

**WHAT'S THE FUTURE FOR BIOLOGICAL SURVEYS?  
ARE SPECIALISTS FOR KEY TAXA AT RISK OF BECOMING EXTINCT?**

**Linnean Society Taxonomy & Systematics Committee Plenary Session**  
**Thursday 7<sup>th</sup> September 2017**

**PROGRAMME AND ABSTRACTS**

**10.30** Coffee and Networking

**11.00** **Welcome and Introduction**

*Professor David Cutler PPLS, Chairman of the Linnean Society Taxonomy & Systematics Committee*

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**OVERVIEWS ON WHERE WE ARE AND THE ISSUES BEING FACED**

**11.10** **The State of Nature Report 2016 – An Overview**

*Professor Richard D. Gregory, Head of Species Monitoring & Research RSPB Centre for Conservation Science & Centre for Biodiversity & Environment Research, UCL; Dr Fiona Burns, Conservation Scientist, Dr Daniel Hayhow, Conservation Scientist & Dr Mark Eaton, Principal Conservation Scientist, RSPB Centre for Conservation Science, Sandy, Bedfordshire*

[The State of Nature Report 2016](#) was the second report of its kind to document the status and trends of nature in the UK based upon the best available information. It drew information from the State of Nature Partnership, a grouping of over fifty conservation and science organisations working together to promote and improve the collection, collation and analysis of environmental data, make that evidence accessible, and assist in the interpretation of evidence for policy and decision makers. The aim of the report was to provide a comprehensive and authoritative assessment of the state of nature in the UK, and UK Overseas Territories, and thereby promote its conservation. However, the degree to which we can provide an unbiased and representative picture across taxa, time and space is highly variable and this talk will explore some of the challenges for biological surveys.

### 11.30 **The Perspective from the National Biodiversity Network**

*Dr Jo Judge, CEO NBN*

In this talk, we take a very brief look back at the history of biological recording in the UK, the current situation and the challenges and opportunities for the future. These include the ever increasing contribution of citizen science and the way that technology and open data are affecting the way biological surveys are being carried out and associated records shared. From this we will explore why specialists for key taxa are needed now more than ever and why we need to ensure their survival.

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### 11.50 **Online Recording, Data Quality and Taxonomic Trends**

*Martin Harvey, Biological Records Centre, NERC Centre for Ecology & Hydrology, Wallingford, Oxon*

For over 50 years the Biological Records Centre has worked with national recording schemes and others to support the collection of species data. This now include support for online recording, via Indicia, the iRecord website and associated apps. Online systems help make biological recording easily accessible to many people, but just as with 'traditional' recording there are issues of data quality to consider, and taxonomic expertise is needed to make best use of the resulting data. This talk will present some trends that are apparent from online recording to date, and look at the opportunities and challenges that arise.

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## EMERGING TECHNOLOGIES AND NEW DIRECTIONS

### 12.10 **The Utility and Impact of Apps: the New Forest Cicada Project**

*Professor Alex Rogers, Computer Science, University of Oxford*

The New Forest Cicada is the only cicada native to the UK. During May and June it sings with a very characteristic high-pitched call, which is at the limits of human hearing, and is particularly difficult for most adults to hear. The last confirmed sighting was in 1992. However, it is quite likely that colonies remain undiscovered in less visited parts of the forest. Since 2013, the New Forest Cicada Project has been equipping visitors to the forest with a smart phone app that can automatically detect and recognise the song of the cicada, in the hope of rediscovering it.

## 12.30 DNA as a New Tool for Biological Survey

*Dr Keith Porter, formerly Deputy Chief Scientist, Natural England (DEFRA)*

In traditional biological survey methods, there is a high dependency on experts to confirm the identity of species. For some taxa, such as birds or butterflies, this is not a problem where the species are readily identified by many thousands of observers with a high degree of accuracy. Conversely, where critical examination is needed, our capacity to secure sufficient experts is limited and believed to be declining. Recent advances in the use of DNA to identify species mean that we now have an opportunity to make a significant step change in how we approach survey and monitoring. Natural England has been exploring the potential of DNA as survey tool and some early results are presented.

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## 12.50 The Powdery Mildew Survey: Citizen Science for Improving Fungal Identification

*Dr Oliver Ellingham, University of Reading, The Lost and Found Fungi Project, Royal Botanic Gardens Kew & RHS Wisley (co-authors Dr John David, Head of Horticultural Taxonomy, RHS & Prof Alastair Culham, University of Reading)*

The powdery mildews (Ascomycota, Erysiphales) are a diverse group of plant pathogenic fungi found on nearly 10,000 angiosperm hosts globally including many that are important horticultural and agricultural plants. Infection can greatly reduce the appearance and vigour of the host therefore reducing attractiveness and yields significantly. However, these Fungi are regularly overlooked and hence species boundaries are poorly understood. A reliable and efficient method is required for unambiguous identification of these often cryptic species such that spread to new areas and/or new hosts can be detected rapidly and controlled early. A citizen science scheme was therefore developed to enthuse and educate its participants, while concurrently providing distributional data for powdery mildews in the UK and improving accuracy and efficiency of identification techniques through sequencing of variable gene regions.

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## 13.10 Lunch and Networking

**13.55 Citizen Science: Replacing Specialists or Nurturing New Ones?**

*Lucy Robinson, Citizen Science Manager, Angela Marmont Centre, NHM*

Citizen science activity has expanded rapidly over the past ten years, now being recognised as a field in its own right. This expansion brings opportunities to attract new audiences into biological recording and to support people to develop wildlife identification skills across a broad range of taxa. However, it has also raised concerns that citizen science may be used as a cheap or free alternative to specialist biological surveys, and that it may not meet the needs of environmental managers or decision makers. In this talk, I consider these concerns and explore innovations in citizen science that aim to achieve maximum benefits for science, the environment, communities and individuals. I also call on the biological recording community to capitalise on the potential of citizen science to develop new natural historians, both generalists and specialists.

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**14.15 Identification Trainers for the Future: Bridging the Skills Gap in Natural History**

*Stephanie West FLS, UK Biodiversity Training Manager, Angela Marmont Centre for UK Biodiversity, Natural History Museum London*

The Identification Trainers for the Future project has been a 3-year project developing a new model of species identification training for the Museum, while also looking at sector-related career issues, particularly methods of recruitment from non-traditional entry routes into the UK biodiversity and museums sectors. Through funding from the HLF's Skills for the Future programme and working in partnership with the NBNT and FSC, 15 trainees have worked through 12-month long work-based traineeships with us, developing their technical skills in species identification for cryptic UK taxa and developing experience in teaching and scientific communication. This talk will look at some of the lessons learnt from the project, as well as discussing some of the ways forward for the Museum now the project is starting to draw to a close.

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**14.35 Biological surveys and museums: past, present, future**

*Paolo Viscardi FLS, Assistant Keeper of Natural History at National Museum of Ireland & NatSCA (Natural Sciences Collections Association)*

Close links used to exist between biological surveyors and museums, where reference specimens and in-house taxonomic expertise facilitated identification. Museums also housed voucher specimens, allowing identifications of species collected during surveys to be checked. Then came the ‘digital disconnect’, where computers allowed management of large volumes of data, shifting focus from data quality to data quantity. Meanwhile, professionalization of museums led to a decline in curatorial taxonomic specialists and the rise of generalist collections managers. A gulf now exists between surveyors and museums—to the detriment of both. How can we bridge that divide and forge a collaborative future?

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## COMMERCIAL CHALLENGES

### 14.55 **Key Taxa for Environmental Consultancies – People or Wildlife?**

*Dr Adrian Spalding FLS, Spalding Associates, Cornwall*

Consultancy work for planning is geared towards habitat assessment and mitigation for protected species—bats, badgers, reptiles, dormice, birds—and rarely for difficult groups requiring specialist identification. Planners have a tick-box simplified view of wildlife with a lack of knowledge of complex species interactions within habitats leading to generalised mitigation proposals. Are green corridors for wildlife or for people? Some of our studies identify to taxonomic group rather than species level to monitor project results. Our in-house expertise on bryophytes, marine biota and terrestrial invertebrates is rarely used.

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## SPECIALIST VIEWPOINTS

### 15.10 **Specialist Society Perspectives** (10-minute slots for presentations and brief Q&A)

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### 15.10 **Botanical Society of Britain and Ireland**

*Chris Metherell FLS, President-Elect BSBI "Paying the Piper. The Funding Gap in Record Gathering"*

The President Elect of the Botanical Society of Britain and Ireland will discuss the issues surrounding the financing of data gathering and its management in a decade of austerity. Charitable institutions such as the BSBI face serious challenges in funding these activities. Setting this

against the commendable pressure to make the maximum data publicly available, it is clear that new solutions must be found to fund the aspirations of society members, government and the public.

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### **15.20 Earthworm Society of Great Britain**

*Keiron Brown, Recording Officer ESGB, "Wriggling into Recording: Setting up a New Earthworm Recording Scheme"*

The Earthworm Society of Britain (ESB) is a relatively recent organisation, set up to address the lack of earthworm distribution data in the UK. The National Earthworm Recording Scheme (NERS) was set up in 2014 to collate research and amateur naturalist earthworm records, as well as to provide guidance and identification training opportunities for recorders. Looking forward to the future, the ESB would like to start collecting high quality data that can be used to allow species trend monitoring and assign conservation statuses to species of earthworm, starting with a garden survey aimed at existing earthworm recorders.

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### **15.30 People's Trust for Endangered Species**

*Emily Thomas, Key Species Monitoring and Data Officer "Biological Surveys: a PTES Perspective"*

PTES has been running biological surveys for the last 25 years, from collecting one-off sightings of stag beetles and hedgehogs through to collecting detailed biometric data on dormice at monitoring sites and assessing the habitat condition of traditional orchards. Our surveys are conducted by thousands of people each year and every record adds to our knowledge and underpins our efforts to conserve wildlife. Data from our surveys are used to assess and monitor trends in national populations, establish species distributions and form the basis of national reports and scientific research.

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### **15.40 British Entomology and Natural History Society**

*Dr Glenda M Orledge FRES, University of Bath "Enhancing the Quality of Species Record Data: How Can BENHS Help?"*

The British Entomological and Natural History Society harnesses its physical assets and members' expertise to support and train both existing and potential biological recorders. Growing concern about record quality has resulted in the recent formation of a BENHS Council

working group to consider the accuracy of invertebrate species records. The initial aims of this working group will be presented.

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**15.50**      **British Bryological Society**

*Dr Liz Kungu, Royal Botanic Garden, Edinburgh, "Bryophyte recording after the Atlas"*

Britain and Ireland have a long tradition of natural history recording, and specifically bryological recording. Most of the recent bryophyte surveying has been focused on the production of an updated Atlas, which was published in 2014 in two volumes, based on 2.83 million records, 2.06 million of which originated post 1990. Examples from bryophyte recording in Scotland illustrate its recent history, the current methods used, the motivation for recording, the synergy between recording in both conservation and taxonomic research, the role in the education of future recorders, and it examines potential problems for the future of bryophyte recording.

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**16.00**      **British Dragonfly Society**

*David Hepper, BDS Records Officer & Webmaster, "On the state of Recording at the BDS"*

The BDS Recording Scheme has been running since the Society was founded in 1983. We have over 1.2 million records that have been used as the basis for the 2012 *Atlas of Dragonflies in Britain and Ireland* and will be used again in our next major publication due in 2020. Our network of recorders and verifiers currently use iRecord, the national, multi-group, online recording system developed by the Biological Records Centre (BRC), with the promise of a direct flow of records to the National Biodiversity Network Atlas and onward to the Global Biodiversity Information Facility. This has been a mixed blessing, having traded control of our own destiny for use of a "free" online system with the promise that it will stay up-to-date with ever-moving internet technologies.

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**16.00**      **Conclusions and Recommendations**

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**16.30**      **Wine Reception and Networking**