# The Bulletin

YOUR MAGAZINE FROM THE BRITISH ECOLOGICAL SOCIETY

British Ecological Society

## *in*FOCUS

**Photo:** Krisztina Fekete

*Rachel Bicker leads a small volunteer team clearing Himalayan balsam and trapping non-native American Signal Crayfish (Pacifastacus leniusculus). The photo captures Rachel with her crayfish trap in her hand while on the opposite bank one of the volunteers approaches with a huge bunch of Impatiens glandulifera.*

# Contents *July 2015*



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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 Sarah Taylor.

**Cover photo:** Leejiah Dorward
An adult gannet leads immature (fourth or fifth year) birds back to the huge gannet colony at Hermaness in Shetland.

**Design:** Neo (weareneo.com)
**Print Management:**
H2 Associates (Cambridge) Ltd.

## REGULARS



## FEATURES

# WELCOME

# A Society of All the Talents

One of the challenges in putting together a **Bulletin** that will appeal to the broad spectrum of BES members is that we come to the Society from a very wide range of backgrounds, disciplines, interests and ages. We have devout theoreticians and utterly pragmatic practitioners in our ranks. Some are employed to work in metaphorical ivory towers, others think any time not spent out in the field finding solutions to practical problems is time wasted. I've never tried to tempt our Membership Officer to flout data protection laws by asking him to identify the youngest and oldest members of the Society, but I do know the membership includes teenagers and at least one centenarian. In some walks of life finding material to cross age and interest boundaries so widely drawn would be impossible, but not in ecology. While I don't kid myself that every recipient of this issue is going to be reading every word from cover to cover in a state of rapture, you can dip into this issue just about anywhere and find enthusiasm, engagement and a thirst for knowledge. It feels slightly wrong to say so, but this is especially evident in the obituaries, which are sadly rather numerous. We mourn the loss of Tibor Jermy, John Lund, John Packham and Oliver Rackham in this issue, but all four enjoyed long and successful careers and left the world a better place for their passing through (See pp31-36).

Bill Sutherland uses the career of Oliver Rackham to illustrate ways in which ecologists can exert influence on policy and practice (p5). That future generations of ecologists are going to take up the challenge is amply demonstrated by the excellence of the papers that won Young Investigator Prizes for their principal authors (p6). These range from a contribution to the discussion of rival theories of metabolic scaling, an examination of the creation of grazing lawns in African savanna, through to a global meta-analysis of land-use effects. To encourage the flow of new recruits to our field the Education team lead by Karen Devine constantly comes up with initiatives to foster and encourage the teaching of ecology, and dozens of budding ecologists have benefited from the undergraduate fellowship scheme (p10); this year the format changes to a residential summer school, more on which in due course. Of course young ecologists have ideas and enthusiasm in abundance as demonstrated by Cat Stowkowska's account of a conservation event that piqued the interest of students in Sheffield and beyond (p42). This 'Peaks and City Takeover' took care to include tasks in the city as well as in the surrounding moors, and taking science to city streets is a prime aim of Soapbox Science, which as Emma Sayer reports (p40) takes women scientists out into public spaces of London, Swansea, Belfast, Glasgow and more to explain their work. Emma's interviews show such events simultaneously boosts the self confidence of the scientists involved, challenges the perception of science as a subject pursued by *men* in white coats and engages the public with a bunch of really knowledgeable and enthusiastic advocates. More power to their collective elbow.

A second group fell victim to the Sayer interview blitz; Council members (p15). Those currently involved in running the Society worry that some members assume we are a closed shop and that there is some mysterious 'club' that one has to belong to in order to take a role in running the BES. Nothing could be further from the truth; Council and BES committees constantly need refreshing with new members, but we have yet to be overwhelmed by volunteers. There are three Council vacancies every year, and some committees are currently in need of additional members. Contact Hazel Norman at Charles Darwin House to discuss.

**Alan Crowden** / Editor

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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 5000, 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).



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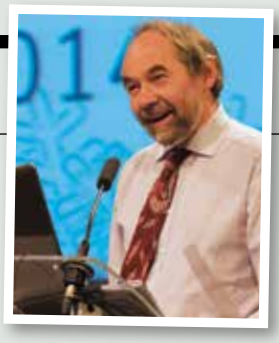
## PRESIDENT'S PIECE

# Making a difference



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

Oliver Rackham was a proper Cambridge professor – most often spotted cycling bolt upright, with dramatic white beard, jacket, tie, floppy hat, sandals and bright red socks. He had a major influence on my thinking. I remember the hairs rising on the back of my neck as I discovered that you could go into a wood, examine the banks, trees and ground vegetation and unpick its history; this still gives me a thrill today. Both in his writing and in person he displayed a remarkable deep knowledge of landscapes, ecology and history. In *The History of the Countryside*, most paragraphs succeed in saying something original or profound or witty (and often all three).

It was thus a great shock when, in February, news spread rapidly of his sudden death. His funeral brought together many aspects of his life: the respect of colleagues, a coffin of ash to mark his last book, a bouquet of early woodland flowers and a burial in the crypt of his beloved Corpus Christi College chapel (a right only of previous college masters, which he briefly was). An obituary and appreciation follows on pages 31-35 by Peter Grubb and Keith Kirby.

Oliver invented the term Ancient Woodland and stressed the importance of history and the local. He was scathing in the attempts to replant woods smashed apart in the extraordinary storm of 1987, which he described as "a rare and wonderful event, which we have been privileged to witness" and rightly damned tree planting schemes in locations where trees would naturally grow.

Although he superficially appeared the ultimate ivory-tower academic, he had profound influence on policy and practice. I will describe two examples: he played a serious role in the protection of once-neglected ancient woods and was instrumental in initiating the renewal of coppicing, which we now appreciate is a key component of retaining the interest of managed woods.

In both cases I think he made a difference though the combination of three elements of insight, timing and contacts; these elements are probably fundamental to most cases of successful research into practice. His unique insights came from a combination of a deep understanding of woodland history through reading original Latin manuscripts combined with intensive field surveys and data collection, which enabled him to understand the importance of ancient woods and their traditional management. His timing was a remarkable coincidence – he arrived on the conservation scene, like a white knight, as government funds encouraged the clearance of woods or their replanting with conifers. Whilst this now seems an obvious shocking act of vandalism it was he who provided the justification for their protection and awareness of the problem. Similarly, once-managed woods were being left unmanaged even though their characteristic species were disappearing (Jeremy Thomas showed the extinctions of woodland butterflies were then occurring at a faster rate on nature reserves than on commercial forestry sites) and again he was there when needed and initiated the essential management. Finally he had contacts with whom he collaborated. Ancient woodlands were largely protected by a triumvirate of him, George Peterken, who classified, mapped and determined the required management, and the Forestry Commission, who, in the face of the evidence, reversed their policies such that ancient woodlands are now well protected. In the case of woodland management he worked with the Conservation Corps to reintroduce coppice management to Hayley Wood and through this example helped make it conventional practice. Again he had a hands on approach, so Hayley Wood's trees currently have his recently painted marks mapping out the coppice boundaries.

At the excellent joint meeting of the BES and Zoological Society of London there was a range of examples of the means, and challenges, of linking science and policy. An effective example was described by Sarah Durant, who along with Nathalie Pettorelli, identified that the UK government's proposed Infrastructure Bill's new powers to control or eradicate invasive, non-native species included native species that are now extinct, species that may become naturally established under a changing climate, and species listed in Schedule 9 of the Wildlife and Countryside Act (including barn owl, capercaillie, chough and red kite). The legislation could also preclude future species reintroductions. Again they identified the precise problem, that there was a narrow window for change and established contacts with decision makers and concerned organisations whilst also organising a letter in *Nature* with a wide group of signatories (including me). As Sarah described, this letter provided the publicity that helped bring about significant change in the proposed legislation.

The BES' new strategy is 'A world inspired, informed and influenced by ecology'. The BES organises a range of activities through the Policy Committee and Policy officers. However, as shown by these examples, the real power is in impact of members, whether doing the science that underpins policy or by identifying political problems and suggesting solutions. Collectively we members must be making a huge difference.

# AWARDS

# Young investigator prizes 2014

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 2014 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 Annual Meeting in Edinburgh.

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.

Journal of Ecology

## WINNER OF THE HARPER PRIZE 2014

**Michiel Veldhuis**

The Editors are pleased to award the 2014 Harper Prize to Michiel Veldhuis for his paper *A novel mechanism for grazing lawn formation: large herbivore-induced modification of the plant–soil water balance*, published with colleagues Ruth A. Howison, Rienk W. Fokkema, Elske Tielens, and Han Olff (*Journal of Ecology*, volume 102, issue 6, pp. 1506 – 1517).

Veldhuis' study investigated the role of large herbivores (e.g. warthog, impala, plains zebra) in creating spatial heterogeneity through the creation of grazing lawns in tropical savanna. Grazing lawns are spatially distinct, intensively grazed areas of stoloniferous grasses often presented as an example of co-evolution between grazers and grazing tolerant grasses. Previous work has proposed that grazing lawns were initiated and maintained in these grasslands through a positive feedback between large grazing herbivores and nutrient-rich lawn grasses. By contrast, Veldhuis and colleagues propose that defoliation and soil compaction may initiate grazing lawns through a change in plant-soil water balance favouring drought-tolerant lawn species. Through careful investigation and measurement they found that grazing lawn soil properties and water balance, and possession of drought-tolerant traits in grazing lawn species (e.g. *Digitaria longiflora, Urochloa mosambicensis, Dactyloctenium australe and Sporobolus nitens*) were consistent with their hypothesis. Their proposed mechanism of grazing lawn formation is general enough for worldwide applicability, especially for grasslands during dry seasons.

Michiel P. Veldhuis completed his Bachelor's and Master's degrees in ecology and evolution at the University of Groningen, The Netherlands. During his Master's he worked on two different research projects. The first explored the role of seed dispersing rodents (agoutis) in the creation/maintenance of tropical forest tree diversity. This involved tracking dispersing seeds at the Smithsonian Tropical Research Institute on Barro Colorado Island, Panama, under the supervision of Dr. Patrick Jansen and Dr. Roland Kays. The second project took Michiel to the South African savannas of Hluhluwe-iMfolozi Park, which resulted in his receipt of the 2014 Harper Prize. As part of this project he studied herbivore effects on vegetation through changes in soil moisture.

In 2012 he started his PhD at the University of Groningen under the supervision of Prof. Han Olff and Prof. Matty Berg. Michiel is working on the importance of ecological autocatalysis for savanna ecosystem structure. Michiel's main interests are understanding what factors drive the organization and functioning of ecosystems, focusing on the interplay between abiotic gradients and biotic feedback mechanisms to understand how they've shaped ecosystems to what we observe today.

Journal of Animal Ecology

## WINNER OF THE ELTON PRIZE 2014

**James Maino**

The 2014 Elton Prize winner is James Maino for his paper

*Reconciling theories for metabolic scaling* co-authored with Michael R. Kearney, Roger M. Nisbet and Sebastiaan A.L.M. Kooijman (*Journal of Animal Ecology*, 83: 20–29).

Metabolic theory specifies constraints on the metabolic organisation of individual organisms and has important implications for scaling up from individuals to ecosystems. In this paper, James Maino and his co-authors attempt to reconcile different theories to explain this metabolic scaling. They show that two prominent ideas in metabolic scaling are not necessarily mutually exclusive, and they present a modified framework based on the fundamental processes of acquiring and using pools of stored metabolites which allows both intra- and inter-specific comparisons to be made. The editors thought that the paper was innovative and liked that James and his co-authors tested *a priori* predictions from their parameterised model against

a real dataset for mammalian respiration, with encouraging results. This paper made an excellent contribution to the Journal's recent Special Feature on "Metabolic Constraints and Currencies in Animal Ecology", and it has already sparked significant interest in this exciting and controversial field of ecology.

Our Elton Prize winner, James, was the lead author of this paper and the editors were impressed that this was his first publication written when he was still in the first year of his PhD. James' PhD is part of a jointly awarded programme between the University of Melbourne and Vrije Universiteit (Amsterdam). His research explores patterns in animal life-history that hold across diverse species and looks into what extent they can be explained by universal physical and chemical constraints. James utilises Dynamic Energy Budget theory in combination with large data sources on the diverse life histories of insects to develop mechanistic models of animal bioenergetics. The resulting mechanistic models explain a variety of well-known but poorly understood patterns in biology, from metabolic scaling to U-shaped pupal respiration in insects.

Functional Ecology

## WINNER OF THE HALDANE PRIZE 2014

**Scott Ferrenberg**

The 2014 Haldane Prize winner is Scott Ferrenberg for his paper S*mooth bark surfaces can defend trees against insect attack: resurrecting a 'slippery' hypothesis* co-authored with Jeffry B. Mitton (*Functional Ecology*, 28: 837–845).

The concept of smooth bark on trees and shrubs acting as an anatomical defence against epiphytic vegetation and phytophagous insects has, for some time, fallen out of favour. Ferrenberg and Mitton, in a study of bark beetle attack on *Pinus flexilis* – a pine species that exhibits both smooth and rough bark surfaces – set out to test the role of bark defence against insects. Their study involved both field surveys and experiments in the Colorado Rocky Mountains, USA. Results were strikingly straightforward: bark beetle attacks were overwhelmingly located on rough bark surfaces and virtually absent from smooth bark. Experimental tests of bark beetles' ability to grip smooth versus rough bark revealed that bark beetles have difficulty gripping and quickly fell from smooth bark but not from rough bark. They also found that even partial coverage by smooth bark on a tree's trunk significantly reduced total bark beetle attacks. In short, using a simple but rigorous combination of empirical and observational approaches Ferrenberg and Mitton resurrected the Smooth Bark Defence Hypothesis! Similar to other forms of anti-insect defence, smooth bark also appears to be influenced by plant ontogeny whereby younger trees have greater defences than older trees.

Scott developed an interest in plant-insect interactions at the University of Maryland, College Park, USA where he completed an MSc in entomology with the late Robert Denno. A lifelong fascination with western North America's conifer forests led him to a research position in Sequoia National Park, California, where he began studies of bark beetle responses to trees injured by prescribed fires. Interest in evolutionary aspects of the bark beetle-conifer system pulled Scott to the University of Colorado, Boulder, where he completed his PhD in 2014 under the guidance of Jeffry Mitton. His time at the University of Colorado allowed his to pursue a wide range of research projects, in addition to his dissertation work on conifers, and he now pursues a diverse set of question in population and community ecology. Scott is currently a postdoctoral scientist at the U.S. Geological Survey's Canyonlands Research Station in Moab, Utah, where he studies the impacts of climate change on biological soil crust and plant communities.

50 YEARS WITH IMPACT Journal of Applied Ecology

## WINNER OF THE SOUTHWOOD PRIZE 2014

**Katharina Gerstner**

The 2014 Southwood Prize has been awarded by the Editors to Katharina Gerstner for her paper *Effects of land use on plant diversity – A global meta-analysis* co-authored with Carsten Dormann, Anke Stein, Ameur Manceur and Ralf Seppelt (*Journal of Applied Ecology*, 51: 1690-1700).

The paper from Katharina Gerstner and colleagues provides a comprehensive analysis that helps to resolve the debate surrounding human land use and its effects on biodiversity. It has been proven that human land use is a major contributor to the global biodiversity crisis, but this does not seem to be repeated at smaller scales. Much of the current disagreement regarding the impacts of human land use on biodiversity may be due to variability according to region, scale of analysis, and the specific land use being examined. This paper overcomes this issue by directly testing the effects of these factors using a meta-analytic framework and a global dataset extracted from 375 studies. The careful analyses of the contexts in which land use impacts on biodiversity provides a useful template for the study of important emerging questions.

This paper represents a substantial amount of work on a key topic that is likely to be very well cited. The impacts of land-use change on biodiversity are known to be scale-dependent and vary according to a wide range of factors. This paper provides an overview that reports the negative impacts of changes in land use for plants, but crucially highlights the context-dependent sensitivities that point the way for further work in a clear manner. The Editors would like to congratulate Katharina on an excellent piece of work by an early career author and wish Katharina every success in her future career.

Katharina is currently finalising her PhD studies at the Helmholtz-Centre of Environmental Research (UFZ) in Leipzig. Her research focuses on investigating the effects of land use on global biodiversity patterns of vascular plants. She uses the countryside model to study species-area relationships and at the global level she finds research syntheses such as meta-analyses particularly helpful. Her background is in mathematics, having received a diploma in Mathematics at University of Jena, Germany and she is broadly interested in the application of sophisticated statistical methods for ecological problem-solving.

Methods in Ecology and Evolution

## WINNER OF THE ROBERT MAY PRIZE 2014

**Laure Gallien**

The 2014 Robert May Prize winner is Laure Gallien for her paper *Identifying the signal of environmental filtering and competition in invasion patterns – a contest of approaches from community ecology*, co-authored with Marta Carboni and Tamara Münkemüller (*Methods in Ecology and Evolution*, 5: 1002–1011).

Today, biological invasions are of major concern for maintaining biodiversity. However, understanding what drives the success of invasive species at the scale of the community remains a challenge. Two processes have been described as main drivers of the coexistence between invasive and native species: environmental filtering and competitive interactions. However, recent reviews have shown that competitive interactions are rarely detected, and thus their importance as drivers of invasion success placed under question. But can this be due to pure methodological issues? Using a simulation model of community assembly, Laure and co-authors show that the infrequent detection of competition can arise from three important methodological shortcomings, and provide guidelines for future studies of invasion drivers at the scale of the community.

During her MSc in Biodiversity, Ecology and Evolution, Laure developed a passionate interest in the study of biological invasions, and decided to carry out a PhD on the ecological and evolutionary drivers of invasion with Wilfried Thuiller and Sébastien Lavergne at the Alpine Ecology Lab in Grenoble (France). She currently lives in Switzerland and works as a post-doc with Niklaus E. Zimmermann at the WSL institute, where she explores the influence of evolutionary history on extant species invasiveness.





# Public engagement

**Jessica Bays** / Engagement Officer at the British Ecological Society and Ecological Continuity Trust
Jessica@britishecologicalsociety.org

Public engagement is a term used to describe the many ways by which the work of research institutes and universities is shared with the public and arises from a desire to connect research institutions with communities, maximising the transfer of knowledge between the two and generating mutual benefit.

Effective public engagement in science enables individuals to get involved in dialogue and action on scientific issues, thus helping funders and researchers better understand the perspectives, opinions, and concerns of the public. In January the BES initiated its public engagement programme, providing a platform for researchers to communicate the excitement of ecology to the public.

### Web resources

In line with the launch of our public engagement programme, web resources are being developed to complement our programme of events, providing information, advice and opportunities to take part in engagement activities; please take a moment to look at the website (http://www.britishecologicalsociety.org/education/public-engagement/events/). To establish the extent and type of engagement activities currently being undertaken by members we have also initiated an online survey (https://www.surveymonkey.com/s/MVY6BYC) In the long-term, data gathered will be used to measure the impact of our engagement programme, whilst in the shorter term feedback will be used to help shape the development of our regional programme. Regional events will be member-led, with resources developed that add value to existing activities. Please stay tuned for ways you can get involved.

### Outreach grants

Grants are available from the BES to facilitate public engagement and outreach work. The last round of awards enabled activities to take place in diverse locations; from Lakshadweep (India), to Edinburgh (Scotland). These grants ensure that suitable activities are supported globally, maximising our impact and reach. Outreach grant applications are open to members and non-members with the next round of applications closing in September 2015. We are currently considering how the remit of these grants can be further aligned with the public engagement programme and are particularly keen to recruit new members to our review college, specifically those with experience delivering public engagement activities. If you would like to become a member of our review college, or want to find out what this entails, please see www.britishecologicalsociety.org/grants awards/bes review college (or email grants@britishecological society.org).

### Events

We have a diverse variety of events planned throughout the year. The first national event we will be attending is RHS Chelsea Flower Show (May 19th-23rd) where we will be curating a Discovery Zone display. This will focus on the ecology surrounding plant-soil interactions and will feature


*Lauren Sandhu and Erika Newton at the BES stand at Chelsea in 2013*

rhizotrons and microscopes; visitors entering the display will feel as though they are transported to an underground environment where they will be able to view root structures at a minute level. Collaborations have been forged between multiple universities, these have been invaluable and have assisted in the cultivation of plant material and the 3D printing of root structures which can be handled by visitors.

Having secured funding from NERC to take part in their Summer of Science 50th anniversary activities, we are pleased to announce that the highly successful Sex and Bugs & Rock N Roll activities will once again be touring music festivals and assorted events near you! Early career researchers trained in public engagement, have been supported in the development of their own ecology 'busks' to perform to festival attendees. Ecology busks are short engaging activities that encourage fellow festival go-ers to make a personal connection with ecology in a fun and informal manner. Previous evaluation of these activities has found that 60% of all interactions were classified as high quality, indicating that the majority of participants did just that. This year we have 17 PhD students on board and are pleased to announce that appearances are so far confirmed at Wychwood, Glastonbury & the British Ecological Society's Annual meeting. Please see below for the schedule of events confirmed so far.

For more information on events planned, or how you can get involved please get in touch with Jessica Bays (Engagement Officer) via email: Jessica@britishecologicalsociety.org

**Confirmed Events for 2015**

RHS Chelsea Flower Show
London, May 19-23

Wychwood Festival
Cheltenham, May 29-31

Glastonbury Festival:
Pilton, June 24-28

BES Annual Meeting:
Edinburgh, December 13-16

Jessica Bays is the new Engagement Officer at both the British Ecological Society and the Ecological Continuity Trust. In her role at the BES, Jessica works with researchers to help them communicate ecological science to the public. At the ECT Jessica is working to engage the academic community, promoting the use of long-term ecological experimentation sites. Jessica joined the BES in January, having previously worked at the Carbon Trust, where she managed communications and assisted in the project management of the extensive Energy Technology List research programme. Jessica is looking forward to working with researchers, helping them share the excitement of ecology with the public, so please get in touch if you are keen to get involved.

# ECOLOGY EDUCATION AND CAREERS

## Encouraging undergraduate ecologists

**Karen Devine** / Education Manager, British Ecological Society
Karen@BritishEcologicalSociey.org

In recent years the BES Undergraduate Fellowship Scheme has supported many promising emerging ecologists through their education, training and in starting their careers. In 2015 the Scheme will be replaced by a new Undergraduate Summer School so we asked members of the final cohort to tell us about their experience of the scheme. We begin with Jennah Green's account of another successful Undergraduate Careers conference:

In early February nearly one hundred budding ecologists from universities throughout the UK attended the Undergraduate Careers Conference, organised by the BES Undergraduate Fellows. Speakers from a range of ecological career backgrounds delivered insightful presentations about a variety of topics associated with science-based careers.

The morning session helped delegates to explore a variety of ecological career options, including research, policy, consultancy, communication, education, field work and international careers. Bill Sutherland delivered an interactive plenary speech presenting top tips for how to begin a career in science, and a panel discussion provided honest insight into the challenges of ecological careers and advice on how to tackle them.

The afternoon session shifted in focus towards helping career development, with advice about how to build an effective skill set and how to find the ideal job or higher degree after university. A panel of postgraduate speakers answered questions about finding and funding Masters and PhD programmes. This was followed by presentations on a range of topics including the value of voluntary work and internships, insights into the interview process, tips on job searches and how to present a professional CV.

A workshop style session focussed on how to present transferable skills effectively on future applications. This full programme of presentations and discussions was accompanied by informative posters throughout the venue, answering questions about pursuing a career in ecology and providing details about opportunities with the special interest groups at the BES.

The day was a fantastic opportunity for delegates to explore a range of different career paths within ecology, and to network with speakers, fellows and other undergraduate ecologists. The fellows had a great time organising and participating in the event and hope that everybody who attended found it a valuable experience in their pursuit of a career in ecology.

### FOUR VIEWS ON THE FELLOWSHIP SCHEME

**Laura Deacon**

The fellowship gave me many brilliant experiences and the end of the fellowship leaves me with new opportunities within the BES. I was able to get involved with the Macroecology Special Interest Group and helped to plan their event at the Annual meeting in Lille. As a result, I am now the student representative for the SIG and I am looking forward to my time on the committee. Since the end of the fellowship the BES has continued to support my interest in science communication. I attended a great training day on science busking and using resources provided by the BES I have given talks in schools on Ecology, both of which have enhanced my passion for educating and communicating science to others. I feel embedded within the BES network and I know that throughout my ecological career I will always stay involved with the Society.

**Luke Nelson**

Being an undergraduate fellow has been a fantastic experience, and I have learnt lots about the BES, working in ecology and career skills. As part of the fellowship, I have represented the BES at a careers fair at my university, where I highlighted what the BES can offer students. Having the opportunity to share the advantages the BES offers really demonstrated the benefits that I had received from the scheme, as well as enabling me to give something back to the Society by encouraging other students to get involved.

*The Undergraduate fellows of 2014 were joined in Lille by three alumni of the scheme, Francisca Sconce and Lydia White on the left and Dom Andradi-Brown on the right.*

**Rebecca Hollely**

As part of the undergraduate fellowship, we attended the BES-SFE annual meeting in Lille. This was one of the highlights of the fellowship for me. Over 1500 ecologists attended the conference, and it was the perfect opportunity to meet so many people that were passionate about ecology. The days were full; divided into short talks where people presented their research, followed by workshops and poster sessions, and I'll admit it was a little overwhelming to be surrounded by so many successful ecologists. I heard the latest research on ground-breaking ecological topics, discovered new areas of interest, and met many inspiring people. It was an incredible experience, and I cannot thank the BES enough for giving me the opportunity to go!

**Ruth Shepherd**

I think the main accomplishment of the BES fellowship scheme was the varied opportunities it provided, and with that, a diversity of skills. Over the year I and the other fellows have had many experiences including organising and running the Undergraduate careers conference, attending the Annual meeting in Lille, mentoring and, for some, involvement with the BES Special Interest Groups (SIGs) or BES ambassador work. All these opportunities were hugely beneficial in helping me in my ecological career: for me, the experience I gained through getting involved with the BES ambassador scheme was possibly the most useful and eye opening.

The BES introduced the BES ambassador scheme for PhD students with the aim of promoting ecology to secondary school pupils. I was fortunate enough to visit a secondary school in Kilmarnock, Scotland for the day with Katie Murray (BES ambassador and PhD student at Stirling University). Through presentations of the scientific work we both have conducted and small group discussions we aimed to enlighten students about ecology. Standing up and speaking in front of 50 students, who I know from experience are not good at hiding their disinterest, was extremely daunting. However, throughout the presentation the pupils remained interested and after the countless questions we were asked I believe we succeeded in our aim! This experience not only left me with a feeling of great satisfaction, it has also seriously made me consider teaching to inspire future ecologists.

Supporting ecologists along their ecological career pathway was the ultimate aim of the BES fellowship. As this year marks the last year of the fellowship I think I can say on behalf of all fellows how valuable the scheme has been.

## SCIENCE POLICY

# People, Politics and the Planet: Where next for UK environmental policy?

**Ben Connor** / Policy Officer, British Ecological Society
**Rebecca Shellock** / Policy Intern, British Ecological Society
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Making ecology count was exactly the point of the recent Natural Capital Initiative summit, held from 6-7 November 2014. It is a subject that demands the involvement of the broadest range of expertise, and that was what the summit provided. Unusually there was an even mix of academics, policy makers, and business leaders coming together to discuss Natural Capital: what it is, what progress has been made, what we need to do next, and what problems we face in using it as a practical tool.

At the time of writing, the 2015 UK general election looked set to be one of the closest fought electoral battles in decades, with no party securing a clear lead in the polls amidst an increasingly fragmented political landscape. Yet as you read this – barring a particularly close or unexpected result – a new government will be in place, and beginning to outline its policy priorities and legislative programme for the next parliament.

What can we expect from environmental policy over the next five years? While the environment was afforded scant attention in the televised pre-election debates, it was top of the agenda at "People, Politics and the Planet – Any Questions", held at The Light in London on Monday 9th March. Organised by the BES, The Sibthorp Trust and CIEEM, and expertly chaired by broadcaster Jonathan Dimbleby, the event brought together a panel of politicians from the UK's six largest political parties to debate their environmental commitments with an audience of over 300 BES and CIEEM members and the general public.

The high-profile panel consisted of Lord Rupert de Mauley (Conservatives, Parliamentary Under-Secretary of State for the Natural Environment and Science), Barry Gardiner MP (Labour, MP for Brent North and Shadow Minister for the Natural Environment), Baroness Kate Parminter (Liberal Democrats, Environment Spokesperson), Natalie Bennett (Green Party, Leader), Dr Eilidh Whiteford MP (Scottish National Party, MP for Banff and Buchan) and William Cash (UK Independence Party, Heritage and Tourism Spokesperson).

The debate gave BES and CIEEM members a crucial opportunity to put their most pressing environmental concerns to the panel (See box 1), and to assess the policy options proposed. Over the course of the evening the discussion covered a wide range of issues including climate change and energy, biodiversity loss, the role of EU legislation, the badger cull and the role of independent scientific advice, sustainable agriculture, and grouse shooting. But after two hours, was the audience any the wiser as to how the next government might secure a sustainable future for people and planet? Here are six key things we learnt from the debate.

*Question Time! Photograph courtesy of Jason Reeves.*

## BOX 1

**What do our members think?**

BES and CIEEM members were asked to complete an online survey, before and after the 'People, Politics and the Planet' debate. The surveys aimed to (1) find out what burning questions our members would like to ask representatives from the UK's major political parties (2) gain our members' opinion on the main environmental issues that will need to be addressed by future government. Over 300 members responded to the survey.

**What do our members want to ask the UK's major political parties?**

Our members had over 300 questions that they would like to ask the UK's major political parties. Predominantly, questions were themed around the following topics:

1. Tackling climate change
2. Embedding an understanding of the environment into government decision-making
3. The dependency of the economy on a healthy environment.
4. Shifting away from short-term politics to long-term sustainability
5. Tackling the long-term decline in biodiversity

Following the 'People, Politics and the Planet' event, members were asked to identify topics that they felt were missed during the debate. Topics included future funding for research and government organisations, Marine Conservation Zones (MCZs) and the green economy.

**What are the top environmental issues that need to be tackled in the next UK parliament?**

Our members were provided with a list of environmental issues and were asked to vote for the issues that they believed to be the most important for politicians to tackle in the next UK parliament. The top five environmental issues were:

1. Biodiversity loss
2. Habitat degradation, planning policy, land use change and agricultural subsidies
3. Climate change
4. Moving to a sustainable 'green' economy (including over-exploitation, resource efficiency, and energy generation)

### The natural capital approach is becoming mainstream

The debate established the extent to which the language and framing of natural capital has become a key component of environmental policy. Lord de Mauley made clear that he was "fundamentally convinced" that the "economy is completely dependent on the environment". Baroness Parminter argued that the Natural Capital Committee should be placed on a permanent, statutory footing, whilst Barry Gardiner stated that a Labour government would develop a parallel system of national natural capital accounts by 2020. While it is highly encouraging that the natural capital approach is becoming embedded within mainstream thinking, it remains essential that any adoption of the concept is grounded in sound science: something the BES is working to ensure with our partners in the Natural Capital Initiative.

### The badger cull remains a divisive issue

The question of whether or not badgers should be culled to prevent the spread of Bovine TB, and the extent to which this approach is grounded in sound science, was one of the most polarising of the debate. Lord de Mauley reiterated the Conservatives' position that culling should be part of a comprehensive strategy to tackle Bovine TB, and that this was supported by science. However Barry Gardiner was clear that the Labour Party disputed this interpretation of the evidence, and that culling would cease immediately under a Labour government. Eilidh Whiteford and Natalie Bennett also questioned the scientific basis for the Government's approach, a point echoed by the questioner, Professor Rosie Woodrofffe, a member of the team that designed the Randomised Badger Culling Trial.

The ongoing debate around the science of the badger cull demonstrates the crucial role that independent organisations such as the BES can play in providing objective scientific advice to help inform decision-making. Encouragingly, Lord de Mauley stated that "science and evidence are at the heart of all we do at Defra", a pledge that we hope any future government will adhere to.

### Our approach to Genetically Modified Organisms must be informed by sound scientific evidence

Sustainably feeding a rapidly growing population will be a key global challenge in the coming decades, and ecological science will have a vital role to play in addressing this issue. During the debate, discussion mainly focused on the role of genetically modified organisms (GMOs) in tackling this problem. Only Natalie Bennett maintained clear opposition to the release of GMOs into the environment (yet allowing for the possibility of ongoing research), whilst Lord de Mauley cited evidence from the European Food Safety Authority that GMOs were safe for humans and the environment. Barry Gardiner, Eilidh Whiteford and Baroness Parminter all indicated that they would consider the use of GMOs if appropriate safeguards were in place and evidence of their safety was clear.

With a recent Science and Technology Committee report acknowledging that debates around GMOs have largely been dominated by values and politics rather than science, it is crucial that as we search for solutions to the problem of food security, decisions are informed by the best possible evidence. Ecology has an important role to play, looking beyond GMOs to broader agro-ecological solutions.

### There is more agreement on the need to tackle climate change than on how this should be done

There was broad agreement that tackling climate change is a pressing concern, with Lord de Mauley, Natalie Bennett and Eilidh Whiteford highlighting it as one of their personal priorities, and only William Cash questioning the wisdom of carbon emissions targets. Yet on the detail of whether fossil fuel extraction – such as fracking – should still be supported by government, the panel remained split. While Lord de Mauley saw fracking as a "cleaner" source of fossil fuels, and William Cash favoured its use over windfarms, Natalie Bennett accused the Government of pursuing a "fracking fantasy", and called for a total ban. Eilidh Whiteford and Barry Gardiner both supported a moratorium on the practice before certain conditions were met.

### A landscape scale approach to tackling biodiversity loss is required

In line with the increasing recognition of the value of our natural capital, the panel was mostly convinced that a landscape approach to species and habitat protection is the way forward. Barry Gardiner appealed to the principles of former BES President Professor Sir John Lawton's *Making Space for Nature* report : "bigger, better and more joined up". Lord de Mauley echoed this view, and pointed to the Government's progress in this area, asserting, perhaps optimistically, that the target to halt biodiversity loss by 2020 could be met. While Labour and the Conservatives did not outline specific policies for how this would be done, both Natalie Bennett and Kate Parminter committed their parties to introducing new legislation – a Nature Act – if elected, whilst also affirming the importance of upholding the European Birds and Habitats Directives (currently under review by the European Commission – see the article in the March 2015 *Bulletin* by Ben Connor, for details).


*Photograph courtesy of Jason Reeves*

### Most parties do not favour a ban on grouse shooting

Grouse shooting, and the illegal persecution of hen harriers and other birds of prey associated with it, has proved a recent hot topic amongst conservationists. Natalie Bennett was the only panellist to commit her party to banning grouse shooting altogether. Barry Gardiner stated that Labour would end the illegal persecution of raptors and ban lead shot, whilst the Liberal Democrats and Conservatives pledged to work with rural businesses to stamp out illegal practices, whilst also acknowledging the economic benefits of shooting. Research by ecologists has suggested new approaches to resolve long-running conflicts between grouse shooters and conservationists and may offer a starting point in addressing this thorny problem .

### Looking ahead: to the General Election and Beyond

As the post-election dust settles, many of these issues will be high on the priority list of the new Environment Secretary as he or she settles into post following the election. And In all of these issues, ecological science has an essential role to play. Within the BES External Affairs Team we have identified three ambitions for good environmental policy-making over the term of the next Parliament (Box 2): *environmental policy informed by sound scientific evidence; recognising the vital role of ecological science in meeting societal challenges; and integrating the value of the environment to human wellbeing and prosperity across government.*

Over the next few months, as part of the BES's new Strategic Plan, we will be fleshing out our policy priority issues for the next Government, underpinned by the three key principles outlined above. Regardless of who is elected, we will seek to ensure that sound science is placed at the heart of decision-making for the environment. We will continue to promote the solutions and insights that ecological science can offer to address pressing challenges from biodiversity conservation to food security, and in order to do this we will be developing case studies and resources demonstrating the impact of ecology.

Finally, with our partners in the Natural Capital Initiative, we will further develop the case for decision-making for the sustainable management of natural capital based on sound science.

## BOX 2

The British Ecological Society's priorities for environmental policy-making for the next Parliament are:

1. That environmental policy is informed by sound scientific evidence, and that policy-makers have access to the best available ecological science to inform decision-making. The British Ecological Society is an independent, authoritative learned society committed to presenting scientific evidence in an objective and unbiased way.

2. That ecological science is valued for the vital role it has to play in meeting some of the most important challenges of the 21st century. The UK's universities and research institutes are home to world-leading ecological science that helps us to predict the consequences of human activity on the environment and the importance of the environment for human welfare.

3. That the value of the environment to human wellbeing and prosperity – our natural capital – is recognised across government. Protecting and enhancing the UK's natural capital is essential for securing a sustainable economy and society, and the environment must be fully

## YOUR HELP IS VITAL

Our policy work depends on the support and expertise of our members. Get in touch to let us know what you think the key environmental policy issues should be for the new Government, or register your interests and expertise on the BES website to stay informed as we develop our priorities.

*Find out more about the BES's policy work at www.britishecologicalsociety.org/public-policy/.*

*Watch the full video from "People, Politics and the Planet –Any Questions" at www.britishecologicalsociety.org/public-policy/policy-events/2015-events/environmental-question-time/*

# *SPEED INTERVIEWS:* WHY GET INVOLVED IN BES COUNCIL?

**Interviews conducted by Emma Sayer**

Not many BES members know what goes on behind the scenes to create such an active, inclusive and influential 'learned society'. We invited members of the BES Council to do a speed interview for the *Bulletin* to give our readers a better idea of who could get involved and why.

**WE ASKED:**

- **Q** Why did you become a Council member?
- **Q** Who do you think should join Council? (What makes a good Council member?)
- **Q** What has the BES done for you or your field of study/work?
- **Q** What have you done for the BES?
- **Q** Finally, what's your favourite science/ecology joke or pun?

The one thing all Council members agreed upon was that any BES member should consider standing for Council if they want to contribute to the society's success.

Q&A

## MARKUS EICHHORN

**(@markus_eichhorn)**

**I became a Council member because...** a gnawing sense of obligation.

**Who should be on Council...** Anyone who thinks that BES isn't representing their interests as an ecologist properly, or who can see a gap in its work. More diverse perspectives can only strengthen the Society (says the white male academic from his ivory tower). Basically, more people who aren't like me.

**The BES has....** funded my PhD, and has also contributed towards several research projects through its grant scheme. I've been at almost every BES annual meeting for the last 15 years, along with many specialist interest group events, which has provided me with a supportive network of collaborators and friends that make working in ecology a pleasure. The symposium on forest ecology in Cambridge a few years ago was the single best meeting I've ever attended.

**My contribution to the BES...** I've mostly contributed through the special interest groups, first with the Tropical Ecology Group then later running the Forest Ecology Group. I'm also an unreliable contributor to the *Bulletin*.

**Favourite joke or pun...** None of them are clean enough for the *Bulletin*. Ask me at the bar at the next BES meeting.

## DREW PURVES

**(@dpurves)**

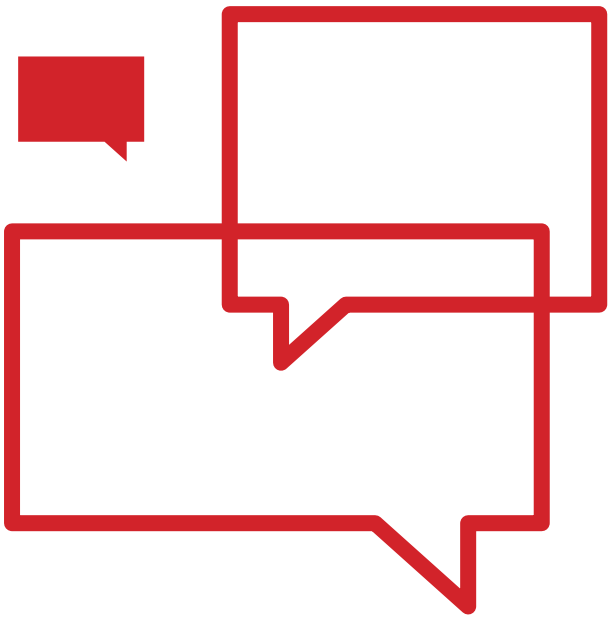
**I became a Council member because...** I was approached by Charles Godfray asking me to become treasurer, I think because he knew that I took a quantitative / modelling approach to ecology and so figured I could cope with numbers! Before that point the BES was just a benign presence in my academic life. Suddenly I was helping run it, which was exciting but also scary.

**Who should be on Council...** Anyone who believes that ecology is interesting and important could make a great Council member, whatever their background, job, or skills. Given the BES' new 5-five year plan, I'm sure we'll see the Council include more members from outside academia – although we have always had people from non-academic research institutions and we currently have one person from a big tech company ;)

**The BES has helped me....** BES publications and meetings have been incredibly helpful in breaking down barriers between 'theoretical' and 'empirical' ecologists, to the extent that the terms don't mean much any more. You now see much more modelling work informed by data and field work – and vice versa. This is great for the whole field of ecology.

**My contribution to the BES...** Well, I sign on to online banking all the time to approve payments for just about everything we do, from the annual meetings to editors' salaries to grants! But more importantly, I've used my experience in modelling to build predictive models of the BES finances 15 years and more into the future under different scenarios. Before that model, we had a general sense of nervousness about our finances that held us back. Now, we can make much more confident financial decisions, e.g., in substantially increasing our annual spending as part of our new 5-year plan.

**Favourite joke or pun...** I've definitely laughed a lot in the presence of ecologists but I can't remember any specifics. Something to do with the bi-products of microbial populations powered by the break down of sugars under anaerobic conditions.



## LINDSAY TURNBULL

**(I'm too old for twitter)**

**I became a Council member because...** I wanted to become more involved in BES activities and to obtain an 'insider view'. It's easy to stand outside organisations and criticize them, but it's less easy to think how they could really be better!

**Who should be on Council...** I think it's very important that the Council contains people from all kinds of different backgrounds in ecology. In particular I think we need more involvement from under-represented groups.

**The BES has helped me....** Publish important work. Hosted conferences, particularly the AGM in which ecologists can get to know each other and exchange ideas.

**My contribution to the BES...** Not very much so far!

**Favourite joke or pun...** An ecologist, a mathematician and a statistician are hunting deer. The ecologist takes aim and fires just in front of the target; the mathematician takes aim and fires just behind the target. The statistician says: "We got it!". Joel Cohen normally tells this joke at the start of his talks.

## OWEN LEWIS

**(@OwenTLewis)**

**I became a Council member because...** I had to admit that I had my arm twisted to put my name forward by a former BES President. But once involved, I realized that I should have got involved long ago.

**Who should be on Council...** I think Council will work best if it reflects the breadth of the BES's membership. So any member, whatever their career stage or job description, should consider getting involved if they are keen to contribute to the society's growth and success.

**The BES has helped me....** The Annual Meeting and the stable of BES publications are outstanding in an international context. They have been hugely influential and important for me, and for many other professional ecologists.

**My contribution to the BES...** Currently I'm an Associate Editor for *Journal of Applied Ecology*, and a Council representative on the Finance Board and Publications Committee. It's been fascinating to contribute to the Society's Strategic Plan for 2015 – 2020 and in particular to the publications strategy. Earlier in my career I was the Local Organiser for the Annual Meeting when it was held in Oxford.

**Favourite joke or pun...** It's the Ns that justify the means.

## JULIET VICKERY

**I became a Council member because...** I've gained a great deal from BES since I was a PhD student at Oxford and was keen to give a bit back.

**Who should be on Council...** Those with a commitment to the value of science and a desire to see it 'nurtured and noticed' in society. Those keen to get stuck in and make a difference, to bring new ideas... and who can find time to read and think before meetings(!)

**The BES has helped me....** Exposed me to knew ideas and inspiring people.

**My contribution to the BES...** Not as much as I would have liked! But I hope I have helped its work in bridging the gap between science and policy and encouraged it to reach out a bit more to scientists in NGOs.

**Favourite joke or pun...** I love the Larson Far Side cartoons.

## IAIN STOTT

**(@iainmstott)**

**I became a Council member because...** Ecologists face a rapidly changing world in science and as BES early-career rep, I want to make sure early-career researchers are instrumental in shaping that future, as well as being prepared for it. I think the BES does amazing work for ECRs and countless others, and I really wanted to be a part of it.

**Who should be on Council...** I think a good Council depends on all members and their diversity of backgrounds, identities and experiences. Diversity breeds creativity: for me there's no single perfect archetype as I think any monotypic Council would be a terrible one!

**The BES has helped me....** I've been to annual meetings since the first year of my PhD, which have been crucial for meeting colleagues, forging new collaborations and making new friends. The atmosphere at BES meetings is always really relaxed, and I quickly learned that the "networking" I used to dread can be lots of fun! The BES were also nice enough to award me the first Robert M May prize for one of my PhD chapters, which to this day I'm still surprised that anyone bar my supervisors and examiners have read.

**My contribution to the BES...** For a while I acted as a student rep at the University of Exeter, to raise the profile of the BES and encourage new members. I'm a regular reviewer for four of the six BES journals. I'm also a prolific retweeter! Watch this space, I intend to do much more now I'm on Council…

**Favourite joke or pun...** Pretty much anything tweeted by @AcademicsSay.

# A CALENDAR OF SOCIETY EVENTS IN 2015

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

Listed below are events hosted or supported by the BES and our Special Interest Groups. Please check the BES web pages for further details and the very latest information on these events.

## JUNE

**JUNE 14 - 16**
Macroecology SIG: EU MACRO 2015 – Joint meeting of the BES, GfÖ and CMEC

*Location: Biocenter, University of Copenhagen, Denmark*

**JUNE 20**
Forest Ecology SIG: Woodland ecology and management workshop

*Location: Wytham Woods, Oxfordshire*

## JULY

**JULY 7 -8**
Aquatic Ecology SIG: Are Ecosystem Services Academic?

*Location: National Oceanography Centre, Southampton*

**JULY 13 – 14**
BES Symposium: The Ecology and Evolution of Emerging Plant Pests and Pathogens: Challenges to Global Food Security and Ecosystem Reliance

*Location: Penryn Campus, University of Exeter, Cornwall*

**JULY 20 - 24**
BES Education: Our first Summer School, for talented 1st year ( 2nd Year Scottish) undergraduates.

*Location: Malham Tarn Field Centre*

## AUGUST

**AUGUST 26 - 28**
Tropical Ecology SIG: Systematics Association Symposium: The value of long term monitoring plots for plant systematics and ecology in the tropics.

*Location: Edinburgh*

**30 – 4 SEPTEMBER**
Aquatic Ecology SIG: Aquatic Biodiversity and Ecosystems 2015: Evolution, Interactions and Global Change

*Location: University of Liverpool*

## SEPTEMBER

**SEPTEMBER 3 - 4**
Tropical Ecology SIG: Annual Early Career Researcher Meeting: Tropical ecosystems and land-use change.

*Location: University of Stirling*

**SEPTEMBER 8 – 9**
Agricultural Ecology SIG: Rethinking Agricultural Systems; A Session in Permiculture Convergence

*Location: London*

**SEPTEMBER 9 - 11**
Peatlands SIG: Wild Thing – Wilder by Design part 2

*Location: Sheffield UK*

**SEPTEMBER 11**
Quantitative Ecology SIG: Reproducible species distribution modelling workshop

*Location: Charles Darwin House*

**SEPTEMBER 14 - 15**
Climate Change Ecology and Quantitative Ecology SIGs. Using Climate Data in Ecological Research.

*Location: Met Office, Exeter*

## OCTOBER

**OCTOBER 9**
Forest Ecology SIG: Fire ecology as an emerging discipline.

*Location: School of Environmental Sciences, University of Liverpool*

## NOVEMBER

**NOVEMBER 2 - 3**
Climate Change SIG and Plant, Soils, Ecosystems SIG: Climate change mitigation and ecosystems.

*Location: Charles Darwin House, London*

**NOVEMBER 13 - 14**
Peatlands SIG: A Life in Ecology

*Location: Sheffield UK*

## DECEMBER

**DECEMBER 13 - 16**
BES Annual Meeting

*Location: EICC, Edinburgh, Scotland*

# SPECIAL INTEREST GROUP NEWS

British Ecological Society
Climate Change Ecology

## CLIMATE CHANGE ECOLOGY

**Mike Morecroft**
**mike.morecroft@naturalengland.org.uk**

The Climate Change Ecology Group has been going for a year now. We have had a very successful one-day conference considering the most recent advances reported by the Inter-Governmental Panel on Climate Change and the next steps for ecologists, ran a workshop on conservation and climate change at the annual symposium and organised a session at the annual meeting in Lille.

Over the first few months of 2015 we have been developing plans for the running of the group and have a small amount of funding from the BES to employ an intern to really kick-start our communications and develop our social media presence. Looking to the future, we hope to be the go-to place for discussions and information sharing around climate change and ecology and build up our community.

We are looking forward to two major events in the rest of the year. Firstly we have a joint workshop with the Quantitative Ecology Group on 'Using Climate Data in Ecological Research', hosted by the Met Office in Exeter, 14 – 15 September. This will be a two day event with a technical focus and is intended to be of particular interest to those engaged in hands-on modelling and analysis of climate change impacts, including PhD students and postdocs. Our second major event is a two day conference on 'Climate Change Mitigation and Ecosystems', 2-3 November, Charles Darwin House, London. This is a joint venture with the Plants, Soils and Ecosystems SIG and will consider some of the big issues around the role of ecosystems in the climate system and how better land management can reduce greenhouse gas emissions and promote carbon sequestration.

Further information on the group and our activities can be found on the web pages (http://www.britishecologicalsociety.org/getting-involved/special-interest-groups/climate-change-ecology/). We want the group to be broad and inclusive of the full range of climate change interests within ecology and we look forward to more people getting involved over the coming months and years.

British Ecological Society
Peatlands Research

## PEATLANDS

**Ian Rotherham**
**peatlands@britishecologicalsociety.org**

***'Wild Thing – Wilder By Design Part 2'*** – 3-day conference 9th to 11th September, Sheffield.

Following the highly successful meeting in May 2014, Ian Rotherham and colleagues are organising a follow-on conference on the theme which will be developing the ideas and paradigms. The conference will examine concepts of cultural severance and the eco-cultural nature of landscapes as well as addressing critical issues around (re) wilding in both rural and urban situations. The paradigms of wilder landscapes and the interactions between nature and culture, between history and ecology, and between climate, people and nature, will make for a continuing and rich discussion.

There will be a strong international dimension to this conference. However, we welcome displays and posters from local community heritage groups as well as from regional, national and international bodies. We also welcome posters from early-career researchers as well as the more established. Please contact christine@hallamec.plus.com to discuss your ideas in the first instance as space is limited.

The first day (9th Sept.) will end with a guest lecture in the evening. The following two days will mix plenary and parallel sessions with a dedicated poster presentation session on the Thursday afternoon (10th Sept). A conference dinner will be held on the Thursday evening.

Confirmed speakers include: Adrian Newton, Alastair Driver, Peter Bridgewater, Ted Green, Keith Alexander, Jill Butler, Della Hooke, Ian Rotherham, Peter Taylor, Rob Lambert, James Fenton, George Peterken, Sue Everett, Chris Spray, Jim McAdam, Mauro Agnoletti, Tomasz Samojlik, Frans Vera, Kenneth Olwig and Tom Williamson. Chris and Anne-Marie Smout will be attending as guests of honour.

***'Sphagnum Identification Workshops'*** – Peak District in autumn 2015 – dates to be announced

The highly successful theme is continuing with further workshops in autumn 2015 on the Sphagnum mosses. These will focus on the identification, recording and diversity of these species using the Peak District area as a case-study. They will provide hands-on experience both in the field and in microscopy to aid identification and understanding of these species. Places are limited as groups are kept small and pre-booking is essential.

***'Meet the Bog Mosses – public events'*** – Thorne Moors and Peak District – May / June 2015 and autumn 2015 – details to be announced

***'Waxcaps as Indicators Workshops'*** – with the Forest Ecology SIG – Peak District autumn 2015 – dates to be announced

The highly successful theme is continuing with further workshops in autumn 2015 on Waxcaps & Allied Fungi. These will focus on the identification, recording and diversity of these species using the Peak District area as a case-study. They will provide hands-on experience both in the field and in microscopy to aid identification and understanding of these species. Places are limited as groups are kept small and pre-booking is essential.

***'A Life in Ecology – A Celebration of the Work and Inspiration of Dr Oliver Gilbert Pioneer Ecologist.*** 14th November 2015 at Sheffield Hallam University (and field visit / River Don lectures on 13th November) Sheffield.

It is ten years on from Ollie's premature death. This 2-day conference is being organised by Professor Ian Rotherham and Dr Paul Ardron both long-term friends and associates of the late Dr Oliver Gilbert to encompass his many interests and as a celebration of his contributions to urban ecology, lichenology, exotic plants, and urban and post-industrial landscapes over a period of 50 years. Invited speakers will deliver papers relating to topics, which reflect some of Oliver's many interests that included 'alien' species, lichens, urban woodlands, and the flora associated with post-industrial sites. Oliver was one of the first academic ecologists to look in detail at the urban environment and he established terms such as 'the urban commons', and his book *The Ecology of Urban Habitats* still stands alone as the primary text in this field. He also challenged much conventional thinking on the merits or otherwise of invasive aliens such as sycamore and Japanese knotweed. Along with George Barker, Oliver pioneered academic interest in urban habitats and in urban ecology.

Speakers include Penny Anderson, Dr Rob Francis, Dr Peter Shaw, Professor Melvyn Jones, Dr Anna Jorgensen, Dr John Barnatt and Professor Mark Seaward. There will be a celebratory volume of conference papers from the event.

***'Managing Molinia' 3-day conference*** 14th-16th September, Huddersfield. Details and booking from www.nationaltrust.org.uk/marsdenmoor

Contact details via: Peatlands@BritishEcologicalSociety.org

Chair: Professor Ian D. Rotherham, Department of the Natural and Built Environment

Faculty of Development and Society, Sheffield Hallam University, City Campus, Sheffield S1 1WB

Email: i.d.rotherham@shu.ac.uk
telephone; 0114 2252874

Secretary: Sarah Edwards, School of Geography, University of Leeds, gysje@leeds.ac.uk

Publicity Officer: Rachael Maskill, Moors for the Future, The Moorland Centre, Edale. Tel: 01629 816577 or 07917 392815 Rachael.Maskill@peakdistrict.gov.uk

Events and publications details from: Christine Handley on 0114 2724227 or info@hallamec.plus.com

British Ecological Society
Conservation Ecology Group

## CONSERVATION ECOLOGY

**Nathalie Pettorelli**
**nathalie.pettorelli@ioz.ac.uk**

The Conservation SIG committee has been pretty busy over the past weeks. Thanks to our communication officer, we now have an active Twitter account (@BESConservation) that has attracted over 300 followers in the first couple of months. We also have both a Facebook group (join this to receive invites to events) and Facebook page ('like' us to see new posts directly on your newsfeed) with over 500 followers. Please do check these out if you want to stay up to date with what the SIG is doing; we also want to share more of your stories, publications and ideas with these audiences, so please tweet us your news or post it directly on the Facebook page or group.

The newly re-launched SIG has then put together its first event, thanks to a collaboration with the Zoological Society of London. Entitled "The Conservation science/policy interface: challenges and opportunities", the one day symposium was held in London on 16 April. Speakers included Sarah Durant, Rosie Woodroffe, Peter Brotherton, Helen Bayliss and Abigail Bunker. Supported by the BES and the Alumni Foundation, the students of 'Nature Network Sheffield' moreover hosted an ambitious 'Peaks and City Takeover' in March – an action-packed weekend celebrating all things conservation and bringing together students and the community (see p42 for a report). Watch this space for future plans and for student involvement with the SIG!

Another initiative carried out by our liaison officers is the establishment of a network of organisations that work in some aspect of conservation in the UK whether this be policy, education, site stewardship, research and last but not least, ecological work with a conservation application. The aim of the network is to harness existing lines of communication with UK conservationists in order to better serve the community although how this is achieved will be decided once the network is formed. If you think that your organisation should become part of this network and has not already been invited, please contact Sarah Dalrymple (s.e.dalrymple@gmail.com).

Finally, an early career event is being planned for the autumn, further details to follow. Our meeting officers are also working hard finalising the organisation of an event this September/October, in York, on conservation planning in the UK. More on this very soon!"

British Ecological Society
Quantitative Ecology Group

## QUANTITATIVE ECOLOGY

**Rick Stafford**
**Quantitative@britishecologicalsociety**

Just a short update this time. Those of you following us on Facebook (www.facebook.com/BESQuantitativeEcology) or Twitter (@BES_QE_SIG), probably know that we have greatly expanded our committee and are generally more active in terms of social media and other activities. Many thanks to Miriam Grace and Chris Clements (Social Media Gurus), Susan Jarvis and Duncan Proctor (Education and Training), Dominic Bennett and Simon Dellicour (Online Resources), Angela Watkins (Policy and Industry) and Laura Graham (Blog Master).

The blog (https://besquantitativeecology.wordpress.com) now has a weekly round up of quantitative ecology news and will shortly contain more details of our events.

## ECOLOGICAL GENETICS

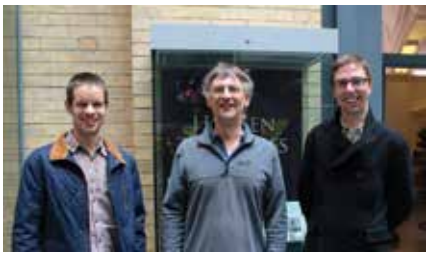
**Paul Ashton**
**ashtonp@edgehill.ac.uk**

### Ecological Genetics Group Meeting Easter 2015

*EGG delegates at the World Museum, Liverpool*

The 59th meeting of the Ecological Genetics Group was held at Liverpool from 30th March to 1st April with the introductory session being held at the excellent Hard Day's Night Hotel, which also provided accommodation, before moving to the World Museum Liverpool for the remainder of the meeting. The delegates were treated to the usual EGG mix with talks from established speakers covering subjects as diverse as the evolutionary implications of clonality (Paul Ashton), the genetic variation in *Sphagnum* following wild burns (Gemma Beatty) and the genomics of CAM plants (Rachel Brenchley). A highlight this year was the first EGG professorial lecture given by Professor John Warren on *An uninteresting sex life and why we eat the things we do.* This followed John's usual entertaining and thought-provoking style. If you missed it you will need to buy his forthcoming book.

The work by new researchers presented at the meeting was also diverse, incorporating genetic monitoring of the endangered freshwater pearl mussel to inform *ex-situ* conservation strategies (Rebecca Kyle), fitness of Devil's Bit Scabious and its relationship to Marsh Fritillary numbers (Laura Jones) and the problems of extracting DNA from ancient peat preserved Scots Pine pollen (Kathleen Crossan). On the second day delegates were joined by students from City College Liverpool who are the recent recipients of a Royal Society partnership grant with Edge Hill University. This is for an EGG type project on the parentage of the hybrid sedge *Carex x gaudiniana*. A thought provoking presentation from City of Liverpool staff member Nigel Blackstock provided the context of this work.



*Paul Ashton (centre) with student prizewinners James Borrell (left) and Carl Barker*

Student presentations were excellent as always though winners of the best student talk and poster prizes, sponsored by Oxford University Press, were the unanimous choice of the panel. Best talk being won by James Borrell (Queen Mary, London) for his talk entitled 'Diversity at the Range Edge: Insights from a Pioneer Woody Plant' with best poster being won by Carl Barker (Edge Hill) for his piece on 'Clonal incidence and structure in a UK range-edge population of *Tilia cordata*'.

*Pub quiz time!*

In addition to the formal sessions delegates enjoyed an excellent tour of the collections at the World Museum, Liverpool led by botany curator Geraldine Reid. There was also time to explore this wonderful institution. The EGGHeads quiz was popular despite the miserable performances, the winners scraping over the line with a score akin to a 2.2. However the exploration of Liverpool's excellent real ale pubs may have had something to do with this!

Thanks go to Hard Day's Night Hotel and World Museum Liverpool for the excellent facilities and to the BES, Genetics Society, GTVision and Oxford UP for financial support.

British Ecological Society
Macroecology Group

## MACROECOLOGY

**@besmacroecol**

This year sees our first international venture, EU MACRO 2015: a joint macroecology conference of our SIG, the macroecology group of the Gesellschaft für Ökologie (GfÖ), and the Center for Macroecology, Evolution & Climate (CMEC), with additional funding from the Carlsberg Foundation. The 2.5 day meeting will be held 14-16 June in Copehagen, Denmark, and aims to provide a forum for macroecologists from the three groups to share ideas and establish future collaborations. The programme will be an exciting mix of invited talks (each followed by 15 mins for discussion), regular talks, ignite talks (google it!), a poster session and lunchtime workshops.

As always, we will also provide ample opportunity to socialize, with a mixer, poster session and conference dinner. Following recent SIG tradition, one student will deliver a plenary talk.

Invited speakers: Nick Isaac, Ally Phillimore, Signe Normand, Nate Sanders, Susanne Fritz, Carsten Dormann.

Organization committee: Sally Keith, Marten Winter, Adam Algar and Carsten Rahbek.

Website: eumacro2015.weebly.com; Twitter @eumacro2015

In other SIG news, we held a joint meeting with the National Forum for Biological Recording, at the University of Sheffield from 23rd-25th April. The theme of this conference, *A Question of Ecology: Answers from Biological Recording* aimed to facilitate interactions between the volunteers who collect such valuable biodiversity data, and the macroecologists who are trying to use it to answer questions about our changing world.

We have also seen some recent personnel changes on the SIG committee. After three years as the driving force behind the Macroecology SIG, Nick Isaac has stepped down as chair. We'd like to thank Nick for all his efforts in bringing the Macro SIG into existence and turning it into the thriving community we have today. In his place, we're delighted to welcome Rich Grenyer as our new chair. Laura Deacon has also come on board as a new student committee member.

British Ecological Society
Plants, Soils, Ecosystems

## PLANTS, SOILS, ECOSYSTEMS

**Mike Whitfield, Trinity College, Dublin**
**michael.whitfield@tcd.ie**

A 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

Our committee has just become more international, with several new members! The organizing committee now consists of:

Ellen Fry, The University of Manchester

Tom Crowther, Yale

Franciska De Vries, The University of Manchester (Secretary: franciska.devries@manchester.ac.uk)

Mike van Nuland, University of Tennessee

Sarah Pierce, Imperial College

Relena Ribbons, Bangor University

Mike Whitfield, Trinity College Dublin

### Plants, Soils, Ecosystems blog and journal club!

**besplantsoileco.wordpress.com**

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. So far in 2015, we have had 1,203 views from 781 individuals.

Relena Ribbons recently wrote a post all about how you can get involved in the International Year of Soil (see more below). If you'd like to see more frequent posts, why not write a guest post for us on paper you find interesting? It's great practice on critically reviewing a piece of literature and writing about research, as well as a good way to raise your profile. Or, if you want to join the discussion, you can always comment on the posts or get in touch on Twitter using hashtag #psejclub.

### International Year of Soils (#IYS2015)

Perhaps you have already heard the buzz about soils, and why everyone should be thinking about them this year: 2015 is the International Year of Soils! Just hop on Twitter and look up posts tagged with #IYS2015 – new photographs and articles are being posted every day. There has been a plethora of great pieces on the importance of soil, including ten things everyone should know about soil (sustainablefoodtrust.org/articles/ten-things-know-soil/), resources from the FAO (bit.ly/1y5zwS8), the Soils Atlas (agrilinks.org/blog/why-soils-highlights-2015-soil-atlas), and a cool infographic from Mother Nature Network (bit.ly/1GSE0x5). There was a recent New York Times piece on no-till farming practices and how they benefit soils (nyti.ms/1Ab2yuA), and the Guardian recently published a piece on how we depend on soils (gu.com/p/47vg4/). With more articles being published as the year progresses and various conferences and meetings taking place, there are plenty of ways to join in with the discussion.

### Opportunities

The International Year of Soils is in full swing, with activities ranging from those geared towards professional soil scientists and soil ecologists to public outreach campaigns. To learn more about activities that are happening in your area check out the FAO calendar of events (www.fao.org/soils-2015/events/en/). Do you have an interest in learning more about soils in an online course? Check out the free online course from Lancaster University (www.futurelearn.com/courses/soils). Have an interest in reaching out to younger audiences? Check out the colouring book, children's book, and card game from the Global Soil Biodiversity Initiative (www.globalsoilbiodiversity.org/?q=education).

### What can you do for the soil?

Wracking your brain for some concrete actions you can take to be more considerate of the soils beneath your feet? Taking small steps to be more mindful about your food consumption and food waste practices are good places to start. Compost food wastes to create nutrient rich compost to use in your garden beds. Purchase locally-

sourced food, and support local farmers and community supported agriculture groups to reduce the carbon footprint of your meals. Grow your own food – whether you live in an urban or rural environment a variety of gardening options are available: try growing fresh herbs in the windowsill or a large pot of cherry tomatoes on your apartment balcony. Educate yourself about the soils in your area and foods that grow best given your climate conditions here. Use that compost pile you have been building up to fertilize your garden, and you will have come full circle.

Get your friends, family, and children involved, because we all need food to survive and sustain ourselves. Take some time to appreciate the soils that fulfil such a fundamental requirement of our existence. Think about the little steps you can take to improve the soils in your area, or reduce your carbon footprint to help lead to a healthier planet.

Relena Ribbons is a FONASO Ph.D. fellow at Bangor University and the University of Copenhagen, researching tree species effects on soils and nutrient cycling. She loves gardening. Drop her an email at: rribbons@gmail.com, follow her on Twitter @relenaribbons, and check out her website: relenaribbons.weebly.com.


**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 bi-monthly *Bulletin*, which involves everything of interest to ecologists interested in plant-soil interactions, and is complied by our committee members Relena Ribbons and Mike van Nuland. If you also want to stay up to date with everything that is happening in Plants-Soils-Ecosystems 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. You can the archive of past bulletins on our website: besplantsoileco.wordpress.com

**2015 activities**

We have a very exciting list of activities planned for 2015! Keep an eye open for more information about dates, venues, speakers, and registration via our email list, Twitter feed, and Facebook page (see below for details). Things you can expect in the coming year:

**Sequencing meta-analysis workshop, The University of Manchester, 18-20th May 2015**

We're organizing a workshop to bring together ecologists and bioinformaticians to work on a meta-analysis of sequencing data with the aim of exploring patterns in belowground biodiversity. By the time you read this, the workshop will have already taken place, so expect a report to follow in the next *Bulletin*!

The description and biogeography of belowground biodiversity is severely lagging behind that of aboveground diversity. This is despite increasing recognition of the importance of soil organisms for ecosystem functioning, including carbon and nitrogen cycling, and feedbacks to plant community composition, which underlie ecosystem services such as food production and climate mitigation. Moreover, recent evidence suggests that patterns of belowground biodiversity might not follow those of aboveground biodiversity. Thus, belowground biodiversity offers a unique opportunity to test and develop ecological theory. However, bringing together soil biodiversity data is challenging, especially when it comes to sequencing data, because pipelines and metadata are not standardized.

**Confirmed speakers/leaders of the workshop are:**

- Dr Kelly Ramirez, Netherlands Institute of Ecology, the Netherlands and GSBI
- Dr Rob Griffiths, CEH Wallingford, UK
- Dr Jennifer Talbot, Boston University, USA
- Dr Hyun Soon Gweon, CEH Wallingford, UK
- Dr John Davison, University of Tartu, Estonia
- Mattias de Hollander, Netherlands Institute of Ecology, the Netherlands

The aim of this workshop is to do a meta-analysis of sequencing data from soil microbial communities. Both publicly available data and participants' data will be used, and the anticipated outcome is a publication in a peer-reviewed journal. The workshop will consist of lectures by our invited speakers to highlight recent advances, and participants will be expected to give a short presentation

about their background and expertise. The majority of time will be spent identifying ecological questions to address with the data, analysing the data in novel ways, and drafting a manuscript.

**Joint meeting with the Climate Change Ecology Special Interest Group, Charles Darwin House, London, 2-3rd November 2015**

The topic of this joint meeting will be climate change mitigation, focussing on carbon and emissions of other greenhouse gases from terrestrial ecosystems. Sessions will cover processes, pressures, and mitigation, linking the broad, policy-relevant scale with smaller experimental scales. There will be a mix of invited speakers, submitted talks and posters. Co-organised with Mike Morecroft (Natural England).

**Workshop on Environmental change and forest soil fungi, Royal Botanic Gardens, Kew, London, October 2015**

This workshop will aim to set critical loads (for instance, for nitrogen pollution) and scale up towards macro ecology. Co-organised by Laura Martinez-suz (Kew Gardens) and Sietze van der Linde (Imperial College, London).

**Get involved!**

We are looking for regular contributors to our online journal club (see section above), and for enthusiastic people with ideas for organising meetings, training events, field trips, or anything else interesting within the field of plant-soil interactions and soil ecology. Email us at besplantsoileco@gmail.com if you are interested and have ideas about how to make the special interest group work for you!

**Join us!**

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

British Ecological Society
Parasites and Pathogens Group

## PARASITE AND PATHOGEN ECOLOGY AND EVOLUTION

**Andrew Fenton**
**A.Fenton@liverpool.ac.uk**

A couple of years ago we held our first research retreat – 'Ecology Meets Medicine' at Gregynog Hall Mid-Wales (http://www.gregynog.org). This highly successful event centred around open, broad discussions of topics relating to the application of ecology to disease management, which were then debated and further refined over the course of 2.5 days through workshop / discussion formats. Ultimately the event led to a BBSRC grant application and a number of successful journal publications. The retreat was extremely well received by the 22 attendees with 'stimulating discussion' and valuable 'time out to think' cited as two of the most important aspects of the event.

We aim to hold a similarly-structured event later this year, again at Gregynog but this time we plan to focus on aspects of parasite / pathogen transmission. The committee has already discussed a few potential topics, e.g. modes of transmission, the role of co-infection in disease transmission, transmission within multi-host communities, and environmental and societal impacts on transmission. However we are very open to other possibilities and wanted to hear from you the membership regarding preferred topics, and also to gain an initial feel for the likelihood of attendance. At present we are looking at mid-week dates for this 2-3 day meeting, to be held in early September.

We hope to attract between 35 and 50 attendees this time and we are very open to groups coming with the aim of completing a particular task, e.g. writing a grant / paper. Costs cannot yet be provided specifically but the event (including all meals and accommodation) should be no more than £200 per person.

British Ecological Society
Tropical Ecology Group

## TROPICAL ECOLOGY

**Lindsay Banin**
**lindsay.banin@gmail.com**

**Events**

In April 2015, TEG joined the GTÖ meeting in Zurich (http://www.gtoe-conference.de/). It was a lively and well-attended meeting, with over 300 delegates coming from over 30 countries. TEG co-hosted a pan-European networking and collaboration event, which was well enjoyed by the participants. In February 2016, GTÖ will host their meeting in Göttingen, followed by the European ATBC (Association for Tropical Biology and Conservation) meeting in Montpellier in June, which BES-TEG members are warmly invited to attend.

**26-28th August 2015, University of Oxford**

TEG are supporting a special symposium on 'The value of long term monitoring plots for plant systematics and ecology in the tropics' (chaired by Tim Baker and Toby Pennington) during the Systematics Association Biennial meeting (http://www.systass.org/biennial2015/).

**3-4th September, University of Stirling**

This will be our 8th Annual BES-TEG Meeting; we hope to see you there! Follow our twitter feed or blog for further information on the programme of events and details on how to join the meeting.

**News and contacts**

You can keep up to date with news, opportunities, events and research highlights via our blog – https://tropecol.wordpress.com/ in addition to @BES_Tropical on Twitter and our Facebook page. You can contact us directly through the form on the blog or via e-mail: tropical@britishecologicalsociety.org. We look forward to hearing from you!

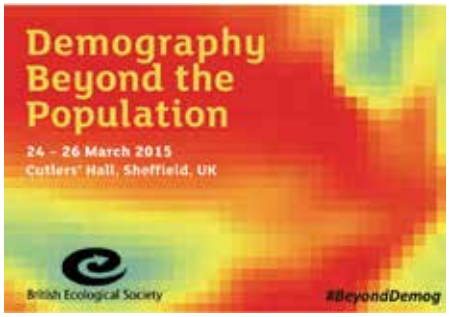
# MEETING REPORTS

# *Demography Beyond the Population*

**Alden Griffith** / Wellesley College, USA.
**Roberto Salguero-Gómez** / University of Queensland, Australia. Max Planck Institute for Demographic Research, Germany.

The end of March welcomed both spring and the first BES Symposium of 2015, *Demography Beyond the Population*. Over one hundred delegates gathered at historic Cutlers' Hall in Sheffield for three days of presentations and discussions, preceded by a day of hands-on workshops at the University of Sheffield.

Overall, the symposium aimed to highlight the role of demography as a bridge across ecological, spatial, and temporal scales. Demography is particularly well suited to tackle this task: not only are population-level processes situated along the middle of these three axes, but recent methodological advances have opened up new opportunities for 'ecological bridge-building'. General topics explored included environmental drivers of populations, comparative demography, evolutionary demography, inverse modeling, trait-mediated demography, and species distribution modeling.

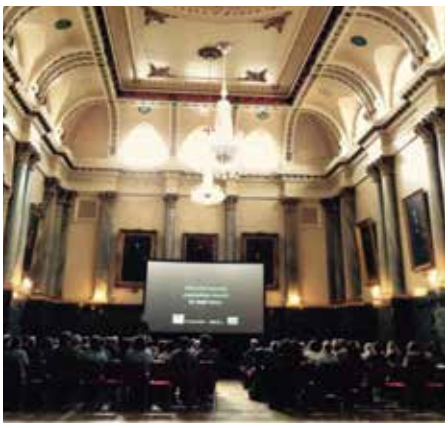



*The symposium programme is available online at www.tinyurl.com/bes-beyond-demog*

The overall goals of this symposium were to:

- Explore ways in which demography intersects other areas of ecological and evolutionary research.
- Identify gaps in ecological and evolutionary understanding that can be informed by an understanding of population-level processes.
- Elucidate analytical tools and metrics that facilitate the integration of population-level processes into other ecological spatial and temporal scales (and vice versa).

One of the (many) best things about BES Symposia is the combination of leading-edge research, small size, and focused scope. Keeping with this spirit, the symposium emphasized a continuity of engagement, with single plenary sessions and long, semi-structured breaks for discussions and posters. An important part of the experience was the unforgettable venue, as Cutlers' Hall provided an incredibly elegant (wow!), yet relaxed ambience to the symposium. It is fair to say that not too many ecology symposia have break-out sessions in the drawing room, with talks attended by larger-than-life portraits of Queen Victoria (could not keep her eyes off the presentations) and the Duke of Wellington (who never seemed terribly engaged)!



*The magnificent Cutlers' Hall, where the symposium took place. (Photograph:O.R Jones)*

Given the focused spirit and intimate nature of the symposium, the overall format was guided by the goal of maximizing the number of contributing voices. To this end, oral sessions contained a mix of 20 minute talks by 18 invited speakers and 5 minute 'lightning' talks by contributing speakers. Most lightning talks were also accompanied by a poster, allowing for additional discussion and feedback during the subsequent break. This format allowed for more than half of all delegates to speak to the entire group, with a total of 38 lightning talks. With long breaks and oral sessions never lasting more than 90 minutes, we were able to hear from 56 speakers over the three days! The 36 continuously-displayed posters provided a constant source of engagement and discussion, ranging from bumblebee demography to entire ecological communities.

*'Lightning' talks provoked subsequent discussion around the posters*

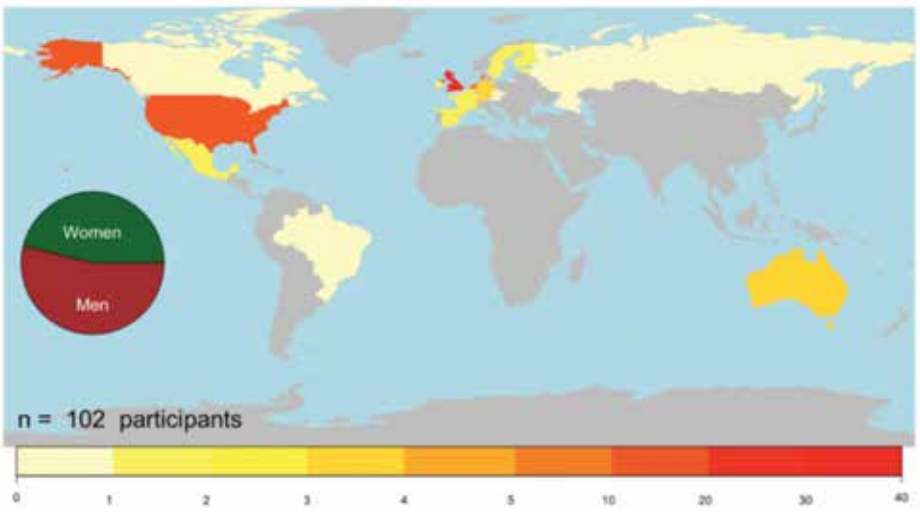
One of the first themes to emerge during the symposium focused on attributing and understanding demographic variation (in space and time, and among/within individuals). Variation is certainly no stranger to ecologists, as we often find ourselves in the position of considering an *r2* of 0.2 as being "hey, pretty good!" However, as Elizabeth Crone pointed out in her talk, "variance is not just noise", and different sources of demographic variation (which are often not made explicit) can translate into both positive and negative population-level effects through interesting buffering feedbacks. This has large implications both in terms of how we collect demographic data (e.g. can we really substitute space and time?) and make inferences and predictions. Hal Caswell's contribution along these lines was based on exploring the degree to which individual stochasticity in reproduction throughout a lifetime leads to variation among individuals; essentially a demographic null model. This early explicit focus on the complexities of demographic variation set the stage well for themes and discussion points that followed.

*Breakout sessions: constructive debate in elegant surroundings*

Understanding the environmental drivers of demographic processes and scaling their outcomes is an area that currently holds both significant promise and challenges. Many presentations touched upon this theme, covering a broad range of taxa and scales. This is an area where quantitative methods have come a long way, yet they demand either a strong mechanistic understanding of specific systems or a substantial amount of data – or both. Talks by Cory Merow, Frank Schurr, and Yvonne Buckley highlighted recent advances in niche modeling and range dynamics, which have demonstrated the value of incorporating demographic mechanisms. However, underlying correlations with demographic processes are often quite weak, and as Anna Csergo demonstrated, suitability based on climate is not always a good predictor of local population-level performance. This intersects with the important point by Johan Erhlén that we have traditionally been focused on predicting occurrence rather than *abundance*. Important challenges on this frontier include the relatively local neighborhoods of competition and microhabitat effects and the likely mismatches between occurrence and habitat suitability. A small break-out group following these talks brainstormed about the ways forward.

A very broad, yet crucial, area of discussion concerned the data required for 'demographic bridge building.' Sure, demographers love a good dataset with thousands of values for individual growth, survival, and reproduction – but we also have knees that begin to fail in our mid-thirties (granted, *n* = *2*). A key question that remains is how much demographic data is needed for particular applications and questions. Some recent studies have shown that *some* demography can certainly be more informative than none, but it likely depends on how it intersects with other datasets and how much is already known about a particular system. However, as Steve Ellner convincingly demonstrated, trying to robustly identify climatic drivers can require more than a decade of demographic data in some cases. What to do then? Do we commit our lives (and those of our children or Ph.D. students) to tracking demography from birth to death? Or can novel methods in Bayesian population models, as those developed by Fernando Colchero among others, and interfacing with other disciplines, help us find 'shortcuts'?

There are two exciting things to point out about the demographics (ha!) of the symposium. First was its considerable geographic reach, with delegates coming from 22 different countries and territories across four continents. In fact, 65% of delegates traveled to Sheffield from outside the UK. Additionally, there were a large number of early-career researchers making important advancements in the field. As co-organiser, Rob Salguero-Gómez wrote on the *Journal of Ecology* Blog, "demography has in the last years experienced a rather prominent recruitment event!" It was great to see such momentum in the field at the symposium, and BES and *Journal of Ecology* were thrilled to offer prizes to three student posters. The two runners-up were Julia Barthold and Maria Paniw for




*Geographic provenance of the 102 participants who participated in the BES symposium "Demography beyond the population", in March 2015 in Sheffield, England.*

their respective state-of-the-art research lines on the estimation of unobserved demographic processes. The winner of the student award was Edgar González, based on his work on the 'inverse demographic problem'. This effort consists of the determination of individual-level vital rates based on the observation of population structures, and represents an important avenue towards addressing problems of available demographic data discussed above.

Other examples of how demography goes well beyond the concept and realm of 'the population' were well-showcased by several other invited speakers. Jessica Metcalf spoke about applying ecological and evolutionary methods (e.g. Integral Projection Models) to understanding complex patterns of disease and vaccination. David Hodgson used the recently launched COMPADRE Plant Matrix Database to ask what properties make species more reactive or more likely to undergo local extinction in the light of perturbations. Maria del Carmen Mandujano and Jordan Golubov presented state-of-the-art research that feeds on extremely long-term demographic records in various species of cactae, where, using phylogenetic analyses, they were able to analyze the role of seedbank on the population viability of over 30 species. Also expanding demography beyond the population, Eelke Jongejans presented a hierarchical framework to incorporate and make functional traits predictive of population dynamics, while Maria Uriarte discussed the effects of climate variability and human land use on forest dynamics, composition and productivity.

Demography is the science that studies populations. Its main focus resides in the accurate quantification of individuals of the same species that coexist in space and time, and the evaluation of how the rates of survival, growth, dispersal/migration, reproduction, recruitment, etc. shape overall population-level responses. Based on the belief of the organisers of this symposium (Figure 4) that there is more to demography than *just* the population, this symposium has showcased some of the cutting-edge applications of demographic tools and theories to examine questions as broad as the main determinants of life history variation, the controls of invasive species, effects of precipitation on forest composition and productivity, or the incorporation of *hidden* components in the life cycle of a species. Clearly, a lot of these questions are works-in-progress, and more questions remain to be tackled. However, we feel confident that the field of demography at large, and population ecology specifically, will continue to help bridge scales with the important contributions of both senior researchers and those from the newly recruited pulse of early career demographers.

*Symposium and workshop organisers: (from left) Rob Salguero-Gómez, Cory Merow, Alden Griffith, Dylan Childs, Jessica Metcalf, and Sean McMahon. (Photo credit: D. Boukal)*

# HAPPY BIRTHDAY TO MEE

**Rob Freckleton**

It is April 2010 and the world stands still. Literally. Planes are grounded and flights cancelled with thousands of people displaced in foreign countries and unable to get home. A volcano in Iceland has erupted and a massive ash cloud swathes the northern hemisphere. However all of this pales into insignificance compared with what happens on the 10th of April: the official launch of MEE! Whilst lesser scientific societies are behumbled by such calamity and cancel their symposia, the MEE inauguration goes ahead. For one attendee, a 3-day 1900km journey by road, rail and sea is no impediment to being there!

It was in such panicked and slightly inauspicious circumstances that our new journal was launched in 2010. A packed house, the first major event at the recently occupied Charles Darwin House, celebrated the launch of the new MEE with a series of talks celebrating what has come to define the journal: a breadth of scope ranging from statistics to data visualization and from phylogenetics to informatics.

Submissions had opened back in August 2009 and, amazingly, the first paper submitted to MEE (MS 09-08-000) is our most cited (422 citations on WoS and counting!). Alain Zuur and colleagues presented a protocol for data exploration that has proved to be incredibly influential and useful. The success of this paper, as many in MEE, has been the balance of solid theory with good clearly communicated advice. Videos, podcasts, and code accompany many of our papers and have really delivered on our vision to improve the uptake of new methods.

*Elena Ieno, co-author of the most highly cited MEE paper, spoke at the anniversary meeting*

So wind forward 5 years – the journal has expanded from publishing 60 papers in the first year to an expected 140 in 2015. The journal started with one executive editor and 12 associate editors; we now have 3 senior editors and an editorial board of 55. We have been accepted among the scientific Galácticos and were ISI listed in our first year, with a healthy Impact Factor from the start (not that we care about IFs, of course...).

What is really pleasing is that in this time we really believe that our journal has led to authors actually writing papers that they would not have done so before: a particular example is that applications papers allow those developing new tools to get the publication credit they richly deserve for their work. Before MEE there was simply nowhere to publish such papers in the ecological literature, and our journal has therefore demonstrably changed the face of ecological publishing.

*Jana Vamosi, the other senior editor of MEE, presided over the Calgary session of the anniversary symposium*

On 22nd April 2015 we celebrated our 5th Anniversary back at CDH. Volcano proof. This time talks were streamed live through the internet and we linked up with Jana Vamosi, our Canadian senior editor, for a truly global symposium that was fully allowed anyone in the world to attend, and didn't require speakers to travel halfway across the globe to deliver a 20 minute talk.

*Mark Brewer, aka @BulbousSquidge*

Our speakers on this occasion were chosen to represent different groups of our journal's community – including the president of the society, an editor of one of our very supportive sister journals, authors, a prize winner, associate editors and super-referees. And the talks were uniformly excellent. Highlights included hearing about the dark side of comparative methods from Natalie Cooper (who braved some initial 'issues' with the technology), and a wonderfully pragmatic talk about statistics and model selection from @BulbousSquidge. Iain Stott also particularly stood out: Iain was the first winner of the Sir Robert May prize for a paper by a young author and gave a delightful overview of the impact his paper has had in the years since it was published.

*As Janneke Wit comes loud and clear over the speakers from Calgary, the audience in London sees her slides in real time.*

In the last hour of the symposium we combined with the Canadian symposium – an audience in the UK at a Canadian symposium and vice versa. Amazingly the quality of the experience was really good: although it admittedly not quite the same as being in the actual venue, the opportunity to link across such a distance without anyone taking a plane and consequent environmental impacts is just outstanding.

There were many highlights in the day and the success resulted from excellent presentations supported by fantastic work by the BES team in CDH.

So what for the next 5 years? The number of submissions is extraordinary and shows that methods development is lively and that there is a huge amount interest in this area. But there are challenges for us: for example, how do we deal with complex, fast moving areas such as code and software development and ensure longevity for our methods? What are the new technologies that we can use to better communicate to readers? It has been a frenetic and fast changing 5 years in publishing and we hope that the next 5 will be as exciting.

# OF INTEREST TO MEMBERS

## THE ECOLOGY AND EVOLUTION OF EMERGING PLANT PESTS AND PATHOGENS: CHALLENGES TO GLOBAL FOOD SECURITY AND ECOSYSTEM RESILIENCE

**13 – 14 July, 2015**

**Penryn Campus, University of Exeter, Cornwall, UK**

**Organising Committee:**

Dr. Daniel P. Bebber, University of Exeter – Co-ordinator.

Dr. Britt Koskella (University of Exeter, Penryn, Cornwall) – Local Organizer.

Prof. Sarah J. Gurr (University of Exeter) – Liaison with other Societies.

This symposium will bring together experts in genetics, cell biology, ecology, evolution, plant pathology, modelling, microbiology, climate change, remote sensing, agriculture and forestry to synthesize recent research into emerging plant pests and pathogens (EPPPs) and share findings across disciplines. The aim is to describe the threat that EPPPs pose, the mechanisms by which they evolve and spread, the ecological and environmental factors that influence emergence, and the management strategies that can be used for control.

There will also be a Public Policy Debate on Monday 13th July, in Falmouth at the Maritime Musuem. Tickets and travel to the venue are free to all those attending the Symposium.

Speakers include Charles Godfray (Oxford), Sarah Gurr (Exeter), Michael Shaw (Reading), Joan Webber (Forest Research), Joy Bergelson (Chicago), Eva Stukenbrock (Max Planck), Santiago Elena (CSIC-UPV), Andrea Campisano (Italy), Andreas von Tiedemann (Gottingen), Chris Gilligan (Cambridge), Anne-Katrin Mahlein (Bonn), James Brown (John Innes), Julian Smith (FERA)

For more information see the Events section at the BES website www.britishecologicalsociety.org

## CHARLES DARWIN HOUSE 2


Charles Darwin House 2, a second building jointly owned by the Societies that share Charles Darwin House, is now in use. It provides supplementary office space and meeting rooms for Society staff and committee members. The original building remains as the main venue for conferences and workshops. The new building is located on Grays Inn Road within a very short walk of CDH.

## *ONLINE REGISTRATION IS NOW OPEN FOR:* ECOLOGICAL NETWORKS: THEORY, EMPIRICISM AND PRACTICE IN A CHANGING WORLD

2nd International Symposium on Ecological Networks

Bristol, UK, 7 and 8 September 2015

**The Keynote Speakers are:**

Professor Jason Tylianakis, University of Christchurch, New Zealand

Professor Pedro Jordano, Estacion Biologica de Donana, CSIC, Spain

Dr Anna Traveset, Mediterranean Inst. of Adv. Studies, Terrestrial Ecology Group, Mallorca, Spain

Dr Thilo Gross, Department of Engineering Mathematics, University of Bristol

Dr Michael Traugott, Institute of Ecology, University of Innsbruck

**The hosts are:**

Professor Jane Memmott, University of Bristol

Dr Michael Pocock, CEH

Dr Darren Evans, University of Hull

Dr Daniel Montoya, University of Bristol

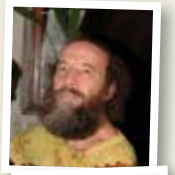
Please see the symposium webpage here: www.brc.ac.uk/networksymposium/

Registration and payment is via Bristol University's online shop:

www.shop.bris.ac.uk/browse/extra_info

*Please note Registration closes on 26 June*

## 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 26 January – 6 February 2016. 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 (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 the book by 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 www.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

# Professor John Packham

## 1930 - 2015

***Professor John Richard Packham MSc PhD FLS was born in Brighton on 15th June 1930 and died in Bridgnorth, Shropshire after a short illness, on 11th March 2015.***

A graduate of Bristol University, in 1956 he became head of Biology at Alcester Grammar School, and also married his wife Mary. In 1965 he became Lecturer in Ecology in what is now the University of Wolverhampton. He spent the rest of his working life at Wolverhampton, taking a leading part in the development of Ecology as a subject and the transitions of Wolverhampton initially to a Polytechnic and later to a University, before retiring as Professor of Ecology in 1994. He continued to work and publish as an emeritus professor until as recently as 2007. The late N.J.Musgrove, his last major student, was awarded his PhD on the vegetation of the Long Mynd in Shropshire in 2008, and John was still publishing book reviews in 2013.

John was very well respected as a teacher and course leader as well as a researcher; he insisted on students becoming proficient in field botany and usually kept his slightly wicked sense of humour well-hidden. Amongst other virtues, John had the ability to get people to believe they could succeed, a precious ability in a teacher. All of us who worked with John at Wolverhampton have many happy memories of field work and field courses with him, despite the fact that he worked the students – and fellow staff – very hard.

In 1976, whilst teaching at Wolverhampton, John successfully completed his PhD, which was supervised by Arthur Willis of Sheffield University. Concerned with the ecology of the woodland herbs *Oxalis acetosella* and *Lamiastrum galeobdolon*, his thesis included experimental physiology as well as ecology. It resulted in the accumulation of a substantial body of quadrat data in woodlands and uplands which led to the publication of Biological Floras of both species and contributed to the UK National Vegetation Classification. He also used Mark Hill's computer program 'Indicator Species Analysis' which later became TWINSPAN and retained life-long academic links with Mark. He made contributions on other woodland studies, such as woodland field layer restoration with Eleanor Cohn and 23 years of monitoring seed production in *Fagus sylvatica* across the UK with Geoff Hilton. In 1975 Charles Sinker asked him to become executive editor of a proposed Flora of Shropshire which he carried through to successful publication in 1985 as the *Ecological Flora of the Shropshire Region.* A seminal work, it played an important role in the development of the vice-county Flora and although Charles was the 'presiding genius', John was definitely the 'chief executive' in its production.

John was widely interested in woodlands and forestry. He led the University Woodland Research group for many years and was a founder member of the national Continuous Cover Forestry Group. In 1982, working in collaboration with David Harding and later with other members of staff at Wolverhampton he produced the Contemporary Biology textbook *The Ecology of Woodland Processes*, which ran into two editions and was re-edited in collaboration with Peter Thomas of Keele University as the *Ecology of Woodlands and Forests* as recently as 2007. He served on the editorial board of the Arboricultural Journal and undertook research and collaboration with the University of Uppsala in Sweden. He was also very interested in coastal habitats: he became a life member of the Marine Biology Association in 1954, in 1997 he published the book *Ecology of Dunes, Salt Marsh* and *Shingle* in collaboration with Arthur Willis and in 2001 he co-edited the book *Ecology and Geomorphology of Coastal Shingle*.

John had a profound influence on all he worked with. A colleague wrote "he was meticulous and thorough, in the manner of a true academic". A former student wrote "everything he said, from informal conversation to giving formal guidance or writing for publication, was informed by careful consideration and the weighing of available evidence." His friendship, guidance and wide knowledge will be very much missed.

***I.C.Trueman March 2015***

# Oliver Rackham
# 1939 - 2015

**Our Honorary Member Dr Oliver Rackham died suddenly and unexpectedly, aged 75, on 12 February. He was the leading historical ecologist of his generation in Britain, and arguably in all Europe. He was one of those few people who combine originality with encyclopaedic knowledge. More than that, his books not only changed the understanding of present-day woods and the countryside in general for academics, but inspired countless nature lovers and conservation activists.**

His coverage expanded steadily from one wood in Cambridgeshire to woods in Britain generally, then to the landscape as a whole, and on to woods and landscapes of Greece and other parts of the Mediterranean Basin. By then he was also in demand to open the eyes of experts and enthusiasts in the USA, Australia and Japan. He railed against various follies of management and commerce, which have had serious deleterious effects on woods particularly. The story is spelt out in more detail by Keith Kirby in his companion tribute which follows.

Oliver's passing prompted obituaries in not only the *Guardian, Independent, Telegraph* and *Times* but also the *Economist*, commentaries in at least five Greek newspapers and one Italian, and a sensitive treatment in the programme *Last Word* put out by BBC 4 on 6 March (you can still hear the interview on the BBC website, including extracts of Oliver in full flow in a wood).

Oliver first made his mark in historical ecology while studying Hayley Wood, the finest wood on the boulder clay of western Cambridgeshire, near St Neots. The fledgling Cambridge and Isle of Ely Naturalists' Trust had purchased the wood in 1962, following a plea from Donald Pigott, then a University Lecturer in Cambridge carrying out research in the wood. When Donald left to be the Foundation Professor of Biology at Lancaster, Oliver – then just finishing his PhD in plant ecophysiology – took over leadership of the Management Committee. He found a wealth of information about the wood, its extent, composition and management in the Middle Ages by reading the Ely Coucher Book compiled in 1251 to detail the Bishop's manors. The 'book' is a manuscript written in mediaeval Latin, so effectively inaccessible to most ecologists. Oliver's *Hayley Wood* was published in 1975, and was soon highly influential. It led to the series of books covered in Keith Kirby's piece.

Oliver's earliest studies of Mediterranean landscapes covered various parts of Greece, but he is best known for his outstanding work on Crete, done in collaboration with the American archaeologist Jennifer Moody. Their *Making of the Cretan Landscape* (1996) set a new standard, and for countless visitors to the island transformed their experience. With the Cambridge geographer A T (Dick) Grove, Oliver broadened his coverage to *The Nature of Mediterranean Europe: an Ecological History (2001)* – another massive work full of original observations.

Oliver was born near Bungay, Suffolk on 17 October 1939, the only child of Geoffrey Rackham a bank clerk who was well aware of Oliver's outstanding abilities and highly supportive, and Norah his wife (née Wilson) who died when Oliver was in this early teens. Oliver was introduced to Ted Ellis, the well-known naturalist, conservationist and writer, and spent a number of week-ends with Ted and his wife in their remote cottage home with no electricity. He was educated at Norwich School, where he specialised in maths and physical sciences in the sixth form, expecting to become a physicist. In his third year in the Sixth Form he won a scholarship to Corpus Christi College, Cambridge and studied 'A' level botany at Norwich College. After the scholarship exam he attended Latin classes intended for the Classical Sixth, and is said to have been quicker and more accurate in his translations than any of the classicists!

When he went up to Corpus in 1958, his mentor in physics (Tom Faber) suggested that he broaden his studies in his first year by including a biological subject. He chose botany and soon displayed outstanding ability. I first met him when he was in his second year. Because he thought more quickly than other students, had insatiable curiosity and asked endless questions, the research student assigned to give him tutorials ('supervisions' in Cambridge speak) couldn't cope with him in a class of three, and asked me to take him alone: a great privilege for me.

Oliver worked for a PhD under Clifford Evans (President of the BES 1974-1975) on 'Transpiration, assimilation and the aerial environment', and most importantly studied the limitations on photosynthetic rates imposed by the slow diffusion of carbon dioxide in water and by the low capacity of ribulose bisphosphate carboxylase, the enzyme catalyzing the incorporation of CO2 into sugar. In his quantification of the resistances in the diffusion path (set out beautifully in his paper in the Sixth BES Symposium Volume of 1966 on *Light as an Ecological Factor*) he was decades ahead of other researchers, who began to realise its importance only in the later 1990s.

In 1964 he was elected a Fellow of Corpus, and appointed a University Demonstrator in Botany. He moved in 1968 to work at the Plant Breeding Institute (PBI) in Trumpington on the impacts of drought on barley. While at the PBI, his mind was taken up increasingly with the historical ecology of woods, and in 1972 he left to become an independent researcher supported by grants from a variety of sources.

He remained a Fellow of Corpus for the rest of his life, and served as the College's Master in 2007-2008. He had long given lectures to advanced students in the University, and in 2006 was appointed an Honorary Professor. In 2002 he was the first ecologist to be elected a Fellow of the British Academy.

Oliver was eccentric in many ways, not least in dress, combining easily sandals and red socks with a dinner jacket. He was much loved by the staff and students who got to know him. More than 200 people packed the College Chapel for his funeral, with getting on for 100 more at an overflow in the Hall.

***Peter Grubb***

*Oliver in Buff Wood, Cambridgeshire, April 2009. Photo by David Wright.*

# Oliver Rackham and 'the genius of a place'

**Oliver Rackham transformed the way that conservationists and foresters in Britain viewed the countryside; from a perception of generalised landscapes that changed in largely uniform ways in response to the broad sweep of history, to seeing individual woods, meadows, collections of hedges, as each having their own particular trajectory. He showed that this approach worked as well in the Mediterranean region as in northern Europe.**

*Oliver Rackham, wearing sandals and trademark red socks, bowed deeply on receiving his Honorary Membership of the BES from Malcolm Press.*

His was an unusual combination of skills: an ability to deal with primary historical sources – the Ely Coucher Book, manorial rolls, 19th century wood-sales; detailed and precise field observation and interpretation; and a way of putting these across in an authoritative way. His books and ideas, though full of scholarship, were accessible to the general public. While he did not invent the term 'ancient woodland' he brought an understanding of the importance of ancient woods into general use: I even came across 'ancient woods' recently in a police procedural novel.

Yet it was only in 1976 that *Trees and Woodland in the British Landscape* was published, just less than 40 years ago. The ideas in that were developed in his monumental *Ancient Woodland : its History, Use and Vegetation in England* (first published in 1980 but added to in a revised edition in 2003) and the 2006 *Woodland* – chosen to be the 100th volume in the New Naturalist series. Together they have provided the solid independent academic backing for projects such as the Nature Conservancy Council's Ancient Woodland Inventory and for numerous local campaigns to save particular ancient woods. In *The History of the Countryside* he extended his historical ecological analysis to other types of landscape, again setting a pathway that many others have followed since. His paper on 'Savanna in Europe' presented to a conference in 1996 foreshadowed much of the recent debate on the openness of the pre-Neolithic forest cover.

Modern organisations, whether governmental or NGOs, are not very good at tailoring their activities to what Oliver would call the 'genius of a place'. So he was a regular and vocal critic of organisations, both government and NGOs when they adopted standardised approaches. He was particularly critical of the Forestry Commission and its programmes for replanting ancient woodland with conifers after the Second World War, and would point to many sites where this had also been singularly unsuccessful. Fortunately he lived to see that policy turned around. He was equally scathing about the National Trust's early management of Hatfield Forest, of thick conservation management plans that ended up gathering dust on shelves, and of the National Vegetation Classification's failure to reflect adequately the variations in the coppice layer of lowland mixed deciduous woods. His own inspiring volume on *The Last Forest, the Story of Hatfield Forest* appeared in 1989.

In his 1975 book on Hayley Wood he noted the effect that an expanding deer population was having on the oxlips – one of the earliest references to adverse deer impacts, other than on regeneration, a good ten years before this became a more general concern. He was rightly sceptical during the early eighties of the effects on 'acid rain' on tree health in Britain, but became increasingly concerned in the last decade about the inadvertent movement of pests and diseases around the world through the plant trade. His 2014 book *The Ash Tree* was triggered by the latest of such potential crises to our trees and woods.

In 2008 he and Jennifer Moody spear-headed a successful campaign against development on the Toplou Peninsula in Crete. It was this that led the Greek press to publish warm appreciations of his work when he died.

His work and lively way of speaking made him a sought-after contributor to historical and ecological conferences both in Britain and across the world. He could also be counted on to take an active part in any field excursions, although the downside was that these might then take longer than planned as participants clustered round him to get his views on the structure of a patch of forest, or the origins of some nondescript earthwork.

*Oliver with a group of conservation volunteers in Hayley Wood, 2013. Photo by Julie Hambrook Berkman*

His interest in what actually happened on the ground, made him a staunch advocate for the maintenance and restoration of traditional forms of management, generally illustrated with examples from his favourite East Anglian sites, such as Hayley Wood or Bradfield Woods for coppice, Hatfield Forest or Staverton Park for wood-pasture. However, he might also throw in pictures and anecdotes from further afield, from Japan or North America to illustrate the point that there many of these practices were near-universal (apart from Australia!) solutions to common problems.

At a recent conference on coppice in the Czech Republic many of the speakers were consciously or unconsciously following his techniques from the linkage of old documents with field features, to the use of medieval paintings as illustrations, inspired by his analysis of the accuracy of the coppice background to a boar hunting scene (used also as the frontispiece to Oliver's *Ancient Woodland*).

He would have been heartened by the widespread recognition that across Europe much of the broadleaved woodland has had a long coppice history, while its value in cultural and biological terms has been closely linked to the varied and particular histories of different places. There is a place for allowing natural development and change to landscapes, but we must first understand their meaning and significance if we are to know where to allow such changes and what may be lost.

No-one who met Oliver or has read his work can fail to look at the world in a different way; it is, to use his analogy, a palimpsest and our actions are but the latest scribbles on its surface.

***Keith Kirby***

*Oliver in Hopkins Memorial Forest, Massachusetts, in 1981 inspecting a trunk of sugar maple 'worked upon' by a pileated woodpecker; photo by Henry W Art*

# BRIEF NOTICES

## *Tibor Jermy 1917 – 2014*

***BES Honorary member Tibor Jermy died on 23 September 2014, at the age of 97. He was recognised internationally for his contributions to the study of insect–plant interactions, as well as insect–plant ecology and evolution.***

Tibor Jermy was educated at the Peter Pazmany University in Budapest and became a fellow of the prestigious Jozsef Eotvos College. During of World War II he was conscripted and spent 2 years in the Soviet Union as a prisoner of war. On returning home he found a role at the Plant Protection Institute, where he dealt with topics ranging from ecology to practical protection methods. Recognizing the potential of biological control, he initiated research on predator release against the Colorado potato beetle and genetic control of other pest species. Despite the restrictive policies of the socialist regime concerning travel to western countries, Jermy received a Ford Foundation fellowship in 1966 and spent a year in Vincent Dethier's laboratory at the University of Pennsylvania, USA. One result of Jermy's work in Pennsylvania was a very influential paper on induced preference, which became one of his most highly cited publications (co-authored with Frank Hanson and Vincent Dethier).

Tibor Jermy was a key figure in Hungarian entomology, introducing and fostering experimental entomology in the country. As the director of the Plant Protection Institute of the Hungarian Academy of Sciences (HAS), his achievements were formidable, developing the capacity for research on insect pheromones, physiology, and agroecosystems. He established a network for studying population changes in insect pests, and encouraged long-term studies of the trophic connections in maize and apple. He supported the establishment of a chemical ecology laboratory unique in eastern Central Europe. After election as a member of the HAS he became more active in science policy-making. He received Hungary's State-prize and the Gold Medal of the HAS, as well as being elected as an Honorary Member of the British Ecological Society, and as an International Member of the American Philosophical Society.

*Based on information in the obituary by A. Szentesi and M. Toth in Entomologica Experimentalis et Appplicata 154 88-89, 2015*

## *John Lund 1912-2015*

***John Walter Guerrier Lund, CBE, DSc, FRS, FIBiol, FCIWEM, was born 27 November 1912, and began his studies in Manchester, where he gained his BSc and MSc.***

Moving to London in 1935, he was awarded a PhD in 1939, under Professor F E Fritsch, and a DSc in 1951 both by the University of London. Following a period as Demonstrator in Botany at the University of Manchester and University of London, he joined the West Midlands Forensic Science Laboratory in Birmingham as Staff Biologist. In 1944 he joined the Freshwater Biological Association as an Algologist, beginning his work at Wray Castle studying the planktonic algae *Asterionella* in Windermere. It was during this time he met a fellow scientist, Hilda Canter, who was to become his future wife. In 1955 the collection of illustrations which had been started by Fritsch was given to John and the FBA, when he became Curator of the collection. John continued his ground breaking work for FBA at The Ferry House, eventually 'retiring' in 1978 as Deputy Chief Scientific Officer. He then carried on his work as both an FBA Honorary Research Fellow, as well as the Honorary Curator of the Fritsch Collection (now continued by Dr E Y Haworth) and an FBA Vice President (1967), continuing his work on-site at the FBA until 2005. Over the years he had also collected many accolades including being honoured with a CBE in 1965, a Fellow and Chairman of the Royal Society and President of the British Phycological Society. John was widely known and admired among the freshwater community for his warm, friendly and caring personality, as well as his wonderful sense of humour.

*Provided by the Freshwater Biological Association*

# Taking account of the shared values of ecosystem services

**Jasper Kenter** / Laurence Mee Centre for Society and the Sea at the Scottish Association for Marine Science

**Mark Reed** / Knowledge Exchange Research Centre of Excellence at Birmingham City University.

Last year the follow-on phase of the UK National Ecosystem Assessment (NEA) was completed. The follow-on phase aimed to address a number of areas that were underdeveloped in the NEA. One of the key areas of work was on 'shared values' of ecosystem services (ES).

Shared values are those that bind people together, for example as citizens and as members of communities. Economics traditionally considers the values of individuals, but some of the values that people hold are not for themselves, but for others and the communities and society in which they live. These collective, shared values often relate to the landscapes people live in and visit. Many people experience emotional and spiritual connections to these places that are hard to express in monetary terms.

Ecosystem services have become a hot topic and increasingly pervasive paradigm for understanding human-environment relations, but the economic thinking associated with the ES concept has been seen by many as too narrow. The NEA recognised the need for a more plural conception of values, that values are not solely individual and instrumental and that social and deliberative processes can be important for eliciting values, and these questions became important topics for the NEA follow-on (NEAFO).

To be well-informed, equitable and transparent, the policies and decisions that we make need to take account of the views of the diversity of stakeholders that they may affect. People's views are strongly influenced by the values that they hold, which can be deeply held. However, not all of the ways that people value the world are necessarily pre-formed in their minds nor easily articulated, only becoming clear when people get together to discuss (or 'deliberate') what matters to them.

Taking these values into account early on in the decision-making process can help make more robust decisions that are more likely to be accepted by society.

New approaches are needed for identifying and taking account of these often hidden, yet strongly held, shared values. Traditional (e)valuation often fails to reach out to these values. This is because it tends to assume that the opinions people express as individuals tap into all forms of value, and that adding up different people's values represents the sum total of values held by a constituency of people. Values are 'plural'. Not all types of values can be boiled down to a single value, be that in money terms or expressed in other ways. This is because different types and dimensions of values are not directly comparable (they might be 'incommensurable'). Rather, to elicit these shared, plural and cultural values, it is often necessary to use a mix of monetary, non-monetary and hybrid approaches to include the fullest possible range of value systems necessary to inform more robust, inclusive and far-sighted decision-making. Often such a mix will include deliberation, to make explicit and learn about the values held by different groups in society, so that these can be incorporated in decisions. NEAFO found clear evidence of how deliberative and mixed-method approaches were able to elicit a more inclusive suite of values than conventional approaches, finding evidence of clear differences between individual and shared values across several empirical studies.

## WHAT ARE SHARED VALUES?

NEAFO has developed a framework that helps to clarify the different dimensions of values relevant to shared values: the concept of value, the provider of values, the process through which they are elicited, and the scale and intention of values.

Based on this framework, we identified seven different, non-mutually exclusive types of shared values:

- **Transcendental values** are the principles and overarching goals that guide us, going beyond specific situations. Examples include honesty, security, enjoying life, social status and harmony with nature;
- **Cultural or societal values** are culturally shared principles, virtues and goals, as well as a shared sense of what is worthwhile and meaningful;
- **Communal values** are held in common by the members of a community (based on geography, faith, belief or activities, for example);
- **Group values** are expressed by a group of people through consensus or majority vote, or more informally;
- **Deliberated values** are those that individuals or groups express as a result of deliberating with one another, typically involving discussion and learning;
- **Other-regarding values** express the sense of importance attached to the wellbeing or moral standing of others (humans, other living creatures, and the natural and historical environment); and
- **Value to society** is the benefit, worth or importance of something to society as a whole.

Taken together, these different types of shared value (also referred to as 'social' or 'shared social' values) represent those that we come to hold and assign through our interactions with others in one way or another. They inform and shape a concept of the common good. Within this values framework, there are some further value types that are not necessarily a type of shared value, but that are important to define. We contrast transcendental values with *contextual values*, which are context-dependent. For example, one might value peacefulness (transcendental) and also value the Scottish Highlands (contextual), perhaps because one might experience them as a peaceful place. Beyond transcendental and contextual values, there are *value indicators*, including monetary values. Cultural, societal, communal and group values can all be contrasted with *individual values*, deliberated with *non-deliberated values*, and value to society with *value to the individual*. We recently published a new paper based on NEAFO work that further fleshes out this framework and its implications[1].

## HOW CAN SHARED VALUES BE ASSESSED?

A variety of methods may be used for different kinds of situation and at different stages of consultation to help stakeholders express their views and underlying values.

**They fall into six main groups:**

- **Deliberative** – such as in-depth discussion groups; citizens' juries;
- **Analytical–deliberative** – such as participatory modelling where stakeholders work with academics to develop models that take into account a range of variables involved in a proposal;
- **Interpretive and potentially deliberative** – such as participatory mapping using geographical information systems (GIS) or techniques such as storytelling;
- **Interpretive** – such as analysis of media coverage or the study of cultural history from documents;
- **Psychometric–deliberative** – such as using a 'values compass' to consider the importance of different transcendental values to a community; and
- **Psychometric** – such as using questionnaires to assess the wellbeing benefits of green or blue spaces.

Different methods are suitable for eliciting different types of value. A comprehensive assessment requires a mixed-method approach. For example, shared values can be assessed by combining desk-based studies of historical data with (social) media analyses and focus groups to assess likely public reaction to a controversial policy decision. They can also be assessed by combining non-monetary valuation techniques (like multi-criteria analysis) with deliberative monetary valuation techniques in project appraisal.

To help apply these methods, NEAFO developed a handbook for decision-makers with a range of practical examples and case studies to help inform the choice of methodology depending on the aim and context of the evaluation, resources and time available, and to highlight why shared values are important to different audiences and stakeholder groups.

It is ultimately a judgement call to consider when shared values should be considered explicitly in decision-making. However, as a general rule, there is particular added value to taking a shared values approach in the following cases:

- where issues or ecosystem services under consideration are complex;
- where there is a lot of uncertainty;
- where values are likely to be subtle and implicit;
- where issues or evidence are contested;
- where there are a large number of different stakeholders.

In these cases, integration of shared values of the environment into decisions in these cases can make a big difference on the process of evaluation. Focusing only on individual and economic values can limit the validity of valuation and consultation, especially if these views are dominated by the most articulate, affluent or politically powerful voices. If decision-makers take account of a greater diversity of values, decisions are likely to be more representative of the values of those that they affect, and may also be less contested. The process can also help to identify groups whose values are not being considered, and identify ways of engaging them more effectively, and the process can also identify new and hitherto unsuspected values that may lead to new and unexpected solutions to problems. While much further research is still necessary to further develop shared values approaches to evaluation, the NEAFO reports and handbook can already help researchers and decision-makers to start implementing these approaches.

*The NEAFO report and handbook on shared, plural and cultural values are available at www.lwec.org.uk/sharedvalues.*

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***Mark Reed*** *(www.profmarkreed.com) is professor of interdisciplinary environmental science and directs the Knowledge Exchange Research Centre of Excellence at Birmingham City University. The authors were joint principal investigators of NEAFO work package 6: Shared, Plural and Cultural Values.*

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# PASSIONATE ABOUT SCIENCE? HELL YES!

**Emma Sayer** / University of Lancaster & Associate Editor of the *Bulletin*
@panemma

**Soapbox Science is back again with more events turning city open spaces into an arena for public learning and scientific debate. Emma Sayer explains the background and introduces some of this year's speakers...**

Soapbox Science is a highly successful platform to promote women in science and their research to the public. It has not only been featured in The Guardian, The Independent, Times Higher Education and on the BBC but also in previous issues of the *Bulletin* (April 2013 and June 2014). Founded by Nathalie Pettorelli (ZSL) and Seirian Sumner (University of Bristol) in 2011, Soapbox Science has gone from strength to strength over the last few years, growing from a single annual event in London to multiple events in cities all over the UK. Thanks to its popularity, there is a lot of competition to participate. We asked five of this year's speakers why they had applied for a soapbox slot and how they were going to 'wow' the public.

## ANGELA GALLEGO-SALA

**Biogeochemist, University of Exeter.**

I have decided to become a soapbox scientist because I believe in changing people's perception of who does science and why we do it. I also hope to make a small contribution towards inspiring the scientists of the future and I would particularly like to encourage girls to consider science as a career. I like the idea of making science part of our everyday life, and enabling adults and children to encounter science in the high street seems to me like a wonderful way of doing that. I like the idea and am terrified, in equal measure, of the challenge of explaining science to a non-scientific audience and in such an unusual setting.

My plan is not to 'wow' the public myself but to let peatlands talk for themselves. Although likely to be familiar to the UK public, these are fascinating and extremely special ecosystems that provide us with wonderful and essential ecosystem services, such as water provision and carbon sequestration. For my soapbox talk I will be focusing mainly upon carbon storage and how this may help us when the climate gets warmer. To help me illustrate the point, I will bring 'peat in a box' and a map to show that, even though they may be 'normal' in the UK, peatlands are rare globally.

## MONIKA BÖHM

**Conservation Scientist, ZSL**

As scientists, we probably have been guilty of skirting around public engagement in the past – true, we are probably not natural born communicators when it comes to interacting with the general public, but it is absolutely vital in this day and age to both engage and inform. Why? To show that not all ecological scientists wear socks and sandals (I hardly know any – do you?), to highlight the immense contribution of women to science (and to science communication – maybe we are natural born communicators after all), to increase scientific literacy and to gain public support for what we do! Being a soapbox scientist gives me the platform to (hopefully) help achieve all of these!

I am hoping to wow the public through interaction – we will assess extinction risk of species –LIVE! Thankfully my work focuses on the current extinction risk crisis, a topic that many people are actively concerned about and interested in. I am hoping to take specific examples of species and involve the public in making decisions on the extinction risk of these species – what puts one species at a higher risk than another, how does this translate into a scale of extinction risk, and why does this ultimately matter? Species are yet to be decided, but are likely to feature anything from charismatic mammals to dung beetles and the humble freshwater mussel. Whether this has the 'wow' factor – we'll see on the day!

## JANE MEMMOTT

**Ecologist, University of Bristol**

Science is both really fun and really important. It's fun because it's about asking questions and trying to understand how the world works and this can involve

everything from asking why bees buzz to what makes people happy. It's important because if we want to live sustainably, so that the world is a good place for us, for other species and for our grandchildren too, then we need science to help us do so. For example how to grow more food more sustainably and how to restore damaged ecosystems so that they can provide clean water for local towns and cities are both very topical questions being asked by scientists all over the world today.

Plants are really useful – we eat them, we make houses with them, we use them for fuel and for decoration for starters. Moreover they don't just sit there looking pretty, rather they trick birds and bees into doing jobs for them – for example plants like foxglove train bees to visit the flowers in a particular order to help them make more seeds. And next time you reach for nutmeg in the cupboard, pause to think that toucans eat them too. On my soapbox, I'll have live plants to tempt in the local bees and giant seeds as 'show and tells'. I'll have the world's largest seed on display, along with a dodo's dinner and some very familiar kitchen ingredients with some unfamiliar stories about them. Drop by and find out more!

### MIRIAM GARCIA-OLIVA

**Research Engineer, University of Exeter**

This year I have decided to join the Soapbox science event in Exeter and I think that it is going to be a very interesting experience. I am in the last year of my PhD. A few months ago I was talking with my supervisor about the lack of female students taking Engineering degrees and as a consequence he sent me information on to apply for the event. We think that action is necessary to encourage women to become Scientist and Engineers.

Approaching people in the street would give me the chance to show them our research and learn what they think about it. The topic that I am going to present is related to Tidal Energy in Estuaries, which is quite an unknown subject for the general public despite recent news coverage of tidal lagoon projects in the UK. As the topic is related to both energy and environmental issues, I expect to find social concern about it.

During the event, I would like to share ideas about the continuous process of creation of tides as well as the high resource existing in UK estuaries for energy extraction and the tidal turbines that we can use for this purpose. In order to do this, some small tools can help with the explanations and catch the attention of younger people. A dialogue with the audience would be preferred to the more formal presentation style more common between our peers in academia. It is going to be a bit of a challenge for me because I am not used to talk in such a situation but I hope that the public will enjoy and learn about Marine Renewables and their application to the real world.

### JACQUELINE (JACK) HANNAM

**Soil Scientist, Cranfield University**

I'm utterly thrilled and nervous in equal measure to be part of the annual Soapbox Science event on London's Southbank on 30 May. So I confess I'm a novice science communicator for anything other than academic audiences. But I'm passionate about my science (SOIL, hell yes!) and feel that being part of this event with 11 other amazing scientists is 1) a fantastic opportunity to dispel the myth of a scientist (lab coat, specs… err check…oops) 2) become a better science communicator and 3) see how science communication can really make a difference to encouraging people of all ages to become engaged with science. So the conversation at home with the people that share my name (aka The Family) went something like this:

**Me:** WOW!! I'm going to be part of Soapbox Science!

**Spouse:** Does that mean you are racing a homemade vehicle out of a soapbox?

**Me:** err no…but….

**Spouse starts playing with TV remote**

**Me:** …but it does mean I get to spread the word of soil science to the public on London's Southbank

**Spouse stops inspecting TV remote**

**Spouse:** REALLY? How?

**Me:** I have a cunning plan

**groans**

**Me:** A massive soil map – find your dirt and find out what it does! Soil recipe – make a soil! Soil snakes and ladders – look after the soil and everyone's a winner!

**Children:** Why?

**Me:** Because soils are more than just dirt and for growing stuff.

**All:** **leans in**….such as?

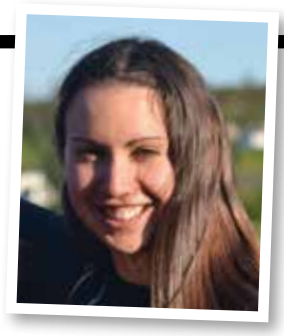
**Me:** Come and participate to find out more. Plus there will be other scientists talking about more cool stuff. Are you coming?

**All:** Hell yes!

### FIND OUT MORE

*This year, Soapbox Scientists will be enthusing about their research at events in London, Swansea, Belfast, Bristol, Exeter, Newcastle and Glasgow. Visit www.soapboxscience.org or follow @soapboxscience on Twitter to find out more.*

# The 'Peaks and City Takeover': one-hit wonder or the start of something special? Watch this space....



**Catherine Stowkowska** / Co-Chair Sheffield University Conservation Volunteers

Six months ago I sat in the Students' Union with Chris Bradshaw – Chair of the Sheffield University Conservation Volunteers (SUCV) – and put to him a crazy idea. Thankfully, his mixed response of 'That would take a LOT of effort Cat...' with '...but if we could pull it off, it would be incredible' was apparently the right blend of realism and enthusiasm for what has since been a rollercoaster of an experience. And one of the greatest non-academic achievements of our short careers.

The 'crazy idea' was to create the 'UK Student Conservation Volunteers' – a national network linking up the groups equivalent to our own in other universities across the country. The Peaks and City Takeover was the 'catalyst' we intended to use to initiate this movement. The Takeover was a weekend event in Sheffield combining conservation tasks, workshops, talks and social events. Crucially, we also wanted it to be a proof of concept of the potential of the student population as a source of volunteers that, when called upon, could provide the manpower for conservation work that might not otherwise be feasible.

*A satisfied crowd at the end of our Blacka Moor conservation task (photo courtesy of Joshua Hackett)*

The way we work in SUCV means that anybody can join our tasks – whether for a day or every week. Our members come from all disciplines, not just from those taking ecological degrees, and we assist with the practical conservation work and surveys of about fifteen local organisations every year. Imagine then if, further down the line, this UK SCV network could inspire and support fellow students in establishing conservation or ecology-based societies in every university! Together, those member societies would be in a position to reach out to engage with every generation of students whilst providing keen volunteers for countless local community groups.

We started small by first putting a call out to any societies within our own university that have an interest in nature. We're lucky in Sheffield to have such a range – from SUCV (now forty years old) to the Beekeeping Society (hatched just this year). We'd figured that better communication and a forum for putting forward ideas for collaboration would be useful – but it wasn't until we collated event information for our website and social media outlets that we realised just how many of these events would appeal broadly across the spectrum of the society memberships. One of our ongoing aims is to serve our students as the central hub for information on all environmental activities in Sheffield.

Many emails, a few meetings and a week of publicity fairs later, the excitement in conversations between members of different societies (often meeting for the first time) made me realise that this federation of student societies, now known as the 'Nature Network Sheffield', had taken on a life of its own thanks to their readiness to embrace it (naturenetworksheff.wix.com/naturenetworksheff). We're still working on avoiding clashes between societies' events – but having that much going on is definitely a positive 'problem'.

Nature Network Sheffield thus provided the perfect foundation for an event of the scale of the Peaks and City Takeover; and the Takeover in turn allowed each society to showcase its strengths. Our Natural History Society organised a talk by James Borrell – an exceptionally gifted speaker whose insights into conservation science in pristine places on the planet contrasted nicely with the management methods we undertook at Blacka Moor for the Sheffield and Rotherham Wildlife Trust. So as not to ignore the amazing efforts being made within Sheffield itself, a morning of city tasks was added to the programme with activities led by the Birdwatching, Beekeeping, SUCV and Student Eats societies. Partnership with the latter brought in a food and sustainability-orientated audience alongside our regular conservationists. We also asked the Film Unit to screen 'Project Wild Thing' as the campaign for '#wildtime' and re-engagement of children with nature epitomises the love of the natural world that brought us together in the first place. For any folkies out there

(or future Takeover organisers!), we heartily recommend Isembard's Wheel – nothing could have drawn the weekend to a close with more fun and poignancy than a folk band.

Coming at the concept of the Takeover from a PhD student's perspective, I had envisaged a conference-style workshop with an SUCV-style working field trip. In the end, the workshop morphed into an insightful careers session facilitated by guests such as the BES' own Karen Devine. It also provided breathing space for me to get feedback on how the Takeover was being received and what would bring my fellow students to a future edition (#CoastnCity16 anyone?), or the UK SCV itself, should it create a lasting legacy. I'd like to pass on one resounding message: if you want to engage students, or anyone really, concentrate on making it fun. The impact and the outreach and the work will happen naturally as a product of engaging people's enthusiasm.

Now that we have students from Sheffield, Nottingham, Derby and Leeds on board (everyone else is hereby invited!), along with support on the academic side of life from the BES Conservation SIG, the 'UK SCV' vision stands a good chance of becoming a reality. Failing that, we may at least have inspired thirty-something people (plus our task partners, the folk band and the friends that were dragged along) to go and do something more in the Peaks, or the city, with their friends, at some point in the future...

*Chris Bradshaw trying out a new hairstyle and a staff to support his role of SUCV Chair (photo courtesy of Billy Clapham)*

As this article is for a respected academic society's publication, I'm aware that talk of childish antics may be a little too jovial to be taken seriously. So I should probably quote my personal favourite #wildtime moment as something other than witnessing my friends acquiring beards made of moss or climbing trees scarily high when we were supposed to be cutting them down. But I refuse to believe that most readers weren't drawn to ecology by moments like those, and I know it's these reminders that keep me working through the trickier bits of R code when I'd rather be roaming the Peaks. As David Bond found on his journey with Project Wild Thing, it's all too easy for the hard work that comes with striving for a cause that you love to take away time spent enjoying the thing itself without you even realising it is happening. So my #wildtime offering is this: sitting in a birch with my friends around me, looking out over a valley at Blacka Moor, and taking a moment to just quietly be – to look, breathe, and soak in the beauty of nature.

The Takeover couldn't have happened without the financial support of the British Ecological Society and the University of Sheffield Alumni Foundation. We are also indebted to the time and effort of each of our local partners and the encouragement of too many individuals to name!

www.naturenetworksheff.wix.com/naturenetworksheff

www.twitter.com/NatureNetSheff

www.facebook.com/naturenetworksheff

***'...it was great spending the weekend with others also passionate about nature. Having a variety of events really highlighted that conservation isn't just about management or surveying you need to do, it's about taking part and spending time with others and enjoying nature (and getting others to do so!). Only then will people really care and dedicate their time and life to conservation.'***

***Luke Nelson***

*Ready to go with the scrub clearance task at Blacka Moor (photo courtesy of Natalie Clamp)*

# A Metaphor Meets an Abstraction: The Issue of "Healthy Ecosystems"[1]

**John A. Wiens** / Oregon State University
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A Metaphor and an Abstraction walk into a bar. *"I'm not feeling so good,"* says the metaphor. *"I feel like a ship adrift in the night."*

*"That would make you a simile, not a metaphor,"* says the Abstraction. *"But go ahead."*

*"That's the problem. People think I'm one thing, but I'm actually something else."*

*"Well, how do you think I feel,"* says the Abstraction. *"I don't really exist, except in people's minds."*

They pause, staring thoughtfully into their beers. *"So, instead of crying on each other's (metaphorical) shoulders, perhaps we can make a go of it if we get together,"* says the Metaphor.

And so they did. Which is why we talk of *"healthy ecosystems"* or *"ecosystem health."*

Although "ecosystem" has a clear meaning to ecologists and much of the public,[2] it is really an abstraction – a conceptual tool that helps to focus thinking, orient research and management, and gather phenomena together so that their interrelationships can be examined and understood. Ecosystems do not actually exist as discrete, bounded entities; they are not "things."

Some readers may dispute my characterization of "ecosystem" as an abstraction. After all, many ecologists study ecosystems, and there is a well-established journal of that name. Instead of debating this point, however, I'd like to consider the "health" part of the expression. "Health" is a metaphor applied to ecosystems to indicate that they meet some standard of well being. By this line of thought, a healthy ecosystem is one that is functioning well, contains all its essential parts, and does not show obvious signs of deterioration or stress. The health metaphor has been used for decades – Aldo Leopold considered land health, "the capacity of the land for self-renewal," to be central to his land ethic.[3] But talk of ecosystem health has now become mainstream,[4] so it is important to understand what it means and what its limits are.

The power of the "health" or "healthy" metaphor is in its allusion to human health, something we all appreciate. We can easily recognize that a lake experiencing an algal bloom or a waterway choked with invasive water hyacinth (*Eichhornia crassipes*) has lost some of its natural functionality – it is no longer a healthy ecosystem. The allure of the healthy ecosystem metaphor is so great, in fact, that it has been enshrined as a goal in laws and policies. Environmental conservation law in New York, for example, establishes the policy "to conserve, maintain and restore coastal ecosystems so that they are healthy, productive and resilient and able to deliver the resources people want and need."[5] The agencies administering the Endangered Species Act aim to "promote healthy ecosystems."[6] And the "Healthy Forests Restoration Act of 2003"[7] is intended to reduce the risk of large, catastrophic fires that would degrade forest health by redressing the historic suppression of fires that allowed hazardous fuels to accumulate. Helping damaged or dysfunctional ecosystems regain and maintain their health has become the goal of a good deal of resource management, conservation, and ecological restoration.

It's hard to argue with the common-sense appeal of healthy ecosystems. If we put on a (metaphorical) science hat, however, we must ask, "What is 'health,' and how shall we know it?" There are well-established standards for what makes a person healthy – normal body temperature (measured orally) is 37° C (98.6° F); hypothermia sets in at 35° C (95° F) and fever at 38° C (100.4° F). When I last had a blood test, the results specified ranges of "healthy" values for some 27 measures – the standard range for alkaline phosphatase, for example, is 40–129 U/L. Mine was 83 U/L, so I guess I'm healthy, at least by this measure.

But there's the rub. An individual who is healthy by one measure may be near death by another measure. "Health" is an aggregate property of numerous attributes of an individual. And so it is with ecosystems, except that the measures and the standards are ambiguous and ill-defined.

Consider a forest. To a private forest manager or silviculturist engaged in production forestry, a healthy forest may be one that is thinned to reduce fuel loads, is not physiologically stressed or susceptible to beetle outbreaks or disease, meets the needs of people for products and services, and is easily harvested. To a forest ecologist, a healthy forest would instead include the full array of ecological processes and structural elements that would maintain a diverse and productive ecosystem – heterogeneity rather than homogeneity.[8] More generally, words such as "sustainability," "resilience," "stable," "productive," or "services" figure importantly in assessments of ecosystem health.[9] Conversely, an unhealthy ecosystem might be recognized by signs of stress: erratic population fluctuations, absence of top predators, increased dominance by exotic species, simplification of food webs, declining production and functionality, and so on.

Like people, ecosystems are regarded as "healthy" if they are structurally and functionally "normal." With people, there are well-established benchmarks for normal health, be it body temperature, alkaline phosphatase, or something else. Not so for ecosystems. J. Baird Callicott offered that the "objective condition" of ecosystem health is the "normal occurrence of ecological processes and functions"; that is, "as they have occurred historically."[10] The choice of an historical baseline, or even whether one uses historical conditions at all, is therefore critical. Environments vary, so using different points or windows of historical variation to specify a baseline leads to different designations of what is "normal." To some ecologists and conservationists, for example, the closer a system is to being unaltered by human actions, the healthier it is. A forester or rancher would probably have a different view of what is healthy.

The difficulty of deciding what span of history should be considered "normal" is confounded by thresholds. When a system crosses a threshold, it may enter a new, alternative state. Should its health be assessed in relation to what was previously normal or the "new normal" of the alternative state? And what are the standards for "health" when the environment undergoes rapid, directional changes, as it is doing now? When shifts in species' distributions create novel ecosystems, are these by definition unhealthy because they depart from the historical "normal"?

Such questions strain the appropriateness of the health metaphor for ecosystems. More bothersome, at least to a scientist, is the issue of values. "Health" is a value-laden term, and values are socially, not scientifically, determined. Science deals with determining whether things are true or false (or somewhere in between), but "health" is judged as good or bad, healthy or unhealthy – value judgments. This leads to a conundrum in which a healthy ecosystem is what one chooses it to be, depending on one's values – you'll know it when you see it. A pine plantation may be healthy from the perspective of a production forester or a silviculturalist but may be barren to an ornithologist. Moreover, what is regarded as "healthy" or "unhealthy" from a given perspective may vary depending on the environmental context. To a forest ecologist or wildlife biologist, a healthy coniferous forest in the Pacific Northwest presents a visual image of structural complexity while an unhealthy forest has a simple structure and low diversity. In the drier climate of the Southwest, the positions are reversed: a healthy ponderosa pine forest is open and the unhealthy forest clogged with trees and underbrush (see the figures). Someone in a forest industry interested in timber production would probably evaluate the healthiness of the forests in a different way.

Differing perceptions of what is "healthy" can lead to miscommunication and conflicts. And when ecosystem health appears as a goal in laws or agency policies, societal values may carry over to twist the debate and affect how scientists pose questions or design research. The science itself may become value-laden or normative – the assumption that some conditions are better than others that is encapsulated in policy infects the science.[11] Values can masquerade as science, especially when the science encounters societal, political, or economic pressures and agendas.

So is the concept of ecosystem health useful? Scientifically, it is distracting and unnecessary. Rather than attempt to conserve or manage an abstraction for a metaphorical goal, wouldn't it be better to state what is to be managed to achieve particular results in specific, quantifiable terms? Ecosystem ecologists, for example, talk of ecological stoichiometry, trophic cascades, net carbon balance, or above-ground net primary production. All of these are components of what one might term "health," all of them are measurable, and none carries with it normative assumptions about what is "best." Yet mention of them would dull the senses of anyone other than an ecologist.

The usefulness of "ecosystem health" is in conceptualizing and communicating something about the state of natural systems, particularly to non-scientists. The abstraction – ecosystem – draws us to think about processes and linkages among units other than individuals or species, making it more likely that we will see the mechanisms and interactions. The metaphor – health – draws our attention to the condition of a system and the need for conservation or management. "Ecosystem" is a useful abstraction for things that actually do exist and that can be measured and managed, and "health" is a useful metaphor for conditions that we deem desirable, whether for utilitarian or idealistic reasons.

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**FOOTNOTES:**

[1] Thanks to Jerry Franklin, Susan Salafsky, and Tom Spies for comments and photographs.

[2] To an ecologist, "ecosystem" generally describes a complex system of interactions among biological, physical, and chemical components of the environment; to the general public, "ecosystem" conveys an image of a complex network of interactions that affect something of interest, ranging from the web of life to the elements involved in creating a product and bringing it to market (the "business ecosystem").

[3] Leopold (1949: 221).

[4] For example, the Aquatic Ecosystem Health and Management Society was founded in 1989, and in 2015 the Ecological Society of America and the Ecological Society of China initiated a new online journal, Ecosystem Health and Sustainability.

[5] New York Ocean and Great Lakes Ecosystem Conservation Act, § 14-0103(2).

[6] The Federal Register for Friday, July 1, 1994 (Vol. 59), p. 34274.

[7] Public Law 108-148.

[8] Kolb et al. (1994).

[9] Costanza and Mageau (1999).

[10] Callicott (1995: 345, 348).

[11] Lackey (2001, 2007) provides especially cogent discourses on ecosystem health in the context of values and policy.

## WHICH OF THESE IS A HEALTHY FOREST? IT ALL DEPENDS ON WHAT ONE VALUES.

1. An old-growth Douglas-fir–western hemlock stand with complex structure and high stand diversity; Gifford Pinchot National Forest, Washington. Photo: Jerry F. Franklin.
2. A thinned Douglas-fir plantation with simple structure and low stand diversity; H.J. Andrews Experimental Forest, Oregon. Photo: Jerry F. Franklin.
3. A mature ponderosa pine stand on the Kaibab Plateau, Arizona. Fire in this forest will cause little or no mortality in the old pines. Photo: Susan Salafsky.
4. A ponderosa pine forest that has become dense and loaded with fuel due to an absence of fire over the last century. Old pines are dying due to competition; if a fire occurs, it will be a stand-replacement fire that will kill everything, including the old pines. In trust lands managed by Washington State Department of Natural Resources near Ellensberg, Washington. Photo: Jerry F. Franklin.

# FROM OUR SOUTHERN CORRESPONDENT(S)

This southern correspondent is temporarily northern – on a 4 month trip, mostly in western North America. Travelling as an ecologist is an immense privilege because one gets to hook up with colleagues and people who really know the area, and hence to see probably much more than the average visitor would.

*Calvert Island*

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I just spent a few days on Calvert Island on the central coast of British Columbia, staying at what must be one of the most outstanding field stations in the world, the Hakai Institute (http://hakai.org/). Calvert Island is not easy to get to – either by float plane (if you're lucky) or via a long drive up the length of Vancouver Island followed by a boat trip from Port Hardy that can take anywhere between 3 and 6 hours, depending on how welcoming the ocean is. This landlubber found that a bit challenging. But once you are there, you're in an ecological wonderland and staying in a complex of buildings that were previously a luxury fishing lodge – and you're fed 3 meals a day. I've enjoyed many stays in a variety of field stations ranging from the completely bleak and soulless to the quirky but comfortable, but Hakai is certainly up there in terms of the facilities available, friendly staff and so on.

*The Hakai Institute, Calvert Island BC*

All this is made possible because of the Tula Foundation, founded by husband and wife team Eric Peterson and Christina Munck, who not only fund the research station but much of the research conducted on Calvert Island and elsewhere, along with an array of other programmes. The research spans terrestrial and marine ecology, geomorphology, archaeology and more. It turns out that Calvert Island is a very special place because of its location at what's known as "the hinge" – a point where sea levels have been more or less the same for at least 15 thousand years, compared to other places inland and further out to sea, where the sea level has either fallen (or rather the land has risen) because of eustatic lift following the retreat of the glaciers at the end of the last ice age, or has risen with the melting ice. This has led to a long period of human occupation – current estimates suspect that humans have been living there for up to 15 thousand years. And this in turn has affected the ecology in a multitude of ways.

Wandering around in the coastal forests and bogs of the island, I was struck by how much of the vegetation I recognised from my days of working in the heaths and bogs of Scotland and northern England. Many of the bryophytes and shrubs were the same genera, and often species, that I had encountered in quadrats at Moor House in the Pennines or Dinnet Moor on Deeside. Many of these are circumboreal. And quite a few of the tree species were ones that were very familiar as plantation trees in Scotland – indeed, in the 1970s the two most common trees in Scotland were Lodgepole Pine and Sitka Spruce, both of which grow on Calvert Island. Less familiar was the haunting sound of wolves calling in the distance – or even in the not very distant distance. These were coastal wolves who were happy to eat fish, octopus and so on, as well as the more normal terrestrial diet. The last wolf seen in Scotland was in 1745, the same year as the Battle of Culloden that ended the Jacobite Rebellion. Despite ongoing discussion of the potential to reintroduce wolves to remote parts of Scotland, this hasn't yet happened. Perhaps fairy tales about wolves eating grandmas and the preponderance of little old ladies across Scotland will prevent this taking place.

Much of the research on Calvert Island is designed to be long-term – in an age where obtaining funding for anything more than 1-3 years is becoming increasingly difficult, this is amazingly refreshing and insightful. The Hakai approach (from their website) is to: choose a specific geographical region, study it long term (on the order of decades), study it year round, study many factors and their interactions, carefully monitor changes, short-term and long-term, be well-placed to engage in scientific exploration and discovery, and use the knowledge gained to help manage and protect. Phew – how can you argue with that as an approach!

My trip to Hakai is part of a longer visit to the University of Victoria on Vancouver Island, funded by the Pacific Instutute for Climate Solutions (PICS), a BC Provincial Government funded endeavour across the BC Universities that focuses on climate change impacts and responses. There are many similarities between Canada and Australia – their shared British heritage, the federal system of government, the sometimes uneasy relationships between native peoples and European colonizers and more. Both countries also unfortunately currently share right wing federal governments that do not seem to value science and see environmental issues as troublesome brakes on development. But at the state or province level, both countries are equally varied in their approaches to issues such as climate change and conservation. PICS is funded handsomely by the BC government, and the province has a carbon tax that has been in operation since 2008 and seems to work well.

*Hobbs with PhD student, Nancy Shackelford (in the middle) and colleague, Rachel Standish, on Calvert Island*

In Australia, on the other hand, we have seen things go backwards in terms of how we deal with emissions. From being viewed as a country that is progressive and leading the way in this arena, Australia is now seen as a serious laggard with weird retrograde approaches to carbon policy. The politics involved have not been salubrious. And these politics have recently embroiled my home institution, the University of Western Australia, in a curious affair. While I was swanning about on Calvert Island listening to the wolves howl, news was hitting the airwaves about a government-initiated "Consensus Centre" to be set up at UWA with involvement of Bjorn Lomborg, the author of "The Skeptical Environmentalist", known for his radical views on approaches to dealing with climate change. Staff and students at UWA have not taken the news of this initiative well, questioning the motivation and process of how it's happened. Many see this as distinctly dodgy – particularly in the context of ongoing government cutbacks in research and education, plus a known aversion to mainstream approaches to climate change. The provision of $4m of funding through no clear process and the involvement of a controversial figure with contentious views on how to deal with climate change does seem suspicious. While I fully acknowledge the need to maintain academic freedom and allow expression of a variety of views, including those that run against the mainstream, I find myself also failing to see the rationale for this move. Indeed, my colleagues here in BC are intrigued, and my university seems to be in the international spotlight for reasons it probably doesn't like.

This story will likely play out for some time. The wolves on Calvert Island were a welcome distraction from the ongoing weirdness of happenings back in Australia. As are the Stanley Cup ice hockey playoffs that are being played at the moment. A strange and violent sport that takes some getting to know. Not at all like Australian Rules Football.

*Postscript: Since Richard drafted this essay the Vice Chancellor at the University of Western Australia has bowed to pressure from staff, students and the public over the Consensus Centre with Bjorn Lomborg. The Australian government is seeking an alternative host institution.*

# No shortage of ideas


**Markus Eichhorn**

***At several recent major international conferences, debates or symposia have been held on the subject of whether there are general laws in ecology. This is, of course, an ongoing discussion to which many of our greatest minds have contributed (e.g. Lawton 1999, Loreau 2010, Scheiner & Willig 2011). I'll now offer my own unbalanced judgement on the issue.***

Seriously, ecology, go outside and take a look at yourself. The other sciences are laughing. The fact that this still seems like a question worthy of dispute indicates there remain some among us convinced that the particularities of their personal study system negate all attempts at synthesis. If this includes you, then by all means continue working in your special swamp, that no-one else could possibly understand, and publishing your important research in Benthos, the journal of bottom-dwelling science. We promise not to bother you.

There seems, however, to be a more deep-rooted problem across the entire discipline. "If you want to keep a secret, publish it in a theoretical ecology journal". So went a witticism doing the rounds at INTECOL in London, prompting many guilty titters. The editors of these journals won't thank me for pointing it out, but there is no doubt that they languish in the lower reaches of the Impact Factor lists (and however you feel about such rankings, this does say something about citation rates). Not many ecologists would claim to scan the tables of contents every time a new issue comes out.

This is wrong, and I strongly believe that the opposite ought to be true. I'm not saying that ecologists on the whole are disinterested in theory, rather that we put insufficient effort into developing new theories or looking for explanations for our data from those that are already available. Many ecologists are simply not aware of new ideas. The onus is always on the theoretician to produce an application or empirical test, whereupon it might catch the eye of an editor at one of the 'big' journals, and then stands a chance of being noticed. Even so it is usually valued more for the end result – a nice model fit – than the original insight.

Those theories which capture the popular imagination of ecologists tend to be old and have spawned entire research fields of their own. It's still possible to get a high-profile paper from testing the Janzen-Connell process (1970, 1971), a theory first laid out over 40 years ago, and the Equilibrium Model of Island Biogeography (MacArthur & Wilson 1967) is a hardy perennial despite many attempts to amend, augment or move on from it (Lomolino 2007, Whittaker & Fernandez-Palacios 2007). Sometimes it seems as though all the big ideas in ecology emerged during a golden age in the late 1960s and early 70s, when the Nephilim walked the earth, and we can but view the world from the base of their outsize footprints.

Theories are not like jokes --- the old ones aren't necessarily the best. In fact, the opportunities presented in ecology today necessitate new ways of thinking to best utilise the sophisticated tools that have become available. Higher computing power means we can dispense with the ordination techniques required for multivariate analyses on older computers from the 1980s and employ more powerful approaches (if you haven't yet heard me rant about those who will happily load R yet still use PCA instead of manyglm, just ask, always a pleasure; also see (1)). Individual-based modelling allows us to simulate the behaviours of single organisms and see how the outcomes so frequently depart from population-level predictions. The large datasets of macroecology and ecological genomics throw up whole new possibilities for which the potential has gone far beyond our existing paradigms. Simply using these tools to test old ideas is missing out on many opportunities, and the good news is that we don't have to do all the thinking for ourselves – there are already plenty of brilliant ideas out there in the wild. Being ignored.

The best way to advance our field is to publish, read and cite papers that develop the theories upon which we all depend. New datasets and techniques are always valuable but real progress comes through original insights. Pick up a copy of a theoretical ecology journal or put them on your regular contents search. If you're an editor, make space for radical and innovative ways of looking at ecological systems, even if they remain speculative or untested. Most of all, don't let great ideas remain secret.

Statement of interest: I'm not on the editorial board of any theoretical ecology journal, nor have I ever published in any of them, though aspire to one day. I do however spend a lot of time talking to physicists, which is neither healthy nor good for the skin, but does draw attention to the differences in the ways we think about science.

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**FOOTNOTES:**

(1) http://eco-stats.blogspot.co.uk/2012/03/introducing-mvabund-package-and-why.html

# The Chartered Institute of Ecology and Environmental Management

**Sally Hayns** MCIEEM / Chief Executive Officer, Chartered Institute of Ecology and Environmental Management
T: 01962 868626 / Enquiries @cieem.net / www.cieem.net

By the time you receive this copy of the *Bulletin* the UK General Election will have been and gone but, at the time of writing, electioneering is in full swing with politicians of all political hues making promises, defending policies and trying every means they can to win your 'X' on polling day. It strikes me that we have continued to fail to make the environment a political issue of any significance. Environmental protection and enhancement is viewed by the majority of the political parties as a luxury activity rather than an essential part of a healthy society and sustainable economy. Fine words are not followed up by sustained action simply because politicians are not persuaded of its importance.

Perhaps this is not surprising. Politicians in general think in short-term electoral cycles which do not encourage making, at times, contentious or unpopular decisions which might have a negative impact on mass public opinion. The situation is probably not helped by the uncertainty of ecological processes and natural 'chaos'. The environment is difficult to understand and changes through natural processes as well as human impact. It is often challenging (if not impossible) for us to provide certainty regarding management intervention outcomes or accuracy regarding the cost of inaction. This no doubt creates frustration and suspicion about our arguments: whilst we are scientists, seeking evidence and dealing in facts, we are also viewed in some quarters as passionate (probably good) or emotional (very bad) about the importance of the environment and the need to invest in it. Nor is the environment seen as the pinnacle of a political career. How many politicians do you know who cite the top job at Defra as the height of their political ambition? Did the excellent *The State of Natural Capital* reports of the Natural Capital Committee have any impact on the Treasury's pre-election thinking?

We have to take some responsibility for this. With a few exceptions (such as Professor John Lawton *et al's* 2010 report for Defra; *'Making Space for Nature': A Review of England's Wildlife Sites*) we have not communicated the significance of the environment clearly or persuasively enough and we have not achieved political concern or commitment. How often during the election campaign did you hear the environment mentioned on the news or in the press?

But perhaps to do so is neither realistic nor necessary. Politicians react to public opinion. The environment was not high on the public's agenda so why should it be an election issue? It is the public that should be our target audience. If we convince the public then they will convince the politicians.

The problem is, for the majority of the public, environmental protection and management is seen as a luxury activity (sound familiar?) if it is recognised as an activity at all. It does not stack up well against the problems of the NHS, jobs, education or housing, all of which have immediate impact on people's lives, are more easily understood and, of course, do matter. Support for environmental NGOs because the environment matters, whilst increasing, is still primarily from households with above average incomes.

Of course, I am being very simplistic about this issue but I do think the basic tenet holds true. Until we significantly improve our ability to communicate the importance of the environment, the dangers it faces and their impact on societal wellbeing then practical action will continue to be poorly understood and underfunded. We will continue to find short-term (and expensive) solutions to crises when they do impact directly on people's lives (such as the flooding events of 2013/14) rather than investing in strategic priorities that will have long term benefits.

I wish I knew some easy answers but, of course, they are complex and will take time to implement. Surely we must start with educating young people, not just in schools but connecting them with their local environment? Possibly every degree programme should include modules that link the primary topic to the three pillars of sustainability: social, economic and environmental. The quality of the environment is inextricably linked in many people's minds with landscape. Perhaps we should be focusing on ensuring that everyone's local landscape, the backdrop to their daily lives, is one of quality, something that they can connect with and value.

We can continue to talk about ecosystem services and natural capital amongst ourselves (and try to convince ourselves that politicians are listening) or we can do something bigger, better and bolder about communicating the importance of

sustainable environmental management to our wellbeing and that of future generations. We would need to speak with one voice, have clear, consistent and evidenced-based messages and make them relevant to people's daily lives. Can we do it? I don't know, but surely we have to try.

We will be looking at the relationship between people and nature and showcasing examples of how public interest and opinion can be influenced through practical interventions at our Autumn conference in Sheffield in November (see our website for the call for papers). Why not come and join the discussion?

## REFIT AND THE REVIEW OF EU 'NATURE DIRECTIVES'

Staying on matters political, the Institute is fully engaged with the current review of the EU Birds Directive and the EU Habitats Directive (collectively known as the Nature Directives). The review is part of the European Commission's Regulatory Fitness and Performance programme (REFIT). The review is looking at how the Directives have performed in relation to the achievement of the objectives for which they were designed.

In addition to responding to the public consultation CIEEM has led a Thematic Task Force of European environmental professionals (through the European Network of Environmental Professionals or ENEP) that has been engaging directly with the consultants leading the REFIT exercise for the European Commission. To date this has included submitting referenced evidence and responses to the competence area of the preliminary consultation. Parallel to this work CIEEEM is engaging with members to contribute a response to the public consultation at a UK level.

## CIEEM SUMMER CONFERENCE

Following the successful Spring conference on *Managing Change in Coastal Habitats*, which was held in Bristol in March, this year's Summer Conference is on '*Managing the impact on biodiversity of plant and animal diseases*'. The one-day conference is in London on 15th July and bookings are now open. For more details please visit our website www.cieem.net

## NEW FELLOW

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

Sue Bell has been a practising ecologist for almost 30 years, employed in the statutory agencies, voluntary sector, and latterly consultancy. These varied work experiences have led her to contribute to ecology across a number of areas, including ecological survey, research, policy development and education in both terrestrial and aquatic habitats.

Sue is primarily known for her freshwater ecological knowledge, research and practice, most especially of aquatic macrophytes of Scottish lochs and rivers. Over her career she has carried out surveys of lochs, many of which have not been surveyed before, contributing to a national classification of standing waters, developed an evaluation system to assist in the identification of standing water SSSIs, added to the distribution knowledge of scarce submerged aquatic species and, more recently, researched and tested methods of containing and managing aquatic plant species.

# PUBLISHING NEWS

**Kate Harrison** / Assistant Editor, British Ecological Society

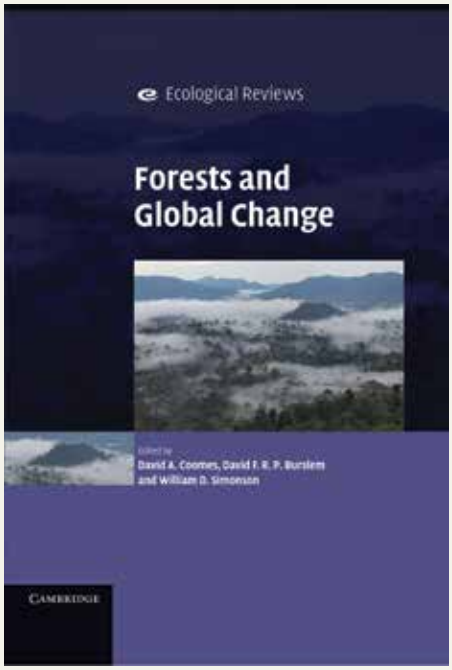
## NEW TITLES IN THE ECOLOGICAL REVIEWS BOOK SERIES

Ecological Reviews, the BES books series published jointly with Cambridge University Press, publishes books at the cutting edge of modern ecology, providing a forum for volumes on topics that are focal points of current activity and are of long-term importance to the progress of the field. The series is an invaluable source of ideas and inspiration for ecologists at all levels from graduate students to more-established researchers and professionals.

We always welcome ideas for new volumes. If you have a proposal or would like further information on the series, please contact Kate Harrison at the BES office in London: kate@britishecologicalsociety.org.

## LATEST VOLUMES

BES members are entitled to a 25% discount on all Ecological Reviews titles- details of how to claim this discount are in the Members' Area of the BES website.


Ecological Reviews
Forests and Global Change
CAMBRIDGE

**Forests and Global Change**

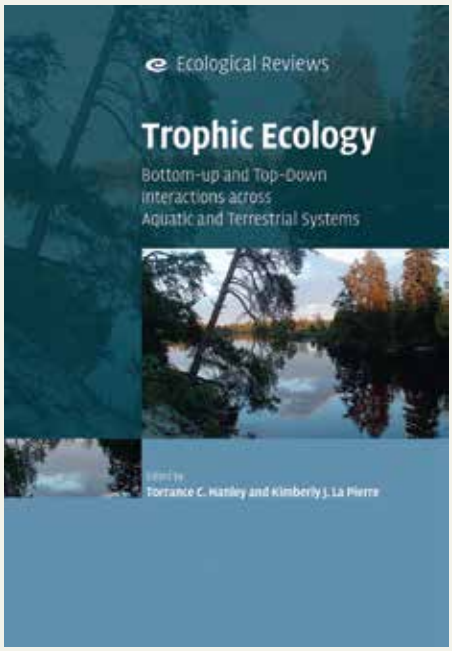
David A. Coomes, David F.R.P. Burslem and William D. Simonson (2014)

Cambridge University Press. £35 (pbk), £75 (hbk)

ISBN 978-1-107614-80-2 (pbk)

ISBN 978-1-107041-85-1 (hbk)

This volume provides valuable information for students, academics and practitioners with an interest in how forests respond to global change phenomena such as climate, atmospheric composition, land-use change and forest fragmentation. Presenting research from temperate and tropical ecosystems, the authors highlight their latest findings from plots, satellites and models.




**Trophic Ecology**

Torrance C. Hanley and Kimberly J. La Pierre (2015)

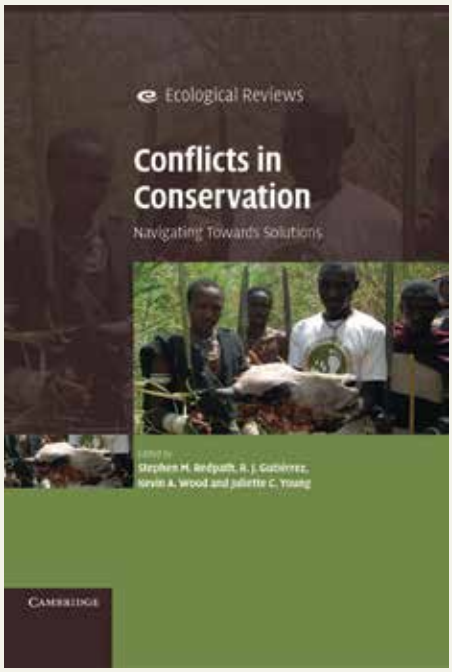
Cambridge University Press.

£35 (pbk), £60 (hbk)

ISBN 978-1-107434-32-5 (pbk)

ISBN 978-1-107077-32-4 (hbk)

Bridging the gap between those studying bottom-up and top-down interactions in aquatic and terrestrial systems, this book synthesises the broad literature on trophic interactions to draw possible links across a wide variety of ecosystems. A one-stop reference for researchers as well as those new to the field.


Ecological Reviews
Conflicts in Conservation
Navigating Towards Solutions
CAMBRIDGE

**Conflicts in conservation**

Stephen M. Redpath, Ralph J. Gutiérrez, Kevin A. Wood and Juliette C. Young (2015). Cambridge University Press. £35 (pbk), £70 (hbk)

ISBN 978-1-107603-46-2 (pbk)

ISBN 978-1-107017-69-6 (hbk)

Conflicts over the conservation of biodiversity are increasing and represent serious obstacles to wildlife conservation efforts worldwide. By bringing together experts from different academic disciplines, policy makers and practitioners, this volume offers many new insights for dealing with conflict. A must-read for students, researchers, academics and professionals.

# JOURNALS NEWS

## Journal of Animal Ecology

### Ocean sunfish

In our May issue (84:4) we have a paper by Itsumi Nakamura and colleagues (pp. 590-603) who show the first evidence of deep foraging of jellyfish by the world's largest bony fish, the ocean sunfish (*Mola mola*). In the paper the authors show how Ocean sunfish body temperature decreases slowly during deep foraging and recovers rapidly during subsequent surfacing. Cycles of deep foraging and surface warming were explained by foraging strategy, with sunfish maximizing foraging time while regulating body temperature by vertical temperature environment. Coverage of this paper appeared on the BBC. To complement this paper, an In Focus article by Graeme Hays discusses how techniques used in this paper, such as animal-borne cameras and accelerometers, have revealed the secret lives of this cryptic species and have the potential to increase our understanding of the behaviour of other free-living species.

### A sting in the spit

Also In our May issue (84:4) a paper by Dino McMahon *et al.* (pp. 615-624) on wild and managed bees was covered by the BBC. In the paper the authors report on how bees have suffered persistent population losses recently. The authors show how viruses play a major role in managed honeybee losses, but viral threats to wild bees are poorly understood. The authors demonstrate that several viruses are prevalent in wild bees, and that disease spillover between managed and wild pollinators is likely to occur frequently.

*Avoiding the extremes: Individual male Kiwa tyleri. Image credit: NERC ChEsSo Consortium.*

### In hot and cold water

In our July issue (84:4), a paper by Leigh Marsh and colleagues details the results of a 2010 UK-led expedition to the Southern Ocean. The expedition revealed a community of deep-sea animals thriving around volcanic vents on the ocean floor near Antarctica. Among the many new species discovered was the visually abundant Hoff crab (*Kiwa tyleri*), so called because of their hairy-chests. The paper demonstrates how these crabs are not restricted by the physiological limits created by the thermal vents that otherwise exclude reptant (crawling) decapods from the cold stenothermal waters south of the polar front. Using a deep-sea remotely operated vehicle (ROV), the research led by the University of Southampton reveals the adult life-history of this species by piecing together variation in microdistribution, body size-frequency, sex ratio, and ovarian and embryonic development, which indicates a pattern in the distribution of female Kiwaidae in relation to their reproductive development. On the journal blog *Animal Ecology in Focus* we have some exciting footage filmed by the ROV from the expedition (www.journalofanimalecology.wordpress.com/). Coverage of this paper appeared on Science Daily and The Conversation. An In Focus article by Andrew Thurber discusses the importance of this paper.

More videos and podcasts from authors of papers published in the *Journal* are available on the *Journal of Animal Ecology* homepage. If you have something you would like to contribute to the blog such as videos, photos or podcasts please get in touch.

## EDITORIAL CHANGES

Earlier this year Jonathan Newman and Nathalie Seddon stepped down from the Associate Editor Board. We would like to thank Jonathan and Nathalie for all their hard work for the journal.

We are pleased to welcome Elizabeth Derryberry, Bethany Hoye and Ally Phillimore as new Associate Editors. Elizabeth is an evolutionary ecologist who studies the role of environmental factors in the development and evolution of sensory and signalling systems. Bethany is interested in host–parasite interactions, particularly in migratory host species. Ally is a macroecologist interested in identifying the impacts of climate on phenology, species interactions and fitness, his work often involves examining the extent to which processes operate similarly over space and time. If you would like to join the JAE Associate Editor board please send a CV and cover letter to the Journal office as we are always keen to hear from established researchers.

**Simon Hoggart**, Assistant Editor
Simon@BritishEcologicalSociety.org

## Journal of Ecology

### Volume 103

*Journal of Ecology* published a Special Feature Guest Edited by Richard Shefferson and Rob Salguero-Gómez, in issue 103:4, based on an INTECOL symposium entitled "Eco-evolutionary dynamics and the contemporary convergence of ecology and evolution". Issue 4 also includes a commentary paper written by Michele Guidone on "Wave-induced changes in seaweed toughness entail plastic modifications in snail traits maintaining consumption efficacy" by Molis *et al.*

An additional Special Feature provisionally entitled "Whether in Life or in Death: Fresh Perspectives on How Plants Affect Biogeochemical Cycling", and Guest Edited by Amy Austin and Amy Zanne will be published later in the year.

A number of papers have been highlighted by the Journal Editors so far in 2015. Editor's Choice papers to date are "A spatially explicit model for flowering time in bamboos: long rhizomes drive the evolution of delayed flowering" by Tachiki *et al.*, "Early human impact (5000–3000 BC) affects mountain forest dynamics in the Alps" by Schwörer *et al.* and "Earthworm invasion, white-tailed deer and seedling establishment in deciduous forests of north-eastern North America" by Dobson & Blossey. Posts about these papers are available on the Journal blog https://jecologyblog.wordpress.com/. The first issue of 2015 is still free to access and it will remain so for the rest of the year.

### International Fascination of Plants Day

On May 18th 2015 it was the 3rd International Fascination of Plants day and *Journal of Ecology* has celebrated this with podcast from the Journal Editors, which is available on the *Journal* blog www.jecologyblog.wordpress.com

### Journal of Ecology online

Keep up to date with the latest news from the *Journal* via both Twitter (@JEcology) and the Journal's blog. Executive Editor David Gibson has interviewed Deborah E. Goldberg for the blog and Associate Editor Caroline Brophy asks "should ecologists be banned from using p-values?"

### Editorial Board changes

Jonathan Newman (University of Guelph) has recently stepped down from the journal's Editorial Board. We would like to thank Jonathan for his commitment over the preceding years. Simultaneously we would like to welcome Rebecca L. McCulley (University of Kentucky) and Carol Thornber (University of Rhode Island) to the Editorial Board.

**Lauren Sandhu**
Assistant Editor
lauren@britishecologicalsociety.org

## Functional Ecology

Our new Extended Spotlight *Community Phylogenetics and Ecosystem Functioning* was released in May. These papers provide a much-needed evaluation of community phylogenetics and biodiversity-ecosystem functioning research, and provide concrete guidelines for the next generation of studies. Accompanying this was a new Virtual Issue, which brings together various important research papers on the topic.

Our next Special Feature, *Urban Ecology: Expanding fundamental ecological knowledge by studying urban ecosystems* will be out in July. This Special Feature gives insight into the diversity and depth of urban ecological research and addresses the much-underused research opportunities that exist in urban landscapes.

We also have a new FE Spotlight: *Comparative analysis points to functionally-significant variation in wing feather structure among a large and diverse sample of modern birds* from Luke Butler highlighting the importance of Pap *et al.*'s *Interspecific variation in the structural properties of flight feathers in birds indicates adaptation to flight requirements and habitat*. Luke also draws attention to the significant amount of species data Pap *et al.* have made publicly available – and useable – to accompany the article in line with BES policy regarding data archiving. Both of these are published in 29.6

**Jennifer Meyer**
Assistant Editor
Jennifer@britishecologicalsociety.org

## Journal of Applied Ecology

### Policy Directions

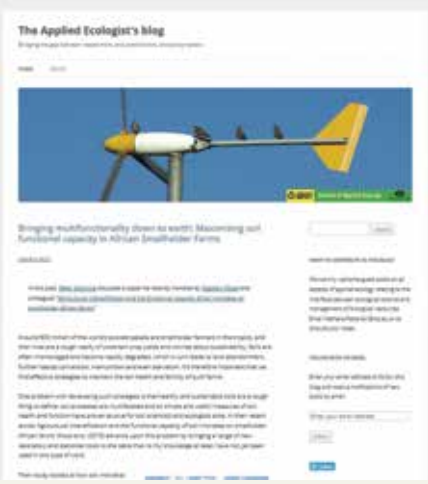
In issue 52:3 *Journal of Applied Ecology* launched Policy Directions; a new paper type for articles relating to policy implementation and decision making. The focus of these articles is to inform and improve policy over a wide range of subjects by providing a broader policy context for the topic and relating it to the wider issues around constrained decision making.

The first Policy Direction article from Sarah Durant and colleagues "Developing fencing policies for dryland ecosystems" identifies six key areas for the evaluation of fencing initiatives which, if implemented, will enable better management of dryland ecosystems.

### Practitioner's Perspectives

The *Journal* also continues to publish Practitioner's Perspectives, which aim to bridge the gap between applied ecological research and practical environmental management. These articles provide a platform for individuals involved in hands-on management of ecological resources, to explain what is needed to ensure effective take-up of the results of research.

Recent Practitioner's Perspective articles have discussed the responsibilities of scientists towards evidence-based conservation in a Small Island Developing State and formally integrating science and policy. You can read these articles and more about the Practitioner's Perspective series on the *Journal's* homepage (www.journalofappliedecology.org/view/0/PractitionersPerspective.html).




### The Applied Ecologist's blog

Bridging the gap between researchers, practitioners, and policymakers is an important aim for the *Journal of Applied Ecology* and another way we are aiming to achieve this is through The Applied Ecologist's blog (https://jappliedecologyblog.wordpress.com/) which features a number of guest blog posts from authors, Associate Editors and other ecologists. The blog posts are typically written research summaries and paper insights, but we have also posted videos, including one about the hybrid ecosystems project in the native forests of Hawaii, and we have recently started to post blogs from the British Ecological Society Conservation Special Interest Group. If you have any ideas for the blog please get in touch by e-mailing Nathalie.Pettorelli@ioz.ac.uk or admin@journalofappliedecology.org. We warmly welcome guest posts on all aspects of applied ecology relating to the interface between ecological science and management of biological resources.

### Changes to the Editorial Board

We would like to warmly welcome Steven Vamosi from the University of Calgary as a new Associate Editor.

Erika Crispo and Rosie Hails recently stepped down as Associate Editors after many years with the *Journal* and we would like to take this opportunity to thank them for their service to the *Journal* and wish them all the best.

**Alice Plane**
Assistant Editor
Alice@britishecologicalsociety.org

Methods in Ecology and Evolution

### Special Features

Our latest Special Feature, 'Opportunities at the Interface between Ecology and Statistics' was published in the April issue (6.4) of the journal. The feature was originally conceived at the Eco-Stats meeting at the University of New South Wales, Australia in 2013. It highlights recent interdisciplinary collaborations between ecologists and statisticians and highlights how much the two can gain from each other.

The Special Feature contains contributions from Anne Chao (on phylogenetic diversity), Jakub Stoklosa (on species distribution models) and Francis Hui (on unconstrained ordination). 'Opportunities at the Interface between Ecology and Statistics' was organised by guest editor Professor David Warton, who also wrote the foreword for the feature.

This is a wonderful showcase of the benefits of interdisciplinary work between ecologists and statisticians.

### *Methods* in the News

Over the past few months there have been a few *Methods* articles in the news. One of our Associate Editors, Barbara Anderson (Landcare Research, New Zealand), has been conducting an experiment based on the 'Tea-Bag Index'. The article explaining this novel approach, which helps to measure the balance between soil carbon storage and release, was published in *Methods* in 2013 (http://bit.ly/1Hhjc0n). Dr Anderson aims to use the approach to see how decomposition rates relate to varying climate conditions.

Also, as you may have seen, an article on the methodology used in India's tiger census earlier this year received a lot of attention. Arjun Gopalaswamy et al.'s paper (http://bit.ly/1w38YKz) called the findings of the census into question after an examination of the index-calibration method that was used. The article was reported on around the world in newspapers such as *The Guardian* and *The Times of India* and it has generated some controversy.

As a BES member, you can access these (and all) *Methods in Ecology and Evolution* articles for no extra fee.

A report on the Methods in Ecology and Evolution anniversary symposium appears on pp28-29.

**Chris Grieves**
Assistant Editor

## BES PUBLICATIONS TEAM

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*Andrea Baier, Senior Managing Editor*

*Erika Newton, Managing Editor'*

*Lauren Sandhu, Assistant Editor, Journal of Ecology*

*Jennifer Meyer, Assistant Editor, Functional Ecology*

*Simon Hoggart, Assistant Editor, Journal of Animal Ecology*

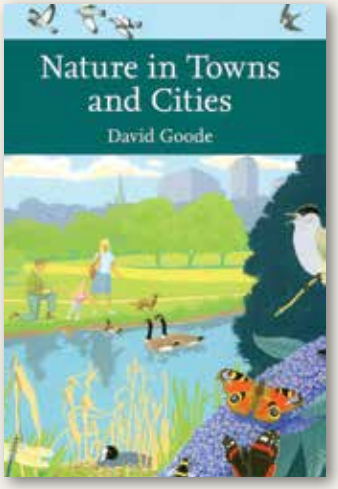
*Chris Grieves – Assistant Editor, Methods in Ecology and Evolution*

*Alice Plane – Assistant Editor, Journal of Applied Ecology*

*Kate Harrison, Assistant Editor*

# BOOK REVIEWS

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




## Nature in Towns and Cities

David Goode (2014) New Naturalist, HarperCollins, London. £55.00 (hbk), £35.00 (pbk), £23.49 (ebk)

ISBN 978-0-00-724239-9 (hbk)

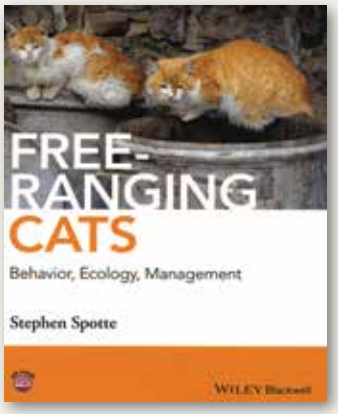
ISBN 978-0-00-724240-5 (pbk)

ISBN 978-0-00-755619-9 (ebk)

David Goode is well-known in ecological circles as an urban ecologist in various positions in London and further afield. His book follows on from another New Naturalist book, Richard Fitter's *London's Natural History* published in 1945, but takes a much wider stance with examples from many urban areas around the British Isles. It starts with an overview of the many habitats and variety of wildlife in David's home territory of Bath. Part 1 moves onto the various habitats to be found. This includes widespread types found 'encapsulated' in urban areas such as woodlands, meadows and other open habitats, and more specialty habitats such as canals, wetlands, parks and gardens. These chapters tend to be largely descriptive and historical, as inevitably they have to be. But there is still plenty of interesting stuff here, such as the history of cemeteries, where designers vied to provide attractive planted areas to tempt 'customers' – places in which people of means would want to be buried and would pay for the privilege. As they became overfull and costly to maintain, many were gradually taken over by the secondary woodland we see today. For the ecologist, Part Two gets even more interesting since it highlights a whole range of birds and other animals (but sadly not plants) we have come to love or hate, from gulls, ring-necked parakeets and feral pigeons infesting cities to the rise in peregrine falcons. The ecological reasons for the rise and fall of various species are explained with great insight. Part Three is a review of the history of urban nature conservation and its key players, including a very good section of the history and value of green roofs.

As an ecologist why would you buy this book? Many of us will have given 'New Naturalists' as presents to young relatives in the hope of inspiring an interest in ecology, or to maiden aunts because they're clean and wholesome (the books, that is). Or we buy them because they've been written by mates or people we respect. But do we read them ourselves? Only you can answer that, but if you don't, you should. Ecology at High School and below is now often seen as a boring abstraction from the real world, and it's then an uphill struggle to get University students interested. Unlike my undergraduate days, very few students are interested in natural history. To help solve the problem, we should be broadening our own natural history knowledge so we can be better teachers, in and outside of the day job. And how much of a chore is this when you have books like this? David's book, like the many other New Naturalist volumes before it, is written with passion and knowledge, and is incredibly readable and entertaining. Given the cheap price, this book is not just a collector's item or a gift, it's a source of so much information that we would all benefit from. Please read it and marvel at the urban world laid out by David.

*Peter Thomas*




## Free-Ranging Cats: Behavior, Ecology, Management

Stephen Spotte (2014) John Wiley & Sons Ltd., Oxford. £60.00 (hbk), £54.99 (ebk)

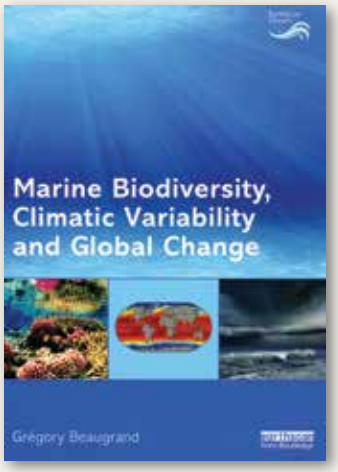
ISBN: 978-1-118-88401-0 (hbk)

ISBN: 978-1-118-88403-4 (ebk)

The common cat is one of the world's most widespread mammals. As Stephen Spotte notes in his preface, they are found in habitats ranging from sub-Antarctic islands to deserts and equatorial rainforests. The global population of owned cats is thought to be in the order of 142 million, and the number in the USA alone might be approaching 100 million. One Alaskan village even boasts a cat as mayor! At the same time, cats are the agents of widespread conservation problems. Flexible and successful as invasive species, they have severe impacts on naïve prey in many parts of the world; together with rats, they are credited with causing widespread vertebrate declines, particularly among island species. These contradictory roles, as both treasured companion and environmental disaster, make cats an important focus for research. Elements of that research are the focus of Stephen Spotte's new book on *Free-Ranging Cats*. As the title of the book suggests, the focus is on behaviour, ecology and management. That is also the order of emphasis, with behaviour a dominant theme throughout much of the book, with an explicit focus on management in only the last of the ten chapters. Ecologically, there are some notable omissions, with little mention of disease (except in the section on biocontrol) or free-ranging cats as prey. In the context of disease, in particular, free-ranging cats might be expected to represent significant reservoirs and vectors of several important diseases affecting carnivores.

*Free-Ranging Cats* is sparsely illustrated and, to some, might come across as a rather dry read. Nevertheless, Spotte is not afraid of controversy, and tackles several prevailing beliefs about cat biology (disagreeing, for example, with the assertion that cats are mostly social – and even venturing a tentative suggestion for classifying sociality along the way!); Rudyard Kipling would be pleased to hear that cats do, indeed, largely walk by themselves. In addition, Spotte is both a cat enthusiast and a pragmatist. This is a refreshing and sensible combination that allows the author to endorse cat control as a necessity in many conservation contexts. Overall, the book – and its associated online resources, including figures and tables – will be of great use to those studying and teaching the biology of companion animals and, potentially, to those interested more broadly in carnivore biology. Moreover, it may well be of interest to practitioners seeking to manage cats.

*Phil Stephens*




**Marine Biodiversity, Climatic Variability and Global Change**

Grégory Beaugrand (2015) Routledge. £47.99 (pbk), £41.03 (ebk – kindle)

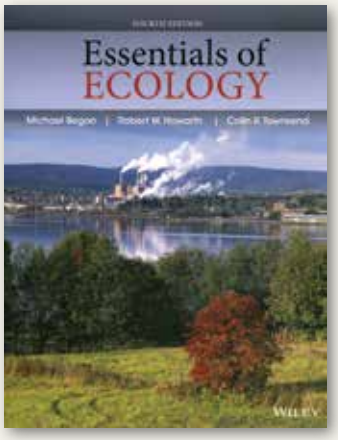
ISBN: 978-0-415-51703-4 (pbk)

With a plea for a multidisciplinary approach to understanding and resolving the enormous number of problems currently facing the planet's biodiversity and ecosystems, the author essentially sets out to give a 'state-of-the-union' address for nature as we enter a new geological era – the Anthropocene. This controversial time in our history sees the planet dominated by human interference to a greater extent than at any other period in its history – through increases in greenhouse gas emissions, pollution, eutrophication, ocean acidification, habitat destruction, species introduction and over-exploitation.

We begin with a brief census of pelagic and benthic biodiversity, covering viruses, bacteria, plankton, and typical macrofauna, before focussing on the role of climatic and hydrographic factors (especially temperature), which the author believes to be the most important driving forces controlling marine biodiversity. There is an introduction to the composition and structure of the atmosphere, with a review of the corresponding oceanic hydrosphere, and a summary of some of the natural sources of climate variability. Biogeographic and biodiversity patterns, unsurprisingly, occupy much space in the early chapters (very thorough but with a heavy mathematical bias, not for the faint-hearted!), and there is an interesting consideration of how changes in biodiversity through geological time may correlate with changes suggested in the palaeoclimatic record. Wherever one stands on the great climate change 'debate', it cannot be denied that climates can change, for a multitude of reasons, and that changes have consequences. With a growing consensus that global temperatures are rising more than can be accounted for by natural processes alone, it does seem more profitable to concentrate on dealing with the reality than in recriminations, and for this we need to understand these consequences. The responses to increased temperatures on a global scale are summarised as physiological adjustment, adaptive evolution, migration (in the hope of finding essentially the same niche somewhere more amenable) or, if all else fails, extinction. These options are reviewed over several chapters with an ultimate, and perhaps not surprising, conclusion that since all species interactions are complex then individual and community responses to climate change are likely to be equally complex – and, therefore, difficult to predict! Obviously, there will be winners and losers – in nature it is always thus – but the eventual impact on humankind is simply unknowable at this stage. However, even predicting the most optimistic scenarios, there are worrying signs that all may not end well.

This is a well written and extremely wide-ranging review of many different aspects of marine ecology, and is particularly commendable as the work of a single author. There is a strong historical emphasis, which allows us to build upon past contributions and to more easily accept that interpretations can change as new evidence unfolds – arguing, perhaps, for a more tolerant approach to our catalogue of "facts". Keywords are defined in an on-line glossary (although there is no summary of the enormous number of initials and acronyms used – which would be useful), while more than 1100 references allow for more detailed study of key points. Although there a number of colour plates in a centre spread, the individual figures are extremely small and difficult to read. Again, it would be useful if these were available to view on the website as well. Small criticisms for a book that will have a wide appeal in the academic marine community.

*Ian Lancaster*




**Essentials of Ecology, 4th Edition**

Michael Begon, Robert W. Howarth and Colin R. Townsend (2014) Wiley. £157.99 (pbk), £24.99 (eText)

ISBN 978-0-470-90913-3 (pbk)

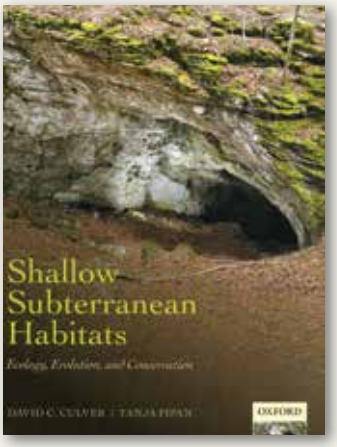
ISBN 978-1-118-80231-1 (eText)

The third edition of this book is a core text for my first year ecology module so I was very interested to see what has changed in the fourth edition. Michael Begon is now the lead author, and the late formidable plant ecologist, John Harper, has been replaced by Robert Howarth. In 2011, Howarth was named by Time Magazine as one of 50 "People who Matter" for his research on the greenhouse gas footprint of shale gas. Many of the content changes reflect Howarth's interests in biogeochemistry and ecosystem science. For example, the short section on global geochemical cycles in the third edition is now expanded into a chapter in its own right. In terms of content, Parts 1 to 3 run much the same as the third edition, with the exception that the last three chapters on community ecology have been moved into Part 4. By contrast, Part 5 on Applied Issues in Ecology has been dramatically reordered and reconfigured. The book now closes with a chapter on the Ecology of human population growth, disease and food supply, which in part is a rebadging of material from the sustainability and habitat degradation chapter headings from the 3rd Edition, along with the addition of new material on human health. For example, topics such as how changing global climate patterns will affect infectious diseases and the problems of overuse of antibiotics in animal agriculture are now considered. Perhaps a rather pessimistic ending to the book, but then the environmental issues society faces are manifold. The text book is now more colourful than ever and is in a larger page format, which means it sits open much more easily and you don't have to crack the spine as with the previous edition. The text has been refreshed, with the addition of ~90 post-2008 sources and hundreds of new case studies on contemporary issues, such as coverage of fracking in ECOncern box 12.2. As in the previous edition, there are three categories of boxed text: ECOncerns, quantitative aspects and historical landmarks, which build on the ideas and concepts presented in the main text. It would be really useful if a table of contents could be provided

for these alongside the general contents to better highlight these useful resources. It's good to see the pop-out coloured boxes explaining key terms have been retained, but the new two column text layout means they are incorporated within the column making the page look a bit cluttered in places. I much preferred the format in the previous edition where they stood proud of the main text on the outer page margins. Value wise, if you want a paperback copy you'd be better off buying the third edition, but the eText version along with all the accompanying online resources website for instructors and students on the companion (www.wiley.com/college/begon), provide an excellent cheap alternative if you just want access for a year.

*Sarah L. Taylor*

*Bulletin Editor's note: Those who prefer to own a printed copy of this excellent text might like to know that it is quite easy to find internet and bricks and mortar booksellers willing to sell the paperback in the £40-50 range.*




**Shallow Subterranean Habitats: Ecology, Evolution and Conservation**

David C. Culver & Tanja Pipan (2014), Oxford University Press, Oxford. £60.00 (hbk, ebk)

ISBN: 978-0-19-964617-3 (hbk)

ISBN: 978-0-19-101998-2 (ebk)

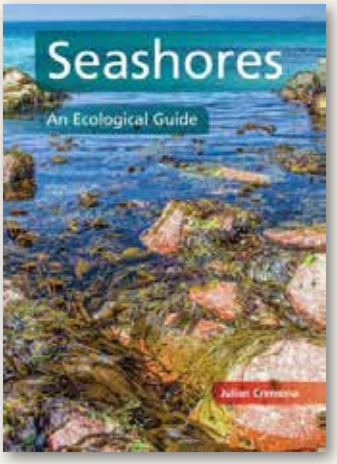
A companion to a previous book focussed on caves (Culver & Pipan 2009), this book concerns aphotic subterranean habitats up to 10m below the surface. Such habitats include perched water tables and associated springs; interstitial habitats below water courses, calcrete aquifers in desert regions; epikarst; screes; soils and lava tubes. It has become a cliché amongst marine scientists to stress the vastness of our ignorance of their domain. Culver and Pipan make a convincing case that our ignorance of shallow subterranean habitats is even greater, and in 258 pages they bring together most of what is known, although they give a rather light treatment to soils. This is despite the fact some of these habitats may be very extensive. For example, about 15% of the land surface is covered by limestone, and epikarst is likely to occur over most of it. Globally interstitial habitats along water courses must be many thousands (possibly millions?) of kilometres in extent.

In many cases we can only glimpse the patterns of biodiversity and the way these ecosystems function from a few regional or more local studies. Shallow subterranean habitats are however clearly diverse, including contrasting patterns of endemism; both aquatic and terrestrial ecologies and a wide range of pore and cavity sizes. In all but lava tubes the physical constraint of pore size clearly influences organism size and appendage length, and in many cases this has resulted in specialised, often sightless or small-eyed animals, adapted to shallow subterranean conditions. However, communities of the habitats often include some surface living organisms, although the degree to which shallow subterranean habitats have been a staging post to the colonisation of caves is unclear. Although the name shallow subterranean habitats lacks glamour I can particularly recommend this book to soil, freshwater and cave biologists and anyone thinking of branching out into a poorly explored field.

REFERENCE

Culver D.C. & Pipan T. (2009) The biology of caves and other subterranean habitats. Oxford University Press, Oxford.

*John Hopkins*




**Seashores: An Ecological Guide**

Julian Cremona (2014) Crowood. £16.99 (pbk)

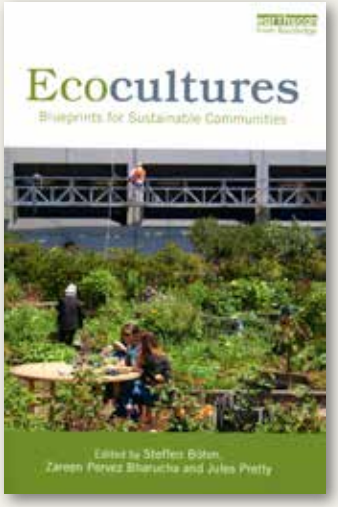
ISBN: 978-1-847-97804-2

As someone who runs an annual seashore field course, and who owns a much thumbed copy of Cremona's (1988) atlas, I was very excited to see this new offering and I can say that the book exceeded my expectations. As I turn the pages, I feel like a child on my summer holidays inspecting rock pools with my trusty net and bucket, and expecting a large crab to erupt from its hideaway at any moment! The book is beautifully illustrated with stunning colour images throughout and it's the perfect book to flick through on a dreary winters day when you are stuck inside (as I am now). The opening chapter deals with the forces that shape the seashore environment, with an excellent explanation of the solar and lunar forcing of the tides. As with the atlas, the contents are structured around the different seashore habitats, with sections dedicated to rocky shores, sediment shores, salt-marsh, sand dunes and shingle. Each habitat, with the exception of shingle, starts with a look at the communities that live in the different ecological zones, followed by an examination of the ecology. For example, how salt-marsh plants deal with the harsh realities of salinity and waterlogging. I am really pleased to see a chapter dedicated to the often over-looked plankton community. The planktonic phase forms such an important part in the life cycles of seashore organisms and can be a large component of rock pool communities and yet finding informative and accessible literature on these microscopic organisms is difficult. The book inevitably culminates in an examination of threats and conservation. Cremona champions the need to conserve these fragile environments, closing with the statement "they must be protected at all costs or humanity will disappear". I quite agree. At the back of the book is a glossary and explanation of the classification system used in the book, including a really useful diagram showing a greatly simplified evolutionary tree of seashore organisms. The book is aimed at the layman, student and naturalist, but I defy anyone to not be captivated. Cremona has done a sterling job, and this will certainly be on the reading list for my next coastal field trip.

REFERENCE

Cremona, J. (1988) A field atlas of the seashore. Cambridge University Press.

*Sarah Taylor*




## Ecocultures – Blueprints for Sustainable Communities

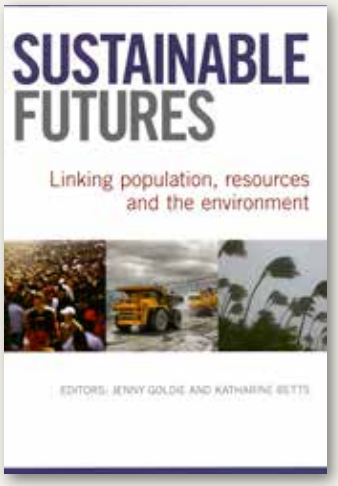
Edited by Steffen Böhm, Zareen Pervez Bharucha and Jules Pretty (2015) Earthscan from Routledge. £34.99 (pbk), £95 (hbk), £33.24 (ebk – kindle)

ISBN 978-0-415-81285-6 (pbk)

ISBN: 978-0-415-81282-5 (hbk)

We all know that sustainability is the right approach to life, but achieving it seems to defeat most people and most systems. There have been many attempts to establish sustainable communities, but either because idealism does not sit well with practicalities, or because a religious approach made it an exclusive cult, the failures seem more prevalent than successes. The editors of this volume organised a meeting at the University of Essex to look for exemplars that might help provide some indications of a practical way forward, casting their net widely. Their examples of existing systems cover fishing communities in Indonesia and northern Finland, Inuit hunting in Greenland, forest aborigines in Australia, and alpine communities in the Himalayas. They even consider newly created ecovillages in South Africa and Brazil, as well as sustainability experiments in Detroit and Bristol. There is also a detailed examination of many of the various initiatives that have tried to establish sustainable communities, and why they might have failed. This is not a book about returning to "the good life" approach nor is it about survivalist approaches that have been popular in some parts of the USA. This is more about how existing communities have adapted to keep their own systems working in the face of increasing materialism, over-governance, and political intrusion. The drivers for new ventures appear to be the idea that peak oil will induce catastrophic collapse of our present civilisation, that the disconnection between people and their non-urban environment is both unhealthy and destabilising, that food security is enhanced by growing your own and that consumerism is destroying the planet. In the final chapter the editors' general conclusions are that reconnection to nature and the land, the importance of social ties and shared community values, the protection of local knowledge and a level of tolerance and adaptability are the keys to success in any country. They also conclude that vested interests, together with the cultural and psychological barriers inherent in globalisation, mean that scaling up will be difficult. Their bibliography shows that there are many experiments in pursuit of this objective and certainly many interesting and useful lessons to learn. I remain, however, unconvinced that this ecoculture approach is possible beyond the level of a small community, but at least here we have a detailed analysis of success and failure for those who want to try it.

*David Walton*



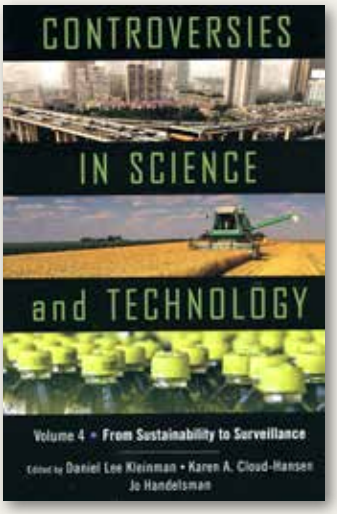

## Sustainable Futures – Linking Population, Resources and the Environment

Edited by Jenny Goldie & Katharine Betts (2015) CSIRO Publishing, Collingwood, Australia. £34.50 (AU $39.95) (pbk), £30.54 (ebk – kindle)

ISBN: 978-1-486-30189-8 (pbk)

This is a book with a focus on Australia, but the topics are of global significance. The Australian Academy of Sciences holds a Fenner Symposium each year on some key environmental topic relevant to managing the future of Australia. The recent one published here was triggered by an increase in the estimate of global population to 9.6 billion by 2050 and an indication that degraded farm land and increasing global mean temperatures would make it impossible to feed this number of people. Starting with a keynote from Paul Ehrlich on overpopulation, this book's 20 chapters look at the environmental impacts of population size, how Australia will be affected in terms of infrastructure and society, the ageing crisis and its implications for health care, the problems with soil and water as climate changes, the problems in energy and mining and the damage to wildlife. In addition several authors deal with the political denials and the hypocrisy of political parties, the absence of public debate on population issues, the delusion of the limitless market and the belief that growth can continue for ever in the same way. Indeed, one chapter even confronts the problems with religion and population, a subject beyond the pale for most dinner tables and governments. Whilst all this is set in local terms, the Australian example is typical of elsewhere on our planet. Written in an informal style with few references, it amply illustrates the interdisciplinarity essential to any understanding of our global future. Not all chapters transfer equally well from the spoken original to the written word. This book is not about ecology *per se*, but about the complexity of our problems of planning for a future in a world running out of options. Australia is an advanced country capable of examining the evidence and the risks. The fact that their governance system ignores this at the behest of corporate power shows how far away from sensible strategies we really are in the rest of the world.

*David Walton*



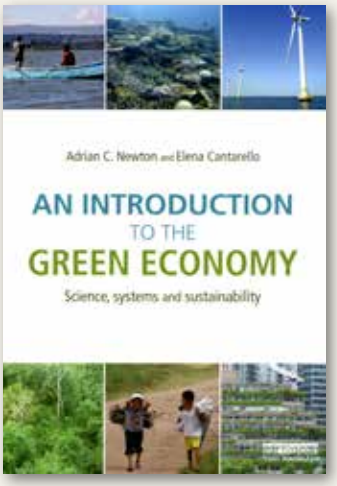

**Controversies in Science and Technology Vol 4: From Sustainability to Surveillance**

Edited by Daniel Lee Kleinman, Karen A. Cloud-Hansen and Jo Handelsman (2014) Oxford University Press. £38.99 (hbk)

ISBN: 978-0-19-938377-1 (hbk)

This is a sporadic series first published in 2005 by University of Wisconsin Press as a way of trying to link scientists with the public and policymakers, and provide journalists with a rigorous overview of topical science fields. Each volume covers four or five major topics with several viewpoints and multiple authors. Whilst earlier volumes tackled topics such as bioterrorism, stem cell research, nanotechnology, biofuels and citizen attitudes to evolution the present volume looks at infrastructure development, food policy, chemicals and environmental health, and ecosystem management. Interestingly each topic has something of interest to ecologists. Infrastructure looks at renewable energy and the consequences of global change whilst the food policy section examines the polarisation between intensive agriculture at the expense of natural communities against a more relational approach that values the linkages between humans and their environment whilst still employing highly productive farming techniques. This section also discusses the food security debates both in their sociological aspects and in their ties to corporate pressures. The emphasis in environmental health is on hormone-disrupting chemicals and their impacts on the health of both wildlife and humans. Clearly the most relevant section is the final one considering ecosystem management. An interesting chapter by Simberloff looks at the complex scientific problems of invasive species, considers some of the effective and ineffective control measures, suggests that most alien introductions have unforeseen consequences, and considers the arguments by some that control is "nativist" and xenophobic and that killing mammalian invaders breaches animal rights. Subramaniam on the other hand looks at aliens from a cultural view point and argues that the geography of origin should not be the determining factor and that terms like alien are pejorative. The remaining two chapters look at the effects of freshwater pollution by atrazine, oil spills in the sea and the arguments on overfishing, followed by a study on the decline of insect pollinators. I was unconvinced that the typical scientific paper format used here will appeal to any of the target audiences other than the scientific community, but I did find the careful analysis of the evidence for some of the most controversial policy areas interesting. The series is clearly meant for libraries and would be easily overlooked by many ecologists when specific sections could usefully provide a valuable broader context to how our science impinges on those outside our community. Worth keeping an eye open for future volumes.

*David Walton*




**An Introduction to the Green Economy – Science, Systems and Sustainability**

Adrian Newton and Elena Cantarello (2014) Earthscan from Routledge. £32.99 (pbk), £28.21 (epbk – kindle)

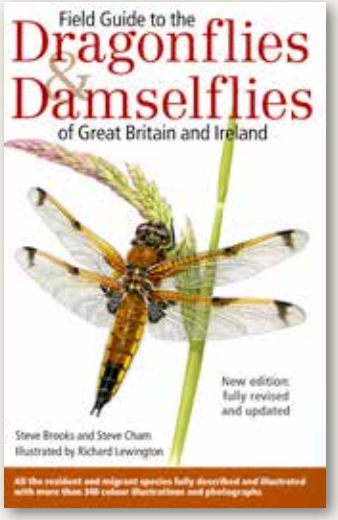
ISBN: 978-0-415-71161-6 (pbk)

This book has been developed to support a Masters course on the Green Economy at Bournemouth University. The authors are very clear that this is a socio-ecological approach and it contains little on environmental economics *per se*. As it is meant to underpin a distance learning course it is perhaps more discursive than some textbooks in the way it treats some subjects and all chapters are peppered with boxes entitled Reflection Points, Suggested Activities or Case Studies to keep the student awake. Its eight chapters provide a definition of green economics (as distinct from ecological economics or classical economics), an introduction to terms like resilience, critical loads, footprint analysis and the interaction between human behaviour and the green economy, key aspects of climate change (especially with respect to greenhouse gases), and the concepts of value for biodiversity and ecosystem services as well as an extensive examination of renewable energy. There is a chapter on social and environmental justice and another on the green economy in practice before a final chapter looks at prospects for the future.

As a wide ranging introduction to the green economy this new book seems good and the recommendation that it should be read in conjunction with current texts on environmental economics appears essential if the students are to consider the larger questions implicit in progressing such a major cultural change – what philosophy can replace capitalism, how can globalisation be replaced by local sustainability, how can the change be managed without enormous disruption, how can people be motivated to accept a less consumerist focus to their lives? There are plenty of links to useful web sites especially in the boxes, but this is a huge subject and many interesting leads are dismissed without any detailed consideration.

Looking more closely I was surprised to see some interesting omissions – for example any discussion of the importance of the Marine Stewardship Council, the Global Environment Facility, PROFISH, the value of biodiversity offsets, etc. Whilst I recognise that in such a broad subject everyone will probably find some of their pet interests missing I do feel that an appendix providing some short introductions to key groups like MSC, IIED, Futurearth, CASSE, Worldwatch Institute, etc., would have greatly improved the access for students into the many different opinions and activities that contribute to understanding the green economy. Overall this is an excellent attempt to pull the widely diverse elements together into some coherent framework and should certainly be read by those students studying environmental economics to gain a more rounded and pragmatic perspective.

*David Walton*



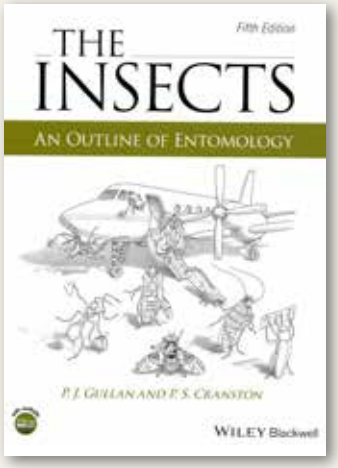

**Field Guide to the Dragonflies & Damselflies of Great Britain and Ireland**

Steve Brooks and Steve Cham, illustrated by Richard Lewington (2014 Edition). British Wildlife Publishing. £18.95 (pbk)

ISBN: 978-0-95649-028-5 (pbk)

This is one of two recently revised field guides to Britain's Odonata and both are excellent, following 1st editions that were also very good! We really do field guides well in Britain and this one is a wonderful example of what works well. Interest in Odonata has burgeoned in the last 20 years and they are now amongst the very best studied and known groups of insects. There are only around 55 species in Britain and, although some of these, such as the blue Coenagrionids, are rather similar and need careful identification, most are fairly easy to tell apart, which has allowed the enthusiasts to extend their natural history into a genuine study of ecology of their subjects. As a result the field guides are packed full of ecological insight, including consideration of the essential water quality required in a very wide range of water bodies, studies of predation behaviour, observations of mate-guarding and sexual competition and estimation of dispersal ability and migration. In brief sections this book sets out many of these topics and the species accounts are also full of ecological insight. The authors are genuinely authoritative in their knowledge and so the text is reliable and (unlike the other competitor field guide), paintings are preferred to photographs. As soon as it is seen that the illustrator is Richard Lewington, it is guaranteed that the paintings are brilliant and do an excellent job in allowing correct identification of the species. Whilst you might claim that no painting can show the 'jizz' of the insects as well as a good photograph, it is possible to concentrate on the decisive features and to ensure that exactly the right angle and position are chosen. In consequence, this field guide fulfills its purpose excellently and can be recommended without reservation.

*Mark Young*



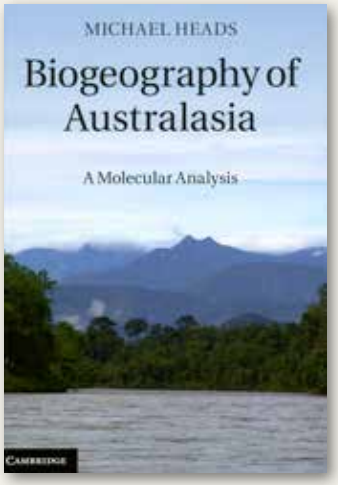

**The Insects. An outline of Entomology, 5th Edition**

Penny J. Gullan and Peter S. Cranston (2014) Wiley Blackwell. £45 (hbk), £28 (etxt), £40.9 (ebk).

ISBN: 978-1-118-84615-5 (hbk)
ISBN: 978-1-118-84626-1 (etxt)
ISBN: 978-1-118-84616-2 (ebk)

It has become rather unfashionable to concentrate a textbook on one group of organisms, but to some extent insects buck the trend, perhaps because they are so species-rich, universal in distribution and so central to ecological function. Most ecologists need to have a good working knowledge of the basic biology of insects and this text can provide that need. There are few other textbooks as rivals and the fact that this has reached a 5th edition is good evidence that it fulfills its purpose well. It is clear, full and reliable. Within the book there are basic chapters on diversity and conservation, anatomy, sensory systems and behaviour, reproduction, life histories, and systematics and evolution. There are then a series of sections that develop some essentially entomological topics, including sociality, medical and veterinary insects and pest management. This is certainly not a directly ecological volume, but it does include material of relevance to an ecologist and it does its job as a basic textbook on insect biology.

*Mark Young*




**Biogeography of Australasia. A Molecular Analysis**

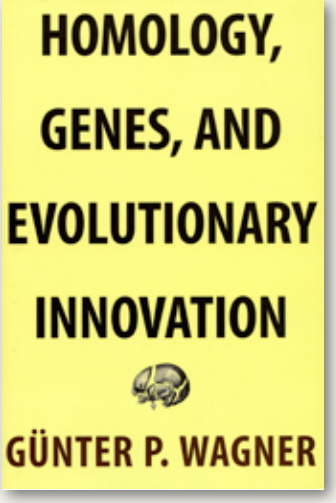
Michael Heads (2014) Cambridge: Cambridge University Press. £70 (hbk), £66.50 (ebk – kindle)

ISBN 978-1-107-04102-8 (hbk)

The biogeography of Australasia has been a source of fascination since the days of Darwin and Wallace in the mid-1800s. Located on the Indo-Australasian plate, it is characterised by islands of various sizes and varied relief, and tropical climates that range from the driest to the wettest in the world. The biogeography of Australasia has been the subject of much investigation and publication, mostly in terms of past and present distributions of plants and animals. However, a new light is now cast upon this fascinating region and its biota via a molecular analysis approach. DNA characteristics are used to help determine patterns of evolution and organism distribution and how both relate to geological and climate history. This is a panbiogeographic approach. The first two chapters examine evolution in space and time and provide many examples ranging from plants of the Asteracea family to the beetle genus *Bembidion* (Carabidae) and the passerine bird *Malurus*. Questions are also raised, such as the significance of dispersal in evolution. Chapter three opens the analysis of Australasian groups that range from those with global affinities to those with relatively local or regional affinities, such as Indian Ocean groups, Tethys groups, and Pacific groups. The subsequent seven chapters delve in detail into the biogeography of Australasia's regions, which extend from the Equator to the Southern Ocean. They are Australia, the Tasman-Coral Sea region, the Tasman region, New Zealand (including sub-Antarctic islands), New Caledonia, New Guinea and nearby islands, and the Philippines. Major foci include traditional biogeographical approaches, variations within each region, including those dominated by islands and those with varied relief, the occurrence of endemics, plant/animal groups with wider regional or global affinities, and geological

considerations, especially in relation to tectonic events. The final chapter presents an overview of evolution in space and time, refers to Darwinian and related models of evolution and re-emphasises the panbiogeographic approach. This is itself controversial since it discounts the possible effects of chance dispersal and subsequent evolution, themes which loom large in biogeography and especially in island biogeography. However, are such considerations entirely excluded by panbiogeography? A further contentious and related issue is the means of age determination from fossils and its use, or rather possible misuse in the opinion of Heads, to calibrate molecular phylogenies; this has implications for determining rates of change in relation to vital questions about the timing of evolutionary trends within and between plant/animal groups. Although this questioning of orthodoxy may be contentious it remains valuable to keep disputed issues in the limelight. In addition, this book gives a wide variety of examples in each chapter and it is well illustrated, especially with maps, and in its 490 pages there are no less than a useful 72 pages of references. The text assumes prior knowledge and is thus particularly relevant to a postgraduate audience.

*Antoinette Mannion*




**Homology, Genes, and Evolutionary Innovation**

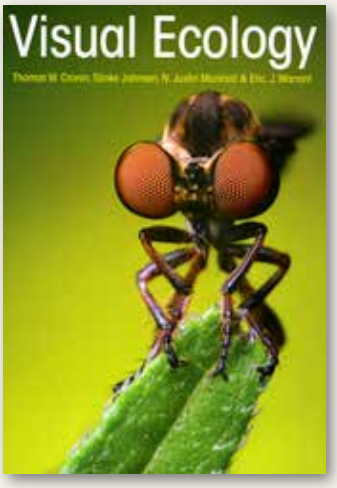
Günter P. Wagner (2014) Princeton University Press, Princeton and Oxford. £41.95 (hbk), £25.91 (ebk – kindle)

ISBN: 978-0-691-15646-0 (hbk)

ISBN: 978-1-400-85146-1 (ebk)

Evolutionary biologists have long been fascinated by the way in which an organ can take such different forms in different species. The flipper of a seal and the wing of a bat have the same skeleton origin yet have very different forms and functions. But the evolution of form and of function can take a variety of intertwined tracks to end in their current state. Wagner here argues that an ancestral genetic constitution can be given varied expressions as a result of differential activation by gene regulatory networks. The book begins by setting out the concept of homology, illustrating it with many zoological examples, and then traces the development of genetic theory, starting from Van Valen's proposal that there is continuity of information (both genetic and non-genetic) throughout the process. From here Wagner examines the origin of homologs, contrasting innovation with adaptation of existing organs. He devotes an entire chapter to cell types and their origins, pointing out that stem cell research has shown that the fate (and therefore the identity) of a cell is determined by a network of regulatory genes that control overall gene expression in the cell. This is followed with a detailed consideration of vertebrate skin and its various derivatives, including hairs and feathers, and then moves to fins and limbs, and finally to digits. In a penultimate chapter, the plant kingdom finally comes into focus with an examination of homology in flowers. Through interrogation of the variations in flower structure, from its basic and presumably ancestral form, including the development of bisexual flowers, Wagner concludes that the flower's unique feature is the integration of various parts into a functional whole. Again, genetic regulation underlies this integration. Overall, the book is deeply thought provoking. The author is clearly aware of the philosophical background and implications of the subject, and inserts a chapter on the 'Long Shadow of Metaphysics' into the very centre of his book. The subject is extensive, and the choice of topics to examine in detail must obviously be limited. The inclusion of one botanical chapter is welcome, but perhaps more could have been covered on vegetative features, such as stems and leaves. This survey of homology in the light of modern genetic research, however, is timely and helpful.

*Peter Moore*




**Visual Ecology**

Thomas W. Cronin, Sönke Johnsen, N. Justin Marshall and Eric J. Warrant (2014) Princeton University Press, Princeton, NJ. £48.95 (hbk), £30.23 (ebk – kindle)

ISBN: 978-0-231-16908-0 (hbk)

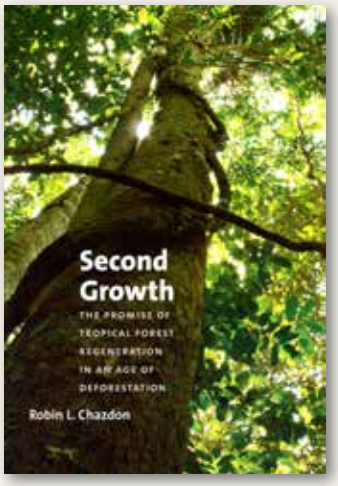
ISBN: 978-1-400-85302-1 (ebk)

As the authors note in their introduction to this book, humans are very visual animals, devoting a disproportionate fraction of their central nervous processing capacity to visual analysis. The result, for many of us, is a long-standing fascination with the evolution of vision, and the variation in visual capabilities across taxa. Vision is a complex subject, however, requiring an understanding of the physics of optics, the chemistry of photoreceptors, the neurology of signal processing, the anatomy of eye movements and the ecology of environments that have selected for different visual solutions. These are the types of subjects covered by Cronin and colleagues' new book on *Visual Ecology*, which is a significant and wide-ranging undertaking. Spanning over 400 pages (in a font which tests my ageing visual system), it covers a lot of ground. It starts with the physics of light, introduces visual pigments, photoreceptors and the building blocks of eyes, and then moves on to the eye designs of the animal kingdom

and different types of vision (spatial, colour and polarisation vision, vision in low light or dense media, and the detection of motion). Finally, two chapters cover the use of vision for navigation, and for signals and camouflage. Overall, it is lavishly illustrated, engagingly written and highly readable.

My initial sense was that much of this book is relevant to anyone studying vision, not just to visual ecologists. I stand by that – not least, because the authors' own distinction (that "A researcher who studies the retinas of squirrel monkeys in order to learn more about human visual physiology is not a visual ecologist; one who does nearly identical research to learn how the monkeys discriminate ripe from unripe fruit is") emphasises that the biology and ecology of vision are more associated with application than technique. However, ecology is far from restricted to the two final chapters on the uses of vision. Rather, the whole book is infused with ecological interest, ranging from the examples given, to the strong emphasis on phylogeny and adaptation throughout the text. I suggest that this book will be of great interest to anyone studying the biology or ecology of vision, from undergraduates trying to get to grips with basic principles, to established researchers seeking a comprehensive overview of the whole subject.

*Phil Stephens*




## Second Growth: The Promise of Tropical Forest Regeneration in an Age of Deforestation

Robin L. Chazdon (2014) The University of Chicago Press, Chicago. £87.50 (hbk), £31.50 (pbk)

ISBN: 978-0-226-11791-1 (hbk)

ISBN: 978-0-226-11807-9 (pbk)

ISBN: 978-0-226-11810-9 (ebk)

Terrestrial vegetation and its soil hold more than three times the amount of carbon currently in the atmosphere, and tropical forests, because of their dense biomass, hold a good proportion of this. So controlling tropical deforestation is a hugely important issue in trying to reign in climate change. In addition, these pristine primary forests also hold a lot of biodiversity adding to their global value. The trouble is, deforestation is still rampant around the world and we are left with a whole bunch of secondary forests growing up on abandoned agricultural and logged land, which are usually considered to be of no great value. Yet for local people and charities, preventing large-scale deforestation is beyond their reach, and their only real option is to restore degraded forest, and make the best of the secondary forest. And, of course, it has benefits beyond carbon storage in terms of social cohesion, improving the lives of those living in or near the reforested areas, generating income from the new (hopefully) sustainably managed forests, and so on. This is the point where Robin's book comes in. Following a life-time study of Costa Rican secondary forests she is firmly of the opinion that these secondary forests are much underrated in terms of the speed of their recovery to 'proper' forest and the amount of biodiversity they hold. She takes us through the ecological processes and stages of forests developing on old agricultural land, selectively logged areas and land damaged by fire and hurricanes. Then she explores how these regenerating forests change in structure, species composition and ecosystem properties, and finally what the future holds, all backed up by over a hundred pages of references. I find her message very compelling that these secondary forests have a high intrinsic ecological value. It is not always sugary good news – large mammals can take a long while to return unless there is nearby undisturbed forest, but it's heart-warming to read this up-beat book that shows that it's not all doom and gloom in the tropics. Everyone should read this.

*Peter Thomas*

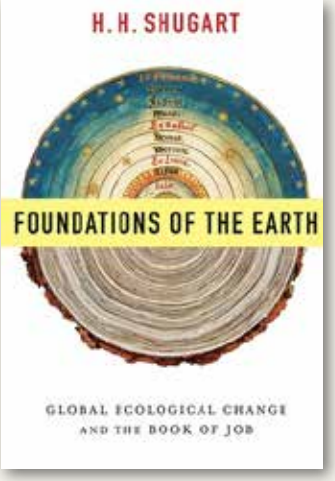
## Long-term Response of a Forest Watershed Ecosystem: Clearcutting in the Southern Appalachians

Edited by Wayne T. Swank and Jackson R. Webster (2014) Oxford University Press, New York. £32.99 (hbk), £31.34 (ebk)

ISBN: 978-0-19-537015-7 (hbk)

This book deals with 30 years of research at Coweeta in North Carolina in a series of 26 discrete forested watersheds, forming part of the International Biological Programme (IBP) and now the Long-Term Ecological Research (LTER) programme. The aim of this book is to bring together information on the long-term consequences of clear-cutting in the hardwood forests of the Nantahala Mountain range – a southern version of the more famous mixed-wood forests of Hubbard Brook Experimental Forest in the Northern Appalachians of New Hampshire (and chapter 13 compares findings between the two areas). The project is run from a hydrological laboratory and so there are understandably a number of chapters on water yield and chemistry after logging including two on particulate and dissolved organic carbon. But the multidisciplinary team go beyond that to consider stream macroinvertebrates, wood decomposition and canopy arthropods. The first take-home message is that fairly intensive forestry, if well planned, can result in remarkably little impact on the remaining forest or the water leaving the site. The second, and equally important, message is that "some long-term trends cannot be forecast from short-term findings, which could lead to incorrect conclusions of cause and effect relationships and natural resource management decisions". Someone tell that to the politicians.

*Peter Thomas*




## Foundations of the Earth: Global Ecological Change and the Book of Job

H.H. Shugart (2014) Columbia University Press, New York. £24.00 (hbk), £19.19 (ebk)

ISBN: 978-0-23116-908-0 (hbk)

Hank Shugart is a distinguished systems ecologist at the University of Virginia. In *Foundations of the Earth* he has written a very readable account of the current problems facing the Earth and us, and what has caused them. The unusual twist is that he has structured his text around three chapters near the end of the Bible book of Job; chapters containing God's "Whirlwind Speech" purporting to be the divine answer to questions about life and its problems posed in the early part of the book, albeit posing a new set of questions. Shugart's treatment is not a theological analysis nor an evangelistic apologia, but a powerful demonstration that our ecological problems are not unique or even novel to this generation; they are old problems magnified by contemporary practices, worsened by population growth and resource use, and are now modifying the internal feedbacks of the planet. I know nothing about Shugart's personal beliefs or theological expertise. He says he came across the "whirlwind speech" when looking for an appropriate reading for his mother's funeral. He has certainly read around its context, quoting environmental activist and founder of 350.org, Bill McKibben in The *Comforting Whirlwind*, as well as theological commentaries on Job. The closest parallel to his book known to me is that by Stuart Pimm (2001), which examined environmentalist rhetoric about environmental damage to test whether it could withstand quantitative scrutiny. Pimm's book was well documented, but Shugart's is even more so with 66 pages of notes and references.

Shugart's mission is to demonstrate the dynamic connectedness of the Earth's systems, over a range of spatial (regional, global) and temporal scales (centuries to millennia), and how to examine how these interact with humans. There are eight main chapters, each concerned with a question God puts to Job. For example, the origin and early history of the Earth asks "Where were you when I laid the foundations of the earth?" Topics include domestication and the Neolithic revolution, the impact of alien and invasive species, archaeoastronomy and geo-engineering to modify climate. Shugart has achieved a truly *extra*-ordinary survey and analysis. I use the qualification "extra" in its pure sense of "beyond the usual or expected". He should be congratulated for writing a book which is both intellectually fascinating and easy to read – but also important. It can be recommended as a worthwhile gift for school students or aged academics; perhaps it should also be required reading for politicians obsessed with the immediate and short-term. To quote the Bible again, "Whoever has ears, let them hear."

REFERENCE

Pimm, S. (2001) The World According to Pimm: a scientist audits the Earth. McGraw-Hill Professional.

*Sam Berry*

## ALSO RECEIVED

### Study and communication skills for the biosciences, 2nd Edition

Stuart Johnson and Jon Scott (2014), Oxford University Press. £23.99 (pbk)

ISBN: 978-0-19-966329-3 (sbk)

Aimed at new university entrants, this motivational book is the perfect "how to" guide for students looking to maximise their degree and get ahead in the employability game. Chapter 2 on "Using feedback" highlights the need for a two-way approach and reflective practice, and is a must read for those receiving and delivering feedback. The question is will Chapter 6 on "Choosing the right writing style" put an end to the misuse of the semi-colon?

### Spatial analysis: a guide for ecologists, 2nd Edition

Mark R.T. Dale and Marie-Josee Fortin (2014), Cambridge University Press. £45.00 (pbk)

ISBN: 978-0-521-14350-9 (pbk)

The 2005 edition of this book was my bible when I was carrying out spatiotemporal analyses of nature, there is a growing recognition by ecologists of the need to take account of time and space dimensions when performing statistics. But this can be somewhat overwhelming and is easy to get wrong. This new edition is substantially expanded and aims to provide ecologists with the background, array of methods and the necessary steps to carry out this kind of analysis properly. Written in an accessible manner, with helpful diagrams, this is the perfect reference text.

### A DENDROLOGIST's HandBOOK

Edited by Merelene Davis (2014). The Dendrologist, Chesham. £5.00 (pbk)

ISBN 9525842-3-9

A collection of articles on basic tree biology, identification, propagation and pruning previously published in *The Dendrologist*. Available from the author at Monksfield, Pednor Bottom, Chesham, Bucks HP5 2SS.

# DIARY

## THE SOCIETY'S MEETINGS

The Society's Meetings (meetings of the Special Interest Groups are listed on p19)

### 2015

**JUL 13-14**
*The Ecology and Evolution of Emerging Plant Pests and Pathogens: Challenges to Global Food Security and Ecosystem Resilience*. Penryn Campus, University of Exeter. Website: www.britishecologicalsociety.org/events/current_future_meetings/2015-annual-symposia/

**DEC 13-16**
*2015 British Ecological Society Annual Meeting.* EICC, Edinburgh. Details http://www.britishecologicalsociety.org/events/current_future_meetings/2015-annual-meeting/

The Society's Committee Meetings 2015

**JUN 11**
Council

**SEP 15**
Finance & Management Board

**OCT 14**
Meetings Committee

**NOV 17**
Finance Board

**DEC 13**
Council

### Other 2015

**JUN 18**
*Plant Conservation – now is the time to change our minds.* Linnean Society, Piccadilly, London. Website: www.linnean.org/Meetings-and-Events/Events

**JUN 26-29**
*Evolution 2015.* Casa Grande Hotel Resort. Guaruja, Brazil. Website: http://sbg.org.br/Evolution2015/

**JUN 30- JUL 3**
*Society of Experimental Biology Annual Meeting.* Prague. Website: www.sebiology.org/meetings/

**JUN 30-JUL 3**
*European Society for Ecological Economics 2015: Transformations*. Leeds, UK. Website: www.esee2015.org/

**JUL 5**
*Royal Entomological Society Insect Festival 2015.* York, UK. Further details: www.royensoc.co.uk/content/insect-festival-2015

**JUL 5-10**
*9th IALE World Congress.* Portland Hilton, Portland, Oregon USA. Website: www.ialeworldcongress.org/

**JUL 12-16**
*52nd Annual Meeting of the Association for Tropical Biology and Conservation.* Honolulu, Hawaii. Website: http://www.tropicalbio.org/

**JUL 13-16**
*3rd Annual International Conference on Ecology, Ecosystems and Climate Change.* Athens, Greece. Details from: http://www.atiner.gr/ecology.htm

**JUL 19-24**
*7th European Hemiptera Congress.* Styria, Austria. Details from: http://www.oekoteam.at/first-announcement-menu.html.

**AUG 2-6**
*ICCB – ECCB 2015 Mission Biodiversity, Choosing new paths for conservation.* Montpellier, France. Website: www.iccb-eccb2015.org/

**AUG 9-AUG14**
*100th Annual Meeting 2015 Ecological Society of America.* Baltimore Convention Center, Baltimore, MD, USA. Website: http://www.esa.org/esa/?page_id=2722

**AUG 10-14**
*15th European Society for Evolutionary Biology meeting.* Lausanne, Switzerland. Website from: http://www3.unil.ch/wpmu/eseb2015/.

**AUG 17-19**
*2015 Crayfish Conference.* Giggleswick North Yorkshire. Website: http://www.fba.org.uk/other-conferences-and-courses

**AUG 23-27**
*SER 2015 6th World Conference on Ecological Restoration.* Manchester, UK. Website from: www.ser2015.org/

**AUG24- AUG29**
*ISME15- International Society for Microbial Biology.* Seoul, South Korea. Website: /www.isme-microbes.org/.

**AUG 30- SEP 4**
*Aquatic Biodiversity and Ecosystems 2015.* Liverpool, UK. Details from: www.aquaticbiodiversityandecosystems.org/about-the-conference/

**AUG 31-SEP 02**
*Biomarkers 2015 – Lab to Industry as Biosignatures to Therapeutic Discovery.* Toronto, Canada. Website from: http://biomarkers.conferenceseries.com/

**SEP 1-4**
*Royal Geographic Society Annual International Conference.* University of Exeter, UK. Details from: www.rgs.org/WhatsOn/Whats+on.htm

**SEP 2-4**
*Ento '15 – Insect Ecosystem Services.* Trinity College, Dublin, Ireland. Details from: www.royensoc.co.uk/content/res-annual-national-science-meeting-international-symposium-ento-15-2-4-september-2015

**SEP 14-18**
*14th International Symposium on Aquatic Plants.* Edinburgh, UK. Details from: https://sites.google.com/site/aquaticplants2015/.

**SEP 20-24**
*13th International Conference – Ecology and Management of Alien Plant Invasions.* Hawaii, USA. Details from: www.emapi2015.hawaii-conference.com/

**DEC 29-3**
*2015 Annual Conference of the Ecological Society of Australia.* Adelaide Oval, South Australia. Website: www.kaigi.eventsair.com/QuickEventWebsitePortal/esa2015/esa2015

### Other 2016

**FEB 9-12**
*Species on the Move – Detection, Impacts, Prediction & Adaptation.* Hobart, Tasmania. Website: http://www.speciesonthemove.com/

**APR 26-MAY 1**
*7th International Conference on Fossil Insects, Arthropods and Amber.* Edinburgh, UK. Details from: www.steppe.org/event/7th-intl-conference-on-fossil-insects-arthropods-amber/

**JUL 4-7**
*The Society of Experimental Biology Annual Meeting.* Brighton, UK. Website: www.sebiology.org/meetings/index.php

**AUG 15-19**
*15th International Peat Congress.* Kuching, Sarawak, Malaysia.
Website: http://ipc2016.com

**SEP 25-30**
*Entomological Society of America.* Orlando, Florida. Website: http://ice2016orlando.org/.

**SEP 25-30**
*ICE 2016. International Congress of Entomology.* Orlando, Florida, USA. Website: http://ice2016orlando.org/.

## Training Workshops

**JUN 26-JUL 26**
*Tropical Biology Association course 15/1 – Tropical Forest Ecosystems in Tanzania.* Details from: http://www.tropical-biology.org/training/courses/future_courses.htm

**JUL 15-11**
*Innsbruck Summer School of Alpine Research.* Obergurgl, Austria. Details from: http://www.uibk.ac.at/geographie/summerschool/.

**AUG 5 – SEP 4**
*Tropical Biology Association course 15/2 – Tropical Forest Ecosystems in Uganda.* Details from: http://www.tropical-biology.org/training/courses/future_courses.htm

**NOV 14 – DEC 14**
*Tropical Biology Association course 15/3 – Tropical Forest Ecosystems in Madagascar.* Details from: http://www.tropical-biology.org/training/courses/future_courses.htm

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 or e-mail 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

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.

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The picture is of an oil painting by Leslie J Watson, which was exhibited in the 1956 summer Royal Academy exhibition at Burlington House. It was described by The Times as "four elderly gentlemen out botanizing in the sun, *The Naturalists*". It depicts Arthur Tansley and Alex Watt standing, and E B Ford and Cyril Diver kneeling. The locality was an East Anglian heath near Woodbridge in the summer of 1949. These four men made, individually, highly significant contributions to the development of ecology and nature conservation.

Leslie J Watson, the artist, was Secretary of the Wild Life Conservation Special Committee (1945-47) of the post-war National Parks Committee, from which the Nature Conservancy emerged by Royal Charter in May 1949, obtaining its statutory powers later that year under the National Parks and Access to the Countryside Act. As a chartered body, the Conservancy was in all but name a research council. Watson took part in numerous surveys to select National Nature Reserves and Sites of Special Scientific Interest (SSSIs). The painting was made from a photograph taken on an excursion whilst searching for typical heath land.

Professor Sir Arthur Tansley FRS was founder President of the British Ecological Society (1913) and uniquely President a second time on its twenty-fifth anniversary in 1938. He edited the Journal of Ecology 1916-37. Tansley was Sherardian Professor of Botany at Oxford 1927-37 (and later Emeritus Professor of Botany). His monumental work 'The British Islands and their Vegetation' was published in 1939. Research by Dr Alex S Watt FRS (Lecturer in Botany, Cambridge University) promoted the study of plant communities as working mechanisms, epitomised in his classic paper 'Pattern and process in the plant community' (1947). He served as BES President in 1946. Work by Dr E B Ford FRS (Reader in Genetics & Comparative Anatomy, Oxford University) formed the basis of modern ecological genetics and his studies on melanism in the peppered moth (*Biston betularia*) were fundamental to the genetics underlying polymorphism and its evolution. Captain Cyril Diver CBE, CB (ecologist and conservationist) was also President of the Society (1940) and became the first Director General of the Nature Conservancy. His work on the Studland Peninsula, Dorset was one of the first whole ecosystem studies in the UK.

It is believed that two paintings of the same subject were executed by L J Watson, one was purchased by the Nature Conservancy from the Royal Academy exhibition and the second was acquired for the Botany School, Cambridge University by Professor R G West FRS, where it hangs today.

***William Block***

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