



The Ecology Consultancy

# Briefing

Issue 10

## WIND ENERGY & WILDLIFE

Whilst onshore wind power undoubtedly brings huge benefit to the UK's energy requirements, new proposals still have to be weighed against local issues, including impacts on ecology and biodiversity. Research effort over the past 20 years, on the impact of wind turbines on airborne wildlife, has largely concentrated on bird fatalities.

Less is known about their effect on bats, all species of which are protected under European and UK law. However, over 1,500 bat fatalities were recorded in Europe in 2009<sup>(1)</sup>, with species resident in the UK being affected. This is something of a mystery, since bats will normally avoid moving objects, using their echolocation to navigate. A number of theories have been suggested, including 'barotrauma' caused by the dramatic changes in air pressure around moving blade edges.

*Continued over...*

### Inside...

- ◆ IEEM Renewables Briefing
- ◆ Theale Cross Bat Survey
- ◆ Kestrel Monitoring



Ringlet Photo: Naomi Forbes

## Wind energy and wildlife continued...

Bats may be attracted to insects that get caught in vortices close to the structures. It has also been suggested that bats may not echolocate on familiar journeys<sup>(2)</sup>. More research is needed into this so that ecologists can recommend suitable mitigation that would aim to divert bats away from the site.

The GP Wind Good Practice Guide and Toolkit site <http://www.project-gpwind.eu/> provides a good start to mitigation, though it lacks direct guidance on, for example, survey effort for various species groups, or procedures and processes involved in the assessment of impacts. The links and the online libraries section of the Toolkit also include some useful information for ecologists and the industry, such as case studies and scientific papers, and guidance from Scottish Natural Heritage and other bodies. There is information on offsetting, compensation, mitigation and assessment of cumulative impacts.

In the UK, wind farms are subject to an Ecological Impact Assessment (EclA), which considers amongst other things impacts on species that may be significantly affected by such structures, such as migratory birds, and bats. As with all developments, the appropriate species and habitat surveys must be carried out to accepted good practice standards, or proposals can be rejected at the planning stage with consequent effects on budgets and timescales. A robust EclA will form part of a much broader Environmental Impact Assessment for larger proposals. It is not only air-borne species that are affected; often the remote sites chosen for development are home to rich reptile, amphibian and invertebrate assemblages, not to mention some of our less common plants. Protected habitats may also be directly affected, for example peat bogs in upland areas. A number of the species affected by wind farm development are European Protected Species, which require special conservation measures.

The Ecology Consultancy has many years of experience advising companies in civil engineering and the construction industry on the best way of working with wildlife on site. Our project experience includes proposals for energy companies including RWE npower renewables, Renerco, Arcus Renewables, Warwick Energy, Ecotricity and Stamford Renewables.

1. Jones G, Cooper-Bohannon R, Barlow K, Parsons K. *Scoping and method development report - Determining the potential ecological impact of wind turbines on bat populations in Britain*. University of Bristol & the Bat Conservation Trust. DEFRA May 2009.

2. *Common concerns about wind power*. Centre for Sustainable Energy, May 2011



Staff from the Norwich office attended the IEEM Renewable Energy and Biodiversity Impacts conference in Cardiff in November 2012 to learn about professional issues for ecologists working in the renewable energy sector. They heard how this is a particular development sector unlike any other, with a different set of issues. These are largely relevant to ecologists delivering pre-development surveys. They are:

1. Emerging and rapidly changing technologies, with little published evidence base of effects
2. Working in geographical areas that might not previously have been developed
3. A wide range of potential effects – no simple cause & effect approach
4. Political hot potato i.e. plenty of developer pressure

Ecologists need to make special assessments for potential long term and spatial damage, often to near-pristine environments, during the construction of turbine fields, caused by:

- ◆ permanent loss of vegetation: 3m+ wide/0.3 - 0.5 metre above land level
- ◆ barrier to species movement (reptiles & chicks)
- ◆ change in vegetation type
- ◆ disrupted hydrological regime/water quality/run-off (quantity & rate)
- ◆ over-hydration e.g. peat 'explosion'/ under-hydration e.g. soil erosion
- ◆ peat desiccation via culverting
- ◆ release of carbon deposits from peat
- ◆ disturbance to ground nesting birds
- ◆ potential displacement effects from disturbance or from avoidance of the area

Tony Juniper, Patron of IEEM and Chairman, Action for Renewables, asked at the conference, "*what of the downsides, especially in relation to biodiversity? There are several potential negative impacts. One is land take. Wind turbines and biofuels and large-scale solar photovoltaic arrays can occupy land in ways that compete with other uses, including nature conservation, not least through indirect land use changes. Disturbance and collisions with birds and bats can be caused by wind turbines while tidal schemes might have profound impacts on coastal and in particular intertidal ecosystems. All of these risks are real, but can be mitigated, and in many cases transformed from negative impacts and into positive opportunities*".

The Ecology Consultancy has developed a range of ecology skills to meet the requirements of windfarm developers, including ornithology and entomology. We are also members of RenewableUK.





# V&A Survey and Assessment

## Green roof and landscaping proposal

The Ecology Consultancy was commissioned by the Victoria and Albert Museum to carry out a walkover survey and BREEAM Industrial (2011) Assessment for the proposed redevelopment of their site at Exhibition Road, London Borough of Kensington and Chelsea.

The site, which is situated within the Victorian quadrangle, is dominated by several flat roofed buildings, with an area of hard-standing and occasional tall ruderal vegetation. It was understood that work at the site would involve the demolition of some existing buildings to allow the construction of a temporary exhibition building with a

green roof, along with possible new landscaping in containers at ground level.

The site was assessed with respect to the following components of the BREEAM Industrial (2011) Assessment methodology:

- ◆ LE02 - Ecological Value of Site and Protection of Ecological Features (1 available credit);
- ◆ LE03 - Mitigating Ecological Impact (2 available credits);
- ◆ LE04 - Enhancing Site Ecology (3 available credits), and;
- ◆ LE05 - Long-term Impact on Biodiversity (2 available credits).

The BREEAM Industrial (2011) Land Use and Ecology (LE01-05) assessment methodology provides a number of credits in respect of the ecological aspects of a development. The aim of the methodology is to encourage, wherever possible, development on land that already has a limited value to wildlife, and discourage the development of ecologically valuable sites. In addition, projects are encouraged to minimise or mitigate potential ecological impacts, compensate for any habitat loss and, where possible, enhance the site for biodiversity.

We carried out a Habitat survey and a Preliminary Protected Species assessment at the V&A, looking for features likely to be of value for roosting, foraging and commuting bats, and breeding birds. We also evaluated the likelihood of the site to provide shelter, roosting, nesting and/or foraging habitat, for a range of species.

Our bat ecologists were particularly interested in a small shed-like structure on the roof of a section of the complex. This was a flat-roofed structure, which potentially could have provided roosting for bats under barge-boards, between roofing materials and in soffit boxes. Emergence and re-entry surveys to discover whether roosting bats were present were carried out. No evidence of bats was found.

Victoria and Albert Museum Photo: Sabrina Bremner



# Natural England services to be charged for...

**Natural England is in the process of increasing its staff capacity in order to become an advisory body to planners. The service will be paid for by the introduction of "user charges" to developers. At present the service is limited to developments that may affect SSSIs or AONBs.**

A pilot was conducted in August last year, to test the service on a small number of cases. The aim is to screen proposals to assess if a wildlife licence is likely to be needed, and to potentially save developers time and money. Currently a large number of developments involve the need to obtain a licence to disturb protected species such as bats – this can normally only happen once planning permission has been granted, which can cause uncertainty and delay for the developer.

This Discretionary Advice Service was launched towards the end of last year and covers other developments such as off-shore work and Nationally Significant Infrastructure Projects.

Natural England states that the aim is not to compete with the private sector or to profit from the service and the service does not include responding to statutory consultations or the processing of wildlife licence applications.

Read more [www.naturalengland.org.uk/discretionaryadvice](http://www.naturalengland.org.uk/discretionaryadvice).

## Forestry Commission – *Chalara fraxinea* advice

Chalara dieback of ash is a serious disease of ash trees caused by a fungus called *Chalara fraxinea*, including its sexual stage, *Hymenoscyphus pseudoalbidus*. The disease causes leaf loss and crown dieback in affected trees, and usually leads to tree death.

The disease is now believed to be established in the southern counties of the UK. See <http://www.forestry.gov.uk/chalara> for the signs and symptoms of Chalara dieback.

Dead wood Photo: Alex Prendergast



# Bat vacation!

Wivenhoe House Hotel, on the University of Essex's parkland campus, has recently been hosting guests of a different kind...

The transforming renovations of the Grade II listed hotel involved demolishing the 1980s extension and building a new wing on its footprint, enabling the first hotel school of its kind in the UK, The Edge Hotel School.



Pipistrelles Photo: Sarah Yarwood Lovett

However, before demolition could take place, some unusual guests needed to be carefully moved out.

Three species of bats (common pipistrelle, soprano pipistrelle and brown long-eared bats) were enjoying life in their roosts at this choice location.

Some bat species are rare and endangered owing, mainly, to loss of roosting and foraging habitat, and all bats and their roosts are legally protected. Hence, when extensive works are required where bats are present, measures need to be taken to safeguard bats and to ensure that roosts are still available during and after the works.

A team of experienced staff from The Ecology Consultancy worked at the hotel site to ensure that the bats were able to move into a newly adapted roost space.

It started with a suite of bat surveys carried out at dusk and just before dawn to find out what bat species were present, how many there were, and what type of roost was on the site.

Once we knew what bats were present, we adapted an existing nearby bat roost to be able to accommodate all the species present.

Just prior to demolition, the bats were excluded from the building by installing one way tunnels and plastic sleeves over roosting features and entry points to allow

bats to exit but not enter the building. Two brown long-eared bats defiantly stayed put in the rafters for the first few days but, with patience and a methodical approach, they were all successfully excluded.

The exclusion was monitored to ensure that bats left and did not return. During these monitoring visits, bats were often seen flying to and from the nearby adapted roost.

Once the bats had been excluded, the roof materials were removed by hand to ensure that any remaining bats would not be injured or killed during demolition.

The new roost required on-going monitoring to measure its success and to see if any adjustments would be needed. We had seen the pipistrelles move in, but brown long-eared bats are typically more selective and can be less adaptable.

Our visits in 2012 confirmed that the brown long-eared bats have taken up residence in the new roost. It is excellent that the mitigation has been successful and good to see that the roost has met the bats exacting requirements.

Richard Halsall, Deputy Director (Capital & Development) of the University's Estate Management Section said "I was delighted with the hard work, professional advice and practical solutions that The Ecology Consultancy completed, and which enabled us to open Wivenhoe House Hotel on programme, without impacting on the strong environmental credentials of the development".

## Technical details:

A soprano and common pipistrelle roost was adapted to be suitable to support brown long-eared bats. Features were as follows:

- ◆ suitable dimensions for long-eared bats, which fly inside buildings prior to emerging at night to hunt
- ◆ designed to be undisturbed by humans, but possible for ecologists to monitor annually
- ◆ thermostatically heated to encourage use as a maternity colony
- ◆ roosting features including wedge boards and mortise joints were fitted
- ◆ additional bat boxes were installed on to trees on site

## Theale Cross Bat Survey

The Ecology Consultancy received an extraordinary call about bats suspected of taking up residence in an office building.

On a previous site survey, we had determined that the steel and glass building, still occupied by office workers, was unlikely to support roosting bats. On this basis, we had recommended that no further bat surveys would be needed. So this call was a little unexpected! Droppings had been found by a rodent control officer who had investigated the building. He had determined that they were not rodent, but were possibly bat droppings.

Well past the end of the survey season for bats (May to August), the building was scheduled to be stripped back between January and March 2013 and re-built over the course of one year. If bats were present, we had a couple of weeks only in which to carry out a valid or robust bat survey to inform a European Protected Species Mitigation (EPSM) licence to Natural England (NE), without which works could not proceed legally.

When our bat ecologist Dr Sarah Yarwood-Lovett re-visited the site, she found droppings were present in small groups in three office rooms. There was also the possibility that bats had access to the building, using gaps next to air vents to access the void between the suspended ceiling and the floor above. Some droppings crumbled immediately to dust, a characteristic of bat droppings. The droppings were of size and shape that could be attributed to serotine bats.

However, some droppings were not at all typical and we felt the droppings' DNA should be tested by an expert laboratory. The results from the lab confirmed that the droppings were, in fact, pygmy shrew (an insectivore)! This happily negated any further works and any associated delays and expenses.

Paul Southern, Assistant Chief Fire Officer for Royal Berkshire Fire and Rescue Service, commented: "As we have only very recently taken ownership of the building, it came as a surprise to learn there may have already been occupants in situ in the form of bats! We are very grateful to Dr Yarwood-Lovett for her professional advice and for quickly establishing that the droppings belonged to pygmy shrews, which we understand are likely to relocate of their own accord once the building work begins."

# Kestrel Highway

Senior Ecologist Danny Thomas has joined our Norwich team, bringing new skills. Danny has volunteered on the British Trust for Ornithology (BTO) ringing scheme for almost 20 years and has been involved in many interesting bird monitoring projects. Before he joined us, Danny worked with the Highways Agency, on Operation Kestrel.

Operation Kestrel was born from the Agency's need to meet their obligations to enhance biodiversity under the NERC Act and through their own Biodiversity Action Plan (BAP).

The Highways Agency is one of the biggest land owners in the UK and tends to manage the highway verges to help provide extensive foraging habitat for kestrels. However, there was found to be an absence of suitable nesting locations in East Anglia, as kestrels traditionally nest in cavities in trees. Trees with any sign of damage are routinely removed as they are perceived to be a hazard to road users.

Operation Kestrel was begun in 2010 and involved the installation in January 2011 of twelve specially designed 'pole mounted' kestrel nest boxes at carefully selected locations on the A14, A11 and A47 in Norfolk and Suffolk. The boxes were monitored over the breeding season in 2011 and four chicks were ringed at one box located at Tilney All Saints in Norfolk. In January 2012 another 20 boxes were installed including ten on the A120 in Essex. Monitoring during the breeding season identified 4 boxes occupied with a total of 13 chicks ringed. Although no longer funded

by the Highways Agency, Danny continues to monitor the kestrel boxes on a voluntary basis.

Danny says, "The installation of bird boxes, in particular kestrel and barn owl boxes, are simple enhancements for development schemes. I am always happy to monitor the boxes and ring any chicks raised on a voluntary basis, or recommend a local ringer. If anyone would like to help me ring kestrel chicks in May and June, please get in touch!"

Danny can be contacted on:  
danny@ecologyconsultancy.co.uk  
Telephone 01603 628408

Kestrel chicks Photo: Danny Thomas

## Just a little tiny fly

### Strange rhubarb-eating flying insect sees our ecologists resorting to their books

An unusual fly was discovered, by Dan Simmonds, one of our ecologists, which he thought might have come from a bag of rhubarb. He consulted our very own invertebrate specialist, Dr. Graham Hopkins, who met the challenge with bravado!

"The easy answer is that it's a picture winged fly, but what that translates to scientifically is less easy! The picture winged flies are a group of plant-feeding flies with heavily marked wings which they like waving about".

"From what I can see it's in one of the more obscure families: the *Pallopteridae*, with the longish wings, veins and the shape of the antennae being distinctive. I'd need to see the specimen to be sure, but it has distinctive

wings and a search of Google Images suggests it's *Palloptera muliebris*, a species of 'low plants, even in gardens'".

"Intriguingly, although the picture winged flies feed on plants as larvae, I'm not aware of anything eating rhubarb apart from humans, and that's with custard and a hearty crumble".



Pole mounted Kestrel nestbox  
Photo: Danny Thomas



# Company News

## London Office

In the past six months, The Ecology Consultancy has expanded to meet the needs of three large contracts and as a result we have doubled the size of our London team. Tom McArthur, Aaron Grainger and Paul Roebuck are our new Senior Ecologists, joined by the recently promoted Toni Harrington. A further three Ecologists, a growing number of Assistant Ecologists, new major projects administrative staff and an additional GIS technician have been added to the team. The increase in staff numbers also means that we need more office space and we will have a new London base from early February 2013, see contact details below.

The London office continues to run monthly Breakfast Briefings throughout the winter months, covering a range of topics such as BREEAM, Protected Species and specialist subjects such as bat ecology. See our website for our spring programme.

## Norwich Office

We were sad to say goodbye to Sam Phillips who had worked with The Ecology Consultancy for five years. He has taken up a VSO position in Zambia to study fruit bats and will probably go native! We welcome Danny Thomas as our new Senior Ecologist.

Invertebrate ecologist Graham Hopkins, who has become a CEnv, spoke to students on behalf of the Society of Biology, on "Careers in the Environmental Sector".



Crayfish surveys in Norfolk Photo: Danny Thomas

The Norwich office also ran an in-house workshop on white-clawed crayfish (*Austropotamobius pallipes*) lead by The Ecology Consultancy's crayfish expert and licensed surveyor Alex Prendergast. The team practised survey techniques in the field and compared native and invasive species.

## Lewes Office

The Lewes office is coming to the end of another busy survey season, working on a variety of projects from small scale housing to more strategic assessments of land across a whole district. We have also been working for Royal Haskoning on the Middle Ouse Restoration of Physical Habitats project on behalf of the Environment Agency. See [www.oart.org.uk/projects/morph.htm](http://www.oart.org.uk/projects/morph.htm). This has involved the extensive survey of terrestrial habitats along the course of the Ouse and targeted surveys for aquatic invertebrates.



River surveys in Sussex Photo: Naomi Forbes

Our Lewes office sponsored the Sussex Wildlife Trust's annual photographic competition. The runner up was Pete Holmes and his photograph (below) won a £100.00 cash prize. A free desktop calendar of all the winning photos can be downloaded from the SWT website.



Bumblebee over sea-holly Photo: Pete Holmes

The Ecology Consultancy is also pleased to announce we are now a partner organisation with the Sussex Biodiversity Records Centre (SxBRC). We are the first consultancy to enter such an arrangement which will increase our ability to interrogate a variety of data sets.

## Scotland office

In June The Ecology Consultancy was invited by developers McAleer and Rushe to undertake a survey of a brownfield site in the heart of Edinburgh. The location, at South Bridge Street, was a former recording studio complex due to be converted into a five-star hotel. The existing building, consisting of four floors, and the adjacent 0.25ha land were surveyed for protected and invasive species.

Recommendations were made to the developers to allow potential sites for nesting by swifts and to incorporate biodiverse green roof technology into proposed new extensions within the site. We are awaiting confirmation from the architects that these features can be incorporated into final design proposals.

## Contact us:



Ecology Consultancy

### London

First floor  
72 Borough High Street  
London  
SE1 1XF  
T: 020 7378 1914

### Lewes

The Old Granary  
Upper Stoneham  
Lewes, East Sussex  
BN8 5RH  
T: 01273 471369

### Norwich

Thorpe House  
79 Thorpe Road  
Norwich  
Norfolk NR1 1UA  
T: 01603 628408

### Edinburgh

3 Coates Place  
Edinburgh  
EH3 7AA  
T: 0131 225 8610