



Free Public Lecture Series, Autumn 2007

**“British Wildlife and Climate Change”
What is happening? Can we do anything?**

Birkbeck, University of London
in conjunction with the

Ecology and Conservation Studies Society

Climate change is causing a significant and increasing impact on UK wildlife. Some species are under stress, while others are expanding their range. What new species will arrive in Britain? This must have profound consequences for conservation and management. Appropriate actions need to be discussed and developed now.

This lecture series will inform this debate. National experts will discuss topics such as phenology – the timing of natural events, and will examine the way that climate change is currently impacting on British plants and animals, and on terrestrial and aquatic habitats. Adaptation and mitigation actions to maintain maximum biodiversity in open spaces and the environment will be debated.

Full details of the speakers and the scope of their presentations will be available on the Society’s website in the autumn.

Join the debate. All welcome. Free ticket admission.

The lectures will be held in Birkbeck, University of London, WC1

For free tickets and venue details, contact tel: 020 7679 1069, or e-mail: environment@fce.bbk.ac.uk
For queries on lecture content, contact tel: 020 7485 7903, or e-mail: jeremy.wright@walkern.org.uk;

All lectures are from 6.30 to 8.30 pm on the following Fridays. Doors open at 6.00pm.

- 12 October** ‘Harmless Pastime or Serious Science? What does phenology tell us about the impacts of a changing climate?’
Dr Tim Sparks, Centre for Ecology and Hydrology
- 19 October** ‘Climate Warming and Species’ Ranges: who will be winners or losers?’
Dr Jane Hill, University of York
- 26 October** ‘The British Flora: effects of habitat modification and climate change’
Dr Chris Preston, Centre for Ecology and Hydrology
- 2 November** ‘Can Birds Fly from Climate Change?’
Dr Humphrey Crick, British Trust for Ornithology
- 9 November** ‘Adaptation for High Biodiversity under Climate Change’
Dr John Hopkins, Natural England
- 16 November** **Case Studies of Adaptation and Mitigation Measures on Specific Sites**
Burnham Beeches. Andy Barnard, City of London Corporation
River Restoration – London. Dave Webb, Environment Agency
Landscape Scale Projects and Ecological Networks. Dr Tony Whitbread, Sussex WLT

These case studies will be followed by a panel question and answer session chaired by Richard Clarke, Course Director of the Ecology and Conservation Programme, Birkbeck

The Ecology and Conservation Studies Society welcomes new members. Details of the Society and application forms will be available at the door, and are on our website at: <http://www.bbk.ac.uk/ce/environment/> [follow the link]

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Notes on the Contributors and their Lectures

12 October ‘Harmless pastime or serious science? What does phenology tell us about the impacts of a changing climate?’

Dr Tim Sparks is an environmental scientist at the Centre for Ecology and Hydrology at Monks Wood. He was instrumental in resurrecting a national network of recorders of phenology (the timing of events) that is now, in partnership with the Woodland Trust, in its tenth year. He has undertaken extensive research on the impacts of climate change on plants and animals, with an emphasis on changes in phenology. To this end he makes considerable use of current and historic data and collaborates widely, both within the UK and elsewhere in Europe.

His lecture will cover the following themes:

Monitoring the timings of the seasons is a simple yet highly enjoyable activity. For this reason the UK has a wealth of data going back more than two centuries. These data take many forms; from an individual’s records of the timing of a single event, such as frog spawning in their garden pond, to records from national networks of protocol-controlled data collection. This lecture will cover some of the history of phenology, pausing to reveal the sometimes peculiar sources of data, and give an overview of current recording. Examples will be given of the changes already taking place, despite relatively modest climate warming so far. In many species, phenological response to a changing climate is much stronger and much easier to detect than other climate impacts. Consequently it is highly important in raising awareness of climate change, in getting people involved in monitoring, and in identifying possible adverse consequences of future warming.

19 October ‘Climate warming and species’ ranges: who will be winners or losers?’

Dr Jane Hill is a lecturer in the Department of Biology at the University of York. Jane is an ecologist carrying out research in both temperate and tropical ecosystems. She has spent most of her research career examining the ecological impacts of climate warming and habitat destruction, and most of this work has focused on butterflies. Her research group is currently examining a number of different issues related to climate warming, including the degree to which species may change their associations with particular habitats as a result of climate warming, and the degree to which protected areas will retain their biodiversity in the future.

Her lecture will cover the following themes:

The limits to the geographical distributions of many species are limited by climate. During current climate warming, there is evidence that species are shifting their distributions to track climate changes. For example in the UK, many butterflies are expanding their distributions northwards. In this talk she will discuss the ways in which we are examining evidence for range shifts, using long-term data for British species. She will also discuss which species are managing to track climate changes, and which are not, and how this may affect biodiversity in the future.

26 October ‘The British Flora: effects of habitat modification and climate change’

Dr Chris Preston is a botanist who works at the Biological Records Centre, CEH Monks Wood. He works with volunteers co-ordinated by the Botanical Society of the British Isles and British Bryological Society to compile the results of national distribution surveys. He is interested in documenting and explaining changes in the British flora by examination of historic plant records and by analysing the results of recent surveys.

His lecture will cover the following themes:

Many of the factors affecting the distribution of flowering plants in historic times and recent decades have resulted from habitat destruction, habitat modification and eutrophication, all often the effects of agricultural intensification. Urbanisation and the construction of transport networks have also had noticeable effects, and atmospheric pollution has had a marked effect on the ranges of many mosses, liverworts and lichens. In this talk the nature of the evidence available for detecting floristic change will be outlined. The ways in which the effects of climate change might be disentangled from these other factors will be discussed using data from recent national surveys.

2 November ‘Can Birds Fly from Climate Change?’

Dr Humphrey Crick is a Senior Ecologist at the British Trust for Ornithology who has studied the impacts of climate change on birds over the past 10 years. He has promoted the use of the extensive, nation-wide datasets held by the BTO which, by the long-term nature, provide fascinating insights into current changes in the light of past events. He was invited to help review the 3rd and 4th reports of the Intergovernmental Panel on Climate Change and has helped brief incoming Government Ministers on the effects of climate change on biodiversity.

His lecture will cover the following themes:

Climate change is already affecting our wildlife, leading to extinctions and changes in population size, distributional range, breeding performance, survival rates and phenology. Birds have been particularly well studied and we can benefit from the wealth of previous studies and analyses of existing long-term datasets to help understand the implications of climate change on wildlife. He will review studies of changes in phenology, breeding performance, population size, distributions and migratory behaviour on birds. The weakest form of evidence is in the form of anecdote (i.e. observations of distributional change without statistical correlations to climate change). Next there are studies of relationships between an aspect of biology and weather, with the inference that future changes in climate will cause long-term changes in the performance of an organism. Then there are observations of long-term changes that can be related to long-term changes in climate. The ideal, where we know the short-term mechanisms underlying observed long-term changes, is extremely rare, as are confident predictions of the consequences of long-term changes for aspects such as life-time reproductive success, fitness, population trajectories and distributional change. Birds, through flight, should be rather immune to the impacts of climate change because theoretically they should be able to fly from their current habitat to occupy new ones as conditions change. However, there is evidence building that not all birds may be able to fly from the impacts of climate change.

9 November ‘Adaptation for High Biodiversity under Climate Change’

Dr John Hopkins’ background is in Botany - a youthful amateur who went on to read Plant Science at King's College London. He did his PhD at Bristol University, on the flora and vegetation of The Lizard District, Cornwall, which is rich in Mediterranean elements. His first job was with the Nature Conservancy Council as "Assistant Regional Officer" for County Durham at a time when there were so few of them they could nearly hold their regional meetings in a phone box. This included responsibility for Upper Teesdale with its relict arctic alpine flora, so he has had experience of areas which may show markedly different responses to climate change. He has worked in statutory conservation for more than 26 years and his other jobs were as:

- Grassland Specialist for the Nature Conservancy Council, which gave him an opportunity to get to know most parts of England, Wales and Scotland.
- Head of Habitats Branch of the Joint Nature Conservation Committee, where he was responsible for implementation of the Habitat Directive in the UK - which gave him plenty of experience of meeting rooms in Brussels.
- Principal Ecologist / Principal Specialist - Terrestrial Ecosystems at English Nature / Natural England where he has been involved in the interpretation of science for policy makers in a range of subject areas, including climate change.

His lecture will cover the following themes:

There is clear evidence that biodiversity is changing due to climate change but much remains uncertain about the future. As is recognized in the recently published Stern Report, there is a need for us to take action as soon as possible. In this spirit, in May 2007, Guidelines about climate change adaptation were published by the UK Biodiversity Partnership, and it is the aim of this talk to explain the ideas and ecological principles which lie behind the guidelines.

It is foreseen in the guidelines that protected areas such as Sites of Special Scientific Interest will change with climate, but conserving these and other areas of high quality wildlife habitat will be essential.

Locally maintaining and enhancing landscape variety in terms of vegetation structure, slope, aspect and other features will be required. Changes in land use will also be needed if we are to create landscapes with the connectivity and ecological networks that will allow the less mobile species to disperse in response to climate change.

Some of our greatest challenges are on the coast, due to sea level rise, and in the management of rivers, where increased flood risk is predicted. A number of issues affecting habitat management can be identified, including the need to rethink time of year at which grazing and cutting are carried out and increased fire risks.

One of our greatest challenges is understanding which part of biodiversity change is due to climate change and which part is due to factors such as eutrophication; otherwise our conservation strategies will be ineffective. We will also need to adopt more flexible conservation targets unless we are to use resources unwisely.

16 November ‘Case Studies of Adaptation and Mitigation Measures on Specific Sites’

This session will review actions on three contrasting sites, followed by a panel Question & Answer discussion

1. ‘Climate change and Burnham Beeches - work being carried out to adapt and mitigate’

Andy Barnard’s interest in countryside management started in 1976 when, as an eighteen year old, he moved to the Peak District National Park. He joined the Park Ranger Service as a volunteer and then moved to part time and seasonal work. He left the Peak Park Ranger Service in 1983 to join the National Trust as the Area Warden for Edale. Here he had the privilege to manage the high moors of the Kinder Scout plateau as well as the Winnats Pass, Mam Tor and their associated hill farms.

Andy joined the City of London Corporation in 1996 as Superintendent of Burnham Beeches NNR. This role has given him the opportunity to manage one of Britain's best loved landscapes as well as expand his experience to include planning, sustainable building and transportation issues in the peri-urban environment, - the urban-rural transition zone.

He gained an MSc in Countryside Management from Manchester Metropolitan University (1996) and a Post Graduate Diploma in Business Administration at Reading University (2000). He is a member of the City of London's Climate Change and Sustainability Working Parties and Chairman of the Biodiversity Working Group. Hobbies include photography, hill walking and working his sheepdogs.

His case study will cover the following themes:

Burnham Beeches NNR is one of the UK's most loved and visited ancient woodlands. The impact of climate change on its complex series of habitats may be relatively swift and profound. The work currently being carried out to mitigate and adapt to climate change will be outlined and its effectiveness and sufficiency discussed.

The role of the countryside manager to pioneer issues and influence regional and national decision makers is a 'growth industry' particularly with regard to planning frameworks, transportation plans and the management of projects at a landscape scale.

2. ‘River restoration London: taking action to address climate change impacts on biodiversity’

Dave Webb is a Conservation Technical Specialist for the Environment Agency. Having been involved in river restoration in London since the early 1990's, Dave was responsible for the production of the South London River Restoration Strategy and has been directly involved in numerous restoration projects. Dave worked on secondment to the Department of the Environment, Food and Rural Affairs (Defra), providing scientific advice to policy divisions on a range of biodiversity issues, with particular emphasis on climate change, representing Defra on the MONARCH project steering group. More recently, Dave provided advice on the development of environmental infrastructure policies in both the South East Plan and the Further Alterations to the London Plan. He is currently the Chair of the Rivers and Streams Habitat Action Plan, and is working on the development of a London Wide River Restoration Action Plan, as well as continuing to provide practical advice on restoration schemes in London and the South East.

His case study will cover the following themes:

Since 1999 approximately 1km of concrete river channel each year has been restored in London. A London wide target has now been agreed to restore 15km of river by 2015 and 25km by 2020. The current programme provides a practical example of how to respond to climate change. The lecture provides background on the development of the programme and discusses how the programme contributes to establishment of ecological resilience and develops the capacity for systems to adapt. The need to develop networks will be examined and the measures required to deliver a network will be discussed.

3. ‘Landscape scale projects and ecological networks, can they form the basis for a nature conservation strategy against the backdrop of climate change?’

Dr Tony Whitbread is the Chief Executive of the Sussex Wildlife Trust. He started his career in nature conservation with the then Nature Conservancy Council initially working as a biological surveyor and then compiling Ancient Woodland Inventories for counties around England and Wales. Still in the NCC he later carried out National Vegetation Classification woodland surveys, in the process producing a summary of the woodland chapter, and assisted the NCC with survey and monitoring work following the 1987 storm. He then moved to the Royal Society for Nature Conservation to co-ordinate the response of the Wildlife Trusts to the storm and produced documents outlining some of the positive effects of natural disturbance. He joined the Sussex Wildlife Trust as Head of Conservation in 1991 and became Chief Executive in April 2006. He has an ongoing interest in woodland ecology including woodland dynamics, natural processes etc, and has represented the Wildlife Trusts on several woodland forums.

His case study will cover the following themes:

Whilst there is a strong scientific consensus that climate change is happening and even broad agreement on what the effects might be on a national to international scale, the effects at a regional or local scale are far more difficult to predict. A nature conservation strategy is therefore needed that might allow for greatest environmental adaptability even though the magnitude, nature or even the direction of any local change may not be known. Nature is robust and has responded to changes in the past (although it is arguable whether climate change was as rapid as that expected now), but the current fragmentary nature of habitats and ecosystems probably hinders wildlife movement and habitat adaptation. Thus, as climate changes, the inability of habitats to adapt may result in ecosystem degradation, resulting in significant species loss and possible breakdown in ecosystem services. Whilst recognizing that the science may be uncertain, it is suggested that an ecological network approach may offer the best insurance policy for our wildlife. This case study will look at ideas for an ecological network throughout Sussex and the South East and outline some work being done to develop larger more ecologically viable units within the area.

Chairman for Panel Discussion on 16 November

Richard Clarke is Senior Lecturer in Conservation at Birkbeck's Faculty of Continuing Education. He is Course Director for the Faculty's environment programme, including the Certificate and Diploma in Ecology and Conservation, and the postgraduate Diploma in Countryside Management, and the Masters' programme in Protected Area Management. His teaching and research interests focus on protected area management and management planning and on the relationship between landscape protection and sustainable development, both within the UK and at a European level. He has wide experience of training and consultancy for bodies such as The National Trust and English Nature, as well as for individual AONBs and National Park authorities.

The Ecology and Conservation Studies Society

The Society aims to foster interest in conservation based on sound ecological principles by arranging lecture courses, field visits and meetings, and by keeping its members up to date on literature, new concepts, research and practical field studies techniques. Membership is open to all who have relevant experience or interests.

Non-members are most welcome at these lectures series.

The Society's Spring 2008 Free Public Lecture Series will be held on six consecutive Friday evenings from 8 February to 14 March inclusive, on

'Global Impacts of Climate Change: the human dimension'

For details in late autumn 2007, watch our web site or contact: -

for general details, tel: 020 7679 1069, or e-mail: environment@fce.bbk.ac.uk
for queries on lecture content, tel: 020 8546 7986, or e-mail: una.sutcliffe@btinternet.com

Web site: <http://www.bbk.ac.uk/ce/environment/> [follow the link to the Society]