulletin* in due course, but remember there will be prizes and kudos at stake once the competition is underway, so don't forget to keep the camera to hand while you're working in the field or on holiday.

Meanwhile, to help you in your preparations, here are the *Bulletin* Editor's tips for fantastic photo opportunities. Do bear in mind that the *Bulletin* Editor has never won (or even entered) a photography competition in his life so the advice is undeniably completely useless.

## MY TOP TIPS



1. Find a good location with a clear view of the plant or animal you wish to photograph.



2. In busy locations be prepared to offer cogent and articulate arguments to your neighbours as to why you deserve the best spot



3. Choose a charismatic species and show the range of exciting and enthralling behaviours that occupy the bulk of their day.



4. An attractive appearance and pleasing personal habits always influence viewers' responses and elicit favourable opinions from competition judges



**5.** Zoom in: a close up view can be appealing. Be sure to use a long focal length lens when taking this approach with big animals with sharp sticky-out bits



**6.** Try to capture the intrinsic enchantment of endangered species by showing them behaving normally in their natural surroundings. N.B. No editors were harmed in the taking of this photograph



**7.** Timing is everything 1. When a bird crouches down and spreads its wings it may be about to take off. The best birds always crouch down and take off when you point a camera in their general direction.



**8.** Timing is everything 2. When travelling thousands of miles to witness and photograph an iconic event such as the fabulous river crossings by many thousands of wildebeest, be sure to avoid wildebeest who think the grass is greener on their side of the river.



**9.** Zoom out: place your subject in the context of its natural habitat. You can get some really interesting images, except in close-cropped grassland on a flat landscape under a clear blue sky



**10.** When photographing a camouflaged subject be careful to remember what the point of taking the photo was.



**TOP TIP**

*Once you've got your picture of an oxpecker pecking an Ox, it's pretty much time to pack up and go home, job done.*

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Another image from the Tansley archive held at Charles Darwin House. This one was taken by R J Lythgoe in 1933 and shows Harry Godwin and Arthur Tansley sitting on boulders in the stream at Halstock Wood, apparently surrounded by rowan, salwillow and ash. Halstock Wood SSSI, located on the northern edge of Dartmoor in the west of England, is regarded as a fine example of a sessile oakwood. Two other photographs of the wood by Lythgoe feature in the plate section of Arthur Tansley's two volume classic *The British Islands and their Vegetation*, but the woods themselves are mentioned only in the caption to the photos and are not mentioned in the text. In his 1949 book *Britain's Green Mantle* Tansley describes sessile oak (*Quercus sessiliflora*, now called *Quercus petraea*) as dominant in the oakwoods of the silicaceous hill and mountain regions of the west and north of England and Wales.

