Biodiversity News

Contents - News - Features - Local & Regional - UK BAP Updates - Publications - Events

Issue 52

Winter Edition

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Winter

In this issue

Editorial

News

Defra Update 4

International Year of Biodiversity—over but not forgotten 5

Serious New Tree Disease found in Britain 7

Lincolnshire Farm Wins Prestigious Conservation Award 9

Worcestershire Woodland Guidelines Website 11

Local & Regional

Hartlepool Hedgerow Survey 26

Rare Crickets Stop Conservation Work in Wakefield 28

South West Cheshire Dormouse Project 29

Grazing Conservation 31

Northumbrian Water Articles 32

Community Action in Dumfries and Galloway 33

Your Natural Heritage Project 35

Mendip Hills AONB Barn Owl Project 36

Warwickshire Dormouse Conservation Group 37

Helping One of Britain's Rarest Moths 38

Wales' Most Secretive Butterfly 40

Tayside Mesotrophic Lochs Project 42

Cairngorms Raptor Tracking Project 44

UKBAP Update

Features

Breckland—Nationally Important Biodiversity Hotspot 13

Honey bees—essential for apple pollination 16

Maximising the biodiversity value of flood storage schemes 18

Parc Slip Wildlife Survey, South Wales 20

Derbyshire's Veteran Trees 21

Glo-worms Light the Way 22

The 2010 Bedfordshire and Luton Environmental Education Show 23

Bumper Aspen Harvest at Community Tree Nursery 24

What a RELEAF! 25

Publications

Landmark Study on Cornwall's Wildlife 47

Brown Hares in Derbyshire Dales 50

Events

Biodiversity Education Survey 51

The Future of Biological Recording in Britain 52

WWT Half-term Holiday Fun 53

Festival of Nature 57

Year of the Bat 58

Free Public Lecture Series 59

CIWEM'S Annual Conference 60

Editorial

Welcome to Issue 52 of Biodiversity News!

We are now well into the new year, and in the wake of the International Year of Biodiversity, many are already looking to the future, and the exciting prospect of an International Decade of Biodiversity!

This will mean new targets and new challenges, a theme expanded upon at the recent UK Biodiversity Partnership Conference. All countries will be working hard to meet the Nagoya targets, and in England the Natural Environment White Paper and the New England Biodiversity Strategy will be instrumental in tackling these challenges; find out more in our Defra update.

I reopened the front cover competition for this edition, and received some beautiful entries. Congratulations go to winner Richard Ferris for his inspiring 'snowy plant', but the many very talented runners-up should also be acknowledged, and their pictures are displayed on the back page. I was delighted by the calibre of the entries, please keep them coming for the next edition.

We have also received a high calibre of articles, and I hope you will enjoy reading about the various shows, projects and surveys championing biodiversity up and down the country. They may inspire you to get even more involved; read our Events section to find out about upcoming opportunities!

Keep the articles coming and enjoy Biodiversity News!

Sophie Rogers

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Click on the boxes to see previous issues this past year

51 - autumn | 50 –summer | 49 - spring

Defra Update

Natural Environment White Paper

In July 2010, Defra launched a discussion document *Shaping the Nature of England* with the aim of encouraging debate about how we can best protect and enhance our natural environment and the valuable services we derive from it. This was a call for big ideas. We received over 15000 inputs into this process. We would like to thank all those that contributed their views. We have now published the analysis of the responses and a report on the workshops that were held in Autumn 2010. These documents are available at:

http://ww2.defra.gov.uk/environment/natural/whitepaper/

Defra will publish the Natural Environment White Paper in spring 2011.

Matthew Sabourin | Natural Environment White Paper

020 7238 6018 | Matthew.Sabourin@defra.gsi.gov.uk

New England Biodiversity Strategy

A New England Biodiversity Strategy, which will run from 2011 to 2020, is currently under development. Under this strategy, the wider biodiversity partnership will continue to play a hugely important role and stakeholder views are being gathered as part of an ongoing programme of engagement. The strategy is due to be published in May 2011, following the Natural Environment White Paper.

Find out more about what we are doing in the UK on the Defra website:

http://ww2.defra.gov.uk/environment/natural/biodiversity/uk/

The Big Tree Plant

The Big Tree Plant is a campaign to encourage people and communities to plant more trees in England's towns, cities and neighbourhoods. It is a partnership bringing together national tree-planting organisations and local groups working with Defra and the Forestry Commission to plant trees throughout England.

Anybody can get involved by planting and caring for trees to help make neighbourhoods more attractive, healthy places to live.

http://thebigtreeplant.direct.gov.uk/index.html

IBDAs and Think BIG

The England Biodiversity Group will be supporting Integrated Biodiversity Delivery Areas (IBDAs) and there will be a workshop in March to discuss the lessons learnt from the pilots for the implementation of Nagoya targets. The EBG will also be publishing a report, 'ThinkBIG', this spring. The report intends to set out the sector's drive towards landscape-scale delivery, and will include detail about and experience gained from existing landscape-scale projects across the sector, as well as information about the trial IBDAs.

The International Year of Biodiversity—Over But Not Forgotten

The 2010 UN International Year of Biodiversity ended officially in Japan on 18 December with a ceremony in Kanazawa to mark the start of the International Year of Forests 2011. The IYB communications campaign succeeded in engaging nations, and people, worldwide on the importance of protecting biodiversity.

Across the world, the IYB campaign was adopted by over 1500 organisations in 146 countries, including 90 different governments, 388 NGOs, 3 indigenous communities and 21 UN agencies. These embraced the campaign's messaging, logo and slogan 'Biodiversity is life. Biodiversity is our life.' Available in 29 languages, the campaign was seen by millions from Brazil to Britain, Georgia to Japan.

Following the positive outcomes of the crucial COP10 conference in Nagoya, Japan, in October, the success of the International Year of Biodiversity (IYB) was recognised when the global Biodiversity is life communications campaign picked up the Best Green International Campaign award at the Global Green Awards presented in London. The campaign's message celebrated love for nature.

The IYB logo, which was developed by Futerra Sustainability Communications for the CBD, became internationally recognised, featuring at the African Cup of Nations where it was used as the official logo for Puma's 'Play for Life' Africa Unity football kit; it appeared at highest profile summits and conferences; and even appeared as a floral well dressing in Derbyshire.

Richard Benyon with children at the Natural History Museum on International Day for Biological Diversity (22 May 2010) © Natural History Museum 2011

In the UK a small team, based at the Natural History Museum London, and funded by Defra, helped to build and support an informal, voluntary partnership to back the campaign during 2010 across England, Scotland, Wales and Northern Ireland (www.biodiversityislife.net). The IYB-UK partnership grew to encompass more than 450 organisations including businesses, NGOs, academia, faith groups, and cultural organisations. The partners held over 1300 events around the UK that allowed people to learn more about nature, get involved and support initiatives to preserve biodiversity.

As you would expect most of these events were held over the summer months and included guided walks, surveys, hands-on activities and talks. Many events were held on or around the International Day for Biological Diversity on 22 May. Bioblitzes were a particular hit with everyone encouraged to scrutinize the wildlife in a specified green space to collect data on as many species as possible in a 24 hour period. Over 30 Bioblitzes were held all over the country last year from Cornwall to the Cairngorms.

Partners used many approaches to engage the public in the plight of our wildlife from tolling church bells for extinct species, to running a competition to come up with life-saving names for species under threat, to asking people to put up bird boxes and build bug hotels. Bees were a popular theme inspiring several art projects around the country as well as surveys of bees and bee-friendly plants. In London the country really came to town in the form of an urban orchard planted on neglected land, 250 elaborately decorated elephant models formed a trail across the Capital to help save the Asian elephant, and the Chelsea Flower Show featured a biodiverse garden.

Chris Packham at the Natural History Museum on International Day for Biological Diversity (22 May 2010) © Natural History Museum 2011

The Young Darwin Prize engaged young people to make films about local biodiversity projects. The winners included an innovative business producing bio-fuel and an entertaining romp through the merits of log piles, ponds and compost heaps. To encourage everyone to develop an appreciation of nature, as well as helping science, many partners ran surveys asking people to spot garden birds, waterway wildlife and alien species; to count butterflies, ladybirds and trees; to test the water in ponds and to time the blooming of spring flowers.

Caroline Spelman visited the Natural History Museum soon after becoming Secretary of State – here she is seen on a tour of the Darwin Centre with NHM Director Dr Michael Dixon and IYB-UK co-ordinator Dr Robert Bloomfield © Natural History Museum 2011

Biodiversity received a precious Christmas present in the final days of the IYB – the UN gave final approval to the creation of the Intergovernmental Science-Policy Platform on Biodiversity and Ecosystem Services (IPBES) which will look at the evidence on the causes and effects of the loss of natural resources and into policy options. It is hoped that this will give biodiversity the same clout as climate issues which already has its own Intergovernmental Panel on Climate Change.

Following COP10, a call from delegates resulted in the UN passing a resolution number 65/161 to begin to plan for a decade of biodiversity, running from 2011 – 2020, which will continue the good work begun during the IYB. Watch the CBD website for more news on the decade of biodiversity www.cbd.int

Serious new tree disease found in Britain

A deadly tree disease never previously found in Britain has been confirmed at a country park on the shores of Loch Lomond, Scotland.

Forestry Commission scientists have confirmed that *Phytophthora lateralis* (*P. lateralis*), a fungal pathogen that kills trees' roots, has killed at least one Lawson's cypress tree at Balloch Castle Country Park. Many of the other 80 Lawson's cypress in the park also have symptoms consistent with death or decline due to *P. lateralis* infection. Samples from some of the others are being examined, but the scientists say it is highly likely that *P. lateralis* is the cause of their condition.

Lawson's Cypress Tree © Forestry Commission

Twenty-seven dead and dying yew trees in the park are also being tested to try to establish the causes of their condition. The park is a popular visitor attraction about 32 kilometres (20 miles) north of Glasgow, but the pathogen is harmless to humans and animals.

Spores that spread the disease can be transmitted in contaminated soil, as well as on pruning equipment and other tools. Biosecurity measures will be put in place, including the installation of disinfectant mats at exit points from the park to reduce the risk of spreading the disease on contaminated footwear. All visitors and staff will be asked to use them as they leave the park. Notices will be erected to inform visitors of the infection and asking them to take other simple biosecurity measures such as keeping to footpaths, keeping dogs on leads, and refraining from taking cuttings or other plant material from the park.

Until recently, *P. lateralis* was mostly known in the western states of Canada and the USA, but outbreaks have also been recorded recently in France and The Netherlands. Dr Bob McIntosh, Director of Forestry Commission Scotland, said:

"This is a very worrying development. *P. lateralis* is a particularly virulent pathogen, and very few trees survive an attack.

Although its main victim is Lawson's cypress, it can kill other species, particularly Pacific yew (*Taxus brevifolia*), a close relative of our native 'English' yew (*Taxus baccata*).

It could also be serious for the ornamental plant industry if it became established in Britain, because Lawson's cypress - and its various colourful cultivated varieties - are some of the most important conifers in our ornamental plant trade.

Scientists in our Forest Research agency are researching the outbreak as quickly as possible to find out as much as they can, although the current poor weather is hampering the investigations. We are also working closely with West Dunbartonshire Council to fell and destroy the dead and dying trees and to implement biosecurity measures at the park to minimise the risk of spreading the disease.

Anyone living in the area who has Lawson's cypress on their property is asked to check them carefully for signs of dying foliage and to report suspicious symptoms to us. We will be carrying out our own surveys in the area as well."

Councillor Jim McElhill, the council's spokesperson for Environmental & Economic Development, added,

"The council's park staff will place disinfectant mats at exit points from the park, and public notices are also being displayed in the park to inform visitors of the infection and encourage them to observe sensible biosecurity measures. This soil-borne fungus poses no risk to the public or their pets, but I would ask residents and visitors to please work with our staff and follow the advice in the public notices displayed in the park."

Symptoms of *P. lateralis* infection on Lawson's cypress include the foliage initially appearing slightly lighter in colour than that of healthy trees, then withering and turning reddish-brown. Also, as the infection extends from the roots and root collar up the trunk, tongues of killed inner bark become visible by their darker colour, and the entire trunk can be girdled.

Anyone concerned that their Lawson's cypress trees might have the infection should contact the Forestry Commission's Disease Diagnostic & Advisory Service on ddas.nrs@forestry.gsi.gov.uk; tel: 0131 445 2176; or by post to Disease Diagnostic & Advisory Service, Forest Research, Northern Research Station, Roslin, Midlothian EH25 9SY. Notifications should include as precise a description of the location as possible – an Ordnance Survey or GIS reference is ideal, otherwise a full postcode is helpful. Photographs clearly showing the symptoms are also welcome to aid diagnosis.

Further information about *P. lateralis*, including frequently asked questions, is available from the pests and diseases section of the Forestry Commission website at www.forestry.gov.uk/pestsanddiseases.

Forestry Commission

Lincolnshire Farm wins prestigious conservation award

On the 17th November, one of the UK's largest specialist salad producers received the prestigious Silver Lapwing Award, run by the Farming and Wildlife Advisory Group (FWAG), at a ceremony in the House of Commons.

The FWAG Silver Lapwing Award, now in its 33rd year, recognises long term commitment to wildlife conservation by the farming community. The award is sponsored for the second year by Waitrose in association with Coombe Farm, a large organic milk producer based in the south west.

Norfolk House Farm, managed by Philip Hubbert and owned by J E Piccaver and Co, emerged victorious from a very strong competition this year that saw two farms - Rod Smith of Beal Farm, Berwick upon Tweed, Northumberland and Michael Astor of Hatley Park, Sandy, Bedfordshire, jointly placed second.

Philip Hubbert was presented with the Silver Lapwing Trophy and a cheque for £1,000 by the Rt Hon James Paice MP, Minister of State for Agriculture and Food, during a ceremony at the House of Commons.

Philip Hubbert (centre) with James Paice MP (right) and FWAG Managing Director Andy Ormiston (left). © FWAG

Situated adjacent to the Wash in South Lincolnshire, Norfolk House Farm is an 825 hectare holding that is typical of farms in the area. The land comprises high quality Grade 1 silt soil that allows the growing of high yielding vegetables, salads, root crops and cereals.

The Piccaver family has always farmed sympathetically with the environment since the business was established in 1947 and in recent years the farm has embraced the environmental schemes that have been made available.

In 1998 Norfolk House Farm established one of the largest areas of reed bed on the east coast when it took a 10 hectare field out of production and opened up 2.8 hectares of water which soon established with reeds. In the first year of its establishment avocets nested on the site and marsh harriers are now also regular visitors.

The farm has also established over eight miles of hedgerow across the farm while grass margins and field corner options are utilised by grey partridge and barn owls. The margins also provide buffer zones for hedges and dykes from the commercial production.

Yellow hammers and tree sparrows have increased in numbers and large number of greenshank and black tailed godwit use the farm for summer roosting. The common spotted orchid has returned to two sites on the estate.

Future plans for the estate include a monitoring period to see what the latest environment developments have achieved. Norfolk House Farm is also taking part in the Campaign for the Farmed Environment – a voluntary initiative which seeks to retain the environmental benefits previously provided by set aside.

Jim Egan, one of the Silver Lapwing judges and FWAG's Technical Director said "It was fantastic to see highly intensive food production managed innovatively with the environment in mind. Not only did we see integrated management of wildlife and farmed land but there were excellent examples of well managed resources such as fuel, fertilizers and pesticides. There was also a good understanding of climate change and carbon issues. Norfolk House Farm is an all round excellent example of managing the large scale production of food alongside caring for the environment."

Waitrose

FWAG Farming & Wildlife Advisory Group

Worcestershire Woodland Guidelines website

© Worcestershire County Council

Worcestershire LBAP has been working with landscape and GIS colleagues from Worcestershire County Council and the Forestry Commission to develop a website which provides both ecological and landscape advice on woodland planting and management. The original intention was to present landscape and ecological information on one combined map, but initial efforts indicated that whilst in some areas this was possible, in others it was just not feasible to use common boundaries to present guidance on both landscape and biodiversity.

The final result therefore is an interactive map which allows the user to click on or off and interrogate separately landscape and biodiversity GIS layers. Selecting any point within the county brings up a link which takes the user to detailed information and guidance for that area.

The biodiversity guidance contains sections describing the typical NVC communities found in the area, the ecological context which sets out the geology, soils and human impacts on the woodland of the area, general ecological guidance and finally lists of native species to use, and also to avoid, when considering new woodland planting.

The corresponding landscape section offers advice on the appropriate pattern, size and location of planting according to the characteristics of the landscape type. For example, in some Landscape Types, tree cover is characterised not by woodland but by hedgerow or streamside trees and opportunities may exist for enhancing this pattern through addressing the age structure. In other landscapes where woodland is characteristic the size and

pattern can vary from large geometric blocks (such as in the planned landscapes) to small field corner copses or irregularly shaped woodland edge (the more ancient landscapes or those derived from assarting). New planting and indeed management should aim to reflect these characteristics, ensuring that biodiversity objectives and ecological connectivity are achieved whilst also maintaining the local distinctiveness that landscape character affords.

The reason for the website was two-fold: to encourage and make easily accessible best practise relating to native woodland planting (with the local BAP targets for woodland creation in mind) and also to tease out advice relating specifically to woodland planting from the general landscape guidance which is based on the Worcestershire Landscape Character Assessment. An additional layer displays the Forestry Commission's National Inventory for Trees and Woodland - a national dataset which records all woodlands over 2 ha.

The website has been designed as a practical tool to help professionals – such as people working in forestry, planning or agriculture – to manage existing woodlands and create new areas, but nature lovers in general can also learn a lot from the website, for example sections can be downloaded which describe the development of woodland in the county from the last ice-age, and also the NVC types of woodlands currently found in the county.

© Worcestershire County Council

The website address is www.worcestershire.gov.uk/woodlandguidelines. A similar interactive website is available on the County Council's website which provides full landscape guidance (www.worcestershire.gov.uk/landscape

Pioneering Study Confirms Breckland as a Nationally Important Biodiversity Hotspot

Gen Broad, Suffolk Biodiversity Partnership and Scott Perkin, Norfolk Biodiversity Partnership

A landmark study in Norfolk and Suffolk Breckland has resulted in some astonishing findings and calls for radical new approaches to conservation. This study's innovative, evidence-based methodology offers a more targeted and dynamic approach to conservation: It has assessed the biodiversity present in Breckland; developed an improved understanding of the ecological processes that support this biodiversity; and identified the management interventions required to enhance its future security. The Breckland Biodiversity Audit (BBA), believed to be the first of its kind, collated and analysed all the species records it could obtain for the entire Breckland National Character Area. The results confirm conclusively that Breckland is of major importance to UK biodiversity.

Background and Rationale for the Audit

Covering around 1,000 km², Breckland is within the driest part of England, and has a distinctive climate that is more continental than the rest of the UK, with frosts in any month of the year. It was one of the first places in England to be settled because the sandy soil made cultivation easy; the medieval word 'breck' means a fallow cropped field. Today cultivated field margins provide crucial habitat for the unique species of the region, but many of these farmland species are now extremely rare and threatened as the nature of farming has changed over most of the landscape.

Breckland has other important habitats, including remnants of the UK's only inland sand dunes, grazed heathland and wetlands; it also encompasses the largest lowland forest in the UK. Pingo systems, consisting of areas of pits and pools, are a key feature of the area. They are relics of the tundra-like conditions existing 20,000 years ago and support a remarkable range of invertebrates including some particularly interesting water beetles.

Physical disturbance without grazing on cultivated field margins in Breckland
© Plantlife

The national and international importance of the region has been recognised by a wealth of conservation designations: including four Special Areas of Conservation, 55 Sites of Special Scientific Interest (SSSIs), four National Nature Reserves and a Special Protection Area. Three SSSIs dominate the total designated area: Breckland Forest, which has been designated for its populations of woodlark, nightjar, rare plants and invertebrates; Breckland Farmland, designated for its internationally significant population of stone curlew; and the Stanford Training Area, an extensive landscape comprising a mosaic of ancient heaths and recent pastures. However, in spite of these designations and some conservation successes, extensive biodiversity loss has not been prevented in the region.

Methodology

Led by the University of East Anglia, and commissioned by the Forestry Commission, the Suffolk and Norfolk Biodiversity Partnerships, Natural England, Plantlife and the Brecks Partnership, the painstaking study pooled all the available plant and animal species records for Breckland. The information was obtained from the Suffolk Biological Records Centre, the Norfolk Biodiversity Information Service, Natural England and landowners. In addition, more than 200 naturalists helped to provide records and ecological information during specialist workshops and individual discussions; their extensive knowledge of Breckland wildlife was crucial to the success of this project.

Lichen covered heath at East Wretham © Bev Nichols

Key Results and Findings

In total, the audit team collated nearly a million records for the area, representing more than 12,500 species. A very high proportion of these - more than 2,000 - are of national conservation concern, for example, those categorised as Nationally Scarce, Red Data Book and UK Priority Biodiversity Action Plan species. The team analysed the ecological needs of these species, enabling novel approaches for conservation management to be identified. One of the key aims was to identify management prescriptions for guilds of species with shared ecological requirements, thereby cutting across taxonomic divisions and multiple species-specific actions. The resulting report is an effective tool for land managers, showing them what can be done, and where, to restore and conserve the unique biodiversity of the region.

Amongst other findings, the audit concluded that:

- Twenty-eight per cent of all priority UK Biodiversity Action Plan species occur in Breckland;
- Sixty-five species are rarely found elsewhere in Britain, including Spanish catchfly, field wormwood, Breckland thyme, the brush-thighed seed-eater beetle and the basil-thyme case-bearer moth;
- Cultivated farmland provides a vital habitat for many important species that need disturbed soil but cannotwithstand grazing;
- Although the extensive planting of Thetford Forest after World War I destroyed important habitats at the time, the forest now supports a rich biodiversity, including rare plants such as tower mustard and red-tipped cudweed, insects such as marbled clover and grey carpet moth, and declining farmland birds like yellowhammer and linnet.

The study also yielded interesting data on the status of individual species. Twenty-five species previously recorded in Breckland are now considered to be extinct within the UK (Natural England Lost Life report 2010), but for ten of these, recent records have been made in Breckland. For example, the mining bee *Andrena (Micrandrena) floricola* has been recorded almost every year since 2004 during Center Parcs Elveden wildlife surveys. Further research is needed to confirm these exciting findings. This unexpected result shows the value of comprehensive biodiversity audits in determining species' status and distribution.

Recommendations for Action

Current conservation management is not meeting the needs of Breckland biodiversity. Early successional breck vegetation has become overwhelmed by organic matter and recently fallowed brecks have not been seen in the landscape for at least 60 years. Recommendations to remedy this situation include the introduction of intensive grazing and large-scale physical disturbance, and the instigation of dynamic management regimes. It is important to re-create a range of structurally diverse habitats at many different scales.

The team believes that some BAP species can be used as figureheads in conservation management in order to deliver wider benefits for priority biodiversity in the region. Most of the guilds included numerous priority BAP species. Therefore, habitat based prescriptions constructed around the requirements of certain BAP figurehead species could provide suitable conditions for the majority of priority species.

Other factors to be considered in the region include climatic change and increased nitrogen deposition. Since the early 1900s, there has been a trend towards a more oceanic climate including increased rainfall, milder winters and fewer spring and summer frosts. Although domestic nitrogen emissions have reduced, the high rate of agricultural inputs continues to cause concern. These changes are likely to have profound effects on both species and habitats and must be considered in any management proposals.

Botanical specialists at the Breckland taxonomic workshop. Local naturalists' knowledge was crucial to the success of the study © Gen Broad

The report contains a comprehensive list of recommendations, including the need to carry out further species surveys, assess the threats from climate change and nutrient deposition, determine the condition of the remaining grass heaths, evaluate cultivated arable sites for conservation and enhance the management of heaths and wetlands. The report also suggests revision of the SSSI condition assessment mechanisms. Connectivity networks should be established that ensure continuity of habitats over wider areas; this will enhance resilience and facilitate flora and fauna percolation through the landscape. This can be achieved through, for example, 'invertebrate super-highways' comprising physically disturbed, permanently unshaded trackways with ungrazed, flower-rich verges.

The study's findings will enable Natural England and the Forestry Commission to give better, more targeted advice to landowners and to target agri-environment schemes effectively, thus ensuring a future for Breckland's rare wildlife. Dr Paul Dolman of the UEA's School of Environmental Sciences, who led the study, said "*These exciting findings demonstrate beyond doubt that Breckland is a unique region and a vitally important hot-spot for rare and threatened species, making it a key area for conservation within the UK*".

The study has already led to further work. Plantlife has recently launched a new, three-year project to tackle the needs of threatened plants in Breckland, involving conservation work at 30 sites and taking forward recommendations from the biodiversity audit. The project will focus on nine BAP species, including Spanish catchfly, spring speedwell, tower mustard and red-tipped cudweed. A network of volunteers to underpin and monitor this conservation work will be developed, and plans drawn up with partner organisations for landscape-scale conservation in Breckland.

The first report of the Brecks Biodiversity Audit, ***Securing biodiversity in Breckland, Guidance for conservation and research,*** was launched in November 2010. The report can be downloaded from the Norfolk Biodiversity Partnership (www.norfolkbiodiversity.org) and the Brecks Partnership (www.brecks.org) websites.

Honey bees: essential for apple pollination

There are several hundred thousand colonies of honey bees throughout the UK. Out of this total, 80% are managed by approximately 20,000 beekeepers in England and Wales, with the remainder of colonies being managed by beekeepers in both Northern Ireland and Scotland.

The honey bee foraging for nectar and pollen. © Dr Andrew G. S. Cuthbertson

Bees in general make an essential contribution to agriculture and the environment through pollination of many cultivated crops and wild plants as they forage for nectar and pollen, and also in the production of honey and wax. The honey bee, *Apis mellifera,* (Figure 1) plays a dominant role in this process as the major commercially managed pollinator to provide this service, although bumblebees and solitary bees are also available. The most recent estimate for agricultural and horticultural crops grown commercially in the UK that benefit from insect pollination is £440m per annum, of which honey bees make a significant contribution. The value of honey production is often in the range of £20-25m per annum in the UK.

Apple orchards form a major part of the UK horticultural industry (Figure 2), covering approximately 27,000 ha in total. It is well known that apple pollen is carried by the wind to some extent, but it has been shown conclusively that wind pollination has little or no significance in fruit production. Bees, and in particular honey bees, provide pollination for this crop. They are among the most important pollinating insects found within orchards and modern agricultural systems.

If five to ten percent of full bloom of an apple tree produces fruit, a full commercial crop is obtainable. However, growers must aim for a higher initial set because several fruit drops take place throughout the season. If excessive numbers of fruit are set, some may be removed by using chemical thinners; however, nothing can be done when too few are set, once flowering has passed. If too many apples develop on a tree, they will be smaller than top grade apples, but if pollination is inadequate, a reduced crop of misshapen fruit will result. Apples have five pistils, each with two ovules, thus, there are ten potential seeds. Fruit growth and development is stimulated near fertilized, developing seeds. Without adequate pollination the result is low seed numbers and misshapen fruit. In general, fruitlets with the smaller number of seeds are eliminated with a series of early fruit drops.

Apple growers are generally less aware of factors contributing to adequate pollination than they are to other cultural practices. Traditional thinking has always been that beekeeping is for honey production with its role in pollination rarely being considered. Apples are grown mostly in temperate regions where weather during bloom may be unfavourable for bee flight, pollination, pollen-tube growth and fertilisation. Therefore, cross-pollination is usually the most yield-limiting factor. Successful apple growers prepare for this by planting ad-

ditional polliniser trees and by introducing foraging bees to visit the flowers whenever the weather permits. Apple growers often hire bee hives for this purpose.

Most apple varieties are self-incompatible, and certain varieties are also cross incompatible. As varieties do not all bloom at the same time, a well-designed orchard therefore needs to have enough polliniser trees that bloom in synchrony with the main variety. Apple pollination requires about one bee colony per 0.5 hectare of orchard cover. Basically, the need is to have enough bees to cover the thousands of blossoms to provide a maximum crop of fully developed fruit. There is little doubt that yield and quality suffer from inadequate pollination in many orchards caused by either too few bees or low polliniser tree numbers relative to the main crop.

Apple production: a major UK horticultural industry . © Dr Andrew G. S. Cuthbertson

As well as being affected by the various chemical mixtures (pesticides, fungicides etc.) applied to apple trees to control invertebrate and fungal pest and diseases, honey bees are also affected by a large range of pests, diseases and parasities. These are of major significance for colony health and also from the point of view of regulation and the movement of bees in trade around the world. Pests and diseases that can cause high colony losses could create a vacuum of available pollinators for important commercial farm crops in the UK, such as the apple industry. During the spring of 2005 such a situation occurred in California where a dearth of available colonies for pollination of almonds required substantial imports of honey bees from Australia to make up the shortfall.

The National Bee Unit (part of the Food and Environment Research Agency, a DEFRA executive science agency), which manages the Bee Health Programme for England and Wales, liaises closely with colleagues in both Northern Ireland and Scotland. The Bee Health programme is funded to safeguard the honey bee population throughout the UK due to its importance in the pollination of both commercial agricultural and horticultural crops and wild plants, and is underpinned by a programme of research and development to provide up to date technical support to beekeepers.

Apple growers across the UK should be fully aware of the important role played by honey bees within their orchards and take steps to protect this vital pollinator. Without them we may not continue to have the variety of fruit we currently enjoy nor at the price most consumers are willing to pay.

For further information on both invertebrate and honey bee biodiversity issues contact: Dr Andrew G. S. Cuthbertson (e-mail: andrew.cuthbertson@fera.gsi.gov.uk) or Dr Gay Marris (email: gay.marris@fera.gsi.gov.uk) at The Food and Environment Research Agency, York YO41 1LZ.

Wakefield Metropolitan District Council Land Drainage Section

Maximising the biodiversity value of flood storage schemes - Design and Management

Design

The Council's Land Drainage Section (LDS) has been including a number of design features to improve the wildlife habitat value of flood storage schemes for wildlife constructed across the district. The amount of permanent deep open water included in designs has been reduced in favour of shallower more seasonal open water, wet grassland and reed beds. During storm events flood waters are temporality stored above these features, with water levels dropping once flood conditions subside.

Traditional flood storage pond design is commonly an engineered lagoon with steep side slopes such as 1 in 3 or 1 in 4. Typically the lagoon would have 1.5m deep permanent water to deter reedmace *Typha latifolia* invasion. This design has low aesthetic appeal, together with safety issues and significant biodiversity limits.

Design improvements now included by the LDS have been adapted from typical engineering practice using pond and wetland design manuals produced by ecological and nature conservation bodies, together with the Royal Society for the Prevention of Accidents (RoSPA) Health and Safety Guidelines for Operational Water Bodies. Technical design input from Drainage Section engineers, ecologists and conservation professionals working together and the consultative relationship with Wakefield Biodiversity Group is proving very effective.

The maximum water depth typically now created in water bodies by the LDS is 0.6m with average 0.3m depth. This approach has increased biodiversity and maintained flood storage capacity, while improving public health and safety and reducing potential for fishing and swimming.

Castleford © Wakefield Metropolitan Drainage Section

The reduced water depths being created provide habitats which can develop richer plant and invertebrate communities. As these shallows colonise with emergent plants they provide cover for aquatic animals. The increased width and complexity of the drawdown zone incorporated into the design is also beneficial to wildlife.

As a result these facilities dry out more frequently which helps to control fish, (which are significant predators of invertebrates and amphibian larvae) so allowing both the numbers and diversity of other fauna to increase.

Flood storage facilities are also increasingly being recognised as a source of emergent plant seed which is being collected and spread at new sites to increase plant coverage and biodiversity across the district.

Management

Whitwood © Wakefield Metropolitan Drainage Section

The LDS manages about 35 flood storage facilities, ponds and wetlands.

To minimise impact, the majority of management works are undertaken during the dormant season in late autumn, winter or very early spring. Works outside this period are restricted to litter picking, clearing of debris from grilles and emergency works.

Current management practice is for regular small scale works, undertaken on a phased, rotational basis, with no more than 25% of any water body being disturbed per annum. Works typically include the removal of invasive species such as common reed *Phragmites australis* and reedmace *Typha latifolia*, which if left unchecked can become dominant at the expense of more valuable species. This removed plant material and wood from tree works is recycled on site to create hibernacular suitable for invertebrates, insects and amphibians.

In 2009 and 2010, the LDS commissioned the Ponds Conservation Trust to undertake surveys to asses the conservation value of 17 flood storage ponds. These water bodies were found to be surprisingly bio-diverse given their urbanised locations, with 9 ponds categorised as being of 'Good' ecological quality, qualifying them as Priority Ponds under the Habitat Action Plan for ponds.

These surveys are used to inform the management process and schedules so that the most appropriate management for each individual water body can be applied. This then helps generate information to feed back into the engineering design process.

Retrofitting pond facilities around the district is a proposed objective to promote the above features, with each facility being considered on its own merits and in light of its potential range of functions.

For further biodiversity and engineering information regarding this article please contact Andy Higham or Mark Cropley on 01924 306643 or 306095. For further information and reports regarding the work of the Council's LDS please visit the Council's website at: -

http://www.wakefield.gov.uk/Environment/Land/LandDrainage/default.htm

Parc Slip Wildlife Survey, South Wales

The Wildlife Trust of South and West Wales currently has a student from Cardiff University, Rose Revera, on placement at Parc Slip Nature reserve in South Wales. As part of the placement Rose is conducting a species monitoring survey of the reserve using corrugated bitumen roofing sheets as artificial refugia for small mammals, reptiles and amphibians. Artificial refugia are traditionally used for reptile surveying, but are often overlooked as a method of surveying for small mammals or amphibians. One of the aims of the project is to determine whether using artificial refugia can be a successful survey method for small mammals. Between August 2010 and January 2011, there have been 548 sightings of small mammals under the sheets, comprising seven of our small mammal species, including all three mainland shrew species as well as bank vole (*Myodes glareolus*) and field vole (*Microtus agrestis*). One advantage of the survey methodology compared to traditional trapping methods is that it is potentially less stressful on the animals present, which has been demonstrated by the presence of wood mouse (*Apodemus sylvaticus*) (Plate 1) breeding nests under the sheets. Obviously this methodology is unsuitable if you wish to collate demographic data on small mammal populations or data for the animal itself, but it is very useful for determining the presence of a species at a site.

Plate 1: Woodmouse under a sheet. Photo by Rob Parry

There is some indecision about what size refugia attracts the highest number of species and individuals when surveying using artificial refugia. The survey at Parc Slip addresses this by using two different sizes of refugia, 1m² and 50cm², arranged in sets containing one 1m² sheet and four 50cm² sheets (Plate 2). This allows direct comparison of the effectiveness of the two different sizes. Between August 2010 and January 2011, there have been 585 sightings under the smaller sheets, and 1013 sightings under the larger sheets, signifying that larger sheets attract a greater number of individuals than smaller sheets.

Plate 2: Layout of sheets- Photo by Rob Parry

Parc Slip has a healthy population of great crested newt (Triturus cristatus) taking advantage of the sheets whilst on land. During September 2010 there were 72 sightings of great crested newt under the sheets, during a month when conventional newt surveying methods such as bottle trapping are less likely to succeed. As an addition to the monitoring project, a photographic database of the great crested newts found under the sheets has been built up, so each individual newt can be identified using the markings on its abdomen. As a result, it is now known that there are at least 54 great crested newts on the reserve, and their movements between sheets can be tracked.

The survey began in August 2010, and will be continuing until June 2011. If you require any further information please feel free to contact:

Rose Revera

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Derbyshire's Veteran Trees

Derbyshire Wildlife Trust has launched a new project to help people discover the importance of the county's veteran trees, and help safeguard them for the future.

Ancient Oak © Derbyshire Wildlife Trust

The Trust has been awarded just over £45,000 by the Heritage Lottery Fund for Saving the Great Trees of Derbyshire. It follows an initial project, also funded by HLF, which took place in 2006. This aimed to locate and map as many of Derbyshire's veteran trees as possible. More than 250 volunteers were involved, and a staggering 4,500 trees were recorded and mapped. The survey highlighted just how important Derbyshire is for veteran trees, with many important sites and trees across the county, from well known places such as Chatsworth, to noteworthy trees such as Will Shore's Tree near Matlock and the Old Man of Calke. This huge oak, which is found on the National Trust's Calke Park Estate in South Derbyshire, has a trunk girth of 10m and is the county's biggest known tree.

In addition the survey started to highlight some of the stories and legends associated with Derbyshire's trees. This included the story of Betty Kenny and her family, who were charcoal burners in Shining Cliff Woods in the Derwent Valley in mid-Derbyshire. They lived inside a big old yew tree within the woods and hollowed out a bough of the tree to use as a cradle for their baby. This is said to be the source of the 'Rock a bye baby' nursery rhyme.

The survey also made it clear that many veteran trees are outside protected sites and are exposed to a number of threats, including neglect and inappropriate management.

From fungi to insects, bats to woodpeckers, veteran trees support a wide range of wildlife, with an estimated 1700 species of insect in Britain that are dependent upon the dead or dying wood that can be found in veteran trees for part or all of their life cycles. With this in mind, coupled with the hugely important place that veteran trees have in our cultures and communities, the Trust is delighted to have received the funding to take its veteran tree work forward.

As part of the new project the Trust will provide training and support to land managers and communities to enable them to care for their local veteran trees and to create veteran trees of the future. It will be identifying trees at risk and using specialist management techniques to save them.

In addition the Trust will be recording the many traditions and legends surrounding the county's veteran trees, with special publications and events planned to celebrate their value to our communities and the environment..

If you would like to submit stories about Derbyshire's veteran trees or help out with the project contact Anna Evans on 01773 881188 or email aevans@derbyshirewt.co.uk

Glow-worms light the way in the Cotswold Water Park

These rarely seen insects truly are a magical sight and when observed in large numbers the glowing females can put on a dazzling display!

The glow-worm (*Lampyric noctiluca)* is in fact not a worm as the name would suggest but a beetle that belongs to the firefly family. The larvae spend up to two years feeding on snails before they pupate and emerge as adults. The egg, larva and adult emit a luminescence, but it is the glow from the flightless female that is more commonly seen along unlit country lanes, as she uses her vivid green light to attract flying males. This light is created from a substance in the abdomen called luciferin which reacts with oxygen and produces light which she displays from the last two segments of her abdomen.

© *Phillipa Sheldrake*

The beetles are most active between May and September but the optimal time to survey for them is during their peak glowing period which is throughout the evenings of June and July. Surveys for glow-worm have been undertaken at this time for many years in the Cotswold Water Park from Cricklade to South Cerney along the disused Railway Line and the insect has historically only ever been observed along a small section of the stretch.

In 2010 however, after identifying other areas of potentially suitable habitat it was decided to extend the survey further South along the Railway Line and to incorporate sections of the nearby Thames and Severn Canal and with the help of volunteers, this extra survey effort resulted in the discovery of 4 new glow-worm sites.

Glow-worms are found in various habitats such as gardens, hedges, verges and railway embankments and as such are vulnerable to cutting, mowing and pesticides. These exciting new findings will now feed into the relevant habitat management plans and help to better inform management practices and conserve known populations.

Leonie Washington - Biodiversity Data Officer - Cotswold Water Park Society Ltd

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The 2010 Bedfordshire & Luton Environmental Education Show

Heather Webb, Biodiversity Officer

On November 12 conservation groups, teachers, students, one renegade parent and an American professor descended on the Marston Vale Forest Centre in Marston Moretaine for the 2010 Bedfordshire and Luton Environmental Education Show. The show was co-hosted by the Beds and Luton Environmental Education Working Group and Lark Rise Academy.

© *Heather Webb*

Teachers and students from lower, middle and upper schools around the county got a chance to see what kinds of environmental education (EE) opportunities are available in Bedfordshire. The event included a series of 'taster session' workshops on everything from map making to willow weaving. The Forest Centre gallery and mezzanine became a vibrant, colourful marketplace showcasing the great programmes on offer from conservation groups and other organisations.

The idea for the show came from teachers during preliminary research for an economic study of environmental education. For the past year or so I've been working with Dr Nejem Raheem, an economist from Emerson College in Boston. We're trying to find out what teachers are most looking for, and what they value most when considering EE programmes to pursue. Back in May we interviewed teachers from several schools. More than one teacher told us it would be great to have a single place where they could meet EE providers to talk about what they're looking for, and to find out what's available.

At Lark Rise Academy we interviewed Marcus Ray. He proposed an environmental education trade show, and even better, offered to help organise it. He also had the excellent and cunning idea that every school attending the show should be represented by at least two students. For while teachers will return to their busy jobs and can very easily get sidetracked by other pressing issues, students will talk among themselves and pressure their school to do something that excites them. So that was that: I'd work with the conservation groups, and Lark Rise would work with the schools.

The result was a great event where it seems everyone had fun. The students teased apart owl pellets at the Wildlife Trust stall and stroked a tiger pelt while learning about endangered species from Whipsnade Zoo. Teachers learned about school gardening from the RHS, and how to 'green' their school grounds from Groundwork. During the workshops, the environmental groups got a chance to chat and network with each other. And Dr Raheem flew in just for the event to interview people, getting lots of good information for our research.

A highlight of the marketplace was the Bedfordshire Natural History Society stall with its 'Nature Table in a Box' prototype. Children (and teachers!) couldn't resist stroking a mink pelt and examining a skull while learning about the impacts of invasive species. The table was covered in a wonderful display of bones, feathers, fossils, seeds, nests and fungi. One teacher was particularly impressed: 'you've got the entire curriculum on a table!' she exclaimed.

The event was such a success, we've already been asked to hold another one next year!

Bumper Aspen Harvest at Community Tree Nursery

Volunteers working at Highland Aspen Group's tree nursery in Kincraig in the Cairngorms National Park are celebrating a bumper harvest this year.

The group has grown 2140 aspen trees, the best season yet since they started propagating aspen trees five years ago. The nursery, located in Highland Wildlife Park, grows aspen trees from roots collected throughout Speyside, as well as other parts of Highland. These are supplied to land-holders to plant new native woodlands.

Aspen is generally a rather scarce tree in Scotland, but it supports an abundance of wildlife, as well as being attractive at all seasons of the year. It rarely flowers, so it is usually propagated from root suckers in a misting unit.

With funding from the Cairngorms National Park Authority and Cairngorms LEADER, and practical assistance from the Royal Zoological Society of Scotland, the group erected a second polytunnel this year.

They are currently looking to recruit new volunteers to help run the nursery, and with increased capacity, they hope to grow 5000 trees in 2011. Many of these will be supplied to the Forestry Commission who are aiming to plant thousands of trees in their forests in Badenoch & Strathspey over the next 5 years.

The group will be collecting aspen roots through the winter, and is looking out for new collection sites. If you able to help in any way, or if you would like to plant aspen trees on your land, please phone 01456 486426 or e-mail john.parrott@scottishnativewoods.org.uk. For information on aspen and the wildlife associated with it got to http://www.scottishaspen.org.uk/.

© Cairngorms National Park

What a RELEAF!

Almost 4,000 baby trees have been planted in Wormwood Scrubs thanks to a joint initiative between the council, the Mayor of London and environmental regeneration charity Groundwork London.

The five day scheme is part of Boris Johnson's plans to increase the tree canopy in London by five per cent by 2025 and the council and Mayor of London are both putting £2,000 into the initiative.

Trees planted included oak, ash, hornbeam, silver birch, buckthorn, dog wood, guelder rose and 200 black poplars. The black poplar is a nationally rare species and there are only about 5,000 left. In total, the team planted four hectares of trees at the scrubs.

© Jonathon Weisgard

Council Leader Stephen Greenhalgh joined volunteers and children from Randolph Beresford School on Wednesday, January 12 and planted several trees.

Cllr Greenhalgh said: "We are committed to making our borough cleaner and greener and this event was a perfect opportunity to do just that. Wormwood Scrubs is known as West London's green lung because of its positive effects on improving air quality and the environment in this part of the capital so the more trees that we can plant the cleaner the air that we breathe. Trees bring life to our already beautiful parks and open spaces and I was particularly pleased to see so many volunteers braving the murky weather and joining in."

The Mayor of London, Boris Johnson, said: "Trees are an essential part of our city, helping to improve quality of life, so we are thrilled to be working with Hammersmith & Fulham council on planting even more."

Groundwork London's Nature Conservation Officer, Paul Clay, said: "It is very important that the local community gets involved with nature conservation activities such as tree planting. It not only benefits wildlife, but has numerous other advantages such as making outdoor spaces a better place for the community."

1.000 of the new trees were provided by Groundwork London as part of the Habitat Heroes programme, funded by Grantscape.

Members of Groundwork's Green Team, a group of horticultural trainees, planted many of the trees throughout the week. The training opportunity for long-term unemployed people offers an opportunity to learn new skills with a view to future employment, whilst improving parks and open spaces in the borough.

Groundwork London organises regular nature conservation activities on the Scrubs for volunteers. No experience is needed and all tools are provided. For further information please contact Mark on T: 020 8743 3040 or E: mark.patterson@groundwork.org.uk.

The Wormwood Scrubs scheme was part of a London-wide initiative that saw 20,000 new trees planted during the week.

Hartlepool Hedgerow Survey

The importance of hedgerows for biodiversity is well-established, not least because of the valuable habitat they provide for wildlife in farmland, and the function they serve as wildlife corridors connecting habitats that may otherwise be isolated. Consequently, hedgerows are a priority habitat in the national Biodiversity Action Plan (BAP), and in many local BAPs, including the Tees Valley BAP.

Hedgerow training at Summerhill, 23rd June 2010. Pic by Jessica Harrison

The Tees Valley BAP, coordinated by the Tees Valley Biodiversity Partnership (TVBP), covers the boroughs of Hartlepool, Middlesbrough, Redcar & Cleveland and Stockton-on-Tees in north-east England. Its Hedgerows Action Plan has been written to help conserve the hedgerows in the area by identifying their extent, character, condition and management requirements in order that future management can be targeted appropriately to ensure that hedgerows either remain in, or come into, favourable condition, and to identify areas in need of new hedgerow planting to ensure connectivity across the area.

Baseline data on the extent and character of hedgerows in two of the four boroughs (Stockton and Redcar & Cleveland) was gathered between 2005 and 2007 through two projects funded by the Heritage Lottery Fund. Now data for a third borough, Hartlepool, has been collected with the help of a grant from Defra's 'Local Hedgerow Surveys' fund. The grant of £4,900 was awarded to the Wildflower Ark, an independent plant conservation organisation, in April 2010, allowing survey work to be carried out through the summer and autumn of 2010.

The survey was carried out following the method given in Defra's Hedgerow Survey Handbook, published in 2007, with assistance from 23 volunteers who were trained in the survey method and contributed over 30 days of field work. Using this standardised method allows data to be collated nationally on Defra's online database, making data quickly available to a number of organisations involved in hedgerow assessment and management.

Hedgerow surveying at Summerhill, 11th June 2010. Pic by Christopher Armstrong

In total, 175 hedgerows were surveyed, equating to 41.53km. The character of the hedgerows surveyed was similar across the borough, with most being shrubby hedgerows that were either trimmed or untrimmed, were adjacent to either arable or pastoral farmland, and had occasional isolated hedgerow trees. Hawthorn was the most ubiquitous woody species, being present in virtually all of the hedgerows (97%), alongside Dog Rose (47%), Bramble (41%), Elder (40%) and Blackthorn (28%). Many hedgerows also had Ash present as a shrub, though it was more often a tree, being the most frequent isolated hedgerow tree species recorded. Over half of the hedgerows were mixed (i.e. not dominated by one species) and over a quarter of the hedgerows (27%) were also species-rich, meaning they contained four or more native woody species in the 30m section that was surveyed.

Very few of the hedgerows (eight of the total 175 surveyed) were found to be in favourable condition. Favourable condition is assessed on six different attributes: hedgerow dimensions, percentage of gaps along the hedgerow length, basal canopy height, width of undisturbed ground at the base of the hedgerow, width of herbaceous vegetation cover at the base of the hedgerow, and presence of introduced species. Each attribute has an acceptable threshold and a hedgerow must be within this threshold for all six attributes in order to be classified as in favourable condition. Of the 95% of hedgerows that were not in favourable condition, the majority of them failed on the basal canopy height, meaning the gap between the ground and the bottom of the hedgerow canopy was too great.

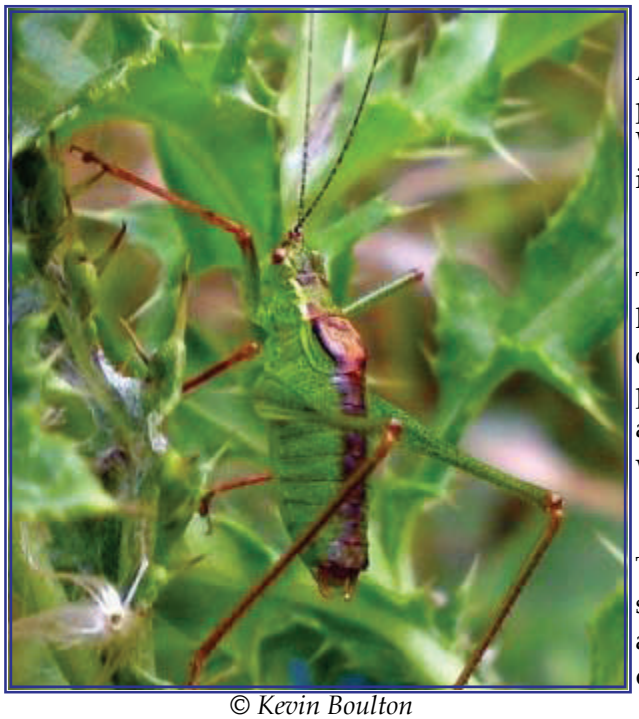
The survey has produced a hedgerow profile for the borough of Hartlepool which will allow the TVBP to coordinate future hedgerow planting in keeping with the local character of hedgerows already present within the borough. A table of management requirements has also been compiled within a GIS shapefile of the hedgerows surveyed, stating the management needed by each hedgerow not in favourable condition in order for that hedgerow to reach favourable condition. The TVBP will use this table to coordinate future hedgerow management and conservation, in particular through farm stewardship schemes, therefore contributing to both targets 4 and 5 in the national Hedgerow HAP, and target 2 in the Tees Valley Hedgerow HAP.

If you would like to read about the Hartlepool Hedgerow Survey in more detail, a copy of the final report is available to download from either www.teesvalleybiodiversity.org.uk or www.wildflowerark.org.uk

Rare Crickets Stop Conservation Work in Wakefield

A group of tiny insects are having a big impact on a site in Wakefield, West Yorkshire after putting a halt to planned conservation work at Walton Nature Park.

Originally thought to be unusual grasshoppers, a group of volunteers from BTCV caught one and took it to local expert Dr David Hemingway. It was found to be a Short Winged Conehead Bush Cricket (*Conocephalus dorsalis*) – a locally rare insect that hasn't been spotted in Yorkshire for 15 years.



© *Kevin Boulton*

As this meant there could be a colony of the crickets on the park, some of the planned habitat management work on Walton Nature Park was put on hold whilst the discovery was investigated.

The appearance of the crickets so far north when they usually live on the south east and south coasts of the UK raises the question of whether this could be an indication of overall temperature increases and climate change. Other rare insects have also been found in Yorkshire recently, possibly giving more weight to this theory.

Trevor Healey, site assistant for BTCV, said: "We're used to seeing a variety of creatures but these certainly didn't look like any grasshopper I'd seen before so I thought we'd better catch one and get someone to try and identify it. I'm glad we did."

Paul Andrews, Biodiversity Officer for Wakefield Council, said: "Visitors to the council's nature reserve often inform us of interesting wildlife they have encountered. By keeping records of these sightings we are able to plan maintenance and improvements to the sites that benefit both wildlife and visitors and help to make Wakefield a greener and richer place'.

Glyn Levis, Area Manager for BTCV, said: "Discoveries like this show what a contribution volunteers can make to the management of countryside sites. We are happy to support the local authority and to work in partnership with other local community groups to enhance the biodiversity and environment of Wakefield District."

So far this year volunteers from BTCV working in partnership with Wakefield District Council and other community groups, have spent 110 days working on Wakefield Council owned sites generating volunteer opportunities for Wakefield residents to improve their local area.

Contact: Glyn Levis g.levis@btcv.org.uk

South West Cheshire Dormouse Project

Shoots get £84,000 Mousekeeping Allowance

Shooting and the hazel dormouse. On the face of it you may be wondering where the link is. Well read on and the relationship between these two seemingly unusual bedfellows may become a little clearer. The British Association for Shooting and Conservation (BASC) has been running the Green Shoots Project in Cheshire for the past 10 years. The project aims to recognise, build upon and coordinate the shooting community's valuable contribution to biodiversity conservation. In 2010 BASC submitted a funding bid to the SITA trust to provide funding for a new project called the South West Cheshire Dormouse Project. The funding bid was successful and the new project which aims to link the habitat from the Wych Valley into Cheshire to permit dormice to spread from their current location up to the sandstone ridge, which has high connectivity of woodland and hedgerow habitats, will form a major part of the Cheshire Dormouse Strategy.

The work plan

The start point of the project is to use current best practice guidelines for connecting dormouse habitat in the Natural England Countdown 2010 funded Hedgerows for Dormice project managed by Peoples Trust for Endangered Species. This recommends establishing two hedgerow connections between key woodlands, both to increase the speed at which dormouse colonise new woodlands and to safeguard against one route become defunct. As part of the bidding process we identified two possible routes between key woodlands that we will validate through survey. We did this in the same manner as PTES, studying aerial photographs and combining that with existing knowledge of the land such as the results of a Farming and Wildlife Advisory Group contract to survey hedgerows using the hedgerow survey handbook methodology.

Early in the New Year we will start to recruit and train volunteers, ideally linked to the land such as the landowner, their family, the shooting syndicate shooting over the land or a local group who have access to the land. These volunteers are a key part of the project's aim to leave a network of trained and motivated volunteers to manage and monitor the habitats provided through and after the life of the project. We will also use volunteers with permissive access to the land, such as Cheshire Wildlife Trust volunteers and other local groups, particularly on the initial surveying of the proposed route.

We will also use trained volunteers to survey the hedgerows and woodlands along the proposed route. This detailed data provided on the condition of the linkages will enable the project to target work to achieve condition of existing habitat, rehabilitate damaged habitat (gapping up for example) and create habitat in the correct locations. The final route on each landholding will be agreed with the landowner and a funding mechanism identified. These will vary from private funds, the England Woodland Grant Scheme, Higher Level Stewardship, the Woodland Trust's MOREwoods scheme. There may be circumstances where it's not possible to target existing funding mechanisms and in these cases we have a budget to carry out the required work.

Hedgerows being planted on a shoot through the Green Shoots project in Cheshire in 2010 © BASC

The legacy

Woodland and hedgerows connected together form the main routes of transit for wildlife across farmed land and this project will achieve this to the standard required to provide a valid dormice network of linked habitat. The project will achieve a functioning ecological network for not just dormouse but a range of bat, mammal, insect, fungi and plant species which require such networks. Each site, where we agree a habitat linkage feature, will be given a management plan to achieve and then maintain favourable condition of the habitat in the long term. The habitat created under this project is the same as that required for game and rough shooting. It is for this reason that the shooting community will commit long term effort to maintain the habitat in the condition required for the benefit of the dormouse and game species.

We will establish a system where we get trained volunteers to adopt a linkage feature and report on its condition back to BASC and the Cheshire region Biodiversity Partnership. This is vital so that we have local people who are interested in the habitat provided through the project who will look after it in the long term.

By establishing a network of dormouse boxes in key habitat across the route we'll be able to initiate a monitoring programme. We will get trained volunteers to adopt the boxes and monitor them for nest records when the dormice are hibernating over winter. They will pass their results back to BASC and the Cheshire region Biodiversity Partnership.

Grazing Conservation

Nature conservationists have long known that appropriate grazing can mean the difference between wildlife thriving or vanishing, and conservation organisations have often struck up their own grazing arrangements with local farmers to ensure that their reserves that need grazing for wildlife can thrive.

However there used to be no single body in Wales, similar to the Grazing Animals Project that had been developed in England, to work in partnership with landowners and farmers to deliver appropriate conservation management of habitats by grazing. Then in 2006, Pori Natur a Threftadaeth (PONT), now a not-for-profit company, was established by a partnership of interested organisations to take on the role in Wales. Since then, PONT has not just become a first point of contact for information and advice on conservation grazing, but has maintained a focus on delivering on the ground for wildlife.

PONT has delivered in Wales via a range of approaches. On a site basis, PONT has been called in to give advice or to work with landowners and staff from statutory agencies to develop targeted management agreements, or to identify additional site infrastructure to help graziers to manage stock more easily, so making grazing these sites a viable part of the farming operation. The number of sites PONT has been involved in across Wales has averaged between 10 and 20 a year. In addition, for the last three years PONT has a run a grant scheme with funding from the Countryside Council for Wales, to financially support the provision of infrastructure on sites. So far, this has facilitated appropriate grazing management on an additional 30 sites across Wales.

On a landscape scale, PONT has been the lead partner in a project that secured the BIFFA Flagship Award for 2010 and over £500k of funding for a common near Bridgend in South Wales, that will enable the commoners via their grazing animals to deliver on over 1,000ha of BAP habitat and for species such as Marsh and High Brown Fritillary. With funding from WREN, PONT has worked with another commoners association to secure a project that will deliver on over 750ha of upland habitats close to Swansea within three years.

Working on a number of small sites on a regional basis, PONT and the Wildlife Trust of South and West Wales have secured WREN funding to work on rhos pasture and other grassland sites in Carmarthenshire. In 2008, PONT secured funding from the Esmee Fairbairn Foundation to deliver a three year project on Anglesey, which has delivered appropriate grazing management on over 400 hectares of small sites across the island in just over two years. This project has seen the development of a producer group of farmers and graziers who market and sell meat from wildlife rich sites through a box scheme, local butchers and other outlets, and have been able to secure funding for their own meat hanging facilities. As part of the project on Anglesey, PONT innovated a program of stock leasing for farmers and graziers who do not have the appropriate stock to graze sites. This has enabled PONT to support local farmers to graze local wildlife rich sites, which in the long term is the only way of securing truly sustainable grazing of such sites, as the money available to landowners, graziers and conservation bodies from centralised agri-environment schemes or tailored management agreements from statutory agencies will only reduce.

Pori Natur a Threftadaeth
PONT
A member of the UK Grazing Animals Project

Northumbrian Water Articles

How to move small sheep in deep snow!

Following the recent cold and snowy weather Northumbrian Water had to resort to unusual methods to help sheep grazing an important area of heathland on the northern shore of Derwent Reservoir in County Durham. The small Soay sheep, a rare breed obtained through the regional 'Flexi-graze' scheme, were struggling in the deep snow and the decision was made to take them off site to a more sheltered coastal location until the weather improved. However, due to the depth of snow, the best method of moving the sheep seemed to be by carrying them! Sarah Edwards, pictured with one of the Soay's, found that carrying them over her shoulder was the best way and also kept her neck nice and warm!

Wonderful Waxcaps…. and other fungi!

Following a third year of concerted survey effort to identify important waxcap grasslands around Northumbrian Water reservoirs a report received this winter has confirmed that we have four sites of international importance. A further six sites are of national importance and ten of the top twenty waxcap grassland sites in the north east occur on Northumbrian Water sites.

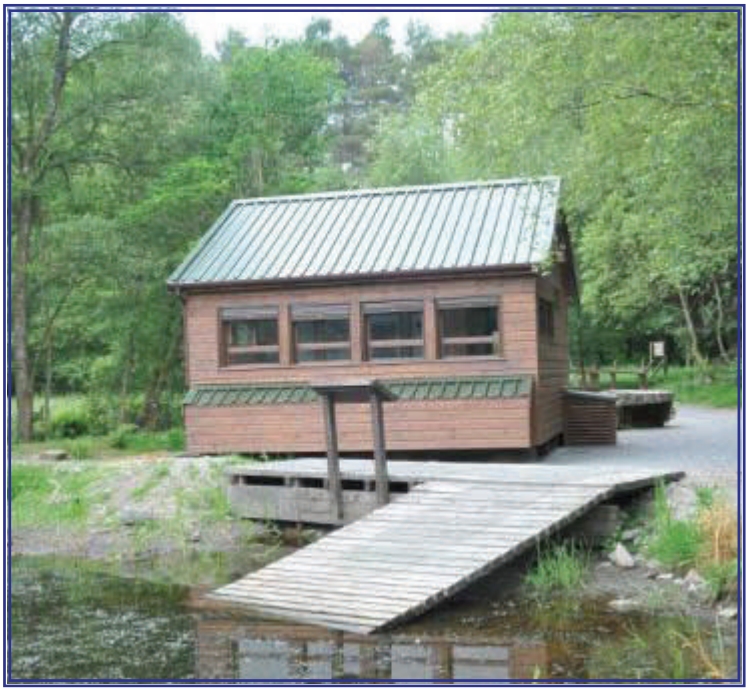
The striking *Clavaria zollingeri* (Purple coral) was also found for the first time in the north east and the notable UKBAP species – *Entoloma bloxamii* was noted at two sites. Another UK BAP species – *Hygrocybe spadicea* was also recorded for the first time in the north east.

Community Action for Biodiversity in Dumfries and Galloway

The Community Action for Biodiversity Project has been successfully completed in Dumfries and Galloway, getting local people actively engaged in biodiversity conservation on their own doorsteps.

Biodiversity enhancement and interpretation was completed on 13 community green spaces in towns and villages across the region during the three years of the project. This included transformation of a town park, creation of a forest classroom, construction of a wildlife education centre, development of 2 community woodlands, grassland management on a village green, and the design and building of 2 community wildlife gardens, one by a local primary school, the other by residents of a sheltered housing complex.

Thousands of new wildlife records were collected in the process which will be made available by the Dumfries & Galloway Environmental Resources Centre. Common species in the region, such as garden tiger moths and field voles, proved just as popular with the communities as the rarer ones, but LBAP priority species such as spignel and variable damselfly were recorded.



New education centre at Eskrigg, Lockerbie © Peter Norman

Wildlife mosaic made by residents of Daar Lodge sheltered housing, Kirkcudbright © Peter Norman

Just as important as the biodiversity work completed on the sites was the involvement of local people: 91 regular volunteers working a minimum total of 354 days; 126 training events attended by 1548 people; 935 school children involved in educational activities; and countless enjoyable visits from members of the public who otherwise had no involvement with the projects. The age of active participants ranged from 4 to 94, but almost all of them had no previous involvement with biodiversity.

The project also contributed to social and personal development of the participants, as demonstrated by some of the comments received:

"It was good to get to know the neighbours better while working on this"

"It has increased my confidence in being able to organise events, fund raise and network with others."

"We had those who said it was a waste of time, it wouldn't last, but there is now a sense of community pride and the doubters admit that it has made a really great difference."

Penpont Primary School working on Allanton Wildlife Garden © Peter Norman

The project was established by the local biodiversity partnership and funded by the Heritage Lottery Fund as part of the Sulwath Connections Landscape Project. To download a copy of the final project Evaluation Report visit www.sulwathconnections.org/ and follow the links to Community Biodiversity Action in the Projects pages.

Peter Norman

Biodiversity Officer, Dumfries & Galloway

Your Natural Heritage Project

Communities in Shropshire are being offered the chance to help discover and conserve their local biodiversity in an exciting new project, being run by Shropshire Council and funded by the Rural Development Programme for England. The 'Your Natural Heritage' project will give communities the opportunity to learn new skills, enabling them to survey their local habitats and record the species they contain.

The will help to plug gaps in habitat information and inform landscape scale conservation projects currently underway in Shropshire. The project will benefit the Shropshire BAP by generating increased species records, raising local awareness of biodiversity and identifying important new biodiversity sites

As a further benefit community groups will be asked to identify what aspects of their local natural heritage they feel are most important. Funding and advice will be available to help communities protect and improve these biodiversity hotspots.

This project offers an innovative approach to delivering positive biodiversity action. Involving local communities on this scale enables a large area to be covered, encourages local support and increases the likelihood of delivering, maintaining and monitoring positive actions for biodiversity.

For more information about the project, contact Gareth Parry on 01743 252543 or email:

gareth.parry@shropshire.gov.uk.

Mendip Hills AONB Barn Owl Project

The Mendip Hills AONB Sustainable Development Fund has provided a 75% grant to the Mendip Hills Barn Owl Conservation Project run by the Hawk and Owl Trust. The 6 month project is gathering information about barn owl sites, visiting schools to teach children about conservation, visiting landowners to advise about creating barn owl habitats and artificial nest sites, building nest boxes with local children including the AONB Young Rangers, leading an owl prowl and giving a public talk.

© *Andy Mallender, Mendip Hills AONB Unit*

The project came about in response to an article in the Mendip Times magazine in 2010, by Chris Sperring Conservation Officer for the Hawk and Owl Trust, about dwindling numbers of owls. Secure nest sites are becoming scarce due to felling of old trees and conversion of old buildings. A large number of landowners and members of the public contacted Chris to ask how they could help.

Julie Jones Chair of Governors at Burrington Primary School after a recent visit by Chris with barn owl Beau, *'Getting close to a wild creature and being able to observe in detail their physical structure and behaviour cannot be underestimated as a learning experience. We would strongly recommend any other schools in the Mendip AONB to take advantage of this free offer'.*

Ten landowners have already responded to the offer to visit farms and discuss ways in which they create and maintain prey-rich habitats and artificial nest sites.

The long term aim of the project is to increase knowledge of the barn owl population on Mendip and to continue to protect and conserve it.

The Hawk and Owl Trust has also been running a Community Owls Project since 2007 that has successfully involved over 60 local people in carrying out surveys of the Long-eared Owl, that has fed information into the Mendip Biodiversity Action Plan and Biodiversity Action Reporting System (BARS)

Photo: Mendip Hills AONB Young Rangers with the Barn owl boxes they made on Saturday 8th Jan 2011

Warwickshire Dormouse Conservation Group – One Year On!

The Warwickshire Dormouse Conservation Group was created in December 2009 to support the objectives of our Common Dormouse Local Action Plan, including finding out if we have more sites than the one known natural population at Weston Wood. Since then the group has grown to an impressive 37 members plus 25 'friends' who receive our quarterly newsletters without being harassed for help with fieldwork! We are also supported by Warwickshire County Council's Biological Record Centre.

Out first meeting in January was to relocate 100 nest boxes in preparation for the introduction of a second batch of dormice by the People's Trust for Endangered Species – see Biodiversity News 47: '*New Dormice for Warwickshire*', the first release in 2009. This second release took place in June, followed by frequent feeding visits until September which got us several new members as the presence of hornets necessitated paired fieldwork. The basic food mix was supplemented by mealworms, cherries, blueberries, grapes, pears and of course hazel nuts. Squirrels provided us with a challenge as they opened the doors to the wire holding cages by chewing the cable ties and even released some hinged rings we used next. We eventually foiled them with D-clips but only after we had posted up messages to the public asking them not to open the doors!

1st group meeting January 2010

© D Hanratty

Our own fieldwork began in February with 'reccys' of woods and hedgerows in preparation for updating the 1999 survey of Warwickshire woodlands by English Nature (now Natural England). This recommended that the five sites found to be dormouse-positive by the presence of nuts should be resurveyed but for various reasons only two of these were selected, together with another three woods, one of which had had a hibernating dormouse in 2009. A BSc student investigating the use by dormice of hedgerows selected two off Weston Wood for survey as well. Meanwhile, back at base, 200 nest tubes were being made out of Tetrapak cartons to supplement those bought with a grant from PTES. In early summer over 400 nest tubes were installed at the seven sites which did spoil a little the beautiful carpets of wood anemones and bluebells! With few of our members having handling licences, monthly monitoring was only possible at two of the sites and all the nest tubes were retrieved after the final check in November. Sadly we found no evidence of use by dormice at any site although the tubes were popular with wood mice and birds!

During the summer our members were not idle. In addition to feeding the new dormice, those who had not seen a dormouse assisted the FC Ranger with the monthly box checks at Weston Wood but unfortunately no dormice or nests were found.

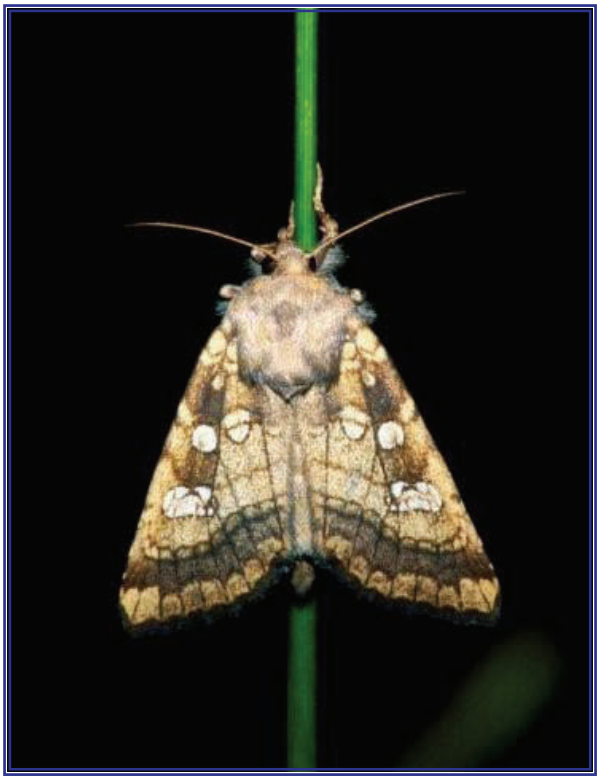
Looking back on our first year, despite finding no new dormouse sites, the group has had its successes. Field work involved 29 members in 55 visits to 8 locations which is a fantastic commitment and led to networking between people who otherwise would not have met. It has also initiated two surveys by individual members for 2011, one for an MSc degree. We plan to 'nut hunt' at the five 1999 dormouse- positive sites this spring to finalise our updating of the EN report.

Ruth Moffatt rmof22@yahoo.co.uk

Helping one of Britain's rarest moths to spread its wings in Essex

The north Essex coast is home to the stronghold of one of Britain's rarest and most highly threatened moths: Fisher's estuarine moth (*Gortyna borelii lunata*). This species is found only on grassland where Hog's Fennel (*Peucedanum officinale*), its sole caterpillar food plant, grows. The plant has a very restricted UK distribution and therefore so does the moth. The main area for both is Skipper's Island and a handful of sites along and just behind the sea wall within the Walton Backwaters, an area of inter-tidal mudflats, saltmarsh, coastal grassland and islands just north of Walton-on-the-Naze. Unfortunately the main sites are low lying and under threat to coastal erosion and rises in sea level.

A partnership project is in operation that aims to secure the long-term future of Fisher's estuarine moth by creating new areas of habitat and establishing the moth on higher ground, away from the threats of flooding. Conservation work has been in progress for over ten years and has involved understanding what the moth needs to survive and how conditions can be created to ensure its survival. This knowledge has been put into practice over recent years and a programme has been developed through Natural England's Higher Level Stewardship (HLS) scheme to enable farmers and landowners to receive funding to create and manage habitat for the moth on their land. This programme is enabling a landscape-scale approach to be taken and farmers within 5km of the north Essex coast are being encouraged to create sites.



© *Micky Andrews*

Habitat creation involves planting Hog's fennel plugs into areas of grassland that support an abundance of coarse grass species, such as cock's-foot, false oat-grass or couch, that the moth requires for egg-laying. Alternatively sites can be reverted from arable by broadcasting an appropriate grass seed mix, together with Hog's fennel seed. To date more than 35,000 Hog's fennel plugs and 10kg of Hog's fennel seed have been established at over 20 sites. After several years growth the conditions at many of these sites are now suitable for Fisher's estuarine moth.

A captive breeding programme has been in operation at Colchester Zoo since 2008 to provide a readily available supply of stock for establishment of the moth at the areas of newly-created habitat. To date, batches of eggs and caterpillars have been released to sites in spring 2009 and 2010. The receptor sites have since had good numbers of the caterpillar's feeding signs and adult moths recorded. This is very encouraging, and although it is still early days, indicates that the moth responds well to introductions and can be established at suitable sites.

In 2010, the moth's caterpillar feeding signs and an adult moth were also recorded at a newly created site that had not been populated by the breeding programme. The site is approximately 2km from the nearest naturally occurring Hog's fennel plants and this demonstrates that Fisher's estuarine moth is, to a certain degree, capable of extending its range naturally. This is very exciting, and together with the stock available from the breeding

programme, means that establishing viable colonies of the species at new sites should be achievable at a landscape-scale.

The outlook for Fisher's estuarine ,moth is now far more favourable and the aim of securing the long-term future of this unique species is now within sight. This is a reflection of partnership working and particularly the commitment and hard work of a number of farmers and landowners. It also demonstrates the effectiveness of the HLS scheme as a practical tool for species-level conservation.

The project is currently being funded and overseen by Natural England and the monitoring and habitat management work is being co-ordinated by Tendring District Council. As well as Colchester Zoo, other project partners include Essex Wildlife Trust, Essex Biodiversity Project, Environment Agency and Writtle College.

Fisher's estuarine moth is legally protected at a European level under Schedule 2 of the Conservation of Habitats and Species Regulations 2010. Both the moth and Hog's fennel are listed within the British Red data Book and both have local Biodiversity Action Plans.

Wales' Most Secretive Butterfly
Hidden Treasure in the Carmarthenshire Countryside!

© *David Rees*

Birds like the Red Kite are both beautiful and highly visible – so everyone in Carmarthenshire knows all about them, sees them in the sky regularly and can proudly show them off to visitors almost at will. Brown hairstreak butterflies are equally beautiful, with stunning colours and markings, but are about 50 times smaller than red kites, highly elusive – unlikely to be spotted by chance encounter, well camouflaged in vegetation and with a very limited flying season and then only in the most clement of weather. So, quite a challenge! That they still exist at all in Carmarthenshire is remarkable, when you consider their lifecycle. Richard Smith from Butterfly Conservation has been working with volunteers over the last 10 years and their hard work has meant that we now know more about this butterfly's ecology and its management requirements than ever before.

Strange habits

Brown hairstreak butterflies live most of their lives in canopy of mature hedgerow or woodland edge trees but the female of the species has to descend nearer to ground level to lay her eggs on young blackthorn plants in field edges and hedges in August and September. What's more, brown hairstreaks are restricted to lowland west Wales (the old county of Dyfed), along two fairly narrow bands of distribution – based on the Tywi and Teifi valleys.

Historical distribution

Pre 1980s, it was known that brown hairstreaks occupied most of Carmarthenshire and Ceredigion, plus central and eastern Pembrokeshire and even the western end of Montgomeryshire. However, records were thin on the ground, with the biggest initiative being a targeted winter roadside egg search operation in March 1977 by Dr Jeremy Thomas. By 1998 - the time of the run up to *Millennium Atlas of Butterflies in Britain and Ireland* - there were very few indeed post 1980 records, so clearly we had to do something quickly to assess its up to date distribution. Over the two winters of 1998/99 and 1999/2000, three of us journeyed across lowland Dyfed, looking for brown hairstreak eggs on roadside hedges; roughly repeating the Thomas work of 1977. Alarmingly, we found that in 10-km grid squares occupied, its range has decreased by 35% in less than 25 years. In Ceredigion it was no longer found in central and northern parts, had vanished from Montgomeryshire and much of Pembrokeshire, but Carmarthenshire, whilst its range had shrunk around the edges, appeared to be its last remaining major county.

Eight years of recent survey effort

The increasingly widespread practice of mechanical flailing of hedgerows every year was recognised as likely to severely adversely affect the butterfly's distribution. To properly assess this we would need plenty of volunteers and co-operation of farmers and other landowners with access. Thankfully, after 8 consecutive years of concerted volunteer effort and permission from landowners, we now have achieved a much clearer view of how strong its local populations are across Carmarthenshire, based on these weekly winter surveys for their eggs - and what its prospects are in different valleys and local areas. It certainly isn't all good news and despite our more comprehensive knowledge of the species than ever before, its fate is very much in our own hands. Support for this project came through the Carmarthenshire Biodiversity Partnership's grant funding from the Countryside Council for Wales.

Critical issues – a butterfly's perspective

© *Mike Clark*

Starting their adult flight period so late in the year, means everything is late. During August, most of their time will be searching for a mate in sheltered tree canopies where they congregate having emerged over the surrounding countryside from eggs originally laid the previous late summer and early autumn. Although sluggish by nature, they seem to cope remarkably well with late summer West Wales weather. Shelter and warm microclimates play a critical role here – the most sheltered young blackthorn plants being favoured for egg-laying. So by the time that the fertilised eggs are eventually laid by these sedate butterflies, it's already late in the year and leaves will soon be getting ready to drop from the blackthorn. The eggs (pin-head sized and white looking a little like a miniature sea urchin) remain on the young blackthorn twigs right through winter to April, when the time their hatching into tiny caterpillars to be able to feed on the unfurling new blackthorn leaves. This leaves them very vulnerable during the hedge flailing season.

Critical issues – a landowner perspective

Natural predation is not an increasing factor for Brown hairstreaks, but removal of its eggs from the blackthorn during these critical 8 months most definitely is. The eggs are nearly always located on the youngest growth, which in hedges, being the outer parts of the hedge, will be removed when and if the hedge is flailed. We know from scientific studies that blackthorn-rich hedges in lowland south-western Britain, are most economically trimmed on a 3–4-year rotation. We know also that annual trimming of such hedges, can lead to local extinction of Brown hairstreaks within just 3 years! Yet annual flailing of hedges, across whole farms, is quite evidently on the increase across most of lowland Carmarthenshire, so there's little room for any complacency.

Our survey results show very high positive correlations of strength of Brown hairstreak populations with land used as smallholdings or other low-intensity management where nature and natural landscapes are often seen by these landowner groups as positive attributes, contrasting sharply with modern commercial farming where the agricultural yield may be the landowner's main driver.

Community pilot project

With a small "Awards for All" grant, a community project was initiated around the village of Llangeler in January 2010. Already, it has encouraged six new local volunteers, spread to nearby villages and has enabled us to carry out positive management by coppicing older blackthorn stands and resulted in many landowners proudly displaying our "Butterfly-Friendly Hedgerows" discs on their roadside gates.

Our aim is to continue to spread the message and encourage the setting up of suitable low-intensity management on suitable land parcels, spread right across the butterfly's current distribution range – before it shrinks back even more.

The last 3 years in particular have shown a clear improvement in the fortunes of this butterfly on sites specifically managed for Brown hairstreaks, as opposed to those left unmanaged, where the recent years' trend continues very much in the wrong direction.

Although rarely seen, how much richer is our landscape for this hidden treasure? The work of the volunteers in this projects clears shows just how important their efforts are.

Tayside Mesotrophic Lochs Project – Loch of Lintrathen

The conservation of mesotrophic lochs is a key responsibility for the Scottish Environment Protection Agency (SEPA), driven by UK, Scottish and Local Biodiversity Action Plan targets, the Water Framework Directive and responsibilities under the Nature Conservation (Scotland) Act 2004.

In 2007 SEPA selected 31 priority lochs across Scotland which have a record of priority plant species (Slender naiad, Shetland pondweed, Pillwort, and some stoneworts) which are under threat / in decline and in need of conservation. These lochs face various anthropogenic pressures (eutrophication, fish stocking, invasive alien species etc) which threaten their ecology and water quality. The 31 lochs are spread across 7 LBAP (Local Biodiversity Action Plan) areas and are included in a 3-year (2008-11) Environmental Improvement Action Plan (EIAP). SEPA develops EIAPs to deliver additional improvements complimentary to its role as an environmental regulator. For example these plans help secure resources for water chemistry analysis, macrophyte surveys, palaeoecology investigations, review of discharges/consents and project co-ordination.

Loch of Lintrathen (Kate Baird, SEPA)

Phase 1 of the Tayside Lochs Project involved the formation of a partnership group in 2008 to conserve biodiversity priority plant species including Slender Naiad (*Najas flexilis*) at Fingask and White Lochs. These are small linked lochs located south of Blairgowrie in Perthshire. The project partners included Tayside Biodiversity Partnership, the Farming and Wildlife Advisory Group, Blairgowrie Angling Club, Rosemount Golf Club and SEPA.

Phase 2 of the project has focused on the other lochs in the Tayside EIAP, for instance Loch Monzievaird, near Crieff; Monk Myre, near Blairgowrie; and the Loch of Lintrathen, near Kirriemuir in Angus

The Loch of Lintrathen is a large, mesotrophic loch with a surface area of 169ha and a maximum depth of 43m. It is a SSSI, SPA, Ramsar site, SWT reserve and a Scottish Water drinking water supply so it is vital that the water quality is safeguarded for the future. It is designated a SSSI because of its internationally important numbers of wintering greylag geese which roost on the water, and for its assemblage of wintering wildfowl which includes whooper swan, wigeon, teal, mallard and goosander. In addition, the SSSI designation includes standing waters - the assemblage of plants present are indicative of mesotrophic conditions.

In 2009, a partnership group was formed to safeguard the water quality of the loch and protect the diverse plant species present. The Lintrathen Partnership at present, includes the Tayside Biodiversity Partnership, Scottish Wildlife Trust, Scottish Natural Heritage, Scottish Water, Bell Ingram, Littlewood Land Care and SEPA.

The water quality of the loch is closely monitored by Scottish Water. Extra ecological monitoring work carried out in 2009 by SEPA as part of the project included looking at the macro-invertebrate, diatom and plant communities present to aid in the classification of the loch in terms of its water quality. Diatoms are tiny photosynthetic, unicellular algae which live within a silica casing (frustule). They are routinely used for biomonitoring in SEPA as they are sensitive to nutrient levels, especially phosphorous. The diatom community present indicated issues with nutrient enrichment at the Loch of Lintrathen. This was backed up by the levels of phosphorous present which indicate enrichment. This nutrient enrichment can lead to algal blooms which can cause problems with water quality as well as potentially altering the diverse plant species assemblage of the loch.

In the plant survey of the loch carried out in 2009 by SEPA, several *Potamogeton* (pondweed) species were recorded including *Potamogeton berchtoldii* and *Potamogeton perfoliatus*. *Nitella spp.* were also present as was, unfortunately, *Elodea canadensis*, a non-native invasive plant. Further results of the assemblage and abundance of these and other plant species are to be provided shortly by Scottish Natural Heritage, as part of their Site Condition Monitoring Programme.

To raise awareness of the Loch of Lintrathen and its current status, an evening event for the public was held at Kilry Village Hall in September 2010. The aim was to highlight the condition of the Loch of Lintrathen and to provide information on the current biodiversity projects going on in the catchment to local landowners, land managers and the local community. The Loch of Lintrathen has an ongoing Red squirrel project, a Water vole project, regular bird counts through SWT's management of the reserve, a forestry plan and angling interest.

The results from SEPA's Diffuse Pollution survey carried out recently through SEPA's Priority Catchment work were also discussed. This survey work identified certain areas in the Loch of Lintrathen catchment which need to be looked at by landowners in terms of riparian improvement to comply with regulations on water quality protection.

By employing a partnership approach to safeguard and enhance the water quality at the Loch of Lintrathen, it is envisaged wider benefits to the catchment in terms of riparian improvement and biodiversity value will also be achieved.

For further information on the Lintrathen Partnership, contact Kate Baird (Kate.Baird@sepa.org.uk)

Cairngorms Raptor Tracking Project Spreads its Wings

Species of raptors, which have never been satellite tagged before in the UK, can now be followed day and night on the world wide web.

The project in the Cairngorms National Park has seen satellite tags put on two Peregrine falcons named Freya and Vega, a Hobby called Aeshna and a Merlin named Corrie. Two Hen harriers and more young Golden eagles have also been tagged in 2010, to follow up the earlier satellite tagging of Golden eagles and Ospreys in the National Park.

'Tanar' © CNPA

The partnership project involves Roy Dennis of the Highland Foundation for Wildlife, the Cairngorms National Park Authority (CNPA), the Cairngorms Local Biodiversity Action Plan (LBAP), Scottish Natural Heritage, Natural Research and the Royal Society for the Protection of Birds as well as local land mangers across the National Park. Additional funding has come from the Cairngorms LBAP and the Partnership Against Wildlife Crime.

Raptor Track (www.raptortrack.org) aims to raise awareness of the movements of raptors within the National Park, as well as their travels into other parts of Scotland and further afield. It also gathers information on the lives and movements of these individual birds, which will help with future protection and conservation efforts, including deterring wildlife crime.

Roy Dennis explained: "Tracking by state-of-art satellite transmitters adds enormously to our knowledge of raptors gained from field study and ringing. We can follow them as individuals and understand much more about their daily lives and the problems they face. Using the web is an exciting way for people to learn about and enjoy the raptors of the Cairngorms National Park.

"There's the excitement of 'what next' – Vega the Peregrine made a day trip to the Cromarty Firth last week, while my computer tells me today that Tanar, the hen harrier, roosted last night in the Angus glens while Aeshna, the Hobby, had flown from Senegal to Guinea in West Africa – one day she will hopefully return to Strathspey."

Karen Couper, CNPA Ecologist added: "There are 18 species of raptors within our moorlands and forests of the National Park, some which are resident here year-round and others using it as a breeding ground or to winter, so it makes the Park a very important place in global terms for these birds. It is important we have as much information as possible in order to ensure that as a planning authority, we are making the right decisions but also as the Park Authority – working with our partners – that we are doing our utmost to protect these key species so that future generations can enjoy them."

Migration of the UKBAP website

The UK BAP website (http://www.ukbap.org.uk/) is soon going to be migrated into JNCC's website as a result of the review of the UK Government's websites, the objective of which was to make it easier for the public to find content, and to make best use of resources.

The benefits for the UK BAP website are that it will become both much more accessible for users, and much simpler to manage and update. All of the key UK BAP documents will be available on the new web-pages, including recent, and back copies, of Biodiversity News. In addition, the original site will be available through the National Archives, which regularly archives UK central government websites. The UK Government archives can be accessed via the following link: http://www.nationalarchives.gov.uk/webarchive/, and snapshots of the UKBAP site can be found here: http://webarchive.nationalarchives.gov.uk/*/http://www.ukbap.org.uk/.

Automatic re-directs will be put in place so that links from external websites will continue to work, and the new UK BAP homepage will be re-located to: http://www.jncc.gov.uk/ukbap. It is anticipated that the new pages will be up and running by the beginning of April 2011.

The initial site will copy across all the key information relevant to the UK BAP, but if you can think of ways to improve the site, or think there is additional information that should be included, please don't hesitate to get in touch and let us know.

For further information, or to provide us with some feedback, please contact:

UKBAP@jncc.gov.uk

UK Biodiversity Partnership Conference 2010

New targets, new challenges

The theme for this year's UK Biodiversity Partnership Conference was the new targets and challenges for biodiversity. The conference was an early opportunity for the UK biodiversity partnership to discuss our response to these global and EU targets. The targets have moved from a primary focus on preventing loss of species to an equal focus on ecosystem services, bringing new opportunities and new challenges. The conference took place on 23 and 24 November 2010 at the Stirling Management Centre in Scotland and was attended by around 150 delegates from across the UK.

I was delighted to take the opportunity to be one of these delegates, and to experience firsthand such an energetic and productive conference in such a beautiful setting. There were field visits to Wester Ross, Fallin Bing and Mine Wood for delegates who arrived early, then at 2pm everyone sat down to hear an introduction from the chair (John Robbs, Defra) and an opening address from Roseanna Cunningham (MSP – Minister for Environment). After a video address from the Secretary of State reflecting on COP10, expanded on by Martin Brasher in his "Message from Nagoya" and Andy Stott in his update on EU Targets, the floor was opened to questions; all of which indicated a highly attentive audience, ready to engage and contribute to the discussions ahead.

© *Sophie Rogers*

There was some useful feedback from the afternoon workshops, which focussed on the UK response to the new targets. I attended the "Valuation: Natural Capital and Offsets" workshop, which offered stakeholders the chance to hear from economist Salmain Hussein on how studies like "TEEB" will affect the future of biodiversity.

This was a fascinating discussion and I am sure that I wasn't the only one who felt inspired by the practical examples of environmental valuation's potential. Things got even more inspirational in the evening with a speech from "2020 Vision"; an ambitious photography-based conservation initiative. For more information visit http://www.2020v.org/.

The next day started with presentations on the analysis and research that goes into policy, followed by updates from each nation on delivery and policy across the UK, with Q&A sessions for both. I was impressed by the passion and articulacy of the questions and responses; delegates and speakers had clearly taken time to prepare for this opportunity to express their views. Interest was also high in the afternoon workshops of the second day, outputs from the workshops are available on the Scottish Governments' website.

People seemed to be making the most of the poster sessions and Biodiversity Action Reporting System (BARS) surgeries available throughout the conference, not to mention the chance to network! The UK Biodiversity Partnership Conference was a valuable experience for me; providing a chance to see the inner workings of biodiversity conservation during a very exciting time.

Sophie Rogers

Defra Biodiversity Programme

Landmark study reveals both good and bad news for Cornwall's wildlife

A comprehensive new study shows how the landscape of Cornwall has changed between 1995 and 2005 and gives insight to how these changes may be affecting the county's wildlife. Cornwall Council commissioned the Environmental Records Centre for Cornwall and the Isles of Scilly (ERCCIS), hosted by Cornwall Wildlife Trust, to carry out the study which involved analysis of aerial photographs taken in 1995 and 2005 to determine changes in Cornwall's land cover. Land cover is a description of Cornwall's landscape that comprises wildlife habitats, farmland, towns and villages.

The timely study was completed during the International Year of Biodiversity, declared by the UN to celebrate the diversity of life on Earth including every plant, animal and micro-organism. 2010 was also the year set by governments across Europe, including the UK, to halt the loss of biodiversity. So how is Cornwall's biodiversity doing?

View from Bodmin Moor showing enclosed farmland and hedgerows, both habitats are being lost in Cornwall, credit Cornwall Wildlife Trust.

The results of the study showed some good and bad news. The bad news is that Cornwall is still continuing to lose important wildlife habitats, for example there has been a net loss of 30 hectares (75 acres) of wetland habitat, equivalent to 60 football pitches. Wetland habitat in Cornwall is already very degraded so this is of real concern. Wetlands are home to many species including otters, frogs, newts, damselflies, dragonflies and a variety of bird species. The loss of wetland habitats means a loss of these species too.

Overall 17 hectares (42 acres) of heathland has also been lost. Heathland habitats support species such as heather, Western gorse, bilberry, nightjar, skylark and a myriad of insects. Cornwall is the second heathiest county in the UK and is home to 2% of the entire world's heathland; 'Lowland Heathland' is of national nature conservation sig-

nificance. Thankfully conservation programmes put in place over the decade have worked towards the re-establishment of considerable areas wildlife habitat, including heathland. The Tomorrow's Heathland Heritage Project created over 180 hectares of heathland in the St Austell China Clay area. Whilst the quality of these 're-established' habitats is not as good as existing mature habitats, over time these areas will have increasing value for wildlife as they become fully established. However, despite the re-establishment projects we have still seen a net loss of heathland, which is very disappointing for Cornwall. This result shows us that whilst re-establishment projects are of real importance, if we continue to destroy existing habitats at the same time we are only running to stand still and are not improving Cornwall's biodiversity.

Heathland and farmland, near Newbridge West Penwith. Credit Cornwall Wildlife Trust.

The good news from the study is that the pace at which we are losing these habitats has slowed down. For example the rate of loss of Cornish hedges has reduced; prior to 1995 the loss was 2% per year, but after 1995 the loss has reduced to 0.3% per year. This is likely due to the introduction of legislation in 1997 that protects hedgerows. However, there were still significant losses of Cornish hedges due to urban expansion. In particular hedges with mature trees were lost in connection with the development of industrial estates at Bodmin and Falmouth and housing estates at Launceston and St Austell.

The largest changes in our land cover occurred in enclosed farmland; the study shows the rate of loss of this land to built development has actually increased since the previous study. Between 1995 and 2005, 1900 hectares (4700 acres) were lost to building development; this is an area nearly twice the size of the city of Truro. Between 1988 and 1995 this figure was 600 hectares (1500 acres). Enclosed farmland is a hugely important habitat for threatened wildlife species such as skylark, barn owl, bats, dormice and the marsh fritillary butterfly so this finding is of particular concern.

Commenting on the results of the land cover analysis work, Victoria Whitehouse, Conservation Manager at Cornwall Wildlife Trust said, "It is good news for Cornwall's wildlife that the rate of loss of wildlife habitats has declined and it is promising that projects have been taken forward to re-establish lost areas of these vital wildlife habitats."

Victoria continued, "However, there has been a continued loss of habitat, the extent of which is already impoverished because of the much more substantial losses that occurred in previous decades."

"This study shows we need to do much more to ensure there is room in Cornwall for our wildlife to thrive. Nature and wildlife contribute greatly to our health and well-being, providing clean air and water as well as beautiful surroundings and enjoyment. A changing climate is an additional and very serious pressure, and we must make sure people and wildlife can be resilient to this.

She continued, "With development planned to increase in Cornwall, the pressures upon our finite reserves of land and how it is used is a real issue. All organisations involved must ensure all new development has a truly positive impact on Cornwall's natural environment. This can done by ensuring wildlife habitat is not lost during development and also by including re-establishment of habitats during new developments."

A summary of the Cornwall's Land Cover 1995-2005 report is available to download at the ERCCIS website: erccis.co.uk/landcover. To find out more about the work of Cornwall Wildlife Trust visit cornwallwildlifetrust.org.uk.

Brown Hares in the Derbyshire Dales

Derbyshire artist and photographer Christine Gregory has written a lavish new book about the county's brown hares. The book, *Brown Hares in the Derbyshire Dales*, has been produced with the support of a grant from the Peak District National Park's Sustainable Development Fund, and Christine is donating profits from sales to Derbyshire Wildlife Trust.

© *Lepus Books*

The book is richly illustrated with 150 original photographs of hares in all stages of their life cycle, other local wildlife and the landscape of the Derbyshire Dales, all taken by the author.

The book brings together many of the known facts about this solitary and tantalisingly secretive creature, which is now a species of conservation concern. It includes thought-provoking reflections on the impact of modern farming methods and the effect that the disappearance of traditional grasslands has had on hares and other species. Alongside these reflections are the views of local farmers, interviewed by the author for the book.

Brown Hares in the Derbyshire Dales is published by Lepus Books at £15 plus postage and packing. Copies are available from www.lepusbook.co.uk or Derbyshire Wildlife Trust on 01773 881188.

Ph.D research into biodiversity education during IYB - can you help with survey?

Did you host an event for pupils as part of the International Year of Biodiversity?

In 2010 a variety of organisations offered inspired events or resources for schools audiences. A new research study aims to collate lessons learnt during last year, so that organisations can share case studies. This will help educators maximise the clear opportunity to draw on current expertise and new directions, when planning future events.

Grace Kimble, part-time PhD student at the Institute of Education and School Programme developer at the Natural History Museum, London, is conducting this study, supervised by Professor Michael Reiss

Your assistance would be greatly appreciated in the first stage: gathering experience and evaluation. You can participate by completing this online survey:
www.surveymonkey.com/s/IYBeducation

The deadline for readers of Biodiversity News is **February 28th 2011**.

The twenty questions chosen aim to use as little of your time as possible whilst giving useful data. In turn you will receive a summary of survey results, in which you will be fully acknowledged (unless you prefer to remain anonymous). You will receive a draft version to approve prior to any publication.

For further information please contact Grace by email: gkimble@ioe.ac.uk

2010 International Year of Biodiversity

IOE LONDON
Leading education and social research
Institute of Education
University of London

AN IMPORTANT CONFERENCE

The future of biological recording in Britain

The National Federation for Biological Recording's annual conference is at the Holiday Inn, Filton, Bristol, BS16 1QX

7- 8th April, 2011.

For over 25 years, the NFBR has been promoting biological recording and now with the establishment of many national society recording schemes, local record centres covering most of the UK and the NBN Gateway holding nearly 60 million records, this conference will look at what has been achieved and where we need to go in the future, with new technology and new challenges.

Be a part of the debate!

For the full programme and booking form visit www.nfbr.org.uk or email our conference co-ordinator john_newbould@btinternet.com.

A whole lot of holiday fun for a whole lot less in 2011

Get the most from your money in 2011, visit your local WWT Wetland Centre during February half term to enjoy a whole host of activities and events for the whole family, while giving the children exciting opportunities to learn about the natural world around them. On top of that, just by visiting you will be helping to support critical conservation projects in the UK and around the world.

WWT's nine wetland centres across the UK are all different: from exciting interactive exhibits, canoe or bike safaris, discovery trails, fun, educational children's play areas and events and activities for the family...to natural places where the kids can discover nature for themselves. Half term activities range from **family birding** at Caerlaverock (Dumfriesshire) and Slimbridge (Gloucestershire) to **mini beast safaris** at Washington (Tyne & Wear), there are plenty of **arts and crafts** on offer and you can even experience **crocodile encounters** at London Wetland Centre.

Every centre introduces adults and children alike to the wonders of wetland birds and their habitats, with stunning scenery and nose-to-beak encounters with some of the world's most dramatic and rare birds. Each centre has excellent restaurants and gift shops and all have family friendly and disabled facilities including buggy access, manual wheelchairs and electric buggies for hire.

Visit during the February half term holiday and become a member of WWT and every WWT centre is your garden, all year! Become a member and not only do you get your entrance fee refunded, but you can also gain free entry to all nine WWT Wetland Centres. Members receive an exclusive quarterly magazine, Waterlife, which keeps you up to date on what's going on at all nine centres and WWT's exciting conservation projects saving species from extinction and caring for important wetlands around the world.

Activities at WWT centres during the February half term holiday 2011 include:

WWT Arundel T 01903 881530 West Sussex

19 - 27 February: **Ecoteers Adventure!** Visit our four indoor zones: Animals, Plants, Bird or Insects, and complete activities and crafts to earn an Ecoteer badge! 11-4pm

Arundel Wetland Centre is offering a program of fun, free activities and crafts about insects, plants, animal and birds this February half-term. We have daily activities at four indoor zones to encourage children to become an Ecoteer, developing awareness of wildlife, conservation and the enviroment.
Visitors can also hand feed waterfowl from around the world, watch the diving ducks and take a Wetland Boat Safari. Ecoteer activities starting at 11:00 am - 4 pm.

Follow the Ecoteer Trail around the reserve and enter our draw to win a free family day ticket!

Activities are free, usual centre admission applies. Children must be accompanied by an adult.

wwt.org.uk/arundel

WWT Caerlaverock T 01387 770200 Dumfriesshire, Scotland

23 February: **Family Birding** from 10am to 12.30pm. Join the wardens to learn how to look for birds and identify them, an event for parents and children to join in together. Places are limited so phone 01387 770200 to book. Normal admission rates apply, WWT members free. wwt.org.uk/caerlaverock

WWT Castle Espie T 028 9187 4146 County Down, Northern Ireland

14 - 18 February: **Quackanory** – A selection of classic children's stories read for everyone's pleasure.

Storytelling in the soft play area from 2-4pm. NEC. wwt.org.uk/castleespie

WWT London T 020 8409 4400 Barnes

19 – 27 February. Uncover the secret world of reptiles at the London Wetland Centre this half term. There will be snakes, hissing cockroaches, millipedes and lizards for you to meet - and some you can even hold - so that you can learn more about these fascinating creatures. Far from being scary monsters these shy animals often hide away so this is a fantastic opportunity for you to see them up close. And what's more, the display is undercover so you can enjoy your day out even if it's raining!

The big stars of the show will be making a special appearance on Sunday 20 February...Come along to **Crocodile Encounters** where you'll be able to meet a crocodile and an alligator! Find out about the amazing world of crocodiles and alligators, their behaviour, how they've evolved and adapted, and why many are now under threat. Throughout the week, join a fun art workshop inspired by London Wetland Centre and our beautiful World Wetlands birds. Their colours and patterns will be used to create leaves on a big tree sculpture. wwt.org.uk/london

WWT Martin Mere T 01704 895181 Lancashire

With swan numbers increasing to over 1,000 birds this is an amazing opportunity to see a wonderful wildlife spectacle. Swan feeds at 3pm and 3.30pm (3.30pm feed takes place in the heated observatory with a warden's talk). There are also daily otter talks and a feed at 11.30am and 2.30pm and guided tours of the waterfowl gardens at 1pm. You can even meet a beaver expert in our drop in talk between 11 – 11.30am and 2 – 2.30pm.

Reptile Revels. Come and see Meadows Mobile Reptiles on 12, 13, 19 and 20 February to get close to a lot of weird and wonderful reptiles including:

Boa Constrictors, Corn Snakes, Rat Snake, Western Hognosed Snake, Rough Green Snake, Royal Pythons, Leopard Gecko, Bearded Dragons, Green Iguana, Sudan Plated Lizard, Chinese Water Dragon, Berber Skink, Redfoot Tortoise, Giant Millipedes, Giant Hissing Cockroaches, Emperor Scorpions, Giant East African Snails, Mexican Redknee Tarantulas, Chile Rose Tarantulas and a few more!

12 -27 February **Family crafts** daily from 1pm – 4pm (some require a small charge) There will also be the opportunity this half term for some close encounters with a whole host of reptiles. See the website nearer the time for more details. wwt.org.uk/martinmere

WWT National Wetland Centre, Wales T 01554 741087 Carmarthenshire

19 - 27 February, **Half Term Holiday Fun**

Activities to keep the children entertained this half term from arts and crafts to guided walks. There's something for all the family. wwt.org.uk/llanelli

WWT Slimbridge T 01453 891900 Gloucestershire

19 - 27 February **"Back from the brink"** Trail around the grounds studying animals such as our beaver, otters, water voles, barnacle geese, nene, Madagascan pochard. There will also be activities back at the discovery centre themed around birds and mammals that have had to fight for survival.

Wednesday 23 February **- Children's introduction to bird watching**, 9.30am. £12. Trying to look out for and identify a wide variety of birds can be quite a challenge. Join our warden who will help you find the best starting point and share some expert tips on how to learn and develop your bird watching skills and knowledge. Ideal for real beginners or those interested in starting this hobby. MINIMUM AGE: 7 years old Must be pre-booked on 01453 891223 or email eleanor.wise@wwt.org.uk

19 - 20 February **Trevor Smith – Birds and landscapes** (£60 for two days)Learn about drawing and painting wildlife from enthusiastic, professional wildlife artist Trevor Smith and receive expert feedback over this two day course. Must be pre-booked on 01453 891223 or email eleanor.wise@wwt.org.uk

wwt.org.uk/slimbridge

WWT Washington T 0191 416 5454 Tyne & Wear

19- 27 February – half-term holiday activities

Join us for family fun throughout the school holidays! **Build a bug** hotel or bird box, make your own wind chime and win a prize daily by playing our hook-a-duck species game (prices vary). Discover the life that lurks in dead trees on a **mini-beast** safari through Hollowood and create a woodland home for the creatures that you find (11am-noon and 1-2pm, free). wwt.org.uk/washington

WWT Welney T 01353 860711 Norfolk

19 February – 27 February: **Family half term family activities**

Family trail and arts and crafts to celebrate Welney's winter spectacle and the importance of wetlands just like ours. Join us at WWT Welney to learn about the wealth of wildlife which use the wetlands at this time of year. Witness one of the most spectacular sights in the UK as wintering wild swans and wildfowl are fed daily at 12noon and 3.30pm or wait until dusk when thousands return to the washes at night to roost and watch the 6.30pm floodlit feed (Thursdays – Sundays). See website for more details. Normal opening hours. Normal admission applies.

Events for older children, young adults and older adults:

19 & 26 February: **John Abbott watercolour workshops** 11am – 4pm. £35 per day. 2 individual workshops or can be booked as part of a series of 3 workshops (third date: Sat 12 February) in which John will introduce the basics of watercolour painting and help you to paint your first masterpiece.

11am-1pm Painting and instruction in pond room with trips to the observatory to sketch subject matter

1pm – 2pm Buffet lunch in Wigeon Café (included)

2pm – 3.30pm Painting and instruction in pond room with trips to the observatory to sketch subject matter

3.30pm Swan feed. A front row seat for one of the most captivating wildfowl spectacles in the UK.

Sessions will explore:

Observation & composition

Sketching & drawing

Exploring perspective

Colour & tone

Presentation & framing

Materials can be provided at cost, but must be pre-booked, or you are welcome to bring your own. **Booking essential**. Each workshop stands alone but all 3 work as a series if you wish to improve over the weeks.
wwt.org.uk/welney

The Festival of Nature returns to the Bristol Harbourside on the 18 -19th June, 2011

The biggest celebration of the natural world in the UK, Bristol's Festival of Nature attracts ~20, 000 visitors, enjoying a weekend of exiting activities and events absolutely free!

Each year we welcome over 80 environmental and conservation exhibitors and 40 green market traders. As well as sharing information, exhibitors run a range of activities and workshops for all the family. The Festival also offers free IMAX screenings courtesy of Blue Reef Aquarium, talks, entertainment and some special guests throughout the weekend.

The Festival of Nature registration is now open for exhibitors, who range from large National charities such as the RSPB, to small voluntary run groups. We offer exhibition packages for anything from a small stall, through to the hire of a large marquee and prices start from £25. The Festival is an excellent opportunity for organisations to communicate with new audiences in a fun, dynamic environment and forge new connections with like minded organisations. Find out more about exhibiting at the Festival by visiting www.festivalofnature.org or e-mailing sara@bnhc.org.uk

© Sara Chapple

Year of the Bat 2011-2012

Eurobats and the Convention on Migratory Species (CMS) have designated 2011 as Year of the Bat in Europe, with a global campaign set for 2012. Following the success of similar projects in recent years, Central Scotland Forest Trust (CSFT) has decided to celebrate the year with a dedicated biodiversity campaign.

There will be three strands to this campaign, one focusing heavily on public awareness raising and involvement, with the others concentrating on research and conservation action. As 2011 has also be designated as International Year of the Forest, much of the campaign will explore the link between bats and woodlands, for example, a research study using volunteers to regularly survey woodlands will run throughout the year to look at how bats use woodlands.

Other elements include:

- A programme of guided and self lead bat walks
- A survey focussing on the distribution on *Nathusius Pipistrelle* bats in Central Scotland
- A school pack to be sent to all primary schools in the area which includes a bat box kit for the school, a bat identification poster, information leaflets and activities
- Forest School events looking at bats and trees
- General 'Year of the Bat' poster for visitor centres across the Forest.
- A programme of corporate and community events
- A dedicated section on the CSFT website, with links to roost web-cameras

More information on the Year of the Bat can be found here: http://www.yearofthebat.org/

The Bats section of the CSFT website will be available shortly and will be found here: www.csft.org.uk, and will include information on events and walks across the area. For other information, please contact Emilie Wadsworth at emilie.wadsworth@csft.org.uk

Funding for this project has been received from Forestry Commission Scotland and SNH. Invaluable advice has been provided by the Bat Conservation Trust.

Free Public Lecture Series Spring 2011

'World Biodiversity in Crisis?'

Birkbeck Institute of Environment, University of London

in conjunction with the

Linnean Society of London, and Ecology and Conservation Studies Society

At the Nagoya Conference in November 2010, governments agreed challenging targets: to halve, at least, the loss of natural habitats, increase both land and sea areas designated as nature reserves, and increase aid budgets for these targets. But the 2002 Rio target to slow biodiversity loss by 2010 was not met and the present rate of extinction is as great as that in the five periods of mass extinction in the geological record. What must we do to halt the loss? In this series we ask what causes species loss and what actions are needed to meet international targets?

Join the debate. All welcome. Free admission. Booking is not necessary.

The lectures will be held in Lecture Theatre B01, Clore Management Centre, Birkbeck College, University of London, Torrington Square, London, WC1E 7HX.

(entrance is opposite Birkbeck Main Building)

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

For enquiries, e-mail: Jeremy.Wright@walkern.org.uk. (tel: 020 7485 7903)

25 February	**'Making Space for Nature – a review of England's protected area network'** Prof. Sir John Lawton CBE FRS, Chairman of the Review Group
4 March	**'Agri-environment Schemes'** Dr Nigel Boatman, Land Use and Sustainability Team, The Food and Environment Research Agency
11 March	**'Island Invaders: what are the biodiversity impacts of invasive species and what are the conservation solutions?'** Dr Richard Cuthbert of the RSPB

Water & Environment 2011: CIWEM'S ANNUAL CONFERENCE

Olympia Conference Centre, London, 6th-7th April 2011

Sponsored by Halcrow, Hydro International, MWH, YSI Hydrodata

Exhibitors to date: ACO Water Management, Maltby Land Surveys, Mott Mac-Donald, Polypipe Civils, Wiley-Blackwell

In April 2011, CIWEM will hold a two-day Annual Conference that will address multidisciplinary issues across all areas of the global water and environment sector and will also focus on the issue of the "Big Society" and the implications for the environment sector.

The aim of the conference is to challenge and inspire the water and environmental community by sharing knowledge and best practice, which is at the heart of meeting key global challenges. There will be a mix of key-note speakers, offered papers, exhibitions and networking opportunities that will make this the key event for water and environment professionals.

Dr Mike Clarke, Chief Executive of RSPB and Tony Juniper, environmentalist and former Executive Director of Friends of the Earth are just two of the confirmed keynote speakers to give their response to the Government's programme.

For more information and to view the conference programme please see http://www.ciwem.org/events/annual-conference.aspx

Earthwatch lecture

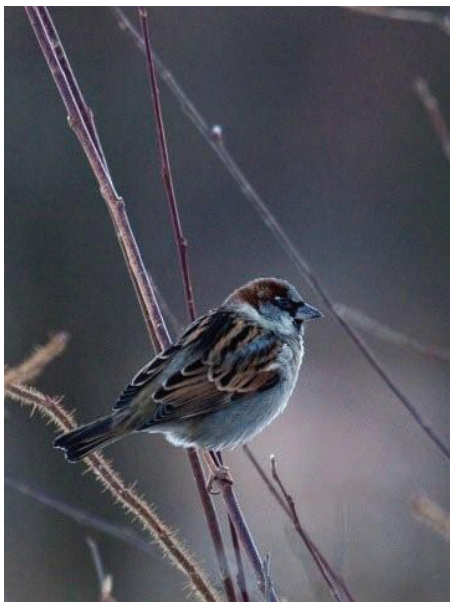
Many hands, new knowledge: the value of citizen science

With the help of Earthwatch volunteers, our scientists can collect decades worth of vital data in just one year. See how it's done on three of our projects in the Americas. The speakers are Dr William Megill (University of Bath), and Drs Christina Buesching and Chris Newman (University of Oxford). **The lecture takes place from 7pm-8.30pm at the Royal Geographical Society, 1 Kensington Gore, London SW7 2AR, on Thursday 17 March.**

For full details and online ticketing visit www.earthwatch.org/europe/events, call +44 (0)1865 318856, or email events@earthwatch.org.uk

Runners-up Photos

Many thanks to all who entered the front-cover competition. Any of these beautiful pictures were worthy of a front cover, however I had to choose one in the end! I am proud to display the runners-up below.



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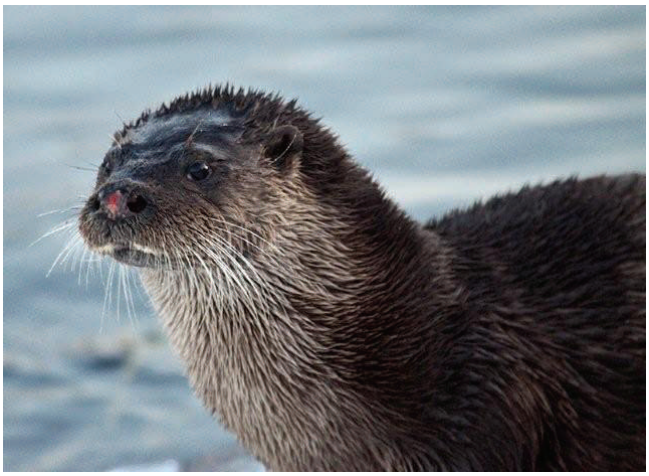

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