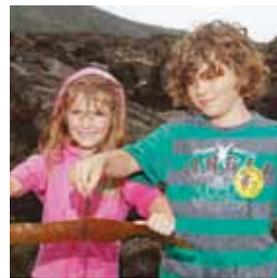
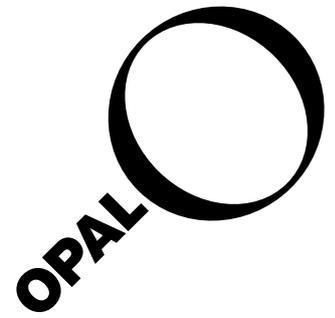


# EXPLORE NATURE

## OPAL ANNUAL UPDATE

2009/2010



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Introduction	3
International Year of Biodiversity 2010	4
Taxonomy	5
Natural history societies and recording schemes	6
OPAL Soil and Earthworm Survey	8
OPAL Air Survey	9
OPAL Water Survey	10
OPAL Conference	11
OPAL South East	12
OPAL South West	12
OPAL West Midlands	14
OPAL East of England	15
OPAL North East	15

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## Introduction

Linda Davies, OPAL Director

OPAL was launched in December 2007 and since then many thousands of people have participated in its activities. From learning how to identify spiders and frogs to collecting weather data and investigating air quality, there is something in the OPAL programme for everyone.

OPAL is about working together to understand and protect the world we live in and we are delighted that so many people have decided to become involved. We have distributed 40,000 field guides for our third national survey and we know that, as the results come in to the OPAL database, we are going to learn a huge amount about England's freshwaters. Many of the guides were sent to participants who contributed to the soil and air surveys in 2009, who tell us that they love being outside and learning more about the world around them. This growing OPAL community is keen to find out what their results mean and how their data can be used by scientists and conservationists to protect our environment. OPAL provides regular updates of survey results so we can better understand the impact that everyday life has on the local environment. We develop new skills from surveying the areas where we live and discovering a diverse range of plants, animals and fungi.

We have been overwhelmed by the interest shown in OPAL and also by the time, care and attention contributed to the project by many people. It is clear that there is a real thirst for knowledge and a willingness to learn about the environmental challenges facing us today. If you have not already done so, we would urge you to take part in

an OPAL event this year. Visit our website to find out about research projects in your area. You can download national survey packs and not only will you have fun taking part, but also collect highly valuable information. We cannot care for our local environment until we know about it and the pressures it faces. By working together we can make a difference. This year we acknowledged the very special contributions made to OPAL through our OPAL Community Champion Awards. I would like to thank all our Community Champions, and everyone else who has helped make OPAL such a success.

## International Year of Biodiversity 2010

Since its inception, the OPAL partnership has promoted the importance of understanding, documenting and conserving biodiversity. Biodiversity is the variety of life on Earth, the nature that surrounds each and every one of us. It is essential for sustaining the natural living systems or ecosystems that provide us with food, fuel, health, wealth and other vital services. Humans are part of this biodiversity too, and have the power to protect or destroy it. OPAL recognises the need for people to understand what biodiversity means and what it does for them, so that as a society we place greater value on our natural capital.

2010 has been declared the International Year of Biodiversity (IYB) by the United Nations. It is a year in which we celebrate the diversity of life on Earth and take action to safeguard it for future generations.

A highlight of the IYB programme will be the Biodiversity Summit in Nagoya, Japan, in October. In addition to establishing goals for post-2010 global conservation efforts, conference participants will report back on progress made towards previous targets and make plans for the future.

The UK partnership for the International Year of Biodiversity (IYB-UK) is being co-ordinated by the Natural History Museum under the banner Biodiversity is Life. The partnership is a diverse, informal network of more than 350 organisations that have come together to promote the understanding of biodiversity during IYB. Partners range from universities to media organisations and museums to theatre companies.

OPAL joined this partnership as an organisation committed to raising awareness of the importance of protecting our natural resources. IYB-UK provides a real opportunity to leave a legacy of greater public understanding of the intrinsic importance of our natural world.

OPAL has a busy programme of activities during 2010, many of which will contribute to developing people's understanding of biodiversity. Partners are taking different approaches to engage the public to increase their interest, understanding and the value they place on the natural environment, and to point the way for the future. In particular, the national survey programme will lead to an increased understanding of the state of our environment.

Surveys exploring the health of our soils and air are already established and, during 2010, surveys that look at water and biodiversity will be launched. All ages and abilities are encouraged to take part, and these contributions will play an important role in helping scientists to build up a picture of England's natural environment.

As humans, we are an integral part of nature. Our fate is closely linked with biodiversity. Much has changed in our understanding of biodiversity since the Rio Earth Summit set up the Convention on Biological Diversity in 1992 and, the more we understand the complex interdependence of species and habitats, and its importance, the greater the urgency is to act.

We need to take action in 2010 and beyond, because biodiversity is life – biodiversity is our life.

Find out more about the International Year of Biodiversity at [www.biodiversityislife.net](http://www.biodiversityislife.net)





Taxonomy

To fully understand England's biodiversity, we need to be able to identify which species are present and assess how their populations are changing. Taxonomy – the science of describing, naming and classifying life – is fundamental to this process. The OPAL taxonomy programme aims to enthuse people about the richness of UK wildlife and provide tools that enable participants to understand and document local biodiversity. By promoting awareness of the importance of taxonomy and demonstrating how to get involved, OPAL hopes to help reinvigorate and build the taxonomic skills base.

Over the past year, OPAL partners have developed and delivered a wide range of resources on the topics of wildlife identification and recording. Regional centres have run identification courses on a variety of subjects, from mosses and moths to lichens, while the soil and air centres have produced easy-to-use identification keys for earthworms and lichens. More recently, guides to dragonflies, frogs and toads have been produced, with much more to come later this year in our biodiversity survey.

As part of its dedicated programme of support, the Natural History Museum has produced a free taxonomy resource pack for secondary education and runs a series of events that allow interested beginners to learn from Museum taxonomists and naturalists. OPAL encourages participants to join their local natural history society as a way to progress their interest and skills.

Collectively, these projects are helping to build skills and demonstrate why it is so important to record the wildlife that surrounds us.

'We should preserve every scrap of biodiversity as priceless while we learn to use it and come to understand what it means to humanity.'

**E O Wilson**

# RECORDING AND MONITORING

Keeping up-to-date species records is vital in helping us to understand how and where biodiversity is changing. By looking back at records covering a period of time, it is often easy to see where wildlife is flourishing and where it needs our help or protection. Recording schemes and nature groups play a pivotal role in this process, providing thousands of records that can be shared through the National Biodiversity Network's (NBN) gateway. OPAL is further supporting this undertaking by developing new tools that aim to make the identification and recording of species easier for anyone to take part in.

This includes a guide on how to run a bioblitz, a new recording event that encourages communities to record species in one location over a short time period.

to create a profile and upload images of the animals, plants and fungi they find to share with the wider community. It is monitored by experts from a variety of areas, including the regionally based OPAL iSpot Biodiversity Mentors who each have their own areas of interest and nature specialisms. The experts and mentors help users with identification. All users are able to comment and suggest identifications, earning themselves increasing levels of expertise with each correct name given. iSpot is already being used by thousands of people, and in late 2009 it hit the headlines when six-year-old Katie Dobbins submitted an image of a furry moth she found on her windowsill. The moth was identified on iSpot,

## Natural history societies and recording schemes



### Indicia

The NBN has developed a new piece of software that aims to simplify the actual recording of species. The recording tool kit provides people with all the parts they need to create an online recording system to suit their needs. This means that a monitoring scheme can set up a framework for any species they wish to log. Indicia allows users to create their own data entry system that captures information about the species they have found. The data can then be extracted and analysed when it is needed.

### iSpot

iSpot is a website launched by The Open University (OU) with the aim of encouraging people to share nature. The site uses a social network format, allowing people

and received further verification from scientists at the Natural History Museum, confirming it as the euonymus leaf notcher, a species not seen in the UK before. The site has also partnered the British Science Association's What On Earth? website, a special initiative designed for National Science in Engineering Week.

OPAL has a dedicated programme to support the involvement of natural history societies, recording schemes and other wildlife groups. The project wants to learn from them and share in their extensive knowledge and enthusiasm for biodiversity. In turn, involvement with OPAL helps to raise the public profile of these groups and encourage participation in their activities.

In 2009, a consultation with natural history groups highlighted the need for events where societies could network, form partnerships and meet members of the public. In August 2009, OPAL ran a 24-hour coastal survey – or bioblitz – of Wembury Bay in Devon. It was undertaken by around 100 naturalists with more

Bat Weekend at the Natural History Museum kicked off a national partnership between OPAL and the Bat Conservation Trust (BCT). Bat-themed crafts, talks, displays and activities ran alongside the chance to meet live bats with a BCT volunteer. Ed Santry, Count Bat Project Regional Officer, said 'Bat Weekend was a wonderful opportunity for the BCT to promote the work of our organisation and raise the profile of bats. The Wildlife Garden is a great site for running these sorts of events and allowed us to engage with people of all ages and backgrounds.' In addition, BCT's regional staff have been working with OPAL community scientists to run bat-themed activities and events across England.



than 1,000 members of the public. The event was a great success and two more bioblitzes are planned for 2010. With the support of OPAL, the British Phycological Society has developed its own public survey, The Big Seaweed Search, which launched at the Wembury event.

Supporting groups such as the British Phycological Society to enhance their activities and expand their outreach is a core aim of the OPAL Grants Scheme. The first of three funding rounds launched in 2009, when 28 grants totalling more than £40,000 were awarded. The British Pteridological Society, a group of people interested in ferns, used their grant to run a family friendly Fern Day at Manchester Museum. The event attracted more than 1,000 people who were able to enjoy activities such as fern-themed quizzes, crafts, demonstrations and displays.

OPAL is also helping to establish new groups, such as the Earthworm Society of Britain (ESB). The ESB is developing resources to encourage OPAL Soil and Earthworm Survey participants to continue studying earthworms, providing a legacy that will continue well beyond the lifetime of the project.

'It was fantastic! I loved seeing the bats up close. Wonderful stuff.'  
**Jess**

# OPAL SURVEYS

The OPAL Soil and Earthworm Survey launched in March 2009 and thousands of people across England have submitted their results to the website. It has been an exciting year for the soils team that, through work with communities, has also inspired a huge number of people to get involved with soil-related activities. Thanks to the efforts of everyone who has taken part so far, the researchers in the OPAL soil centre have been extremely busy analysing the data that has been submitted. First of all, they compared the results submitted by members of the public against information that already existed about soil and earthworms. This helped to check the quality of the data, and demonstrated that it was suitable for investigating the differences between a range of soil types and

and analysis in these areas. Fieldwork will include collection of more detailed soil property information, measurement of concentrations of selected chemicals, and further earthworm analysis. The data will help scientists to better understand modern pressures facing soils in England and provide detailed information about earthworm populations in those areas. An extensive programme of events is also being planned that will highlight the results of the soil centre's activities. We hope local communities will continue to support our study by carrying out more surveys over the coming years.

## OPAL Soil and Earthworm Survey



earthworm populations. It also illustrated that public records recreated patterns seen in more traditional soil surveys and meant that the centre was able to use the data for further analysis. Each of the questions in the survey was studied to look for such patterns and interesting trends. In particular, there were some intriguing findings, when scientists examined the total number of earthworms found with distinct areas that appeared to have high and low numbers of earthworms.

Thanks to the results of the Soils Survey, the centre's work can now progress to study a number of areas in England where there appear to be interesting conditions. These are areas where there were a sufficient number of samples from the survey and where the responses provided exciting results. The soils team is now planning more in-depth data collection

'I enjoyed digging the hole and discovering worms.'  
**Pupil from Feversham College**

'Thank you for coming all this way and for the super, free packs.'  
**Teacher from Blessed Edward Oldcorne, Worcester**

In September 2009, OPAL launched its second national survey. The OPAL Air Survey was led by Imperial College London with the British Lichen Society (BLS) and asked participants to look at lichens as indicators of air quality. Apart from black particles, most air pollution is in gaseous form and therefore largely invisible. However, you may be able to smell the pollutants from car exhausts, farmyards and heavy industry. In terms of their effects on the natural environment, the most important pollutants are ozone and those that include nitrogen, such as ammonia and oxides of nitrogen. The OPAL Air Survey is focused on these nitrogen-containing pollutants and the use of lichens to give an indication of local air quality. Lichens are bioindicators, which means they are sensitive to changes in

local environment. Many have voluntarily shared their knowledge and assisted OPAL community scientists and the general public in the use of survey materials. Their hard work has raised awareness of the great variety of lichens and the habitats they grow in. Collaboration with other OPAL partners, such as the Open University and the Field Studies Council, has helped to develop the skills of people whose interest in lichens has been sparked by the survey.

So far, results show nitrogen-sensitive lichens are on their way back across much of the country, especially in areas that were formerly lichen deserts, such as London and Birmingham. This is probably due to the decrease in sulphur dioxide pollution over recent years. According to our survey

## OPAL Air Survey



the environment. The results from the survey will build a national picture of the distribution and abundance of lichens that can be affected by pollution. It will also create databases for mapping the individual indicator species in relation to pollutant concentrations. When combined with past records, this new information will provide an insight into environmental changes geographically, and over time.

Thanks to the efforts of those involved, a number of resources have been created, such as lichen boxes, which can be used to assist in the identification of different species. There are also many online resources, including the survey work pack, lichen keys, powerpoint slide displays and films. BLS members have worked with members of the public to introduce them to lichens and the diversity of species they can find in their

results, poor air quality has been indicated in country areas where ammonia levels are high due to intensive agriculture, but nitrogen-loving lichens are increasing everywhere, in both agricultural and urban areas.

*'I enjoyed learning in a different atmosphere. I also liked having an OPAL specialist teaching us about lichens.'*

**Pupil from Blessed Edward Oldcorne, Worcester**

*'The outreach session gave us the opportunity to become more familiar with our local environment and open our eyes to what is on our doorstep.'*

**Teacher from New Moston Primary, Manchester**

# OPAL SURVEYS

The OPAL Water Survey launched in May 2010 with the aim of enthusing as many people as possible about the freshwater environment. At the same time, the survey team wants their help to collect data on lakes and ponds across England, particularly garden and urban ponds, which are usually overlooked in national studies.

The OPAL water centre encourages people to explore local lakes and ponds and identify the aquatic invertebrates they find into simple classes. The presence of these classes can be used to produce a health score for that site. Participants can then see whether the pond they have surveyed is rich in aquatic life or if biodiversity could be improved. The Water Survey pack also includes basic measures for two water quality indicators, 'pH measured' using dip strips and 'water clarity measured' using the Opalometer disc, a simple device developed

the BSBI are trying to track the invasive least duckweed. It will also be the first national survey of water clarity undertaken in the UK. Most importantly, the OPAL Water Survey will encourage people to explore lakes and ponds safely, while finding out about the diversity of life there.

## International Biodiversity Day

On 22 May 2010, the OPAL water centre marked International Biodiversity Day by organising a major event at Fleet Pond nature reserve in north Hampshire. The team regularly monitors the park as part of its ongoing OPAL research programme, so were there on the day running lots of aquatic-based activities, including the national survey. The event was hosted by the Fleet Pond Society and its chairman, Colin Gray, was also present. He explained, 'We are so pleased that OPAL chose Fleet

## OPAL Water Survey



by the water centre team especially for the survey. The pack also includes identification cards on adult dragonflies and damselflies produced with the British Dragonfly Society (BDS), amphibians produced with Amphibian and Reptile Conservation, and duckweeds with the Botanical Society of the British Isles (BSBI), plus a pond habitat poster produced with Buglife.

It is hoped that the survey will result in a large-scale assessment of lakes and ponds, providing lots of useful new data. The survey team will be able to assess invertebrate class distributions and health scores with respect to the measures of water to quality, pollution indicators and recorded site characteristics. The survey will also contribute to knowledge on the distributions of dragonfly and duckweed species. The BDS will use the data in a new atlas while

Pond for this major event on such an

important day. We have learnt a lot about our pond from the OPAL water team and it will help us deal with some of the ecological issues that it faces.'

'Since the water team's first visit, they have produced some remarkably valuable data on our pond.'

**Colin Gray, Chairman, Fleet Pond Society**

## OPAL Conference

In November 2009, OPAL held its first conference at the National Science Learning Centre, University of York. It was well attended by representatives from a wide range of stakeholder organisations. Vice-Chancellor Professor Brian Cantor opened the proceedings, which included a keynote speech from Sir Clive Booth, Chairman of the Big Lottery Fund. Attendees enjoyed presentations from regional partners, which demonstrated the breadth of events and activities within the OPAL programme and the wide range of people from different backgrounds, abilities and ages that have taken part in OPAL.

### Community Champion awards

The conference provided a wonderful opportunity for OPAL to launch its Community Champion awards and publicly recognise the exceptional contribution made by individuals, groups and organisations across the country to the OPAL programme.

#### The winners

##### East of England

**Save the Planet Luton** has been extremely active in involving disadvantaged communities in its ongoing work to protect and preserve the environment.

##### East Midlands

**Joint winner: Daniel Bissessar – Young Diverse Minds (YDM)**

Daniel works with YDM, an organisation that supports young people with mental health needs. In 2009, YDM worked with OPAL to help monitor and protect declining heathland, and Daniel even recorded music about the collaboration with OPAL to inspire others to get involved.

**Joint winner: Odhran O’Sullivan**

Odhran has helped run the Soil and Earthworm Survey and has volunteered at many OPAL events in the region. His enthusiasm and expertise have been invaluable to the team.

##### West Midlands

**Tony Fox – Friends of Cannon Hill Park**

Since 2007, Tony has worked closely with OPAL West Midlands and has been central to the planning and running of several of OPAL's most successful events. He also sits on the OPAL Project Advisory Board.

##### London

**Lewis Herlitz – Pepys Community Forum**

Lewis has tirelessly worked to promote the OPAL Air Survey among residents of the Pepys Estate in Lewisham.

##### North East

**Grow Your Own Five Project**

In April 2009, more than 1,000 young people from Tanfield schools became involved in the Grow Your Own Five project. The project was delivered in partnership with OPAL North East and gave young people the chance to grow their own food and learn about the global issues of food production.

##### North West

**Joint winner: Hamer Community Primary School, Rochdale**

The whole school has thoroughly embraced OPAL, taking part in surveys and inviting OPAL scientists to run science days.

**Joint winner: Myerscough College Allstars, North Preston**

The group leaders have used OPAL resources with great imagination, tailoring surveys to suit individual needs and abilities. This award recognises the efforts of both the students and the group leaders.

##### South West

**Torbay Coast and Countryside Trust**

Torbay Coast and Countryside Trust is a charity that runs a range of community education and sustainability initiatives in the Torbay area. Members have been active and creative in promoting and carrying out the OPAL surveys with local communities.

##### Yorkshire and Humber

**Kevin Rich, volunteer**

From spider workshops in the snow to delivering postcards in Hull, Kevin has always been delighted to give up his time for OPAL events. He is a highly regarded member of the Yorkshire and Humber team.

# REGIONAL ACTIVITY

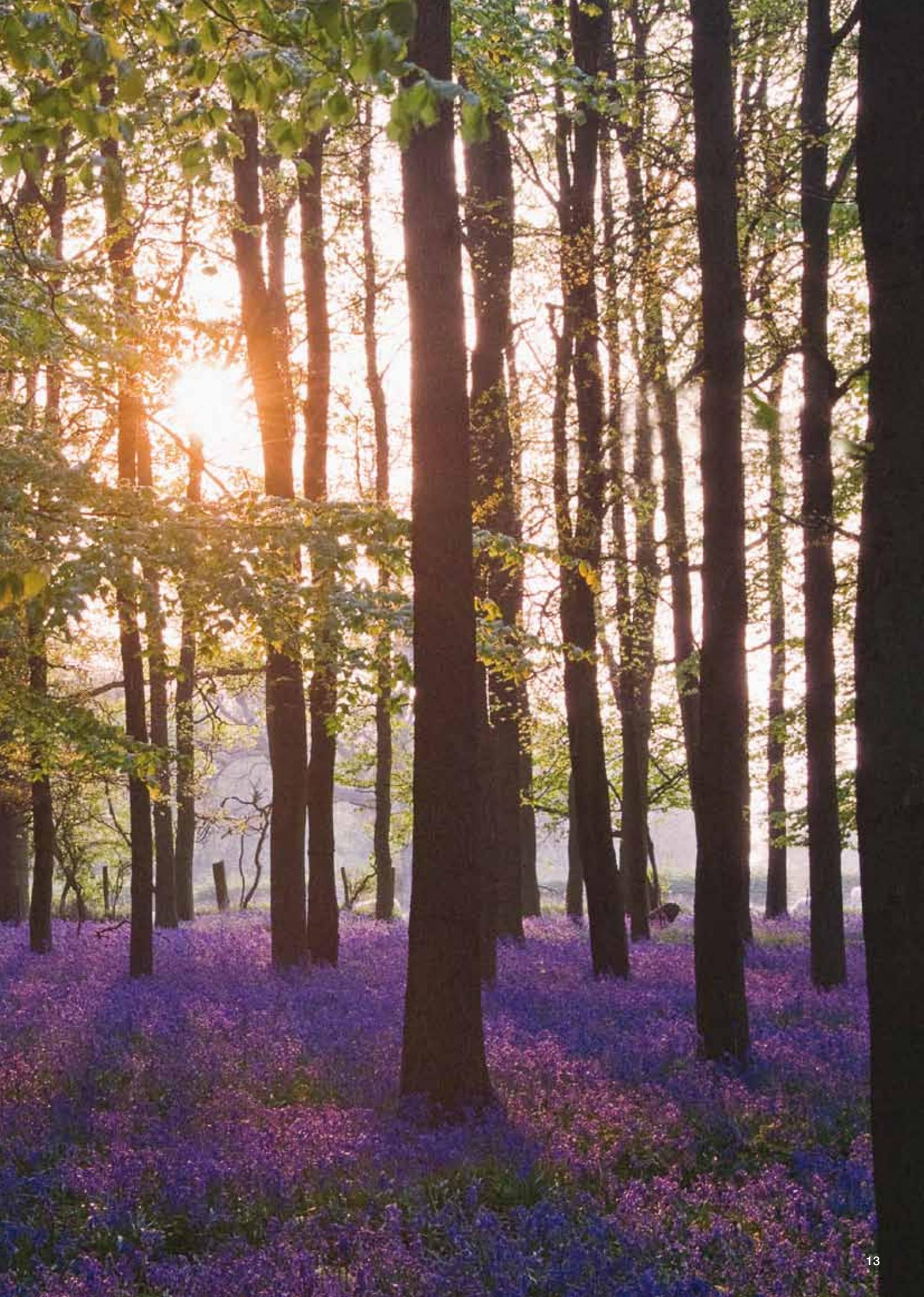
## OPAL South East

Brighton and Hove City Council (BHCC), Duvas Technologies and Imperial College London are undertaking a project that involves the rapid monitoring of traffic emissions near Balfour Junior School. The emissions from vehicles passing the school will be monitored and then displayed in real time in the schoolyard to raise awareness of the impact individual vehicles can have on local air quality. The main objective of this work is to assess the impact of a national travel initiative – Walk To School week (WTS) – from several perspectives. OPAL South East will run sessions and activities that allow school pupils and teachers to learn about the variety of methods available to monitor atmospheric pollutants. It will also help them to develop an understanding of the links between air quality, biodiversity and environmental health. Visits for the pupils to the college's outreach facility in central London are also planned, to build on their knowledge about factors affecting air quality and its impacts on human health and the natural world. Because the school has no playing field, OPAL South East also plans to develop existing links with other groups in Brighton to facilitate educational excursions for pupils to local green spaces.

## OPAL South West

OPAL South West is working in partnership with Moor Trees, a woodland restoration and conservation volunteering charity. Each year the charity works with hundreds of volunteers to plant woodlands in and around the Dartmoor National Park, using trees grown from locally collected seeds in the charity's tree nurseries. Moor Trees has now planted 16 woodlands, with an average size of 2.3 hectares, which the charity hopes will mature into woodland habitats comparable to the adjacent mature woodland. The OPAL South West team selected eight comparable planted woodlands of different ages. They carried out vegetation surveys with volunteer groups, using quadrats at random points in the woodlands. By combining these with surveys of the adjacent mature woodland and pasture sites, a snapshot of the past, present and future of the flora found at each site was created. Volunteers came from a range of backgrounds and included school groups, Groundwork, BTCV and a corporate teambuilding group. The analysis of the data so far has shown that the plant communities of the three habitat types are significantly different. This will make it easier to monitor the transition of newly and recently planted woodland sites to a mature woodland community. This summer, the South West team will be joined by an MSc student who will look at the invertebrate communities of the eight different sites.





# REGIONAL ACTIVITY



## OPAL West Midlands

The recent rapid global decline in populations of honeybees has received a lot of press coverage and greatly concerned many people. This is because of the vital role honeybees play as perhaps the most important insect pollinators in the world. Without insect pollination of crops we would be without around one third of the food we eat, from apples to strawberries and coffee to cotton. The decline of the honeybee makes us more reliant on species of wild bee for pollination, so it is critically important that we understand their ecology and the role they play in agricultural and semi-natural ecosystems. In the UK there are

around 250 species of bee, many of which will nest in artificial bee hotels that can be installed in parks and gardens. OPAL West Midlands has installed 130 bee hotels at allotments, urban farms and wildlife information centres across the region. The hotels can be opened up to see the juvenile bees inside, which facilitates their study and makes them an even more useful educational resource. The team has also run 20 informal bee talks for allotment holders so they can find out more about the life cycle and benefits of the different bee species. OPAL West Midlands is also encouraging people to install their own bee hotels, sending out free moth kits and producing ID guides.

'I was one of the lucky ones who received a free moth kit offered by OPAL West Midlands and the Garden Moth Scheme (GMS) last winter. My highlights included a couple of hawkmoth species, a bird's wing and a gold spot – what a little beauty! Thanks to OPAL and GMS for getting me started.'

**Graham Birkett**



### OPAL East of England

OPAL East of England is undertaking research focused on orchards and the biodiversity they support. In particular, the bryophytes (mosses and liverworts) growing on orchard trees are being investigated by an OPAL-funded PhD student who has been recording their diversity and distribution. Orchards are known to support a range of interesting species of plant and invertebrate, and gaining an understanding of how species respond to their environment can inform management approaches. Thanks to the hard work of the East of England team, OPAL is recognised as a contributor to the new Habitat Action Plan for orchards in Hertfordshire, working with the Hertfordshire Orchard Initiative. Many orchards in the region are small and have very diverse fruit varieties, and some are now incorporated in community parks where local people assist in maintaining them. New orchards are being planted and local communities are benefiting from these fascinating and diverse habitats that are also a source of locally produced fruit. Community group involvement in recording a limited number of recognisable moss species in orchards will assist the PhD project by increasing the scale of sampling in each orchard. People involved in initial surveys in relatively new orchards will be enabled and encouraged to continue to monitor the biodiversity in their orchard as it develops. It is hoped they will gain expertise in identifying species from these under-recorded groups of organisms.

### OPAL North East

OPAL North East is based at Moorbank Botanic Garden, part of Newcastle University. The group has created many engaging activities for visitors to the garden, including a Forensic Botany workshop to make taxonomy more appealing to young people. In this activity, visitors learn how plants can be used to solve a murder mystery through a variety of taxonomic approaches. The North East team has also created many successful community partnerships with groups such as Rednile (a group of local artists), and young people from the fostering service. Participants assembled pinhole cameras and were taken on an exploration through the garden. They investigated plants relevant to the Victorian era and the importance of systems used to name and classify them. The team has also worked with the Comfrey Project, a charity that engages with refugees and asylum seekers on local allotment sites. OPAL North East has held several successful public open days at Moorbank, which have included a moth and butterfly day with local experts and an educational trail. They have also been working with the Bat Conservation Trust and have held a bat-themed open day and Introduction to Bats workshop. The North East team has worked with around 1,000 young people on the Grow Your Own Five project, which bought together local allotment gardeners to share their love of the outdoors and knowledge of growing foods with younger people. This popular project facilitated a truly inter-generational redevelopment of local environments and communities.



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This update is also available online at  
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Partners

Imperial College London (lead)  
Field Studies Council  
National Biodiversity Network  
Open University  
Royal Parks  
The MET Office  
The Natural History Museum  
University of Birmingham  
University of Central Lancashire  
University College London  
University of Hertfordshire  
University of Newcastle  
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Associates: Environment Agency, Defra