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The Farm Environment Plan: A Call for Surveyors

Tom Keatley CEnv MIEEM

A valued tool in an ecologist's armory of skills has always been the application and adaptation to field and habitat surveying techniques. A recent publication by IEEM on Guidelines to Survey Techniques highlights the wide range of surveys used in the field by ecologists and environmentalists. The new Farm Environment Plan (FEP), a pre-requisite for entry into the Higher Level of Defra's Environmental Stewardship Scheme, adds another dimension to structured surveys and environmental audits. Although the FEP is specific to the Defra run scheme, it provides a means for ecologists and environmentalists to apply their survey skills. It is a source of income, with fair payment rates, particularly for anyone wishing to develop their environmental business and build upon their rural contacts. It also provides a valuable opportunity to work closer with the farming sector in making a positive contribution to conserving and enhancing biodiversity.

There is a growing pool of trained FEP surveyors, including land agents, ecologists, agronomists and agriculturalists, but the demand for good surveyors is rising as farmers and landowners become more aware of Environmental Stewardship and the benefits it can bring to their business and the environment.

What is Environmental Stewardship?

Environmental Stewardship is Defra's new agri-environment scheme that provides funding to farmers and other land managers in England who deliver effective environmental management on their land. The scheme is intended to build on the recognised success and best practices of the Environmentally Sensitive Areas and Countryside Stewardship Scheme, which between them have established agreements with over 30,000 farmers and land managers covering over one million hectares.

Environmental Stewardship's primary objectives are to:

- conserve wildlife (biodiversity);
- maintain and enhance landscape quality and character;
- protect the historic environment and natural resources; and
- promote public access and understanding of the countryside.

Cowslip and other species along a field margin in Hampshire

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Editorial

Is British Business Anti the Environment?

On 22 May there was an interesting event – a traditional debate – between Sir Digby Jones, the retiring Chief Executive of the CBI and Robert Napier of WWF on the theme – ***Environmental leadership – Burden or Opportunity for UK Business?*** Robert Napier started off with a plea for a new paradigm for business.

1. Stop regarding the environment as a burden.
2. Restrict the use of energy.
3. Encourage members to embrace a low carbon economy
4. Reflect these views in lobbying.

By contrast he saw the CBI leading the race to the bottom of environmental responsibility.

Digby Jones accepted the reality of climate change and problems this posed. But further than that, the response from the CBI was that business should not be required to carry more regulatory burdens if its competitiveness in the global market place is to be maintained. The Government appears to give this notion some credence. The subtext was also '*the UK plays by the rules of environmental legislation and good practice and the rest of the world does not, so how does the UK compete? In any case only 1% of the world's population lives in the UK so what difference will it really make?*' I found it disturbing that while there were passing references to the other burdens suffered by business there was no attempt rank. But the CBI seems to be singling out environmental issues almost as if these were the very hardest burdens to bear. Anyone running an SME (applies to many IEEM members) will know only too well the burdens of company returns, employment legislation, corporation tax, pensions, etc. – somehow only mentioned within the context of the overall 'Nanny State'. Robert Napier tried to get across the point that the environment could be good for business, a point made elsewhere by others including Barbara Young of the Environment Agency. The business advantages of environmental audits, energy and cost savings and the comparative success of ethical investments all point in this direction. The great crested newt was raised by Digby Jones and this now seems to be the main stick to beat environmentalists around the head – closely followed by the Dartford warbler! But the UK is not the only country where a single species has called into question major development. The tension between the logging industry and conservation of the spotted owl in Oregon is legendary. At the London Conference in May we had a presentation from Helen Byron on the EU funded 'Via Baltica' and the numerous questions raised over its route and the impact on protected areas in Poland – but again jobs and the economy is the cry. Mind you, it would be interesting to calculate the annual income to IEEM members from the great crested newt. The Dartford warbler is now supposedly a major obstruction to housing development in the Southeast and the howls of protest from business grow louder and may even reach those of the spotted owl in Oregon. So the message from business was that the environment is OK so long as it does not cost much to protect, does not stand in the way of commercial development and should not be given priority where it may lead to job losses. To what extent is this now a view shared by the Government? And I wonder, if the Government's silence over the Environmental Liabilities Directive and the non appearance of the consultation on its incorporation into UK law is part of this story?

Jim Thompson

Within the primary objectives, it also has the secondary objectives of:
- genetic conservation and
- flood management.

Environmental Stewardship was launched in 2005. It offers a 10 year agreement and provides a range of payments for land managers to conserve, protect and enhance a range of habitats and environmental and historic features. There are three elements of the scheme:

Entry Level Stewardship (ELS)
A 'whole farm' scheme open to all farmers and land managers. Acceptance will be guaranteed provided that the applicant can meet the scheme requirements. It will reward good land management and address some of the environmental issues affecting the wider countryside including diffuse pollution, soil erosion and the conservation of farmland birds.

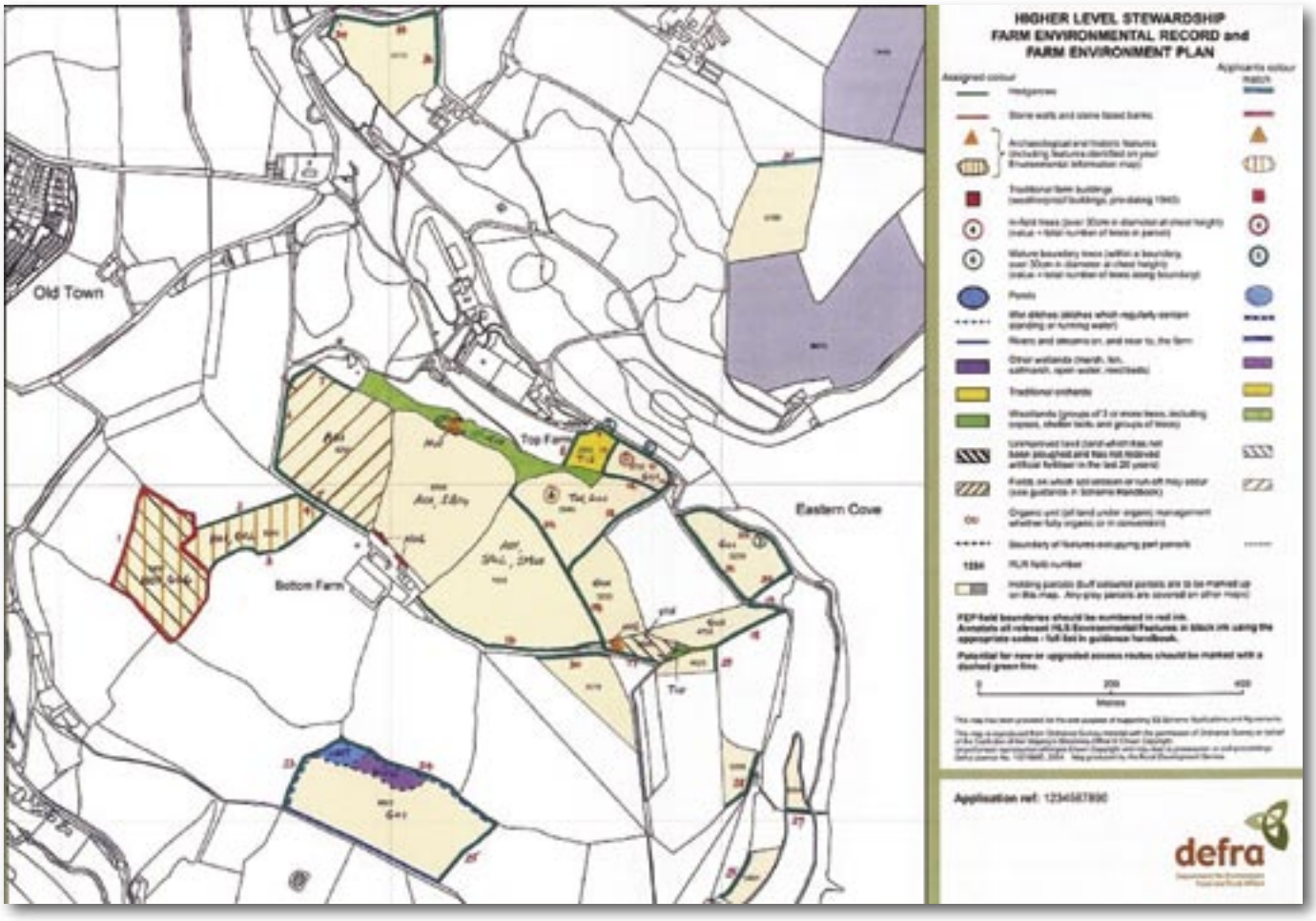
Organic Entry Level Stewardship (OELS)
As ELS, but open to farmers who manage all or part of their land organically and are not receiving aid under the Organic Aid Scheme (OAS) or Organic Farming Scheme (OFS). It includes conversion aid top up payments on land in its first year of conversion to organic.

Higher Level Stewardship (HLS)
A competitive scheme principally targeted at priority habitats, features and species. It aims to deliver significant environmental benefits in high priority situations and areas.

Higher Level Stewardship and the Farm Environment Plan
The Higher Level Stewardship scheme (HLS) provides a mechanism for more demanding habitat management to deliver greater environmental benefits for example, rewetting grassland or restoring lowland heathland. In the majority of situations the applicant must also enter ELS as well. The whole farm will be entered into ELS, with only the appropriate areas also entered into Higher Level Stewardship management options. As a condition of ELS the applicant or surveyor must identify, map and retain important environmental features and areas on the land. This is recorded on a Farm Environmental Record (FER) and is normally prepared by the farmer. The FER is a simple map showing location of features on the farm e.g. wetland, hedges, trees, and woodland. Before applying to HLS, farmers must also commission an audit of their farm, known as the Farm Environment Plan (FEP), which builds on the FER. The FEP however, will identify key features on the farm such as species-rich habitats, presence of rare species, sites of historical and archaeological importance, land at risk of generating diffuse pollution, field boundaries etc; the results of this 'audit' are vital in identifying suitable management options to benefit the species and habitats on the farm.

A surveyor at work on a farm

This information can be transcribed into the production of an HLS agreement, which is purposely designed to clearly set out what it is trying to achieve, for instance perfect nesting habitat for a particular species such as stone-curlew. It provides the farmer with guidance on how best to achieve the aim, rather than being overly prescriptive. The focus is to be on outcomes and setting clear indicators of success rather than setting inflexible management prescriptions.



The Farm Environment Plan
Completing a FEP involves identifying any features of historical, wildlife, resource protection, access and landscape interest and importantly making an assessment of their condition. This will then help to determine a suitable level of management, which could be achieved through HLS. It will also consider the potential for creating environmental features and habitats; improving public access and with a new dimension managing land for flood management and natural resource protection. For efficiency and to maintain quality standards the data and information is required to be completed and presented on a standard form and annotated map. For those IT minded surveyors, the process is simplified through the availability of electronic-forms, the e-FEP. All surveyors are encouraged to submit using the e-FEP.

What is the purpose of the FEP?
HLS is designed to deliver significant environmental benefits, which may require complex management. In order to do this, it is critical that the information on the habitats and features is good quality information and is clear about the current environmental value and interest and sets out the potential to deliver additional environmental benefits. The FEP is designed to capture a large amount of information in a systematic and consistent way, and determine how suitable the farm is for HLS management, and help build the management agreement.

Environmental Features
The key to the FEP is that it appraises the environmental value of land by identifying 'features' and suggesting appropriate management options for them. The concept of 'features' is to provide a standard term and coding system for a wide range of environmental features which cover habitats and species, but also historic buildings, structures and landscapes. There are currently over 180 features recognised as part of the FEP audit examples include: grassland for invertebrates, habitat for breeding waders, upland hay meadows – BAP habitat, vulnerable soils, stone walls, ponds, historic routeway; ancient trees and traditional orchards. All are listed in FEP handbook. The recording of these features will also provide a baseline for future assessment of the condition of features managed under HLS. This will establish useful data for monitoring and evaluation and particularly useful will be the evaluation of specific management options in relation to achieving environmental objectives. However, the FEP is not a management plan and will not provide a long list of actions and targets; ,it is an objective assessment of what is present on the farm and in what condition.

The FEP methodology
There are two main phases in the production of a FEP: the desk study and fieldwork. The detailed guidance on carrying out a FEP and its role in HLS is provided in the HLS Farm Environment Plan Guidance Handbook supplied with the HLS application pack. The following is a broad outline of the FEP methodology.

The Desk Study: The purpose of the desk study is to make full use of existing environmental information that is already available: local records, existing maps and websites. It is good practice that before conducting a field survey, surveyors should ensure they conduct a comprehensive desk study. Time spent on data collation before the field survey will enable it to be focussed and efficient, and in the long run save time. Sources of information key to this process are local record centres (if established), local authorities, local archaeology and wildlife groups and importantly the land owner or farmer. Consulting the farmer as well as statutory bodies will be critical in the understanding of how management has helped shape and create the features present. Information such as soil types, stock management and crop rotation is just as important as species data when informing sound management options for HLS.

Fieldwork: This is a key stage in gathering feature information for the FEP. The time required to carry out the fieldwork depends not only on the size of the holding, but the density, size and complexity of the features, the number requiring condition assessments and how familiar the surveyor is with the survey methodology.

It is important to note that Defra's FEP guidance handbook expresses the importance for surveyors to be aware of the potential risks associated with lone working. IEEM's forthcoming Professional Issues Series will cover lone working and what factors to consider.

General requirements for fieldwork:

The first stage is to use the definitions of features in the FEP handbook to identify all the relevant features present on the farm. The broad categories of features are arable, coastal, field boundaries, grassland, heathland and moorland, historic environmental and landscapes (*i.e.* boundaries, buildings, parkland), limestone pavement, natural resource protection, scrub and bracken, species, trees, woodland and orchards (*i.e.* upland oak woodland, landmark woodland, mixed plantations) and wetlands. The survey also requires you to define feature detail if appropriate *e.g.* ancient trees has two potential feature details; in-field or boundary.

The key stage to the FEP survey, which can be demanding in time and analysis, is assessing the feature condition. The completion of this part of the survey and evaluation is essential in enabling accurate assignment of enhancement, restoration or maintenance management options. Each feature requiring a condition assessment is allocated into condition category A, B or C depending on select criteria associated with that feature. Features that meet all the criteria are given a condition score A. Those that fail two or more key criteria are given a condition C. Condition also indicates the management option – maintain or restore.

Here is example feature information and condition criteria as set out in the FEP Handbook:

Feature identified as upland heath - BAP habitat (code M04)

General description of the feature.

- *Heath vegetation with at least 25% cover of dwarf scrubs) heather, bilberry, crowberry and western gorse.*
- *Usually found on unenclosed moorland above 250 m, though can occur in larger enclosures, generally within the moorland line. Generally on well-drained, nutrient poor acid soils including shallow peat.*
- *If there is a mixture of heath and grassland record both features and estimate how much of each is present in the land parcel*

The feature details to be recorded.

Wet: characterised by frequent cross-leaved heath and wetland species such as bog mosses (sphagnum) and/or purple moor-grass, heath rush and deergrass.
Dry: drier vegetation without wet heath species.
Grip: record presence of grips, estimate linear length per hectare.

Condition Assessment.

1) *Cover of dwarf shrubs must be at least 75% of dry heath or 25%-75 for wet heath, with at least two dwarf shrub species frequent.*
2) *At least 10% of the are of dwarf–shrub heath remains unburnt throughout the burning rotation*
3) *There must be a range of age classes of heather present.*
4) *No more than 33% of heather shoots grazed (assessed between February and April), or flowering heather plants are at least frequent in autumn.*

In this example, if the condition of the upland heath meets all the criteria the level of probable management would be to maintain existing condition. Failure to meet one or more criteria may imply a habitat restoration management option should be considered.

The FEP is not mapped and evaluated in isolation, it also takes into account the need to encompass and be guided by other detailed conditions assessments, particularly English Nature's condition assessments for SSSIs, and English Heritage condition assessments for Scheduled Monuments.

The FEP handbook outlines in great detail the survey methodology and technique for identifying features, the feature details, the criteria for condition assessment and what probable management level (restoration, creation or maintenance) the feature may require.

The carrying out of the FEP fieldwork, like any other field survey, could be time consuming without preparation. The FEP requires a surveyor to have at least a moderate level of surveying skills, habitat knowledge, species identification and agricultural awareness. Also there is a need to take on board good survey practices.

General tips to producing a FEP, which may help in that process:

- Consultations should always be completed before carrying out fieldwork. The information and data gathered through the desk study will help in the targeting the survey, essential if surveying large holdings or having to carryout surveys in winter months.
- Check whether the land has previously been in an agri-environment agreement.
- Use aerial photos to help locate and map features before the fieldwork, now available on various websites and of increasing quality.
- Global Positioning Systems (GPS) may help map features and their boundaries, a useful tool in the uplands.
- Familiarisation with the surrounding landscape will help in assessing the wider landscape character and build up a basic list of potential environmental features.
- It is also recommended that surveyors familiarise themselves with the list of features and their definitions for HLS. This includes the identification of features, the feature detail and how to assess their condition.
- Where possible attend FEP training courses, provided by Rural Development Service.

Who can carry out a FEP?

FEPs have currently been carried out by ecologists, land agents, farm business advisers, agronomists and farmers. Defra Guidance states that FEPs need to be carried out by those who have experience of the practical issues involved in the five main objectives of the scheme namely: wildlife, landscape, natural resource protection, historic environment and public access. For example, the ability to identify different species of grasses and wild flowers is expected. Whoever carries out the FEP will need to have access to the internet in order to obtain all the relevant information. The guidance in the FEP handbook explains exactly what is needed. Sources of info: www.defra.gov.uk/erdp/es/fep.htm and Higher Level Stewardship: 2004 Farm Environment Plan Guidance Handbook.

The ES scheme provides a direct payment for a FEP providing it meets the required standard and accompanies a valid HLS application. Payments are area based. The current payment rates are set out in the table below. This payment includes an amount to cover the fees charged for consulting the staff at Historic Environment Record offices: £75 for areas of 50 ha or less and £150 for more than 50 ha. The payment does not depend upon the application to join HLS being successful, but the FEP must meet the required quality standard.

Area (ha)	Total payment (£)
< 6	395
6-15	555
16-50	715
51-149	1,035
150-200	1,110
201-500	1,430
501-1000	1,750
1001-1500	2,070
1501-2000	2,390
2001-2500	2,710
2501-3000	3,030
> 3000	3,350

There are currently over 500 surveyors who have undergone FEP training across the country. This training is provided by staff from Defra's Rural Development Service (RDS) who evaluate and interpret the FEP for the production of a HLS agreement. As there is still a demand for FEP surveyors RDS in the regions will continue to provide FEP survey training. If you are interested contact you regional RDS office for information.

For more information www.defra.gov.uk/rds/

Thanks to Annabelle Banham and Morwenna Christian.

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Applying a Habitat Suitability Index (HSI) to Assist Site Management Objectives for the Great Crested Newt *(Triturus cristatus)*

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Background

The great crested newt *Triturus cristatus* is afforded full protection under the Wildlife and Countryside Act (as amended) 1981 and the Conservation (Natural Habitats &c.) Regulations 1994. The species has suffered major decline since 1945 (Hilton-Brown and Oldham 1991) as a result of both terrestrial and aquatic habitat loss and lack of management of the field ponds that it typically breeds in. The species has suffered more significant decline in continental Europe where inter-breeding has added to the problems of habitat loss. Although the great crested newt remains widely distributed across Britain, with hot-spot locations such as the North West and North Wales, its status in Britain represents an important contribution to Europe's biodiversity.

The species represents one of the greatest challenges to ecologists in providing mitigation strategies that consider its exacting requirements but are functional, practical and cost effective. Recent reviews of the effectiveness of mitigation projects and the means of implementing these projects (Edgar and Griffiths 2004, Cresswell and Whitworth 2004) have identified a number of recommendations to complement guidance already in place (*e.g.* English Nature 2001, Froglife 2001). This article presents results from the application of the Habitat Suitability Index (HSI) developed by Oldham *et al.* (2000) at a study site in North West England to assist in the development of mitigation and future management of great crested newt sites.

Text Box 1: Habitat Suitability Index (Oldham *et al.* 2000)

The ten criteria are:

SI.1	Geographic Location
SI.2	Pond Area
SI.3	Pond Permanence
SI.4	Water Quality
SI.5	Pond Shading
SI.6	No. of Waterfowl
SI.7	Occurrence of Fish
SI.8	Pond Density
SI.9	Proportion of 'Newt Friendly' Habitat
SI.10	Macrophyte Cover

Seven of the variables are expressed quantitatively with individual SI graphs, the remaining three (geographical location, water quality and presence of fish) are expressed qualitatively.

The HSI is calculated using: (SI.1* SI.2* SI.3* SI.4* SI.5* SI.6* SI.7* SI.8* SI.9* SI.10)1/10

For a detailed description of the criteria selected for the index and reasons for selection readers are directed to Oldham (1994) and Oldham *et al.* (2000).

Habitat Suitability Index (HSI)

The great crested newt is a habitat specialist and its presence in ponds is influenced by the existence of particular features (e.g. fish, heavy shading) and/or the absence of others (*e.g.* newt friendly habitat with 500 m). The HSI provides a numerical value (ranging from 0 to 1.0) that indicates the suitability of a waterbody for great crested newts. The overall value is derived from the mean of the 10 criteria based upon a Suitability Index (SI) for the individual variable (Text Box 1). The higher the HSI score the more suitable (or closer to the optimum habitat conditions) the pond may be considered for the great crested newt.

The HSI provides a means to judge the overall suitability of the pond and therefore its comparative importance for newts within the local area. However, the HSI also provides a means to investigate the *individual* factors

Great Crested Newt pond in Northumberland

that contribute to that overall suitability, *i.e.* a tool to identify management needs and opportunities where the pond can be enhanced for the benefit of newts.

Application

The study site has multiple ponds and a large resident population of great crested newt and other amphibians. The HSI has been derived from field and desk study for 28 ponds on site. However, only the data from six 'key' breeding sites and the SI values for variables considered to be of most importance in influencing newt presence and population size are detailed in Table 1. The site derived SI values are compared to the median value for the 72 samples ponds evaluated in Oldham *et al.* (2000).

Pond Reference	Suitability Indices (SI)			Final HSI	Peak Torch Count
	Pond Area	Terrestrial Habitat	Macrophyte Cover		
1.6	0.04	0.86	0.31	0.63	28
1.8	0.03	0.86	0.41	0.63	42
1.9	0.02	0.86	0.41	0.61	30
1.11	0.96	0.86	0.81	0.81	36
3.8	0.13	0.83	0.41	0.73	48
3.11	0.24	0.83	0.61	0.77	30
SI Median	0.31	0.70	0.71	0.66	-

Table 1: Comparison of SI values for selected variables and population assessments. SI Median derived from Oldham* et al. *(2000). The Peak Torch Count represents an estimate of newt population for each pond.

The site derived SI values indicate that although the terrestrial habitat showed a higher value than the median value, the macrophyte cover and notably pond area were lower. Pond 1.11 is adversely affected by the accidental introduction of fish, although the pond still has the highest HSI.

Discussion

A key recommendation from the Edgar and Griffiths (2004) review was that mitigation should aim to maintain or enhance the overall area of aquatic habitat lost to development by pond creation, noting that any new ponds are similar in size and quality to those that are known to support great crested newts in the geographical region concerned. The mean area of the great crested newt ponds lost was 340 m^2 compared to a mean area of 196.8 m^2 for the replacement ponds, representing a SI value of 0.68 for those pond lost compared to a value of only 0.39 for the replacement.

Cresswell and Whitworth (2004) concluded that mitigation should be based on a considered risk assessment. The scale of the mitigation and the resources allocated needs to take account of the likely outcomes of different mitigation options in relation to the predicted impacts. Effective mitigation can be directed by knowledge of which factors are most critical (*e.g.* terrestrial habitat, or the physical characteristics of the pond) to the newt and which factors may be most beneficial in maintaining newt presence on site and in the geographical area (*e.g.* pond creation, increasing the size of existing ponds, reducing shading, etc.).

In our case study, it would be inappropriate to increase the macrophyte cover in the ponds given their small size and increasing pond size would create a high level of disturbance. The site pond density is approximately 0.9 ponds per hectare and this very high density of ponds may compensate for the overall apparently unsuitable pond area by maintaining a high total surface area of aquatic habitat linked with an excellent terrestrial habitat, Table 2. Edgar and Griffiths (2004) noted that the ratio between replacement ponds and those lost was 3:1, providing a replacement surface area of approximately 600m^2 aquatic habitat compared to an original of 340 m^2.

Pond Reference	Newt Friendly Habitat (ha)	Terrestrial Habitat (SI)	Pond Area (m^2)	Pond Area (SI)
1.6	2.31	0.86	20	0.04
1.8	2.31	0.86	16	0.03
1.9	2.31	0.86	12	0.02
1.11	2.25	0.86	942	0.96
3.8	2.01	0.83	66	0.13
3.11	2.00	0.83	118	0.24

Table 2: Comparison of raw data and SI values terrestrial and aquatic habitat.

The HSI has wider benefits in helping to focus preliminary survey work in Ecological Impact Studies (EcIA) studies. The validation of the index demonstrated a high correlation between a high HSI and *actual* presence of great crested newt (Oldham *et al.* 2000). This is supported by independent work by other consultants where great crested newt were rarely encountered in 'below average' ponds and not encountered in 'poor' ponds great crested newts were confirmed in 92% in ponds ranked as 'Excellent' (Lee Brady pers. comm.).

For complex studies where many tens of ponds require survey, the index may be used as a first filter to decide which ponds require detailed population assessment. This approach provides a cost effective solution and ensures time and effort is directed where the predicted impact is higher and where the receptor is more sensitive. The data required can be collected outside the breeding season and thus aid survey planning. However, it is important to note that the HSI does NOT replace the need for high quality survey work.

Application of the habitat suitability index to complement data derived from population studies and can help to further understand species requirements. The great crested newt is a high profile species, it will continue to prove a challenge to ecological practitioners and our advice must be targeted, well balanced and above all effective.

Acknowledgements

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The Gateway to UK Biodiversity Information

Mandy Henshall

The UK has a well studied and recorded biodiversity and it is estimated that up to 60,000 people routinely record this information (Co-ordinating Commission for Biological Recording (CCBR) report 1995). Most of this effort is voluntary and is organised through many national societies and recording schemes. Both the UK Government through its agencies and local teams, and Local Government also collect biodiversity data and one of the principal elements for the collation and interpretation of this data is the network of Local Records Centres.

So what happens to all this information? Well, until now it has been held by many different organisations and individuals in many different formats, from computer databases to handwritten record cards. Now however, one system, the National Biodiversity Network (NBN), aims to make as much wildlife information as possible freely available in a digitised and exchangeable form on the internet, via the NBN Gateway (www.searchnbn.net).

To understand the Network we have today it is important to realise that the concept of a mechanism to hold and link biodiversity information actually came about in the early 1980's and resulted in the publication of '*Biological Recording in the UK*' in 1995 by the CCBR. The CCBR estimated that there were over 60 million species records for the UK lodged in over 2,000 locations.

CCBR Findings:

- Lack of agreed standards and protocols for recording.
- Widespread ignorance of what records exist.
- Widespread ignorance of law affecting ownership and Intellectual Property Rights (IPR).
- Financial insecurity underlying many organisations.
- Need for leadership to build on strengths and overcome weaknesses.

Thereafter, the collaboration of a number of voluntary organisations (The Wildlife Trusts, the Royal Society for the Protection of Birds, National Federation for Biological Recording, Association of Local Government Ecologists) and also the Joint Nature Conservation Committee and the Natural History Museum began to turn the idea into reality and to address the other weaknesses that the CCBR had identified. Finally, an even wider consortium, including a greater number of voluntary recording agencies and the principal wildlife conservation and environmental agencies, resulted at the beginning of the new millennium in the foundation of the NBN Trust, which is the charity facilitating the building and co-ordination of the Network.

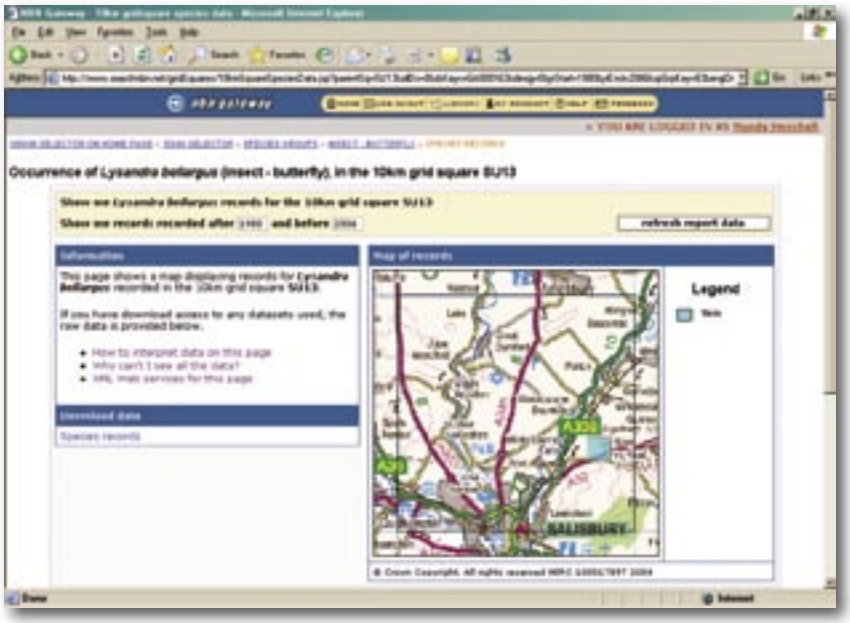
The species distribution data, accessible by means of the Network, are stored in a 'data warehouse' which can be viewed using the NBN Gateway; this is physically housed at the Centre of Ecology and Hydrology at Monks Wood. This is a major vehicle for sharing information about wildlife and today holds over 20 million records, which is a real achievement, especially as it was formally launched less than two years ago. It is already proving to be a popular method for finding out what data are available and is used by Commercial Consultants, whose use of the Gateway to assist with Environmental Impact Assessments and other planning related issues is increasing.

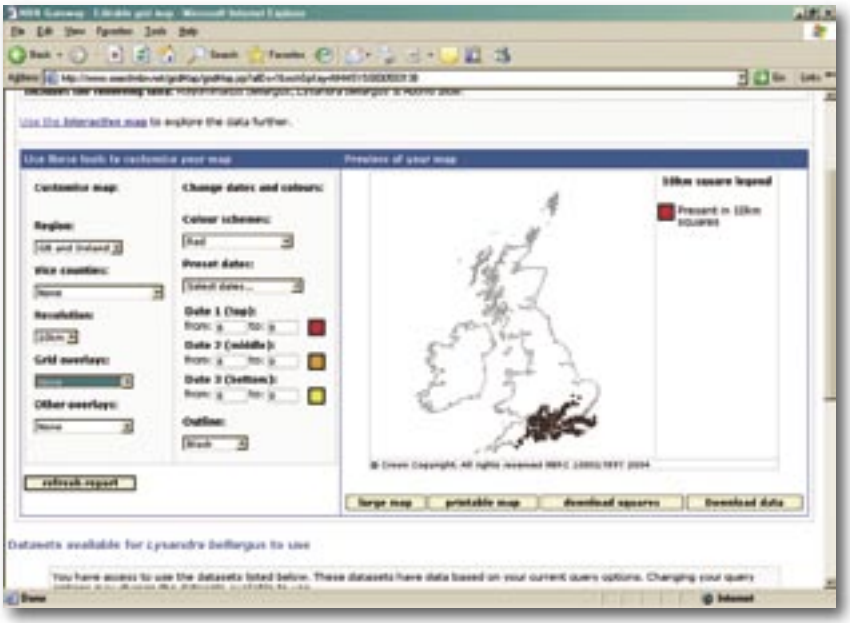
Local Records Centres (LRCs) are also a key part of the NBN and are often a first port of call for local authorities, consultants and others involved in the planning process. A Local Records Centre is a not-for-profit service run in partnership for the public benefit, which collects, collates, manages and disseminates information relating to wildlife, wildlife sites and habitats for a defined geographical area. Close working with LRCs allows the NBN to broadcast huge amounts of data and LRCs provide a vital service to local data contributors and users, in many cases being the local representation of the NBN. All biodiversity data needs to be interpreted to maximise their value; LRCs with their local knowledge are well placed to undertake the task of giving context to the raw data, including the identification of local wildlife sites, BAP priority habitats and species records of national/local concern within given search areas. Details of all LRCs can be found at http://www.nbn-nfbr.org.uk/nfbr.php.

So, the idea of sharing data so easily is a good one, but it is important to understand how the Environmental Information Regulations impact on this. The Network supports the principle that, wherever possible, environmental information should be made available to all as this generally benefits the environment by increasing awareness, enabling better decision-making and reducing risk of damage. However, in a very small number of cases, public access to information can result in environmental harm. The Network recognises that in such cases, availability of information may need to be controlled, although the presumption remains in favour of release and restrictions will be interpreted rigorously. The Network has a standard of good practice for managing 'sensitive information' and the points which form this are always followed when the sensible release of information comes into question.

Indeed, the NBN Data Exchange Principles state that biological data should be placed in the public domain wherever possible. They also recognise that users should expect to contribute to sustaining the collection, collation and management of the biological data. LRCs (in common with many other data contributors) require the security of a long-term sustainable funding base in order for them to meet their users needs. They currently depend on their users contributing financially to the costs associated with data collation, management and dissemination (often through Service Level Agreements).

www.searchnbn.net receives an average of 120,000 visits per month.





Visitors to the site range from naturalists interested in the distribution of particular species in the UK, government agencies that monitor changes in populations of threatened species, and the general public interested in the wildlife in their area. But how does the Gateway work? The system is very simple, currently over 20 million individual records from 160 datasets covering plants, mammals, birds and invertebrates are warehoused on the Gateway's main server and these can then be displayed on a map of the UK in a number of different ways. For instance, you can look at a specific area at Ordnance Survey grid map level or you can select one of the vice counties. All records are available at least at 10 km scale and many at 2 km or 1 km. Some are also available at 100 m resolution (or better) although usually you must be registered and logged in to see these. Access to all the datasets held by the NBN Gateway is individually controlled by Data Administrators appointed by the data owners. If enhanced access rights are required to see the full resolution of the data, then this must be sought from the Administrator for the particular dataset; as you might expect the NBN Gateway makes this process as simple as possible and most requests for enhanced access are processed within a day or much less. There is no cost associated with viewing or downloading the data, but there are terms and conditions to be adhered to with one of the key factors being that the data providers must always be credited.

If you are interested in the ecology of a particular area, a visit to the Gateway will tell you within seconds the wildlife known to exist there. It should always be borne in mind however, that whilst the Gateway holds a huge amount of information it isn't exhaustive, and just because a particular species doesn't appear in a particular area it may simply mean that it hasn't been recorded there, rather than it does not actually exist there. The available data can also be easily time-sliced to show changes in distribution that have occurred since records were gathered.

There are a number of options for viewing the data and ways in which you can select it.

Screenshot 1 shows the distribution of an Adonis Blue butterfly in a specific grid square or you can see the full UK distribution of the same species (Screenshot 2).

It is also possible to choose a particular species interactively and select your own area to view its distribution (Screenshot 3).

However you use the data on the Gateway and interpret the information it is, without doubt, an incredibly useful resource. Indeed, it is the first time that UK biodiversity information has been so accessible and with the continued passion of the many individuals and organisations, who are working together it has the potential to become the definitive reference for wildlife distribution data which, in turn, will be invaluable in assisting with the conservation of wildlife in the UK.

Mandy Henshall is the Information and Communications Officer for the National Biodiversity Network.

IMAGES
Top: Screenshot 1 - Occurrence of the Adonis Blue* Lysandra bellargus *in a 10 km gridsquare
***Middle: Screenshot 2 - UK distribution of for the Adonis Blue* Lysandra bellargus**
Bottom: Screenshot 3 - Distribution of the Common Toad* Bufo bufo *in Staffordshire

Shaping the Future of the Cairngorms National Park

Murray Ferguson MIEEM

The Cairngorms National Park was designated in 2003 and, in a UK context, is slightly unusual. For a start the Park is extremely large – with an area of 3,800 km^2 it is larger than quite a few small countries! The role of the National Park Authority (NPA) is also quite distinctly different. Both National Parks in Scotland have the same four aims (conservation, sustainable use of resources, understanding and enjoyment of special qualities, and sustainable social and economic development) but it is the job of the NPA to ensure that these aims are "*…collectively achieved in a coordinated way*" (National Parks (Scotland) Act 2000). Therefore, there is an expectation that all public bodies should play their part in making the Park a success. The Park can if you like be seen as an exercise in 'joined up government' with a focus on keeping the area special.

The practical implications of this are quite profound – the NPA is relatively 'hands off'. For example, it does not own any land or directly manage any visitor centres, car parks or other sites, but it does ensure that such facilities contribute effectively to the Park through a range of mechanisms, for example:

- use of powers and duties in relation to the development planning process and the new outdoor access legislation;
- allocation of funding support through an integrated grants scheme which is starting to combine public sector support;
- use of a banding scheme that connects businesses and local service providers to the Park while raising quality and environmental standards; and
- development of strategies that provide leadership and a sense of direction for the area as a whole.

On this last point the Park was pleased to be awarded the Europarc Charter for Sustainable Tourism in Protected Areas in 2005 on the basis of the new strategy. The challenge now is to implement it!

The Park is at a key stage of its development. The first ever Draft National Park Plan is out for consultation; this provides everyone with an interest in the Park the opportunity to help shape its future. The Draft National Park Plan sets out a long-term vision – 25 years – for the Park as a whole, as well as the key priorities for the first five years of the Plan. Extensive research, consultation and discussions have been undertaken with public sector partners and other interested parties to develop the park Plan to this stage.

Ruthven Barracks, Kingussie (Stewart Grant/CNPA)

At the launch event, Andrew Thin, Convener of the Park Authority said: '*The fact that all the organisations and groups who have helped in the creation of this Draft National Park Plan are here today to present the document in this joint way, highlights the spirit of partnership that is vital for achieving the aims of the Park. It is all too easy to mistake the aims of the Park and the Park Plan as being solely the concern of the Park Authority. This is not the case… [it] is the concern of every business, organization and individual with an interest in the Park. This Draft Park Plan really is a blueprint for joined up government. Whatever viewpoint people have and wherever they live, this is their chance to help shape the future of the UK's largest national park and impact on the quality of the landscape, quality of life and the quality of peoples' enjoyment and understanding.*'

There are seven priorities for action in the first five years of the Plan. These are the areas in which it is proposed we should see a real difference within a five-year period:

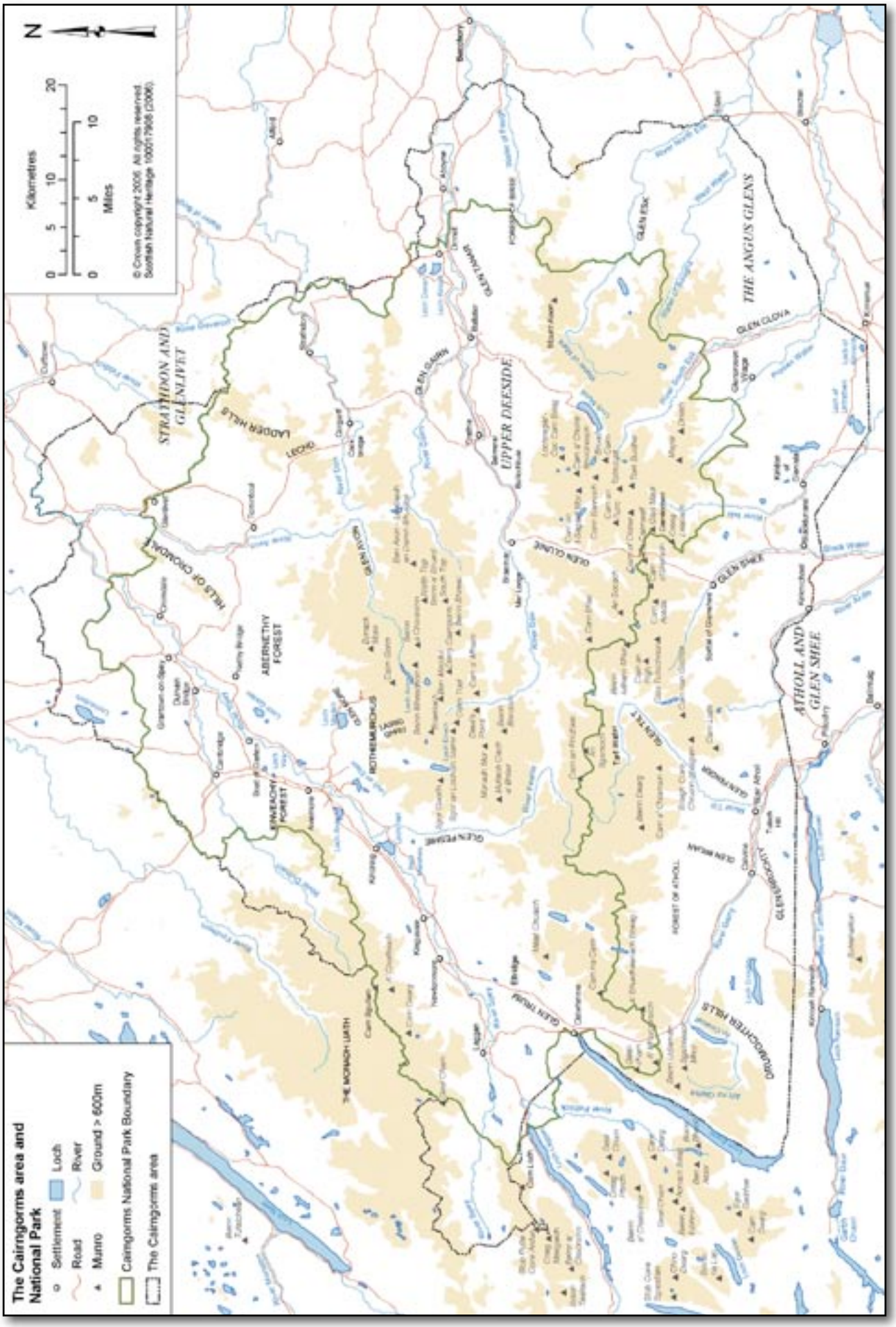
- Conserving and enhancing the Park's biodiversity and landscapes.
- Developing sustainable deer management.
- Supporting integrated land management.
- Improving high quality opportunities for outdoor access.
- Making housing affordable and sustainable.
- Making tourism and business sustainable.
- Developing awareness and understanding of the Park.

The political support for the new Park will be crucial to its success, both at national and local levels. The Plan must be approved by Scotland's First Minister before it comes into effect. At the launch Deputy Minister for the Environment and Rural Development, Rhona Brankin MSP urged people to have their say: '*The Cairngorms National Park is a wonderful part of Scotland's natural heritage, key to the local economy and benefits people's health. It is essential that we manage it effectively and sustainably so that future generations can continue to benefit from it.*'

To get involved in the National Park Plan consultation (**before end of June 2006**) or find out more please contact the Park Authority at:
National Park Plan Consultation, 14 The Square, Grantown-on-Spey, Moray, PH26 3HG Tel: 01479 873535 Fax: 01479 873527
Email: nationalparkplan@cairngorms.co.uk
Web: www.cairngorms.co.uk

Murray Ferguson is Head of Visitor Services and Recreation for the Cairngorms National Park Authority.

Cottage at Avielochan and Cairngorms (Stewart Grant/CNPA)



The boundaries and main features of the Cairngorms area and the Cairngorms National Park

Produced by the Geographic Information Group. This map is derived from Ordnance Survey material. © Crown copyright 2006. Any unauthorised reproduction infringes Crown copyright and may lead to prosecution or civil proceedings. © Scottish Natural Heritage 100017908 (2006).

Go Native Awards: Judging the Grassland Category

Dr Eirene Williams CEnv MIEEM

I have always wondered how the judge of the Best in Show at Crufts manages to compare excellent specimens of different breeds of dogs in any meaningful way, never mind choose a winner. Well, judging the grassland category of the Flora Locale Go Native competition was reminiscent of this but nevertheless a fascinating experience. The entries that Peter Beale and I had to inspect took us from Devon to Suffolk to Durham and back again via Oxford and Somerset. We were asked to compare re-created areas of MG5 in the urban fringe with remote disused quarry sites with relicts of CG8, a small capped landfill site subject to a proper revegetation experiment with a large flood plain meadow arable reversion project.

Top left: Reseeding the A1 road verge, MAGical Meadows
Above: Hounslow Heath, runner-up in the Moorland, Heath and Bog category
Left: Restored mine tip with lowland heath, Imerys Minerals Ltd

In all cases, the site managers and staff involved were overwhelmingly enthusiastic and keen to show off their sites. It was a privilege to see such a range of conservation activities and habitats in our whistle-stop tour. We could have lingered at each. Overall the standards of operations were highly commendable. All had used seed or green hay from very local and known sources and none had bought seed. The five projects we considered had mainly used volunteers to hand pick ripe seeds or local contractors or farmers to cut and carry hay. Useful experience is being gained as to when and how to source the propagules. So, all entries satisfied the first two judging criteria of 'Species' and 'Origin' very well. Also all had achieved pretty successful re-establishment of the target plant communities.

Monitoring was more problematical - base line survey of the restoration site immediately before or after seeding was usually lacking. Whilst recognising the resource constraints operating, we felt that a happy medium between highly academic monitoring destined for academic publication and *ad hoc* qualitative species lists would provide more practical information for others planning to carry out similar restorations.

Management was the fourth judging criterion. It was difficult but necessary to consider both management of the project, *i.e*. people, time, money and management of the swards *i.e.* preparation, mowing, grazing, etc. In some cases the site and soil preparation was inappropriate or absent. In most cases the seeding was done once and for all. This was quite successful with a reasonable proportion of species establishing, but we were concerned that those that did not might never do so, especially as the swards were generally being encouraged to close. Some spot treatment of undesirable species was vaguely mentioned and hay making, the chosen method of management, and appropriately scheduled. Grazing was not always feasible, but other random disturbance was not favoured, but might have allowed further colonisation in future. In general, we found that the management was rather unimaginative but the project managers were mainly young and not from agricultural backgrounds.

Community involvement was the final criterion. The potential for this varied of course due to the locations of the sites, but in all cases we felt that good efforts had been made. This included in some cases combating vandalism and fly tipping, but usually involving volunteers in practical tasks and promoting educational activities reaching out to the local human populations. Publicity, interpretation and other materials were available or well planned. This was helped by the generally good funding situation of the projects as various grants had been successfully applied for and thus continuity was also assured for the time being.

It was almost impossible to pick a winner. In the end we chose the MAGical Meadows project of Durham Biodiversity Partnership. The main reason was the sheer diversity and superb management of initiatives within the project. These ranged from urban fringe sites where hostile locals are being won over effectively, to arable and coal tip reversions near more rural ex-mining villages. Local authority, city and county council, Durham University, local quarries and a highways authority were all constructively involved and coordinated. Monitoring was a bit of a weak point relative to other entrants but we came away profoundly impressed. It had also given us Devonians the chance to see Blue Moor Grass in flower. In case you had not guessed the title of the project stems from the fact that the project's common theme is restoration of Magnesian Limestone grasslands!

Go Native Awards Results

Grasslands
Judges: Eirene Williams and Peter Beale
Winner: MAGical Meadows, Tyne and Wear

New Native Woodland
Judges: Chris Spray and Richard Graves
Winner: Sherwood Habitats Forum, Nottinghamshire

Wood and Hedge Restoration
Judge: Robert Marrs
Winner: Black Brook Nature Reserve, Staffordshire

Ponds and Reedbeds
Judge: Max Wade
Winner: RSPB, Rye Meads, Hertfordshire

Moorland, Heath and Bog
Judges: Peter Chamberlain and Phil Putwain
Winner: Imerys Minerals Ltd, Cornwall

Community Initiatives
Judge: Debbie Bartlett
Winner: The Battlefield, Newburn County Park, Tyne and Wear

Northern England
Judges: Eirene Williams, Peter Beale, Phil Putwain and Debbie Bartlett
Winner: MAGical Meadows, Tyne and Wear

England's Trees, Woods and Forests: A Consultation Document

Woodland covers almost 9% of England's land area, with around 2 billion trees on just over 1 million hectares of which 340,000 ha is ancient woodland and plantations on ancient woodland sites. England was once largely tree covered, but as long as 1,000 years ago man's activities had reduced the forest to about 15% of the land area. Yet today less than 25% of the hardwood timber that could be harvested sustainably from native woodlands is used.

Roughly three-quarters of woodlands and forests are privately owned while the rest, in public ownership, are mainly large, mature conifer plantations managed by the Forestry Commission. In contrast, England's private woodlands are mostly broadleaved and are smaller, generally less than 100 hectares. About a quarter of private woodlands are on farm holdings. There are of course many other trees outside woodlands – in fields, hedgerows, orchards, gardens, parks and streets.

The England Forestry Strategy *A New Focus for England's Woodland* (1998) set out a broad agenda for forestry and highlighted the numerous public benefits that trees and woods could provide. It acted as a catalyst in changing the way woodlands were viewed, the effect on our lives and the benefits they bring to society. It introduced new ideas for forestry and has seen them through into mainstream practice. At the time of publication the Government said it would review the Strategy within 10 years. Government has decided that now is the appropriate time to carry out that review and build on the current Strategy's successes in the light of new Government policies and the growing evidence base on the contribution of trees, woods and forests to the wider sustainable development agenda, for example on health and well-being.

It is intended that sustainable development will be at the heart of Government policies on trees, woods and forests, as it is in the current Strategy. The UK Government has recently made a commitment to pursue the goal of sustainable development *'in an integrated way through a sustainable, innovative and productive economy that delivers high levels of employment; and a just society that promotes social inclusion, sustainable communities and personal well-being. This will be done in ways that protect and enhance the physical and natural environment, and use resources and energy as efficiently as possible'.* The new UK Sustainable Development Strategy identifies four priority areas for action:

- climate change and energy;
- natural resource protection and environmental enhancement;
- sustainable consumption and production; and
- sustainable communities.

Sustainably managed trees, woods and forests will have an important role in delivering all of these priorities in both rural and urban areas, through an integrated approach based on an understanding of ecosystems and environmental limits.

Sustainable development and management of trees, woods and forests will help to achieve several other new Government policies including:

England Biodiversity Strategy 2002, which sets out priority actions to protect woodland from threats and enhance both woodland and non-woodland habitats (such as lowland heathland) and their characteristic species. This is supported by Keepers of Time, which is a more specific expression of Government policy on ancient and semi-natural woodlands;

UK Climate Change Programme, which aims to reduce greenhouse gas emissions and the Biomass Task Force report to government in 2005 made proposals to optimise the contribution of biomass to a range of Government targets on climate change and energy;

Sustainable Communities Plan 2003, which tackles housing supply and the quality of our public spaces; trees and woods will be an important part of a high quality 'green infrastructure' network;

Rural Strategy 2004, which presents three priorities for the countryside: economic and social regeneration, social justice and enhancing the value of our countryside; and the

Sustainable Food and Farming Strategy, which has a key principle that viable livelihoods should be made from sustainable land management, both through the market and through payments for public benefits. This applies equally to farm woodlands and food production.

The arrangements for delivering Government policy have changed significantly during the life of the current Forestry Strategy, with both decision making and delivery devolved more to a regional level. Policies for trees, woods and forests will be integrated into wider land use and planning policy through regional policy documents including the Regional Forestry Frameworks, Regional Rural Delivery Frameworks, Regional Spatial Strategies and Regional Economic Strategies. As set out in Rural Strategy 2004, Defra will devolve control of socio-economic funding to Regional Development Agencies, while sustainable management of both farmland and woodland will be supported by the new Environmental Land Management Fund and delivered by Natural England and the Forestry Commission working in partnership.

The Government is looking to produce a new strategy for trees, woods and forests that reflects these changes and is a high-level statement of policy that clearly sets out Government's national priorities. The new Strategy will be supported by an action plan developed by the Forestry Commission and the newly established Natural England.

This consultation looks at the opportunities and challenges for the sector, then defines the role of Government and discusses the Government priorities which Government believes should be the basis of the new strategy. The consultation is open to all – have your say!

http://www.defra.gov.uk/corporate/consult/forestry-strategy/index.htm

Micheldever Woods, Hampshire

IEEM Consultations in 2006

Jason Reeves AIEEM

After a short period of inactivity the Institute is again responding to consultations.

Firstly, I would like to extend a very grateful thank you to all of you who have put in the effort to enable the Institute to make these responses. Your input is very much appreciated.

All consultation documents are in the Members' Section of the IEEM website where you can find current consultations and downloadable responses to consultations that have already closed. If you would like to contribute towards or write a consultation response please feel free to contact me at jasonreeves@ieem.net or phone 01962 868626.

In the future, the Institute is also looking forward to working more closely with the Society for the Environment with the hope of producing combined consultation responses. The Society is in the process of installing new consultation response software that will hopefully ease the consultation response process.

So far this year the Institute has responded to the following consultations (all of which can be downloaded from the website):

- Halting the Loss of Biodiversity by 2010 – And Beyond
  Defra and the European Commission
- Strategic Environmental Assessment
  Scottish Executive
- Centre for Ecology and Hydrology (CEH) Restructuring
  Natural Environment Research Council (NERC)
- Controlling the Spread of Bovine Tuberculosis in High Incidence Areas in England: Badger Culling
  Defra
- Rural Development Programme for Scotland 2007-2013
  Scottish Executive
- Marine Strategy Directive
  Defra and the European Commission
- Review of Arrangements for Species Licensing in Scotland
  Scottish Executive
- NERC's Next Strategy
  Natural Environment Research Council (NERC)
- Rural Development Programme for England 2007-2013
  Defra

Jason Reeves is the External Relations Officer at IEEM.

Disciplinary Training Workshop

Dr Andy Tasker CEnv MIEEM

Picture the scene: nearly thirty ecologists from IEEM's 'Great and Good' list, all gathered together in a hot London seminar room, to listen to a solicitor - and then performing role plays along the line of 'Good Cop, Bad Cop'. A million miles away from thoughts of ecological surveying in the wilds of upland Britain, yet, bizarrely, connected, for this was the first training session on IEEM's Disciplinary and Appeal procedure by which the Institute will adjudicate any complaints against you – our Members.

For some time we have had a disciplinary process, but it's taken a few years to sort out quite how it should work. Now all the debates about the mechanisms are behind us, for we have shiny new leaflets (circulated with the last *In Practice*) telling us all how it works, and a shiny new group of IEEM volunteers (Council Members, Fellows and a representative from the UK Environmental Law Association) to protect the good name of the Institute and see fair play, should the need arise.

Basically, the whole area is one which we hope does not happen: where an IEEM member, for one reason or another, says something in a report or document that is not true, which is then challenged by another IEEM member, or by a member of the public. We are not talking about minor differences of opinion here, or the slant on the conclusions of a particular study. We are talking about blatantly reporting things that are untrue – or deliberately failing to report things that are.

Each of us, when we signed up to join the Institute, pledged to conform to its 'objects' (see Box 1).

Box 1: The Objects of IEEM

- To advance the science and practice of ecology and environmental management for the public benefit in the United Kingdom and internationally;
- To further the conservation and enhancement of biodiversity and maintenance of ecological processes and life support systems essential to a fully functional biosphere;
- To further environmentally sustainable management and development; and
- To promote and encourage education, training, study and research in the science and practice of ecology, environmental management and sustainable development.

We also agreed to abide by IEEM's Code of Professional Conduct, which in essence means that we undertook to uphold a whole series of values – detailed in full in the Disciplinary Regulations and Complaints Procedures sent to all members a few months ago. They include:

- Reporting correctly, truthfully, clearly and fully.
- Not fabricating or falsifying data or information, or committing fraud.
- Identifying any limitations to the interpretation of information.
- Not to plagiarise or misrepresent the work of others.
- Not to use information supplied by a third party without taking reasonable steps to establish its provenance or validity.
- Avoiding and discouraging the dissemination of false, erroneous, biased, unwarranted or exaggerated statements concerning ecology and environmental management.

In addition members should use their best endeavours to ensure that their advice, assessments or other forms of appraisal take regard of local, regional, national and global implications for natural resources and ecosystems. Wherever possible, we should also make scientific data collected during the course of professional duties available to others such as records centres.

So there, in a nutshell, is what it is about. If any of us are aware of any members who are not adhering to these objects or our code, we should be blowing the whistle on them – to protect everyone else. The Institute simply cannot afford to have even one of its members as a 'loose cannon', maintaining that SSSIs have no value, or protected species were not really present. We all need to trust each other implicitly, so that even if we are on opposite sides of a Public Inquiry, we know that the basic underlying ecology is not in question.

Now that IEEM has set up its procedures and trained its volunteers, the Institute is prepared for anything. We hope that we don't convene the Disciplinary Panel very often, if at all. But all members should be aware that we now have this huge support mechanism in place, to protect us all from any individual dragging our good name into disrepute. And, we hope, the process will also encourage any member being pressured by a client or manager to say something that they know to be wrong, to stand up and say: 'Sorry, no: my IEEM membership prevents me from saying that'.

And assuming that this is what happens, then maybe that sweltering seminar in London will have all been worthwhile, and IEEM will continue to develop its strong professional standing amongst all the people we deal with.

Andy Tasker is the Director of Middlemarch Environmental Consultants and the Warwickshire Wildlife Trust. He is also President-Elect of IEEM.

Left and bottom: IEEM members act out possible scenarios at the Disciplinary Workshop
Above: Linda Yost and lawyer, Edward Coulson

NE SECTION MEETING REPORT

Sustainable Control of Invasive Plants: A Catchment Scale Approach

Wednesday, 22 March 2006

Tim Barratt from the Tweed Forum addressed the North-east IEEM Section regarding the work of the Tweed Invasives Project. The presentation focused on how the Tweed Forum has adopted a catchment scale approach to tackling the extensive and significant problems posed by invasive plants such as giant hogweed *Heracleum mantegazzianum*, Japanese knotweed *Fallopia japonica* and Himalayan balsam *Impatiens glandulifera* throughout the 3,000 square-miles of the Tweed catchment.

Tim explained how the Tweed Invasives Project was developed through partnership working and how local ownership of the invasive control work was key to its long-term delivery. The strategic role of the Tweed Catchment Management Plan was also explained and how it supports the development and delivery of multiple projects, including the Tweed Invasives Project, through mutually agreed and clearly identified objectives, actions and delivery bodies to achieve integrated catchment management and planning.

The examples of the Tweed Invasives Project and the Tweed Catchment Management Plan have many transferable lessons for other areas around the UK; the Tweed can be seen as a microcosm of national issues as the catchment covers multiple administrative boundaries including the national boundary between England and Scotland, it has multiple potentially conflicting land uses and has numerous SSSI and SAC sites requiring careful management.

Anyone wanting more information is invited to contact Tim Barratt on 01896 849723, via email at tim@tweedforum.com or visit the website www.tweedforum.com.

UK Network of Environmental Economists (UKNEE) Annual Conference 2006

The Royal Society, London. 24 March 2006

The UKNEE conference aims to share the conclusions of work that has been commission in the field of environmental economics and bring together environmental economists from all sectors: academia, consultancy and the public and private sectors. It is funded by Defra and the Environment Agency.

Their 2006 conference featured papers on the following themes in parallel sessions: Economic Valuation; Economic Instruments; Economic Appraisal and Cultural Heritage. Below is a taster from some of the sessions attended.

The valuation of the heterogeneity of preference of enhancement to forest recreation facilities using choice experiments.
Dr Michael Christie, Prof. Nick Hanley and Dr Tony Hyde

Existing research on the amenity benefits associated with forest recreation have largely been restricted to either the estimation of an overall recreation value of a forest or to the value associated with improvements to the recreational resource within a forest. Existing research, however, has largely failed to capture the significant variation in amenity values that exists between different types of forest users. This study aims to address this knowledge gap. In our study, we utilise a choice experiment model to examine the heterogeneity of amenity values that exist for a range of recreation activities within UK forests. In particular, we explore the variation in amenity values that different types of cyclists, horse riders, nature watchers and general forest users have for a range of improvements to forest facilities. The results not only identify large variations in the preferences between different types of forest users, but also highlight large variations in preferences amongst individual user groups. The recreational demands from forests are therefore found to be complex. The implications for forest managers is that they need to develop a much greater understanding of the needs of specific groups of forest users if they are to fully maximise the amenity benefits from their forests.

Visual dis-amenity from off-shore wind farms in Denmark
Jacob Ladenburg, Alex Dubgaard and Jesper Tranberg

Expansion of off-shore wind power plays a significant role in the energy policies of many EU countries. However, off-shore wind farms create visual disamenities. Using the Choice Experiment Method, it has been possible to consider how dis-amenity can be reduced by locating wind farms at greater distances from the coast and through accepting higher costs per kWh produced. Based on choices between alternative wind farm outlays, the preferences for reducing visual dis-amenity off-shore wind farms were elicited. The results show a clear picture the respondents in three independent samples are willing to pay (WTP) for moving future off-shore wind farms away from the shore to reduce the wind farm's visibility. However, the results also show that the preferences vary with regards to previous experiences of visual dis-amenity from off-shore wind farms. The results point towards locating wind farms at greater distances from the shore, to minimise the external cost. The results also denote that preference structures between the three samples are significantly different and possibly explained by different experience of off-shore wind farms. Finally, the results illustrate that the marginal benefits of locating wind farms at very large distances from the coast might be small.

Sources of inadequate scope sensitivity in WTP for risk reductions: An experimental approach
Katharine Bolt, Ian Bateman, Brett Day, and Graham Loomes

The issue of WTP estimates exhibiting inadequate scope sensitivity has been the focus of much debate in the non-market valuation literature. This problem is particularly acute in the context of WTP for risk reductions. This study examines the determinants of this scope insensitivity asking whether unfamiliarity with the valuation scenario and/or the risk denominator pose an excessive cognitive burden on respondents resulting in the magnitude of the risk reduction being overlooked. Using experimental techniques we show that as familiarity with the valuation scenario declines so too does sensitivity to the magnitude of the risk reduction. We also find that increasing the risk denominator reduces sensitivity to scope. These results suggest limitations to the application of stated preference methods in unfamiliar, low risk scenarios such as mortality risk-reduction studies.

Nitrogen Deposition and Loss of Biological Diversity: Agricultural Land Retirement as a Policy Response
Iain Fraser and Carly Stevens

Current levels of airborne nitrogen deposition seriously impact upland ecosystems biological diversity. However, land use policy maintaining and enhancing these areas in the UK does not explicitly take account of this pollution in terms of onsite management prescriptions. In this paper we examine the economic potential of agricultural land retirement to reduce localised nitrogen deposition. Employing an interdisciplinary case study that combines nitrogen deposition modelling and agricultural land use change, our analysis evaluates the reduction in nitrogen deposition necessary to recover floral species loss as a result of nitrogen pollution. Our analysis indicates that agricultural land retirement is a potentially credible policy option. However, we have also identified significant difficulties in integrating scientific and economic knowledge to inform land use policy design with respect to biological diversity. In particular, our analysis reveals that an understanding of the scientific method generating important research results can also significantly complicate the use of such findings by economists in evaluating policy design proposals. Specifically, the methods by which loss of biological diversity are measured complicate how we can value the benefits of policy to reverse the loss.

Improving the Accuracy of UK Regulatory Cost Estimates
Michael MacLeod, Dominic Moran, Winston Harrington, Manuel Lago Aresti and Richard D. Morgenstern

UK Government departments are required to undertake a Regulatory Impact Assessment (RIA) when introducing any policy change that places a burden on businesses, charities, the voluntary sector or individuals. Part of this assessment involves the appraisal of the costs (and benefits) associated with complying with all the available options, as well as the wider economic costs. Recent evidence has suggested that the compliance costs, when assessed *ex post*, tend to be lower than the *ex ante* assessment made beforehand (see e.g. Harrington et al. 1999). Accurate cost estimates are important as errors can lead to under or over regulation. This, in turn, can result in growth and innovation being hindered or, in the case of under regulation, growth being achieved at the expense of the natural resource base (including human health and well being). In order to shed more light on the validity of RIA cost estimates and identify ways of improving their accuracy, Defra commissioned a study comparing the *ex ante* and *ex post* costs of complying with regulatory changes. A total of eight case studies were carried out for this study, covering a range of recent environmental, agricultural and food-related regulations in the UK. Preliminary findings of this study indicate that while *ex ante* costs are often overestimated, there can also be significant underestimates. Reasons for errors in cost estimation are discussed and strategies for improving their accuracy suggested.

Assessing the Economic Impact of the New EU Chemicals Strategy (Reach)
Mark Peacock, Meg Postle and Paula Ramada

The primary task of most policy evaluations is to estimate the potential costs and/or benefits of a policy, based on the best knowledge of stakeholders and the available information. In the case of the European Commission's new chemicals legislation, referred to as REACH (the Registration, Evaluation, and Authorisation of Chemicals), a number of well documented studies were commissioned at national government and EU level to assess the potential costs and benefits of this proposed legislation.

The difficulty with these studies is that they often omit, or are unable to accurately represent, many costs and benefits that partly depend on factors such as market power, sector specific characteristics, substitutability of inputs, suppliers and production processes. This provided the authors with a unique opportunity to develop a microeconomic model to quantify the impact of market-related variables on compliance costs for companies in three different supply chains, with the aim of providing indirect cost estimates of REACH and a methodology applicable to other policy areas.

Inequalities in the Power Sector: a Case of a Mini-Hydropower Project in Sri Lanka
U A D Prasanthi Gunawardena

A case study was made of a proposed mini-hydropower dam to assess its economic value, inequality issues and the integration of inequalities of externalities into decision making. The market failures of the power sector which lead to inequalities include: non-payment by power producers for resource extraction, a positive externality - upland land owners conserve the watersheds, a negative externality - when upland landowners degrade the land causing siltation of reservoirs, water deterioration in multi-purpose reservoirs causing non optimal levels of upland conservation and that most upland landowners are poor farmers. Inequalities due to externalities of power sector projects include: large hydro projects requiring compulsory resettlement, changes to hydrological regimes, and the most affected being low income people. The conclusions were that mini-hydro projects could have significant environmental impacts when located in inappropriate sites, such impacts led to significant environmental injustices and that internalization of externalities and correction of inequalities is necessary for true sustainability

For the full papers and other abstracts not included here go to http://www.eftec.co.uk/home.php?section=8&uknee=2

Durrell Institute of Conservation and Ecology (DICE) Lecture 2005/2006

Biodiversity, Poverty and Development: the challenge for conservation

Lecture by Bill Adams - Professor of Conservation and Development, University of Cambridge

Univeristy of Kent, Canterbury, 23 March 2006

The 13th annual DICE lecture considered several assumptions made in relation to conservation and poverty: the first being that it is a win-win relationship, the second that the direction of global change secures development and biodiversity gains, and thirdly that the millennium goal of sustainable development is integrated in at the local level. But it has been suggested that through the establishment of protected areas rural people become disenfranchised leading to unjust poverty; the poor were paying the price for biodiversity. On the other hand protected areas were being exploited because of insufficient management and protection. In his lecture, Bill Adams considered both sides of the argument through posing four questions:

- Does conservation cause poverty?
- Does poverty cause biodiversity loss?
- Does development cause biodiversity loss?
- Does development cut poverty?

It was clear that the answers were yes to all but the fourth question, but that it is not that simple. Conservation can cause poverty because it is the poor that bear the greatest costs (loss of homes, land, resources, future use, religious/cultural/ritual values, crop raiding animals) and do not gain from the benefits (ecotourism, etc.). Poverty creates biodiversity loss because of the complex links between societies, economics, and institutions. Development is inherently destructive and results in biodiversity loss. But, in the case of whether development cuts poverty there was found to be no relationship between investment and poverty. In India and China development was reducing poverty but in real terms that depends on whether it is measured in terms of equity or quality.

In conclusion, it was considered that there needs to be a conservation strategy; but should that strategy be about protecting nature from development or nature and people coexisting in biodiverse economic landscapes?

Further reading on this topic can be found in:
The Millennium Development and Conservation: Summary at http://www.iied.org/Gov/mdgs/documents/MDG2-summ.pdf
Biodiversity Conservation and the Eradication of Poverty by: William. M. Adams, Ros Aveling, Dan Brockington, Barney Dickson, Jo Elliott, Jon Hutton, Dilys Roe, Bhaskar Vira, William Wolmer in Science 12 November 2004: Vol. 306. no. 5699, pp. 1146 – 1149 DOI: 10.1126/science.1097920 http://www.sciencemag.org/cgi/content/abstract/306/5699/1146
Conservation does not compromise social development in Brazilian Cerrado from Luis M Bini, José A. F. Diniz-Filho (24 May 2005) http://www.sciencemag.org/cgi/eletters/306/5699/1146

Ecological Impact Assessment Guidelines for the United Kingdom

The approved Guidelines are now available on the IEEM website at www.ieem.net

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Transport Issues – Implications for Ecological Practice: IEEM Conference Report

Nick Jackson AIEEM

The IEEM's spring conference took place on 3 May 2006 in London. Penny Anderson, recently awarded a fellowship by the Institute, chaired the morning session. Eight speakers gave informative presentations on issues ranging from port developments, railways and roads, to deer and other roadkill not only in the UK but also in Europe.

Penny Anderson, set the scene for the day with a general overview of ecological issues in transport. The key trends in transport history were outlined through looking at the National Travel Survey. It reveals that the average distance travelled per person in the UK has risen by 50% in the last 30 years. The Government's ten year Transport Plan shows that priorities for investment are increasing the average speed on roads, reducing congestion, increasing capacities of railways and increasing reliability and integration of transport modes. The predictions for transport in the UK show no remittance: increased car ownership and continued demand for travel (e.g. flights) as incomes rise, continued pressure on road space and improvement in vehicle performance *(i.e.* exhaust emissions). To fuel this, major transport projects planned in the UK over the next few years include: a second runway at Stansted airport, infrastructure for the 2012 Olympic games, a high speed London to Glasgow rail link and widening of the M6. There are, though, ecological opportunities within future transport projects. The pressure of policy and legal framework (European legislation, CRoW, BAPs, etc.), ecologists will have the chance to rescue species and habitats, create habitats (even at the landscape scale) as well as provide linkages connecting habitats (*i.e.* green bridges).

Port development is an area that is particularly driven by environmental issues. Alastair Grant from the University of East Anglia outlined how decisions to build/develop a port are affected. If part of a Natura 2000 site is proposed for development the Habitats Directive states that '*compensatory measures necessary to ensure the overall coherence of Natura 2000 is protected*' must be taken. Each development has to pass a series of tests to establish whether the project damages the integrity of the Natura 2000 site, if there is going to be damage, are there '*imperative reasons of overriding public interest*' (IROPI) and can it be mitigated or compensated for through habitat creation? Proposals that have been considered include Dibden Bay (refused), Felixstowe South reconfiguration (approved), London Gateway (approved) and Bathside Bay (approved). But, the question whether or not it is possible to create satisfactory replacements for habitats lost to development is still an issue. Creation of mudflats appears feasible if engineers deliver stable (but soft) mud where invertebrates can colonise, but creation of saltmarshes is more difficult as colonisation/succession is much slower.

Leela O'Dea from the British Waterways outlined the use of our inland waterways for freight transportation from their historic use for transportation of goods over the past century to the current demands on the system of leisure and recreation. Two recent case studies demonstrated the opportunities for freight and the associated environmental benefits. The first case study centred on the removal of invasive weeds such as duckweed, water fern and floating pennywort from the UK waterways. In excess of 100 tonnes of green waste are removed by British Waterways throughout the growing season. This waste used to go to landfill but is now transported to the new Ecopark in Edmonton for trial composting. The second case study is the proposal to implement a controlled water system around the Olympic Park for the games in 2012. The concept is that two of the flood conveyance channels would be maintained at a controlled water level, allowing the movement of construction materials to and from the Olympic Park construction sites. It is projected that 2,600 tonnes of material could be moved by barge a day, saving an average 33,739 lorry journeys. This equates to environmental benefits in excess of 1 million pounds per annum calculated by the sensitive lorry mile measure.

Moving on to the Rail Network, Michael Hall from ARUP and Peter Bragg from Network Rail ended the morning by setting out the biodiversity challenges set by railways. They outlined how there is a lot of diversity in the flora and fauna found alongside the tracks and how it is difficult/dangerous to actually survey them. Network Rail has its own environment policy, it has also produced protected species guidance notes for rail workers, an Environment Handbook, a BAP toolkit and SSSI guidance. The reason for the sometimes 'drastic' cutting back of trees alongside the tracks was explained (along with a photo of a train hit by a falling tree) and the ideal lineside profile was described as 'balancing safety with nature'.

Andy Tasker, President-Elect chaired the afternoon session, which began with Stephanie Wray from Cresswell Associates speaking about roads, habitat fragmentation and maintaining/recreating wildlife corridors. The overall impact of roads on wildlife include: habitat loss, degradation, fragmentation, traffic related mortality and disturbance. Key features such as natal sites, mating sites, refuges/hibernacula and foraging areas are also lost through road building. When a road is built and a habitat fragmented, certain options for mitigation are available: maintain or reconnect links, accept severance and create additional resources, translocate isolated population fragments, link the habitats physically (*i.e.* green bridges) or build structures for specific groups/species to use (tunnels, etc.). Examples of these structures (some very novel!) were shown including, tunnels for badgers, otters and amphibians, underpasses for bats, and road crossings for dormice such as rope bridges.

Via Baltica (a pan-European transport corridor which links Helsinki to Warsaw via Estonia, Latvia and Lithuania), is part of the Trans-European Transport Network (TEN-T). Helen Byron from the Royal Society for the Protection of Birds (RSPB) spoke about its impact on protected areas. Current plans to upgrade this route without adequate environmental impact assessments is threatening ancient woodland, river valleys and key SPAs in Poland. NGO's such as the RSPB, Birdlife, WWF and the Polish Green Network have been working in partnership collecting data, contacting local communities, commenting on project proposals and appealing decisions to try and minimise the impacts on the environment and also made an official complaint to the EU in January 2006. Some progress has been made and now a Strategic Environmental Assessment (SEA) is to consider the most suitable route through Poland; a report is due out at the end of 2006. However, some road upgrades are due to go ahead in advance of the

SEA which will result in damage to Natura 2000 sites. The NGO Via Baltica campaign continues!

Jochen Langbein from the Consultancy for Wildlife Research and Deer Management tackled the concerns and solutions to deer and other animal roadkills. It is estimated that in the UK around 40,000 deer are killed each year on roads, leading to about 15 human deaths. The National Deer-Vehicle Collisions Project was run from 2003 to 2005. Its aims were to build, for the first time, a national database of road traffic collisions involving deer in Britain, to assess accident factors which relate to aspects of deer behavior/management, identify accident hot-spots and to investigate effectiveness and design of measures aimed at preventing such accidents. Mitigation against these accidents can be done in a number of ways: building deer fencing along roadsides, better management of roadside vegetation, green bridges to connect habitats, dynamic animal activated signs and acoustic/optical wildlife deterrents. The effectiveness of some of these measures was discussed and some video footage of deer using road bridges as crossings for busier roads was shown.

The last presentation of the day was concerned with the conservation of bats during the planning and construction of highways. Conor Kelleher from Bat Conservation Ireland outlined the very clear legal legislation for the protection of bats. To avoid building roads where bats are already present, environmental impact assessments should be given sufficient time (a year), a seasonal approach should be used, a visual assessment should be made up to 1 km from the corridor (up to 3 km in certain cases) and existing roosts, foraging areas and commuting routes should be identified. If the road goes ahead then measures to mitigate its effects would have to be used. These include lighting restrictions, provision of alternative feeding areas (ponds, lakes and woodland) and provision of fly-overs, underpasses, green bridges, bat boxes and/or purpose-built structures where necessary. The National Roads Authority and Bat Conservation Trust both produce guidance for bats and roads.

Penny Anderson rounded off the day with a summary of all the talks and the future opportunities for ecology and environmental management within the transport industry.

Andy Tasker thanked all the conference speakers for their time and presentations and that hoped that the delegates found it a useful and interesting day.

The **next IEEM conference** will be held in **Cardiff on 14-16 November 2006** and will be on the subject of **Practicalities of Climate Change: Adaptation and Mitigation**. Details will shortly be posted on our website www.ieem.net. If anyone has any suggestions for future conference themes/locations/speakers then please contact nickjackson@ieem.net.

Nick Jackson is the Education and Professional Development Officer at IEEM.

Join an IEEM Committee...

Nick Jackson AIEEM

Many of you reading this will have joined IEEM to be recognised as a professional ecologist, or as a way to progress in your career, or to gain cheaper access to our courses and conferences; but you may not be aware of how the Institute works – that it is the Members that form its Committees.

Committees carry out much of the work of the Institute. The key decision making body of the Institute is its Council, which is responsible for the broader strategy and direction of the Institute, provides guidance to the Secretariat and co-ordinates the activities of the Committees.

The Committees and what they do:

- **Finance and General Purposes Committee** (F&GP) manages the general administration of the Institute.
- **Training, Education and Career Development Committee** (TECDC) maintains and develops the Institute's very popular Professional Development Programme, and aims to provide a solution to the growing crisis in ecological skills (graduates coming out of university without the right skills to be an ecological professional).
- **Professional Affairs Committee** (PAC) is responsible for maintaining professional standards through the Disciplinary Regulations and the Code of Professional Conduct. It manages projects such as the production of the Ecological Impact Assessment Guidelines for the UK and Guidelines for Survey Methodology and oversees the Professional Issues Series that promotes and supports professionalism.
- **Membership Admissions Committee** (MAC) vets applications for membership in accordance with the byelaws, supervises membership renewals and promotes membership of the Institute.
- **External Affairs Committee** (EAC) promotes the Institute and ecological professionalism, responds to statutory and policy consultations by Government and industry, is involved with other professional organisations (such as SocEnv, EFAEP and the IUCN).

The Committees each meet 3 times a year (4 times for MAC) in the afternoon in London; Members' travel expenses are paid.

All the Committees are in need of new members (especially TECDC and MAC) so if you are interested and willing to become more involved with the development of the ecological profession we would like to hear from you. For further details please get in touch (enquiries@ieem.net).

New Tutors ... New Courses...

Nick Jackson AIEEM

Is your brain overflowing with information about a particular species/habitat or other ecological topic?

Are you good at communicating with others?

Have you ever considered sharing your knowledge with other people?

Does making money appeal to you?

If the answer is yes then why not run a workshop for the IEEM's Professional Development Programme?

We are currently looking for new people to teach courses on some of our more popular subjects and are looking for some additional tutors. At present we are oversubscribed on courses covering flora identification, habitat surveying (Phase 1, NVC, etc.) and protected species such as bats, great crested newts, water voles, badgers and reptiles.

We also have general gaps in the programme in the following areas: freshwater surveying, invertebrate identification, birds and report writing.

It is a myth that IEEM tutors do not get paid for running the workshops – for a fully booked course, tutors can earn up to £500 (payment is made depending on the number of people booked onto the course - £35 for each of the first ten people, then £15 for each person thereafter).

The programme for 2007 will be compiled by September, so, if you would be interested in running a course please get in touch with me at nickjackson@ieem.net. For additional information about running IEEM short courses, please refer to Professional Issues Series number 4, which can be found on the Members Section of the website.

IUCN RED LIST OF THREATENED SPECIES 2006

The number of known threatened species has now reached 16,119. Those species facing extinction are joined by familiar species like the polar bear, hippopotamus and desert gazelles; together with ocean sharks, freshwater fish and Mediterranean flowers. Positive action has helped the white-tailed eagle and offers a glimmer of hope to Indian vultures. The total number of species declared officially extinct is 784 and a further 65 are only found in captivity or cultivation. Of the 40,177 species assessed using the IUCN Red List criteria, 16,119 are now listed as threatened with extinction. This includes one in three amphibians, a quarter of the world's coniferous trees, one in eight birds and one in four mammals. Estimates of the total number of species on the planet vary between 10 - 100 million, with 15 million species being the most widely accepted figure. Only 1.7 - 1.8 million species are known today. Habitat destruction and degradation continues to be the main cause of species' decline, along with introduced invasive species, unsustainable harvesting, over-hunting, pollution and disease. Climate change is now also increasingly recognized as a serious threat. The number of threatened species is increasing across almost all the major taxonomic groups. Australia, Brazil, China and Mexico hold particularly large numbers of threatened species, and estimates vary greatly, but current extinction rates are at least 100 - 1,000 times higher than natural background rates. The vast majority of extinctions since 1500 AD have occurred on oceanic islands, but over the last 20 years, continental extinctions have become as common as island extinctions.

IUCN HEADQUARTERS

The World Conservation Union is in the process of appointing a new Director General. The new Director General will lead, manage and inspire the world's largest environmental network composed of States, Government Agencies and non-governmental organisations spread across 140 countries. The new appointment comes as the current Director General, Achim Steiner, will be ending his tenure on 31 May before joining the United Nations Environment Programme (UNEP) as Executive Director on 15 June. Klaus Toepfer will be stepping down as Executive Director of UNEP after eight years of service in the position.

Achim Steiner has told ministers at the Convention on Biological Diversity (CBD) meeting in Brazil that the environment should no longer be seen as a cost, but rather as an investment for development. Environmental issues continue to be seen as costly to industry as indicated in Jim's comments on page 2.

BIODIVERSITY

The IUCN Programme Office for Central Europe and Syzygy has launched the Ecological Network Database for Central and Eastern Europe. The database contains information on all 17 ecological network programmes in the region, and aims to simulate exchange of experiences and best practice between them. The database can be viewed here: http://iucn-ce.org/econets/database/.

On World Health Day the IUCN released a statement declaring that human health is increasingly dependent on the health of ecosystems and the conservation of biodiversity, and yet the world is still not addressing these vital links with the commitment and urgency needed.

IUCN and its Species Survival Commission are currently working on a suite of indicators to measure biodiversity trends as the 2010 biodiversity target is only four years away and there is still a lack of means to measure biodiversity trends.

The Convention on Biological Diversity has adopted a new Programme of Work on Islands in order to conserve highly threatened island biodiversity. Island biodiversity is amongst the most threatened in the world. More than half of the world's extinct species are island species. Invasive species are the main threat to island biodiversity, followed by habitat change and overexploitation. Leaders from island nations announced the Micronesia Challenge to protect 30 percent of near-shore marine and 20 percent of terrestrial resources on islands by 2020.

Three main action areas to achieve the 2010 biodiversity target have been identified by the 37th Global Biodiversity Forum; (1) building awareness of the role biodiversity plays in reducing poverty, (2) providing an enabling policy framework for achieving the 2010 target, including political buy-in from finance and trade ministries, and (3) partnering for action.

A report entitled "Status of Coral Reefs in Tsunami Affected Countries: 2005" has declared that most of the Indian Ocean coral reefs affected by the December 2004 tsunami will recover naturally in five to ten years if damage through human activities can be reduced.

The inaugural Plant Red Listing Workshop for the Eastern Arc Mountains and Coastal Forests of Kenya and Tanzania has evaluated the conservation status of all the endemic and near endemic species in these areas. The region has at least 1,800 endemic or near endemic plant species e.g. *Vernonia luhomeroensis* (pictured left) and of the 174 taxa in the region evaluated, 123 are threatened and 12 are near threatened.

FORESTRY

The World Conservation Union has said that unless local communities in Cameroon are actively involved in monitoring and implementing forest conservation illegal logging will continue to rise despite years of effort by the country to reduce it.

Guyana has hosted a national workshop on Forest Landscape Restoration (FLR) that was sponsored by the International Tropical Timber Organisation (ITTO). The workshop is part of a series of national FLR workshops, implemented under the ITTO Guidelines for the Restoration, Management and Rehabilitation of Degraded and Secondary Tropical Forests.

MARINE AND WETLANDS

At the 4th World Water Forum in Mexico Government ministers and key water sector experts have stressed the importance of forests, wetlands and soils in managing the world's water resources and that sustainable solutions to the world's water crisis are urgently needed. IUCN also promoted risk management at the event as tropical storms in 2006 are expected to be even stronger than those in 2005 that caused major destruction in the Mesoamerican region (e.g. Katrina and Stan). Max Campo, Executive Secretary of the Central American Regional Committee for Water Resources (CRRH), stressed that "We must integrate existing knowledge and technology in a systematic way so that citizens, with or without internet access, can receive information on time so that people and their families can escape from catastrophic events".

MIGRATORY BIRDS

The first ever World Migratory Birds Day was held on 8 April midst of discussions around those birds' role in the spread of Avian Influenza. The event's organizers hope that activities around the world will bring clarity to the debate, raise awareness and support for migratory birds.

OIL

Russian President Vladimir Putin of Russia has ordered the rerouting of an oil pipeline away from Lake Baikal (pictured left). The controversial oil pipeline would originally have passed through the World Heritage site posing the risk of high environmental damage to the world's oldest and deepest freshwater lake.

For the full news reports from IUCN please visit www.iucn.org

EFAEP Newsflash on Environmental Issues

08.05.2006
Sustainable development: Commissioner Dimas at UN to discuss sustainable energy future
Environment Commissioner Stavros Dimas will represent the European Commission at the ministerial part of the 14th session of the UN Commission on Sustainable Development (CSD) in New York from 10 to 12 May 2006. The meeting will examine progress in sustainable energy, climate change, air pollution and industrial development issues. Commissioner Dimas will advocate energy policies that improve access to energy services for the world's poor while maximising energy efficiency and the use of renewable energy globally, thus increasing the protection of the environment. Commissioner Dimas will also announce the launch of the EU Energy Facility, which will make available 220 million to projects improving access to energy, in particular renewable energy, mainly in Sub-Saharan Africa.
http://europa.eu.int/rapid/pressReleasesAction.do?reference=IP/06/581&format=HTML&aged=0&language=EN&guiLanguage=en

06.05.2006
Commission Decision of 20 February 2006 laying down a questionnaire to be used for reporting on the implementation of Directive 2000/76/EC on the incineration of waste (notified under document number C(2006) 438)
http://europa.eu.int/eur-lex/lex/JOHtml.do?uri=OJ:L:2006:121:SOM:EN:HTML

03.05.2006
Conference to launch European Technology Platform for Biofuels
A conference to mark the launch of the European Biofuels Technology Platform will take place on 8 June in Brussels.
Organised by the European Commission with the support of the Biofuels Research Advisory Council (BIOFRAC), the conference will present the major conclusions outlined in the BIOFRAC's vision report 'Biofuels in the European Union a vision for 2030 and beyond', and officially launch the European Biofuels Technology Platform.
The one-day conference is designed to give participants the opportunity to provide feedback to the report, and feed in their views and experience. An afternoon session will put biofuels in a wider perspective: biorefineries, biofuel trade, biofuels in the new member states, biofuels in a global context, and biofuels research in Seventh Framework Programme (FP7).
http://cordis.europa.eu/fetch?CALLER=EN_NEWS&ACTION=D&RCN=25591&DOC=7&CAT=NEWS&QUERY=1147087175097

27.04.2006
Directive 2006/12/EC of the European Parliament and of the Council of 5 April 2006 on waste
http://europa.eu.int/eur-lex/lex/JOHtml.do?uri=OJ:L:2006:114:SOM:EN:HTML

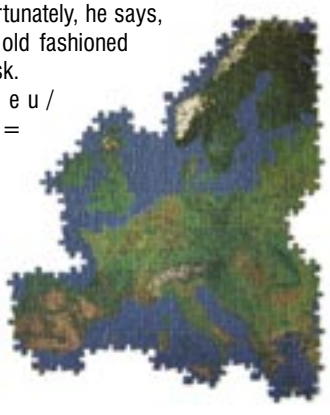
26.04.2006
Burden for cutting air pollution
The burden for cutting air pollution must not be borne by regions and cities alone, says Jahn report. The Committee of the Regions has called on the EU to do more to reduce dangerous levels of air pollution, which cause an estimated 350,000 premature deaths a year in the bloc.
The report, presented by German member Helmut JAHN (EPP), states that not enough is being done to prevent pollution at source and calls for greater attention to be focused on cutting levels of the deadliest airborne pollutants – microscopic 'particulate matter' known as PM 2.5.
http://europa.eu.int/rapid/pressReleasesAction.do?reference=COR/06/44&format=HTML&aged=0&language=EN&guiLanguage=en

25.04.2006
Energy and Transport: Wind Energy: Final publishable report of the project "Offshore M&R"
http://europa.eu.int/comm/energy/res/sectors/wind_energy_dissemination_en.htm

25.04.2006
Three wheels good, four wheels bad
An EU consortium has developed a new vehicle suitable for the clean, green urban jungle, funded under the European Commission's Fifth Framework Programme (FP5). The CLEVER (Compact Low Emission Vehicle for Urban Transport) car is a three-wheeled device with room for a driver and a passenger. It has a tilting frame for added manoeuvrability when cornering, and an engine running on compressed natural gas (CNG).
Heiko Johannsen from the Technical University of Berlin coordinated the project. 'When we looked at the current situation, the needs of consumers and the need for individual mobility, the answer to us was clear [...]. What we need are new vehicle concepts. Up to now, few real attempts have been made to introduce alternative vehicles onto the market, and those attempts have been largely unsuccessful, not to mention ugly, and no fun to drive.'
http://cordis.europa.eu/fetch?CALLER=EN_NEWS&ACTION=D&RCN=25549&DOC=14&CAT=NEWS&QUERY=1

24.04.2006
Energy and Transport: Overview of FP6 Demonstration Projects (Sustainable Energy Systems)
http://europa.eu.int/comm/energy/res/fp6_projects/concerto_en.htm

21.04.2006
Call for chemical industry to 'emerge from the Middle Ages'
The European chemical industry is in urgent need of modernisation, according to Andrzej Stankiewicz, inaugurated as the new Professor of Process Intensification at the Technical University of Delft in the Netherlands, on 21 April - one of the first such posts in the world.
The Polish-born professor's comments stem from his vision of a sustainable future. Today he perceives on the one hand a move to sustainable biological resources, such as sugar cane or cellulose, but no corresponding move to more modern, efficient chemical processes - something that he would like to redress.
He said that simply 'being green' is not enough, and that a change within the chemical industry is urgently required so that it can 'emerge from the Middle Ages'. Unfortunately, he says, the chemical industry is wedded to old fashioned methods that require a minimum of risk.
http://cordis.europa.eu/fetch?CALLER=EN_NEWS&ACTION=D&RCN=25536&DOC=28&CAT=NEWS&QUERY=1



For more information please visit: www.efaep.org

Soc Env
Society for the Environment

Following the establishment of the Secretariat in Atherstone, the Society is now beginning to develop its programmes.

The Chief Executive, David Hickie reports that there has been a meeting with Sustainable Development Commission with the idea of promoting collaboration. There is interest in working together on the general issues of the skills gap and the SDC has a new work and skills commissioner starting in late summer.

The scope for widening the membership of the Society appears to be increasing with meetings and positive indications of interest from a variety of organizations.

IEEM members may not be aware, but IEEM as a licenced body has to be subject to audit by SocEnv of its regulations and admittance procedures. This was successfully undertaken before the start of the grandparenting process and an auditor's workshop has recently been held on how to improve the procedures.

The Society will be holding its AGM on Wednesday 28th June 2006 at The Institute of Materials, Minerals and Mining, 1 Carlton House Terrace, London.

Following the last Council Meeting IEEM will be represented by Alex Tait on the Registration Authority and by Eirene Williams and Jim Thompson on the Board. Jim Thompson is also on the Management Committee (=F&GP). These positions will also be ratified on 28th June.

A reception will follow on from the AGM and will commence at 4.30 pm. Mike Barker, Andy Tasker, Alex Tait, Colin Buttery, Eirene Williams and the Executive Director are expected to attend. The Guest of Honour will be John Gummer MP who will present three Honorary Fellowship certificates for services to the Environment and the Society – Bob Fuller, the Company Secretary and previous IES secretary, Sarah Parkin of the Forum for the Future and John Edmonds former Secretary General of the GMB Union and senior figure in the TUC. Both Sarah Parkin and John Edmonds are members of the Board of the Environment Agency. At the AGM Peter Matthews of CIWEM will be succeeded as Chairman by John Brady of IEMA.

NEW CHARTERED ENVIRONMENTALISTS

Dr Patricia Almada-Villela, Ms Helen Bibby, Mr Robert Brown, Mr Christopher Burton, Mr Matthew Chatfield, Dr Nicholas Downs, Mr Robert Evans, Mrs Sally Hope Johnson, Miss Lisa Huckstep, Mrs Carol Littlewood, Mrs Margaret Magee, Mr Barnaby Parker, Mrs Janet Slattery, Mr David Sweeting, Mrs Marian Wilby

Full details of how to apply to be a Chartered Environmentalist through IEEM are now available on the IEEM website (www.ieem.net

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Tel: 0845 337 2951
Fax: 01827 717064
E-mail: enquiries@socenv.org.uk
Website: www.socenv.org.uk

Institute News

Recognition of New Fellows

The report of the London Conference is given elsewhere but there was a brief interlude at the beginning of the afternoon session when Fellows certificates were presented to two Fellows - Richard Jefferson and Penny Anderson by the President Chris Spray. There are still only 18 Fellows and new applications are always welcomed. Remember for the more modest members you do not now have to put your own name forward – it can be done by someone else.

IEEM President Chris Spray (centre) with Professor Penny Anderson (left) and Dr Richard Jefferson (right)

Revision of Membership Regulations

The Membership Admissions Committee (MAC) will shortly be considering changes to the Membership Regulations to operate from the renewal of the subscriptions on 1 October 2006.

MAC will be making recommendations to Council and these, if approved, will be reported to members in the next E-bulletin. For some time now there has been a feeling that we should tighten up a little on our regulations and the main proposal is to extend the requirement for Full Membership to 4 years. The usual requirement for Associate Membership will then become two years. There will also be a new grade of membership – Graduate, which it is hoped will encourage more membership from those just about to embark on a career in ecology or environmental management. Progression through the grades will then depend on the nature of the Professional Experience and whether a full continuing professional development record has been maintained. These regulations will not affect those already enrolled in the current grades.

Membership Fees

Council at its last meeting considered whether an increase in membership fees was warranted bearing in mind the very minimal increases in the last 10 years. It agreed the new scale of fees as outlined below. Inflation has considerably eroded the value of the current membership fees, which has been balanced by an increase in membership numbers. In the last several years IEEM has made a modest annual profit and these profits have been used to build up some reserves. But at about £70,000 these still stand below those considered reasonable in relation to annual turnover. The increases are also required to develop further the services to members and particularly the extension of the EcIA Guidelines to marine areas and starting a determined programme to understand and address the skills issues for ecologists. Also in recognition of the vital role that the Geographic Sections can play there is to be a small allocation made to each Section to help in their activities.

The new fees also include the new Graduate Grade which will in fact be considerably cheaper than joining initially as an Associate. The fees agreed, shown below, will be applicable from the renewal of subscriptions on 1 October 2006.

Grade	Direct Debit	Non Direct Debit
Fellow	£110	£120
Full	£110	£120
Associate	£80	£90
'Graduate'	£50	£50
Affiliate	£50	£50
Retired	£50	£50
Student	-	£20
Full abroad	£80	£80
Associate abroad	£55	£55

Payment by Direct Debit

For those members wishing to pay by Direct Debit now is the time to make the arrangement with the bank and to complete the Direct Debit Form. Every year there are several members who would like to pay by Direct Debit but who leave the application until it is too late. Forms can be downloaded from the Members' Section of the website.

IEEM Conferences

As reported previously the Autumn Conference is scheduled for the 14 – 16

November 2006 and will be our first visit to south Wales. The programme is currently being assembled with the idea that it will be circulated in July. The theme is Climate Change and specifically what its practical ecological and land management issues. We already have offers of support from CCW, and Peter Bridgewater of the Ramsar Secretariat has agreed to give the Fellows Lecture.

News of Members

I am pleased to report that David Hill, past President of IEEM, has been appointed to the Board of Natural England. Sir Martin Doughty is the Chairman and he is also an IEEM Patron so the value of professional ecologists will hopefully not be lost in the new organization. This spring has also brought quite a spate of movement from employer to employer. If you are about to move do please make quite sure that IEEM has you new contact details as it has proved to be particularly time consuming to re-establish contact in the past.

Membership of Committees

Most of the IEEM Committees function effectively and are hardly ever inquorate. The exception to this is occasionally the cycle in the spring when strangely enough all ecologists seem to be in the field surveying or doing other good ecological things. This means that the membership of all of the Committees could usefully be enlarged somewhat and members wishing to increase their involvement with the Institute are warmly welcomed to apply.

Electronic Mailing

Members for the first time will recently have received an E-newsletter and reminder about the London Conference and the Environmental Impact Conference in Bath this July. These seem to have been well received – reminders can sometimes be appreciated and a more regular update of IEEM events can be useful. On the other hand IEEM does not want to get to the position where 'not another message from IEEM' is quickly sent to the deleted pile. Council is currently considering whether we should use the E-newsletter in addition to *In Practice* for listing purposes as this could reduce the amount of time required to process membership applications. Unfortunately we are getting quite a number of returned emails which would suggest that we have not be informed of any changes. The response so far having been broadly favourable means that we shall continue with the electronic mailing but any further feedback would be appreciated.

New Council Members

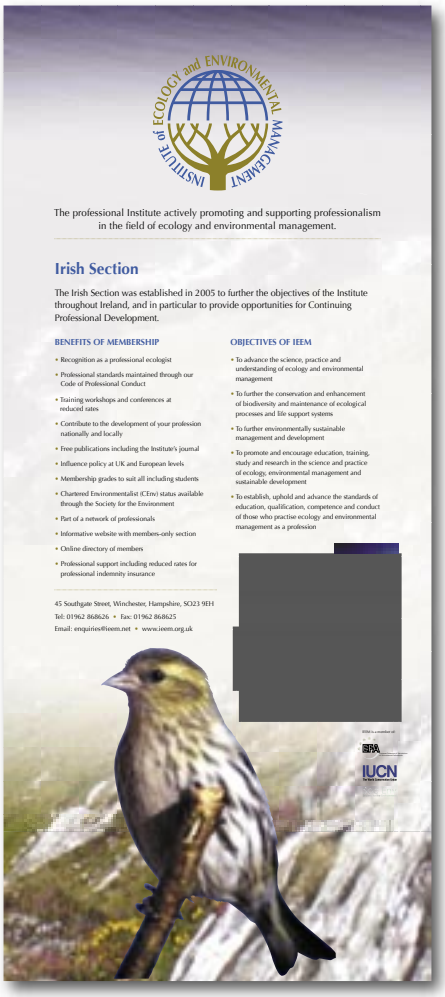
Council has co-opted two new members to serve until the AGM in November. These are Dr Greg Carson, currently the County Ecologist for Flintshire and Dr Jane Southey, Senior Ecologist at Scott Wilson.

Proceedings of the Bournemouth and Newcastle Conferences

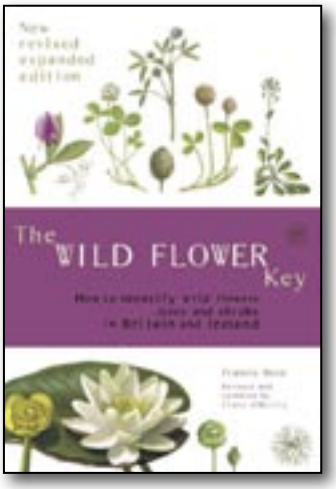
The editing of these conferences is now complete thanks to our Editor, Eirene Williams and will be available shortly. Copies will be sent to all those attended and an electronic version will be available on the website. This will cut down on our printing and distribution costs and ensure that those who are particularly interested in the subject can obtain of the information.

Promotion by the Geographic Sections

Members in the various sections may often have the opportunity to promote IEEM and so a series of specially designed pull up banners has now been prepared – one for each Section (see below). The photographic material and text have been specially chosen to reflect the activities of the sections and some of the wildlife with which they are particularly associated. The idea is that these banners will be held locally so please contact your local section if any opportunities to promote the Institute arise.

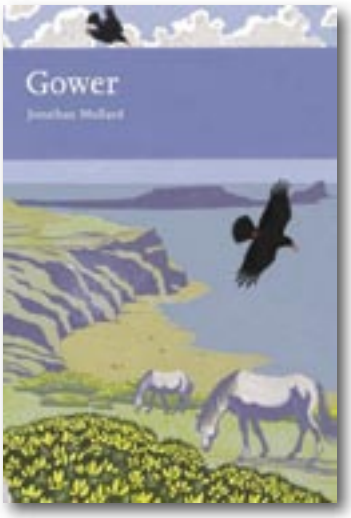


Recent Publications



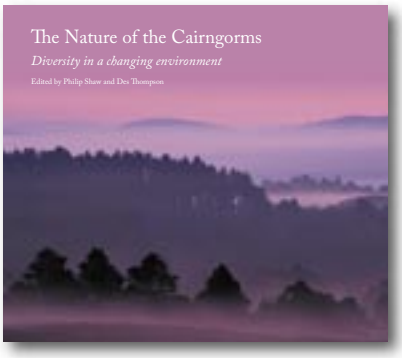
The Wildflower Key
Author: Francis Rose
Editor: Clare O'Reilly
ISBN-10: 0723251754
ISBN-13: 9780723251750
Available from: www.penguin.co.uk
Price: £19.99

This is the revised edition of the original 1981 publication that has been updated by IEEM member Clare O'Reilly. There are three main changes in this edition: the outdated Clapham, Tutin and Warburg nomenclature has been replaced by the Stace and Kent nomenclature, some alien species that have become well established in the wild in the British Isles have been included, and as a result of these inclusions the wild flowers of north western Europe (France, Netherlands, Denmark, etc.) that are scarce or absent in Britain and Ireland have been omitted. In addition it also includes more illustrations, extra identification tips and new features aimed at helping beginners. The guide includes some 1,600 species and subspecies of flowering plants, trees and shrubs and is the only guide of its kind to include keys for the wild flowers, shrubs and trees of Britain and Ireland as well as colour illustrations. This is an easy book to use; it is clear to read, well laid out and has already been put to good use by IEEM staff. The guide is usefully covered in a waterproof sleeve and would make a valuable tool for anyone involved in field botany in Britain and Ireland.



New Naturalist Gower
Author: Jonathan Mullard
ISBN-10: 0007160666
ISBN-13: 9780007160666
Available from: www.harpercollins.co.uk
Price: £25 paperback/£45 hardback

Gower was the very first AONB to be designated in the UK. This book is part of the 50th anniversary celebration of that day in May 1956. Gower is found on the southern edge of Wales and has a unique range of habitats including heathlands, limestone cliffs, and dunes. The book aims to encompass all of the natural history of the region from the geology on which it is based to the influence of past and present human populations on the area, and in many ways also provides a human history of the peninsula. The book is divided into four parts. Part I: A Separate and Special Place looks at how the Gower peninsula is truly a land apart from the rest of Wales. Part II: The Evolving Landscape examines the ancient geology of the land, how this has changed through time and how people have, over the last 10,000 years and more, influenced the peninsula. Part III: A Rich Variety covers the habitats, flora and fauna of the South Gower cliffs, the surrounding sea, the beaches and dunes, the Worm, the Holms and the Mumbles, the inlet and estuary, common land, pills, pools and marshes, woods, hedges and fields, and caves and swallets. Part IV: A New Future considers the protection of Gower at present and in the future. The New Naturalist series from Harper Collins has been running for over 60 years and this, the 99th edition in the series is another book in this review by an IEEM member.



The Nature of the Cairngorms: Diversity in a Changing Environment
Editors: Philip Shaw and Des B.A. Thompson
ISBN-10: 0114973261
Available from: enquiries@tsoscotland.com or by phoning 0870 606 5566

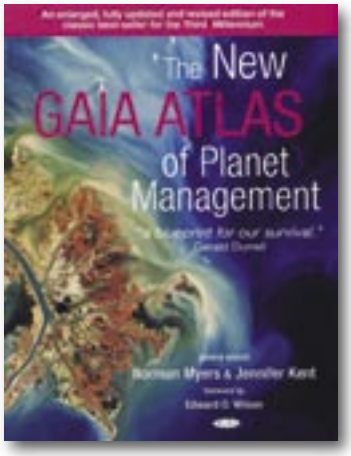
Like Gower the Cairngorms constitute a unique piece of the British landscape and have an important part to play in conservation in Britain. Within the Cairngorms there are native forests, moorland and hill country, glens, and some of Britain's highest mountains. Wildlife includes: ospreys, capercaillies, reindeer, and creeping lady's-tresses. The Cairngorms are an extraordinary ecosystem that is enjoyed by thousands of skiers and walkers every year. The writers of this book have extensively described the nature and recreation opportunities of the Cairngorms and also the complex range of factors that influence these. The book is in three parts; Part One: Elements of the Natural Heritage covers geodiversity, habitats and landscapes, water, lower and higher plants, invertebrates, fish, amphibians, reptiles, birds, and mammals, Part Two: The Nature of Change covers climate change, deer management, and recreation, and Part Three: An Overview looks at patterns of species diversity in the Cairngorms. At 444 pages this book is comprehensive and at the same time beautifully illustrated.

The State of Britain's Larger Moths
Authors: R. Fox, K.F. Conrad, M.S. Parsons, M.S. Warren, I.P. Woiwod
Available from: www.butterfly-conservation.org or by phoning 0870 7744309
Price: £5 + £1.50 p&p

In the foreword Sir David Attenborough, president of Butterfly Conservation, voices his opinion on how significant and worrying the results of this report are. Despite criticism in the past for not pushing more for conservation issues there is no doubt about the message here – Britain's larger moths are in a state of drastic decline and something needs to be done about it. Some species such as the Dusky Thorn and the Hedge Rustic have declined by up to 97% in the past 35 years. The report highlights the importance of moths as a major insect group in Britain and as a major food source for birds and other animals, the study of moths by Rothamstead Research and Butterfly Conservation, the changes and trends in rare and common species in Britain, comparisons between north and south and east and west and finding that the greatest declines are in the south east, and the causes of these changes which include habitat change, pesticides, pollution, vehicles, light pollution and climate change. The tables, diagrams and wonderful illustrations in the report make it easy to interpret the information presented here.

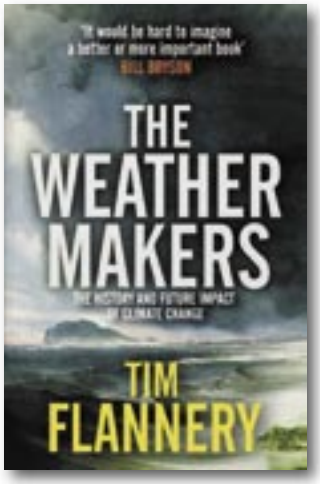
National Vegetation Classification Users' Handbook
Author: John S. Rodwell
ISBN-10: 186107574X
ISBN-13: 9781861075741
Available from: NHBS Environment Bookstore at www.nhbs.com
Price: £13.50

This publication by the Joint Nature Conservation Committee (JNCC) provides a general introduction to the National Vegetation Classification (NVC) in ten chapters. The handbook details the methodology for sampling and describing vegetation in the field, explains how such information can be used to identify plant communities and outlines the character of the classification itself and the accounts of vegetation types it contains. It also discusses the important issues involved in carrying out an NVC survey of a site and gives a brief indication of other applications of the scheme. The ten chapters are: Introduction, Locating Samples for Vegetation Survey, Choosing the Size and Shape of Samples, Recording Sample Location and Time, Recording Vegetation Data, Recording Environmental Data, Characterising Vegetation Types, Identifying Vegetation Types, Descriptions of Plant Communities, and Carrying Out an NVC Survey. Tables, diagrams and sample NVC sheets also allow for easier use of this book.



The New Gaia Atlas of Planet Management
Editors: Norman Myers and Jennifer Kent
ISBN-10: 1856752097
Available from: www.gaiabooks.co.uk
Price: £25

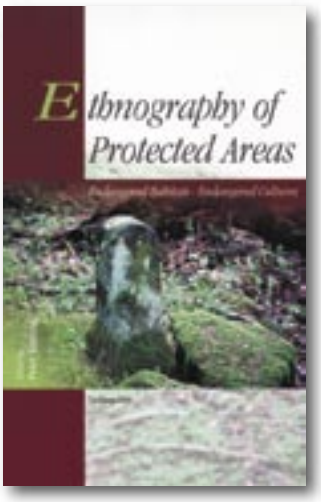
This is a revised and enlarged edition of a guide that can be read by anyone from school children upwards, has a foreword by Edward O. Wilson and was described by Gerald Durrell as 'a blueprint for our survival'. The book has an introduction outlining the changes and challenges that are facing the planet in the 21st century. After that the book is divided into sections dealing with land, the oceans, the elements, evolution and biodiversity, humankind and civilisation, and overall management of the planet. Within these sections topics as various as global warming, environmental security, new technologies, pollution, energy supply and resources, nuclear power, food supply, freshwater supplies, conflicts over resources, energy efficiency, biodiversity as a resource, biodiversity loss, conservation, habitat degradation, desertification, human potential, cities, labour, world markets, globalisation, the emergence of China, poverty, urban regeneration, wars and terrorism, and the way forward are covered. This is an amazingly well illustrated guide for our survival in the future and provides a very broad overview of the subject.



The Weather Makers: The History and Future Impact of Climate Change
Author: Tim Flannery
ISBN-10: 0-713-99921-7
Available from: Penguin Group at www.penguin.com
Price: £15.00

Some may consider it bizarre that an English family recorded the dates of the first annual frog and toad croaks on their estate from 1736 to 1947, but it is natural history observations like these, made over decades, which reveal the immense scale of the changes underway.

Flannery, a zoologist by profession, and rated by Attenborough to be '*in the league of the all-time great explorers*' has produced a very readable book. Beginning with a trip back in time he reviews the work of the scientists trying to explain the workings of the weather; he considers the powerful agents of change – shifting continents, cosmic collisions and climate change – that have driven evolution. In reviewing the science of climate change he demonstrates how the diversity of the world's ecosystems is being diminished. Using a huge breadth of sources and new evidence he journeys through time and from mountain top to ocean depths, analysing the changes that have created imbalances with their far reaching effects. Solutions to the pressing issues of climate change are offered, but from the 'afterword' it is evident that what is required in certain quarters it is still not just new solutions but new mindsets!



Ethnography of Protected Areas – Endangered Habitats, Endangered Cultures
Editor: Peter Simoni
ISBN-10: 961 237 150 4
Available from: University of Ljubljana, Slovenia

This text centres on the idea that people, specifically indigenous peoples, should be integrated into, rather than excluded from, protected areas and that these peoples' cultures are just as endangered as the habitats that they live in. In Asia, Africa and America ethnic groups continue to try to persuade the international community that they want to be involved in the management of these protected areas – their homelands. The book is a collection of papers given at a symposium in Slovenia in 2003 on *Ethnography of Protected Areas – Endangered Habitats, Endangered Cultures* prior to the country increasing its protected land area from 8% to almost 30%. Presentations were given by representatives from countries as diverse as Slovenia, Scotland, Jamaica, Spain, Tanzania, Bangladesh, Nepal and the Netherlands. The papers present not only the problems of local populations associated with protected areas but also possible solutions of how to overcome them. The book covers five broad areas: legislation, landscape, diversity, subsistence, and management. Between them these areas cover such topics as conventions, public awareness, centralisation, cultural resources, collaboration, local mythology and politics, social capital, genetic diversity protection, war, biophysical and socio-economic elements, industry, farming, advocacy and dependency, tradition and modernity, consumptive use, community based management, sustainable development, tourism, war and security.

Change in British Flora 1987-2004
Authors: M.E. Braithwaite, R.W. Ellis and C.D. Preston
ISBN-10: 0901158348
Available from: Botanical Society of the British Isles (www.bsbi.org.uk)

This new survey of the British flora repeats the survey of the *New Atlas of the British and Irish Flora 2002* but instead of 10 km squares this survey has used 2 km squares to gain a better spatial scale. The study is also over a shorter period of time. The key objective of the survey was to measure distribution changes between 1987 and 2004 in the individual British floral species, but it also looks at plant changes in Broad Habitat groups and investigates the possible causes for these changes. 811 tetrads were surveyed in 1987-88 in a regular grid across Britain, of these, 761 (94%) were visited again in 2003-04, and of these, 635 (78%) yielded sufficiently comparable data suitable for analysis. The survey shows that a third of Britain's native floral species are showing significant changes. This finding emphasizes the importance of monitoring and up-to-date understanding and conservation plans in the present atmosphere of climate change and global development.

Tauro-Scatology Fashion Advice

***In Practice* readers may be surprised to know that they have something in common with readers of *Glamour* magazine. A few months back, *Glamour* ran an article in which Victoria Beckham gave her top ten style commandments. Never one to miss an opportunity Basil O'Saurus, our very own Professor of Tauro-Scatology, has come up with some fashion tips for ecologists. Take it away, Prof…**

Thank you. I must confess my huge debt to Mrs Beckham, whose advice really cannot be bettered. Look at her first tip: 'visualise your look'. What is the look that you are trying to achieve on a particular day?

Er … I think that I probably speak for most ecologists when I say that I don't give a hoot about appearance, so long as I am warm and dry when I'm out doing fieldwork on a blasted heath in the middle of winter.

OK … let's run with that. What do you see?

Old sweater, cagoule, overtrousers, woolly hat, walking boots …

I'm sure that Victoria Beckham would approve. Now, let's try a different scenario: a meeting with a client. How do you visualise your appearance now?

I'll go for the, 'I'd rather be out in the field than here talking to you' look, - take off the overtrousers and woolly hat, but otherwise it's the same clothes as before.

OK. Final scenario: you are a first year female undergraduate at a prestigious university in North-east England on a fieldtrip to sand dunes in October. What do you visualise?

Short skirt, bare legs, slouch boots?

Obviously. I think we've milked that one, so let's move onto the next of Victoria's tips: 'dress from the inside out'. Deep and enigmatic, bordering on the Gnostic. Fashionistas have spent hours dwelling on the myriad possible meanings but, I think, she was suggesting that you put your underpants on before your trousers, not after.

… unless you are going for the 'Superman' look.

That goes without saying. Then, la Beckham went on to say that we should borrow from another era. She suggested the 1950s, which is a licence to drag an old tweed jacket with leatherette elbow patches out of the wardrobe for those days when you are meeting a client. But, I feel that there is an alternative interpretation.

What's that?

Much easier to fulfil: I can borrow from another era simply by putting my hand right to the back of my chest of drawers and pulling out a Bob Dylan 1981 World Tour T-shirt. Somewhat faded, but perfectly serviceable. It also overlaps with another of her commandments: 'invest in timeless classics'.

You're giving your age away, Prof. Anymore tips to pass on?

Plenty more. How about 'accessorize'. Just as Her Poshness needs the right handbag, sunglasses and shoes to complete an outfit, so an ecologist must never stint on the accessories. A perennial favourite is a handlens hanging on a piece of string around the neck. An old Berghaus rucksack is another failsafe, or 'timeless classic' as Victoria would prefer. And a large, shatterproof vacuum flask full of strong black coffee, to keep you going during long days on blasted heaths. But that brings me onto one point where I disagree with Victoria.

What is that?

She said 'don't let it all hang out', meaning, I think, don't display too much cleavage and too much leg at the same time. It's sexier, she says, to leave a little to the imagination.

What's wrong with that?

Nothing, in principle. But, for the aquatic ecologist, the combination of cold weather, strong black coffee and the sound of running water can be fatal so you must, despite your many layers of thick undergarments, overtrousers and cagoules, make sure that you can let a little bit of you hang out if the need arises.

Sage advice, Prof. Have you finished yet?

Almost. She also suggested that we invest in a comfort garment for 'off' days. I think that she was thinking of a baggy jumper to disguise sudden weight gain. I pondered the applicability of this to ecologists long and hard and finally came to the conclusion that our entire wardrobes fit the bill so what we really need to do is take the opposite approach and invest in one smart outfit. This means that when your boss really gets on your nerves you can go home, open the wardrobe door and know that you can apply for another job without having to worry about an interview suit.

Of course. I'm sure that all *In Practice* readers are not only exceedingly grateful for your fashion tips and many of us would like to read more.

No problem. You can invest in a copy of my new book.

What's it called?

Urbane Ecology.

But of course. Thanks again, Prof.

In the Journals

Compiled by Jim Thompson and Jason Reeves

British Ecological Society

P. Manning, P.D. Putwain and N.R. Webb.
Formulating a general statistical model for *Betula* spp. invasion of lowland heath ecosystems.
Journal of Applied Ecology 2005, **42**: 1031-1041.
Numerous studies describe thresholds at which transitions between alternate ecosystem states occur but few quantitatively delimit these conditions and present them in simple frameworks that are of use in ecosystem management.
Multi-site experimental manipulations were conducted to assess whether a consistent set of factors limited the recruitment of *Betula* species into heathland vegetation.
The identity of the factors controlling *Betula* colonization, which include *Betula* seed bank density, phosphorus (P) availability and disturbance effects, were broadly similar between sites, but the strength of their effect varied widely. The general model described *Betula* seedling densities as a function of biomass and necromass density, vegetation height, *Betula* seed bank density, P availability and soil water content.
The results suggest that heaths close to seed sources and in the degenerate state of the dwarf shrub cycle are the most vulnerable to invasion, and management should target such sites as a priority. At regional scales, these conditions are probably most common in high soil phosphorus sorption capacity areas, where management should be prioritized.
Correspondence: e-mail p.manning@imperial.ac.uk

Heather and birch

J. Müllerová, P. Pyšek, V. Jarošík and J. Pergl.
Aerial photographs as a tool for assessing the regional dynamics of the invasive plant species *Heracleum mantegazzianum*.
Journal of Applied Ecology 2005, **42**: 1042-1053.
The initiation of an invasion event is rarely dated in studies of alien plants. Data from aerial photographs documenting the invasion from the outset facilitate the quantification of the rate of spread, allowing researchers to analyse species' population dynamics and providing a basis for management.
For 10 sites invaded by *Heracleum mantegazzianum* in the Slavkovský les, Czech Republic, aerial photographs from 11 sampling dates between 1947 (before invasion started) and 2000 were analysed. The area covered by the invader was measured in a 60-ha section of landscape, and information obtained on invaded habitats, year of invasion, flowering intensity and structure of patches.
Pastures and fields contributed 84.7% to *Heracleum* total cover, forest and scrub 13.7% and human settlements 1.6% at the later stage of invasion. As invasion proceeded, the populations spread from linear habitats to the surrounding landscape. The mean rate of aerial spread was 1261 m^2 $year^{-1}$ and that of linear spread 10.8 m $year^{-1}$. Flowering intensity did not exhibit any significant trend over time.
The strong effect of the rate of spread on the invaded area indicates that local environmental conditions hardly limit the spread of *Heracleum*. Knowledge gained from aerial photographs allows managers to identify dispersal foci and to focus control efforts on linear landscape structures with developing populations. Knowledge of the rate of spread and habitat vulnerability to invasion facilitates the identification of areas at highest risk of immediate invasion.
Correspondence: e-mail pysek@ibot.cas.cz

O. Schweiger, J.P. Maelfait, W. Van Wingerden, F. Hendrickx, R. Billeter, M. Speelmans, I. Augenstein, B. Aukema, S. Aviron, D. Bailey, R. Bukacek, F. Burel, T. Diekötter, J. Dirksen, M. Frenzel, F. Herzog, J. Liira, M. Roubalova and R. Bugter.
Quantifying the impact of environmental factors on arthropod communities in agricultural landscapes across organizational levels and spatial scales.
Journal of Applied Ecology 2005, **42**: 1129-1139.
In landscapes such as intensive agriculture, knowledge of the relative importance and interaction of environmental factors on the composition and function of local communities across a range of spatial scales is important for maintaining biodiversity.
The authors analysed five arthropod taxa covering a broad range of functional aspects (wild bees, true bugs, carabid beetles, hoverflies and spiders) in 24 landscapes (4 × 4 km) across seven European countries along gradients of both land-use intensity and landscape structure. Species–environment relationships were examined in a hierarchical design of four main sets of environmental factors (country, land-use intensity, landscape structure, local habitat properties) that covered three spatial scales (region, landscape, local).
Local community composition and the distribution of body size classes and trophic guilds were most affected by regional processes, which highly confounded landscape and local factors. After correcting for regional effects, factors at the landscape scale dominated over local habitat factors. Land-use intensity explained most of the variability in species data, whereas landscape characteristics (especially connectivity) accounted for most of the variability in body size and trophic guilds.
The results suggest that management effort should be focused on land-use intensity and habitat connectivity in order to enhance diversity in agricultural landscapes. Since these factors are largely independent, specific conservation programmes may be developed taking into account socio-economic and agri-environmental requirements. Changes in either of these factors will enhance diversity but will also result in specific effects on local communities related to dispersal ability and the resource use of species.
Correspondence: e-mail oliver.schweiger@ufz.de

J.M. Holland, C.F.G. Thomas, T. Birkett, S. Southway and H. Oaten.
Farm-scale spatiotemporal dynamics of predatory beetles in arable crops.
Journal of Applied Ecology 2005, **42**: 1140-1152.
The spatial dynamics of farmland invertebrates can provide essential information relevant to their management for pest control and biodiversity conservation in sustainable agriculture. Carabid beetles are one of the most important groups contributing to biological control in arable fields. This study examined their larger scale, long-term dynamics, thereby taking into account the impact of changes in crop rotation and the influence of field size.
The spatial distributions of four beetle species were investigated in a grid of 973 pitfall trap locations across six fields encompassing 64 ha of arable land. Week-long trapping was conducted four times in the first year and twice in the two following years.
All species showed strong aggregation but the size and location of patches differed among species. The distribution of *Pterostichus melanarius* was stable within and between years, with a single large patch close to the field boundaries. Patches of *Poecilus cupreus* were also located close to field boundaries but their location changed between years. *Pterostichus madidus* and *Philonthus cognatus* distributions extended across field boundaries and

were less stable, with patch locations changing between years.
The spatial extent of a population patch for a given species was species-specific. Species overwintering in field boundaries remained in proximity to these throughout the summer, whereas patches of mid-field overwintering species were more extensive. Patches were generally stable within years but varied for some species between years. Species therefore differ in their response to crop management practices and consequently blanket management approaches for these important generalist predators of crop pests are inappropriate. Operations that deplete populations, *e.g.* soil cultivations, should be spatially and temporally desynchronized at the farm-scale to conserve populations and enable functional biocontrol.
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N.W. Sitati, M.J. Walpole and N. Leader-Williams.
Factors affecting susceptibility of farms to crop raiding by African elephants: using a predictive model to mitigate conflict.
Journal of Applied Ecology 2005, **42**: 1175-1182.
Crop raiding by African elephants *Loxodonta africana* erodes local tolerance for elephants and thereby impedes conservation efforts. Within conflict zones, crop raiding varies and may relate to local physical or geographical factors, or to farmers' efforts to defend their fields.
In a comparative survey of raided and non-raided farms in Transmara District, Kenya, the authors explored a range of factors affecting the susceptibility of farms to elephant crop raiding and the amount of crop damage once elephants had entered a field.
The results revealed that farms that had been habitually raided in the past were more likely to be raided during the study period, as were those that were larger and bordered by hedges or fences. Greater guarding effort increased the likelihood that elephants were detected prior to entry and decreased the likelihood of successful crop raiding, as did the use of fire and noise. Larger farms used more advanced barrier methods at the expense of guarding effort. Farmers' efforts did not appear to diminish the damage inflicted once elephants had entered a field.
A subsequent experimental test confirmed these results; the application of enhanced early warning and guarding effort on previously raided farms reduced incidents of crop raiding by 89.6% over 2 years in comparison with a control group of farms.
Early detection of elephants approaching fields, increased guarding effort, and the use of active deterrents could form the basis of an effective mitigation strategy regardless of location and the physical attributes of a farm.
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Wild boar

C. Bieber and T. Ruf.
Population dynamics in wild boar *Sus scrofa*: ecology, elasticity of growth rate and implications for the management of pulsed resource consumers.
Journal of Applied Ecology 2005, **42**: 1203-1213.
This paper reports on investigations of the population dynamics of wild boar *Sus scrofa*, to assist the development of effective management strategies for this and possibly for other pulsed resource consumers. This paper has to be seen more in the context of mainland Europe where the wild boar is becoming something of a pest.
The authors analysed published papers looking at vital rates under poor, intermediate and good environmental conditions representing combinations of differences in food availability (particularly mast of beech *Fagus sylvatica* and/or oak *Quercus* spp.) and winter climate.
Adult survival was highest in poor environments and juvenile survival was highest under good conditions. Thus juvenile survival becomes increasingly important for population growth as habitat conditions improve.
Modelling different beech mast scenarios showed that an increase in full mast frequency will lead to a rapid increase in population growth rate. The availability of alternative food resources, namely agricultural crops, may also contribute to an expansion of wild boar populations.
For wild boar the authors suggest the following measuresto stop further population increases: (i) supplementary feeding should be strictly avoided; (ii) under good environmental conditions, reducing juvenile survival will have the largest effect on population growth rate, whereas strong hunting pressure on adult females will lead to most effective population control in years with poor conditions.
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R. Woodroffe, C.A. Donnelly, D.R. Cox, F.J. Bourne, C.L. Cheeseman, R.J. Delahay, G. Gettinby, J.P. McInerney and W.I. Morrison.
Effects of culling on badger *Meles meles* spatial organization: implications for the control of bovine tuberculosis.
Journal of Applied Ecology 2006, **43**: 1-10.
The incidence of bovine tuberculosis (TB) in British cattle has risen markedly over the last two decades and this has been linked to European badgers *Meles meles*. In the context of the debate over badger culling, a recent large-scale randomized field experiment found that TB incidence in cattle was no lower in areas subject to localized badger culling than in nearby areas where no experimental culls occurred. Analyses indicated that cattle incidence was higher in culled areas.
One hypothesis advanced to explain this pattern is that localized culling disrupted badgers' territorial behaviour, potentially increasing the rate of contact between cattle and infected badgers. This study evaluated this hypothesis by investigating badger activity and spatial organization in 13 study areas subjected to different levels of culling.
Badger home ranges were consistently larger in culling areas. This study demonstrates that culling badgers profoundly alters their spatial organization as well as their population density. These changes have the potential to influence contact rates between cattle and badgers, both where culls occur and on adjoining land. These results may help to explain why localized badger culling appears to have failed to control cattle TB, They should be considered in relation to badger culling in future control strategies.
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R. Eschen, H. Müller-Schärer and U. Schaffner.
Soil carbon addition affects plant growth in a species-specific way.
Journal of Applied Ecology 2006, **43**: 35-42.
Restoration of ex-arable land to species-rich habitats has become common practice in Europe as a result of Agri-Environment Regulations. Competition from weedy species as a result of high soil inorganic nitrogen levels can negatively affect the establishment and growth of desirable grassland plant species. One method that has been put forward to alter competitive interactions among plant species on restoration sites is the addition of carbon (C) to the soil.
The authors presented results of a greenhouse study to assess the species-specific responses of 29 plant species to a range of C volumes added to the soil.
Amending soil with increasing levels of C resulted in biomass accumulation of all plant species tested, but the responses varied significantly between the plant species. Functional group and life form explained a significant amount of variation. The response of legumes to C addition was less pronounced. Grasses showed a decrease in shoot : root ratio in response to C addition, while the shoot : root ratio of legumes and forbs remained constant. A greater shoot biomass reduction in response to C addition was found for annual species than for perennial species.
The results suggest that adding C to soil is a promising tool in grassland restoration. C addition disproportionately reduced above-ground biomass accumulation by annual plant species and grasses, which often dominate early succession on ex-arable land.
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P.E. Hulme and E.T. Bremner.

Assessing the impact of *Impatiens glandulifera* on riparian habitats: partitioning diversity components following species removal.
Journal of Applied Ecology 2006, **43**: 43-50.
Impatiens glandulifera (Balsaminaceae) is a widespread invasive riparian weed, yet few quantitative assessments of its impact on natural vegetation exist. Replicated experiments were used to compare the impact of *Impatiens* removal on species richness, diversity and evenness in open riparian habitats in north-east England.
Plant community response to Impatiens removal was rapid, with a significant increase in seedling recruitment. The impact of *Impatiens* invasion was most marked for light-demanding species. Eight non-native species occurred in the community and these responded proportionally more to *Impatiens* removal than native species.
The approach adopted in this study highlights that although *Impatiens* reduces native species diversity in open and frequently disturbed riparian vegetation, many of the species negatively influenced by *Impatiens* are widespread ruderal species. Furthermore, management may lead to a compensatory increase in the abundance of other non-native species and thus fail to achieve desired conservation goals.
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F. van de Meutter, R. Stoks and L. de Meester.
Rapid response of macroinvertebrates to drainage management of shallow connected lakes.
Journal of Applied Ecology 2006, **43**: 51-60.
Shallow lakes throughout the world are subject to drainage, either for fish harvesting or lake restoration. Lake drainage of fish lakes is known to improve macrophyte and zooplankton diversity, but the effect on the macroinvertebrate community is poorly known.

Shallow lake

The authors investigated temporal trends in the macroinvertebrate community following drainage of six shallow connected lakes. Diversity increased for all macroinvertebrates. Recolonization of the lakes occurred within the first year after the drainage and was supplemented with a set of species that were previously rare or did not occur in the lakes. Changes in the abiotic conditions of the lakes were small and transient, except for the decline in fish. The rapid recolonization by the species occurring before drainage is attributed to the high connectivity of the system studied.
Lake drainage has a positive effect on the diversity and richness of macroinvertebrates in shallow connected lakes. This positive effect may be due to a decline in fish predation following lake drainage in combination with a high rate of recolonization among others via connections to non-drained lakes. Lake drainage, therefore, is probably the most cost-effective lake restoration tool in shallow connected lakes.
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A. Gårdmark, N. Jonzén and M.Mangel.
Density-dependent body growth reduces the potential of marine reserves to enhance yields.
Journal of Applied Ecology 2006, **43**: 61-69.
Some models of marine no-take reserves predict that reserves can enhance fishery yield. However, empirical evidence of this remains inconclusive. One reason for this may be the disregard for density-dependent body growth in most models. Density-dependent body growth links the number and size of individuals, and thus could influence the biomass of fishery yield.
The authors developed an age- and size-structured model of an exploited population and analysed the effect of implementing a no-take reserve of varying size.
Protecting part of a population from exploitation in a no-take reserve results in a rapid build-up of biomass inside the reserve because of increased survival. However, when body growth is density-dependent it also results in reduced length at a given age within the no-take reserve because of crowding effects. This prediction is backed up by empirical observations.
When body growth is density-dependent, implementation of no-take reserves affects the body size of both protected and exploitable individuals. Although reserves can have several benefits besides increasing yields, the study showed that, if density-dependent effects are important, a general increase in yield biomass cannot be expected. In populations with density-dependent body growth, reserves are more likely to decrease yield biomass unless the population is severely overexploited. Analyses of the efficiency of marine reserves as a means of enhancing the yield of fisheries need to account for ecological processes, and density-dependent body growth is likely to be key.
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D. Pont, B. Hugueny, U. Beier, D. Goffaux, A. Melcher, R. Noble, C. Rogers, N. Roset and S. Schmutz.
Assessing river biotic condition at a continental scale: a European approach using functional metrics and fish assemblages.
Journal of Applied Ecology 2006, **43**: 70-80.
The need for sensitive biological measures of aquatic ecosystem integrity applicable at large spatial scales has been highlighted by the implementation of the European Water Framework Directive. Using fish communities as indicators of habitat quality in rivers, the authors developed a multi-metric index to test our capacity to (i) correctly model a variety of metrics based on assemblage structure and functions, and (ii) discriminate between the effects of natural vs. human-induced environmental variability at a continental scale.
Information was collected for 5,252 sites distributed among 1,843 European rivers. Data included variables on fish assemblage structure, local environmental variables, sampling strategy and a river basin classification based on native fish fauna similarities accounting for regional effects on local assemblage structure. 10 metrics were selected and combined to obtain a European fish assemblage index. When considering only minimally disturbed sites the index remains invariant, regardless of environmental variability but shows a significant negative linear response to a gradient of human disturbance.
From this the authors developed a fish biotic index transferable between catchments at the European scale.
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J.D. Hart, T.P. Milsom, G. Fisher, V. Wilkins, S.J. Moreby, A.W.A. Murray and P.A. Robertson.
The relationship between yellowhammer breeding performance, arthropod abundance and insecticide applications on arable farmland.
Journal of Applied Ecology 2006, **43**: 81-91.
The UK population of yellowhammers has declined since the mid-1980s. Concurrent increases in the use of pesticides are believed to have reduced the availability of food resources for farmland birds, including yellowhammers. The authors studied nesting yellowhammers on a lowland arable farm in North Yorkshire between 2001 and 2003, to examine the effects of food abundance on breeding success and the effects of insecticide on food abundance. Arthropod abundances around individual nests were sampled and the timing and location of insecticide applications were recorded.
Nestling condition and mass on day six after hatching were positively correlated with the abundance of arthropods important in the diet of nestling yellowhammers. Greater mean body mass and condition corresponded with a lower incidence of brood reduction.
The abundance of arthropods important in the diet of nestling yellowhammers increased between mid-May and the end of July. However, arthropod samples collected within 20 days of an insecticide application were depressed at levels likely to affect yellowhammer breeding performance adversely.
The authors provide data that enables predictions to be made about the probable population effects of particular pesticide products. If the risk of indirect effects can be predicted accurately then appropriate mitigation and compensation measures could be incorporated into pesticide regulatory procedures and/or agri-environment schemes.
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M. Klaassen, S. Bauer, J. Madsen and I. Tombre.
Modelling behavioural and fitness consequences of disturbance for geese along their spring flyway.
Journal of Applied Ecology 2006, **43**: 92-100.
For migratory birds the implications of environmental change may be difficult to predict because they use multiple sites during their annual cycle. Along the flyway of the Svalbard pink-footed goose *Anser brachyrhynchus* population, Norwegian farmers use organized scaring to minimize use of their grasslands in spring, by geese. The authors assessed the consequences of this practice for regional site use of pink-footed geese along their spring migration route.
The authors created a model which showed the effect of scaring in terms of fitness and site use was most noticeable on food-intake rate. Scaring resulted in a redistribution of geese along the flyway. On a qualitative basis there was good correspondence between the predictions from the model and the empirical evidence gathered to date.
Besides highlighting the importance of learning and changing behaviour in an adaptive fashion, the modelling exercise indicated the potential vulnerability of the geese to abrupt environmental change. In addition, the exercise emphasized the interdependence of site use along the migratory flyway. The model supports the necessity for an integrated flyway management approach which in Norway, where the work was carried out, is now being addressed.
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E. Knop, D. Kleijn, F. Herzog and B. Schmid.
Effectiveness of the Swiss agri-environment scheme in promoting biodiversity.
Journal of Applied Ecology 2006, **43**: 120-127.
Increasing concern over the loss of biodiversity in agricultural landscapes was one of the reasons for the introduction of agri-environment schemes in Europe. But only a limited number of studies evaluating their ecological effects have been published. The authors assessed the effect of the Swiss agri-environment scheme that was designed to maintain and increase species richness in hay meadows. In Switzerland, hay meadows under this agri-environment scheme (ECA hay meadows) are the most widely adopted environmental measure to conserve biodiversity.

Bumble bee

They tested whether meadows under the agri-environment scheme had higher species richness and species evenness than control meadows, whether species richness and species evenness were higher in the centre than at the edge of meadows, and whether these effects differed between geographical regions.
Biodiversity was sampled in 42 hay meadows in three different regions comparing ECA hay meadows with conventionally managed hay meadows. Biodiversity was estimated by assessing species richness and species evenness of four taxonomic groups representing different trophic levels: vascular plants, grasshoppers, wild bees and spiders.
Species richness of vascular plants, grasshoppers and wild bees was significantly higher on ECA hay meadows than on control meadows, but species richness of spiders did not differ. Species evenness was significantly higher on ECA hay meadows than on control meadows for plants and bees but not for spiders and grasshoppers.
The species richness of vascular plants and spiders was higher at the edge than in the centre of both ECA and control meadows, suggesting a more extensive management in the meadow edges and a high species exchange between adjacent habitats for these two groups.
The measures taken in relation to spiders pointed to the need to manage vegetation structure more actively such as by varying cutting frequency.
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C. Heiri, H. Bugmann, W. Tinner, O. Heiri and H. Lischke.
A model-based reconstruction of Holocene treeline dynamics in the Central Swiss Alps.
Journal of Ecology 2006, **94**: 206-216.
Historical changes in treeline altitude and composition have been used to investigate evidence of previous climate changes. In this paper the authors used the forest succession model ForClim to simulate Holocene treeline dynamics along an elevational transect in the Central European Alps.
The simulation results were compared with Holocene pollen and macrofossil records from a nearby site close to the present-day treeline. The results yielded treeline fluctuations of about ± 100 m (2,375–2,600 m a.s.l.).
The simulated changes in species composition and treeline position show general agreement with palaeobotanical data between 11,000 and 4,500 years BP. In the late Holocene, however, palaeobotanical evidence indicates a distinct lowering of the treeline, while simulation projected continuous forest cover up to an altitude of 2,400 m a.s.l.
The results indicate that changes in temperature alone can account for changes in treeline elevation for the first half of the Holocene. The discrepancy between simulation results and palaeobotanical records since 4,500 cal. BP suggests strong human influence on the Alpine treeline during the late Holocene.
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J. Ghazoul.
Floral diversity and the facilitation of pollination.
Journal of Ecology 2006, **94**: 295-304.
Not to put a too anthropogenic slant on this paper but would you be attracted to a meadow with a mass of flowers of different species or just a few? It has been suggested that Multiple-species floral displays facilitate pollination by attracting a greater number and/or diversity of pollinators. This paper provides confirmation of pollination facilitation among co-flowering plants that have morphologically distinct flowers.
Pollinator visits to *Raphanus raphanistrum*, increased when it occurred with one or a combination of *Cirsium arvense*, *Hypericum perforatum* and *Solidago canadensis* than when it occurred alone. This was also reflected by increased seed production.
Facilitative effects in pollination were conditional on the density and evenness of the floral mixture and graded into competition as the relative abundance of *R. raphanistrum* declined in a two-species mixture.
Previously proposed mechanisms for facilitative interactions cannot explain facilitation among florally distinct plant displays. An alternative mechanism of differential but complementary floral rewards is proposed to explain facilitative attraction of pollinators.
Facilitation of, and competition for, pollination has implications for regeneration by seed of rare or isolated plants, and of mitigating Allee effects that afflict such populations.
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J.Bennie, M. O. Hill, R.Baxter and B.Huntley.
Influence of slope and aspect on long-term vegetation change in British chalk grasslands.
Journal of Ecology 2006, **94**: 355-368.
In terms of climate change there have been earlier studies on aspect and slope and how these relate to shifts in latitude.
To assess long-term vegetation change in British chalk grasslands, 92 plots first surveyed by F. H. Perring in 1952–53, and distributed across four climatic regions, were re-surveyed during 2001–03. Changes in vegetation since the original survey were assessed by comparing local colonization and extinction rates at the plot scale, and changes in species frequency at the subplot scale.
Across all four regions, there was a significant decrease in species number

and a marked decline in stress-tolerant species typical of species-rich calcareous grasslands, both in terms of decreased plot occupancy and decreased frequency within occupied plots. More competitive species typical of mesotrophic grasslands had colonized plots they had not previously occupied, but had not increased significantly in frequency within occupied plots.

A significant increase in Ellenberg fertility values was found across all regions. The magnitude of change of fertility and moisture values was found to decrease with angle of slope and with a topographic solar radiation index derived from slope and aspect.

The observed shift from calcareous grassland towards more mesotrophic grassland communities is consistent with the predicted effects of both habitat fragmentation and nutrient enrichment. It seems that chalk grassland swards on steeply sloping ground are more resistant to invasion by competitive grass species than those on flatter sites due to phosphorus limitation in shallow minerogenic rendzina soils, and that those with a southerly aspect are more resistant due to increased magnitude and frequency of drought.

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R.W. Brooker, D. Scott, S.C.F. Palmer and E. Swain.

Transient facilitative effects of heather on Scots pine along a grazing disturbance gradient in Scottish moorland.

Journal of Ecology 2006, **94**: 637–645.

Facilitation between neighbouring plants can promote species survival and regulate community composition. However, the role of facilitation varies along environmental severity gradients. It is important to understand the shape of this relationship to improve our ability to predict the impact of a changing environment on biodiversity.

The authors used Scots pine saplings growing within heather to examine the shape of the relationship between facilitative interactions (protection from browsing) and the severity of the environment (deer browsing intensity). They also investigated whether protection from browsing translated into a biomass response of saplings.

Scots Pine

In the first winter following planting heather had a facilitative effect on saplings by reducing the probability of browsing. This effect was strongest at intermediate deer browsing intensities. But protection from browsing did not lead to longer-term biomass gains for the saplings. The competitive effects of heather on sapling growth therefore outweighed the beneficial effects of protection from browsing.

These results provide much-needed information on the shape of the severity–interactions relationship with respect to a key natural disturbance phenomenon (herbivory), and demonstrate that an observable interaction relationship does not necessarily translate into a biomass response.

This illustrates the potential difficulty that would be associated with using shelter effects of heather as a management tool to promote Scots pine regeneration.

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A.R.E. Sinclair and A.E. Byrom.

Understanding ecosystem dynamics for conservation of biota.

Journal of Animal Ecology 2006, **75**: 64-79.

The goal of ecosystem conservation is the long-term persistence of the biota in the system. Species decline because of a multitude of factors and the conservation of species can be affected by higher-order emerging properties in ecosystems.

The study looked at food webs and intertrophic interactions, community features and conservation strategy, multiple states, disturbance, scale effects, ecosystem processes, ecosystem conservation, emerging properties of ecosystems and their consequences for conservation, and reconstituting ecosystems (with the aid of many examples) in order to facilitate a better understanding of ecosystem dynamics.

The composition of the biota in an ecosystem influences the processes in that system and disturbances to the biota can alter processes and functions. This can in turn endanger individual species.

There are two conservation concepts, community-based conservation (CBC) and protected area conservation, and both have their advantages but neither is sufficient to protect the biota on its own. CBC is needed to conserve the majority of the world's biota not included in protected areas. Unfortunately current CBC methods favour a few particular species, distort the species complex, and ignore the majority. Protected areas are essential to conserve species unable to coexist with humans and are also used as ecological baselines to monitor the effects of humans. However, protected areas suffer from loss of habitat through degradation of critical areas and therefore habitat renewal is necessary in order to maintain the long-term existence of biota in functioning ecosystems.

Ecosystem conservation should take into account the complex, non-linear interactions and processes that determine the dynamics of the system and the two approaches, CBC and protected areas, are both required in certain contexts but more comprehensive methods are required to meet the goal of ecosystem conservation.

The study suggests two priorities for ecosystem research in the future: identification of minimum habitat areas, and ecosystem restoration.

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Z.G. Davies, R.J. Wilson, S. Coles and C.D. Thomas.

Changing habitat associations of a thermally constrained species, the silver-spotted skipper butterfly, in response to climate warming.

Journal of Animal Ecology 2006, **75**: 247-256.

This study looked at the change in habitat choice and usage due to climate change of the grassland butterfly *Hesperia comma* over a 20-year period in southern England (the north-western edge of the species' distribution).

Between 1982 and 2001–2, the optimum percentage of bare ground used for egg laying changed from 41% to 21%. Egg-laying rates are temperature-dependent and females actively adjust the use of microhabitats in response to temperature variations; relatively warmer host plants are chosen for oviposition at low ambient temperatures, and cooler host plants at high ambient temperatures.

Species in the temperate zones of the northern hemisphere are often restricted at their northern boundaries to warm microhabitats such as sheltered south-facing hillsides but climate warming at the northern edge of *H. comma*'s distribution has increased the availability of suitable habitat and thus increased the egg-laying rate, potential population, area of habitat patches, and number of habitat patches, and also buffered populations against environmental variation. Management of these northern edge habitats often aims to protect and maintain specific microhabitats because it is assumed that the habitat requirements of a species are constant. Habitat management for *H. comma* no longer needs to be as intensive as it has been in the past and conservation efforts should rather be channelled into maintaining heterogeneous sites that will also benefit other species.

Conservationists must be aware that habitat choice in many species is likely to change with climate warming and that dynamic habitat management will be essential.

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News in Brief

Wild Boar Consultation Response Analysis
The Defra consultation on the status of feral wild boar in England, which closed in January, will help inform any future policies on wild boar. Of the 248 respondents 80% agreed to active management of wild boar, 43.9% to eradication, 30.7% to management options short of eradication including regional control and preventing the establishment of new populations, and 56.1% did not want feral populations eradicated.

Wildlife Trust Buys Welsh Island
The Wildlife Trust of South and West Wales (WTSWW) has bought the 247-acre island of Skokholm off the coast of Pembrokeshire. The island has been managed by WTSWW for the past 50 years and is an SSSI and an SAC important to seabirds, whales and seals.

Crackdown on Enviro-Crime
In April this year the Clean Neighbourhoods and Environment Act came into force. The new Act will enable local authorities to issue fines for offences such as fly-tipping, distributing flyers or leaflets, and light pollution from residents and businesses, but the Act will also cover offences like litter-dropping, graffiti, failing to clean up dog's mess, abandoned vehicles and trolleys, and leaving alarm bells ringing.

Marsh Harriers Defy Extinction
In 1971 there was just one pair of marsh harriers in the UK. Results from a 2005 survey by the RSPB and English Nature show that there are now 360 breeding females in England and Scotland and that the birds are also now nesting outside of protected areas. The main reasons for the population increase are the reduced use of agricultural pesticides and the recreation of suitable wetlands.

New Discoveries
A new genus of monkey has been found in the highlands of Tanzania – *Rungwecebus kipunji* (known locally as a Kipunji) which has a distinctive Mohawk, is grey/brown in colour, is thought to number less than 1,000 individuals, and its closest genetic relations are the baboons. A prehistoric ecosystem has been discovered in Israel – an underwater cave thought to have been isolated for five million years was uncovered during drilling at a quarry near Tel Aviv. Eight previously unknown invertebrate species including a white shrimp-like crustacean and a blind scorpion-like creature have been found so far.

New Director for Kew Gardens
The Royal Botanic Gardens Kew have announced a new director. Professor Stephen Hopper is currently Foundation Professor of Plant Conservation Biology at the University of Western Australia, and was previously the Director of Kings Park and Botanic Garden, Perth. Professor Hopper will take up his new position in October this year from Professor Sir Peter Crane who will be leaving Kew after seven years to return to his native Chicago as a Professor at the University of Chicago.

Deep-Sea Fish Population Boom
Researchers in the United States, led by University of Aberdeen postdoctoral fellow David Bailey, have undertaken a first-of-its-kind study into the fish populations of the vast plains of the deep ocean. The scientists found a three-fold increase in fish abundance of the deep-sea fish populations studied. The 15-year study of the eastern North Pacific Ocean provides a unique insight into the behaviour of fish populations that are not disturbed by humans, as these populations are not commercially fished. The study is hoped to provide information on how communities work when they are not affected by human exploitation.

Nuclear Power Back on the Agenda
Tony Blair has pre-empted the Energy Review Report by strongly suggesting that nuclear power is back on the agenda. CBI Director-General Sir Digby Jones has backed the Prime Minister saying that the Government must make brave decisions and look to the long-term future of the country.

Organic Entry Level Stewardship Booms in the West Country
Applications for Organic Entry Level Stewardship (OELS) agreements have reached the 1,000 mark. Over 300 of these applications are in the South West and over half of these are in Devon and Cornwall.

Help Needed with the 2006 Swift Survey in the Cairngorms
The Cairngorms Biodiversity Officer is asking for help to record sightings and nest sites of swifts returning from southern Africa. The Swift's Nest Survey is being run again this year in order to help determine the cause in the decline in swift numbers in Scotland over the past ten years. A survey leaflet is available from Stephen Corcoran on 01479 870528 or e-mail step hencorcoran@cairngorms.co.uk.

New Regulations to Protect Birds
The Natural Environment and Rural Communities (NERC) Act came into effect at the end of May and gives increased protection to the golden eagle, white-tailed eagle and osprey by making it illegal to take, damage or destroy the nests of these birds at any time during the year. Previously the nests were only protected while in use or being built as stated in the Wildlife and Countryside Act 1981. All year protection is hoped to improve long-term breeding success.

Radical Activists Trigger Green Innovations
A study funded by the Economic and Social Research Council (ESRC) has shown that green idealists trigger innovations that help to move Britain in a more sustainable direction. The study examined wind energy, organic food and eco-housing, and found that although the original idealism wentbeyond what became mainstream they clearly influenced those mainstream activities. There is growing incentive for green technologies as Europe's eco-industries account for a third of the world market and 2% of the EU GDP. The sector also has an annual growth rate of 5%.

EC Proposes New Plan to Halt Biodiversity Loss
The European Commission has accepted a new communication setting out a new policy approach to halting the loss of biodiversity by 2010. The communication identifies four key policy areas (biodiversity in the EU, the EU and global biodiversity, biodiversity and climate change, and the knowledge base) and ten priority objectives in relation to these (addressing most important habitats and species, actions in the wider countryside and marine environment, making regional development more compatible with nature, reducing impacts of invasive alien species, effective international governance, support to biodiversity in international development, reducing negative impacts of international trade, adaptation to climate change, and strengthening the knowledge base). There are also four suggested supporting measures relating to adequate financing, strengthening EU decision-making, building partnerships, and promoting public education, awareness and participation.

Good Practice Guide for PPS9
Following the publication of PPS9 a good practice guide has been issued by the ODPM offering help and advice on how to incorporate biodiversity and geological conservation into planning decisions and development. The guide *Planning for Biodiversity and Geological Conservation: A Guide to Good Practice* is free to download from http://www.odpm.gov.uk/index.asp?id=1164839.

£20,000 Fine for Damaging Area of Special Scientific Interest
A farmer in County Fermanagh, Northern Ireland has been fined £20,000 for severely damaging 14 hectares of an ASSI by clearing woodland, draining grassland and agricultural improvement by reseeding. The farmer was found guilty on two counts of breaching the Environment (Northern Ireland) Order 2002 and in addition to the fine has been ordered to restore the site to its former condition at his own expense.

Defra Wild Bird Indicators for the English Regions 1994-2004
The population index of farmland birds between 1994 and 2004 has shown an increase in the North West, a decline in the South East and West Midlands, and little change in the rest of the country though with some evidence that farmland birds in the North East and Yorkshire and Humber are doing better than in the rest of the country. Over the same period woodland bird populations increased in the North West, Yorkshire and Humber, and East Midlands, declined in the South East, and showed little change in the rest of the country.

Prospective members of IEEM

IEEM is pleased to welcome applications for membership from the following:
If any existing member has any good reason to object to someone being admitted to the Institute, especially if this relates to compliance with the Code of Professional Conduct, they must inform the Executive Director by telephone or letter before 21st July, 2006. Any communications will be handled discreetly. The decision on admission is usually taken by the Membership Admissions Committee under delegated authority from Council but may be taken directly by Council itself.

APPLICATIONS FOR FULL MEMBERSHIP
Miss Jessica Arnold, Mr Frank W.E. Burlton, Mr Wayne F. Butler, Mr David Cadman, Mr Mark Champion, Miss Jessica Colebrook, Mr James B. Cooke, Mr Philip H. Davison, Mrs Michelle L. Delafield, Dr Sue Dent, Mrs Frances C. Eley, Dr Noranne E. Ellis, Dr Gavin J. Fennessey, Mr James D. Fisher, Mr Jonathan Ford, Miss Georgina Hammond, Ms Melanie Hardie, Miss Adela G. Hepworth, Mr Paul R. Howden-Leach, Mr David T. Hurst, Mr Mark G. July, Mr Barrington G. Kaufmann-Wright, Mr Brian Keeley, Dr Katherine M. Kelleher, Mr Steve Laurence, Mr Andrew D Law, Mr Martin R. Love, Mrs Cheryl M. Marriott, Mr Steven Miller, Ms Oonagh Nelson, Miss Chloe Palmer, Miss Alexis M.F. Pym, Dr Nigel J. Reeve, Mr Brian A. Spink, Mr Brian C.Y. Tam, Dr Craig S. Turner, Mrs Sophie J. Tweddle, Mr Steven Whitbread, Mr I. William Woodrow, Mrs Tamsin S.C. Wray-Williams, Mr Christopher J. Yardley

APPLICATIONS FOR ASSOCIATE MEMBERSHIP
Mr David Angel, Miss Phillippa L. Baron, Miss Rachel R. Bauld, Miss Lucy J. Bridgman, Mr Andrew J. Charles, Miss Leanne Cooke, Miss Katherine Cooper, Mrs Susan K. Cooper, Miss Karen Couper, Miss Sally M. Cowley, Miss Maria Di Monaco, Miss Anna E. Dudley, Miss Lucy J. Emery, Ms Colette M. Fardal, Mr Christopher Farmer, Miss Emma K. Fawcett, Mr David Ferguson, Miss Sarah E. Fielding, Mr Daniel Foster, Miss Penelope Foster, Mr Michael W. Holding, Miss Megan L. Hooper, Miss Hayley Jack, Mr Christopher R. Johnston, Mrs Gaynor M. Jones-Jenkins, Miss Rachel J. Kerr, Mr Hing Kin Lee, Miss Rachel L. Mayor, Miss Catherine Meaden, Mr Gavin Mullan, Mrs Marjorie Nadouce, Miss Victoria J. Naylor, Mr Clive Palmer, Miss Rachel M. Patemen, Mr James R. Pattenden, Dr Christopher J. Peppiatt, Miss Jodey Peyton, Miss Sally J. Prosser, Miss Katie H. Randall, Mrs Bernice Roberts, Miss Madeleine S. Ryan, Miss Betsabe Sanchez, Miss Rebecca Seaman, Mr Richard P. Sheane, Ms Samantha L. Shove, Miss Carol Smithard, Mrs Susan Thouless, Miss Mary Tibbett, Mr Andrew G. Upton, Dr Kate E. Vincent, Dr Emilie R. Wadsworth, Mr Robert D. Williams, Mrs Jessica D. Wilson, Mr Adrian C.J. Wood

ADMISSIONS
IEEM is very pleased to welcome the following new members:

FULL MEMBERS
Dr Penelope G. Angold, Dr Julia E. Baker, Mr Alan R. Beaumont, Miss Samantha J. Bennett, Dr Paul C. Bond, Mr Edward P.J. Bradbrook, Dr Lee D. Brady, Mr Alexander P. Cruickshank, Mrs Ursula Digby, Mrs Sally A.H. Donaldson, Ms Lisa Dowling, Mr Martin K. Fenn, Ms Jenny Ford, Ms Beth Gardner, Dr Tom Gittings, Mr Roger Goodwillie, Mr David Haslam, Mr Matthew I. Jackson, Dr Mark A. Johnston, Mr Andrew B. Karran, Miss Julie A. Kerans, Mr Christopher P. Ledbury, Mr Rob Lucking, Mrs Suzanne Marshall, Mr Ben McCabe, Mr Adrian J.T. Meurer, Ms Janet E. Nuttall, Mrs Susan M. Pitcher, Mr Kris Roberts, Dr Graham Russell, Mr Robert Shand, Mr Darren J. Smith, Mr Duncan J. Smith, Mrs Catherine M. Stephen, Mr Brian Sutton, Mrs Ginny Swaile, Mr Kevin J. Webb, Dr Jonathan E. Wentworth, Dr Christian G. Westwood, Miss Jenny Wheeldon, Dr Lynn Whitfield, Mr David J. Wright

ASSOCIATE MEMBERS
Dr Célia Baião Figueira, Mr Alistair R. Blackshaw, Mr Christopher D. Booler, Mr Simon Boulter, Mr Sam Bretherton, Mr James M.R. Brock, Mr James D. Brown, Miss Elizabeth A. Carabine, Mr Luke H. Casey, Mr Craig G. Chapman, Miss Kim-Marie Clothier, Mr Giles Coe, Miss Rebecca Dollery, Mr William A. Ford, Mr Marcus Fry, Miss Moira Gallagher, Miss Hannah Gibbons, Mr Daniel K. Hall, Dr Anne L. Halpin, Miss Emma L. Hankinson, Mr Paul Hanson, Mr David J. Hennessey, Miss Anna Hield, Mr Graham Hill, Miss Sarah J. Hobbs, Miss Maria Hoggett, Miss Vicky Hollands, Miss Jenette Howard, Ms Katherine A. Howell, Mr Marc Jackson, Mr Steven G. Jackson, Miss Rebecca C.M. Johnson, Mr Peter Johnstone, Miss Helen L. Jones, Mr Graham Jones, Mr Jim T. Jones, Mr Christopher J. Kerfoot, Mr Ben Kimpton, Mr Cody Levine, Miss Nikki Loveday, Mr Brett N. Lymer, Mr Stuart J. McAleese, Mr Timothy J. McHardy, Mr Barry J. McKenna, Ms Ruth Minogue, Mrs Diane Morgan, Mr Matthew Neale, Ms Joanne Nightingale, Mrs Clare O'Reilly, Mr Stuart Pankhurst, Miss Gemma Parkinson, Mr David A. Parsons, Miss Sarah Pendarves, Mr Christopher J. People, Mrs Amie Plummer, Ms Victoria L. Pope, Miss Hannah E. Procter, Miss Lois M. Read, Miss Catarina S.C. Rei, Miss Hannah L. Roberts, Ms Judith Roberts, Miss Claire A. Rogers, Mr Philip W. Saunders, Miss Eleanor J. Seaborne, Miss Claire L. Snowball, Miss Nicola S. Standley, Mr Garry C. Steele, Mr J. Grant Stuart, Ms Marion H. Thomson, Miss Sarah Warriss, Miss Claudia M. Watts, Ms Susan E. White

AFFILIATE MEMBERS
Miss Caroline M. Adelmann, Mr Freddy Brookes, Mr James Cooke, Mr Neil E. Middleton, Mr Lyndon F. Roberts, Mr Andrew Seth, Mr David K. Stiles, Miss Caroline V. Vickers, Mrs Jayne A. Walker, Mr James W. Warne

STUDENT MEMBERS
Mr Olusola O. Adisa, Miss Stacey Adlard, Ms Oyunn M.S. Anshus, Miss Natalie E. Bibby, Mrs Sarah-Ann Boon, Miss Sarah Brooks, Miss Audrey E.H. Collings, Miss Wendy Collins, Ms Jessica Crowley, Miss Gillian Eastwood, Miss Rohan Holley, Miss Jackie Kelly, Mr Michael J. Launder, Mr Ifeanyi D. Nwanonyiri, Ms Norma O'Hea, Miss Katie Partington, Mr Dipen Pradhan, Mrs Susan R. Roberts, Mr Liam Stokes, Mr Xiang Wang, Mr Peter F. Whipp, Miss Susan E. White, Mr Matthew Wilson

The following have successfully upgraded their Membership from Associate to Full:
Mr Edward Austin, Mr Russell J. Barber, Miss Sarah Bassett, Miss Carly J. Bawdon, Ms Tabatha Boniface, Ms Katherine Brown, Miss Sarah H. Brown, Miss Rebecca East, Mr James P. Gilbert, Mr Rodney Gillatt, Miss Sophie Hine, Mr Paul Hudson, Miss Lyndsey Husband, Mr Peter M. Jones, Mr Peter Lawrence, Miss Rhian J. Leigh, Ms Fiona A. Luckhurst, Miss Bethany Marshall, Mr Edward Mills, Mrs Pauline Michell, Mr Jan Skuriat, Miss Kate Taylor, Mrs Liz Taylor, Miss Harriet Vaight, Mr Gavin Ward, Mr David J. Williams, Mr Mark Witherall, Miss Alisha Wouters.

Course programmes for the Centre for Alternative Technology, Field Studies Council, Losehill Hall, Plas Tan-y-Bwlch and BTCV are all available via the information below. Each offers a wide range of courses that might be of interest to IEEM members.

Centre for Alternative Technology: Further details about each course can be obtained from Joan Randle. Tel: 1654 705950, Fax: 01654 702782, www.cat.org.uk

Field Studies Council: For a copy of the FSC Courses brochure, contact FSC head Office, Preston Montford, Montford Bridge, Shrewsbury, Shropshire, SY4 1HW. Tel: 0845 345 4071, Fax: 01743 850 101, e-mail: enquiries@field-studiescouncil.org, www.fieldstudiescouncil.org

Losehill Hall: Details from Losehill Hall, Peak District National Park Centre, Castleton, Hope Valley , Derbyshire S33 8WB Tel: 01433 620373, Fax: 01433 620346, e-mail: training.losehill@peakdistrict-npa.gov.uk, www.losehill-training.org.uk

Plas Tan-y-Bwlch: Details from Plas Tan-y-Bwlch, Maentwrog, Blaenau Ffestiniog, Gwynedd LL41 3YU. Tel: 01766 590324,

Fax: 01766 590274, e-mail: Plastanybwlch@compuserve.com

BTCV Courses: Practically based. Details from: BTCV Training Programmes Unit, Red House, Hill Lane, Great Barr, Birmingham B43 6LZ. Tel: 0121 358 2155, Fax: 0121 358 2194, E-mail: info@btcv.org.uk, www.btcv.org

13 June 2006. Historical Extinctions – Lessons for the Future? London Zoo. ZSL Scientific Meeting, 5:30 pm, free entry. www.zsl.org

14-16 June 2006. Innovation in Urban Biodiversity. London Wetland Centre. A conference looking at protecting and enhancing wildlife in the urban planning context by engaging stakeholders in innovative ways, and shares best practice experiences amongst European municipalities and results from the EU LIFE funded SUN Project. aimee.jones@sutton.gov.uk

15 June 2006. The Marine Bill: The Consultation and Beyond. SOAS, London. This conference aims to provide a forum for the marine and coastal constituency to share their views on the Marine Bill consultation, explore options but also look to the next stages of the Bill. www.coastms.co.uk

18 June 2006. Great Crested Newt Awareness and Survey Evening. Arkendale, North Yorkshire. Yorkshire Amphibian and Reptile Group event near Knaresborough in North Yorkshire. Meet at the Mar at 9.00 pm. www.arg-uk.org.uk/events.htm.

19-25 June 2006. National Insect Week. www.nationalinsectweek.co.uk

20 June 2006. Biodiversity, Climate Change and Unsustainable Development. London Zoo. The Stamford Raffles Lecture by Professor Sir John Lawton CBE FRS will be held in the Meeting Rooms of The Zoological Society of London at 6.45pm and will be followed by a Reception. Tickets cost £20 each; £15 each ZSL Members and students. All tickets must be booked in advance. For availability please contact tel: 020 7449 6281 or email: joy.miller@zsl.org

20-21 June 2006. National Living Roofs Conference 2006. University of Sheffield. www.livingroofs.org/livingpages/events.html

26 June 2006. From Here to Sustainability. Central London. Free event hosted by the Learning and Skills Council. www.lsneducation.org.uk/events/index.aspx?id=826&back=/events/

29-30 June 2006. Making Volunteer Recording Work. Plymouth. MarLIN's 2nd marine life volunteer recording conference. A free 2-day conference including presentations on marine life recording, poster sessions and discussion groups followed by a conference dinner on day one. The optional second day will involve a choice of a recording trip to the local shore or training in the use of Marine Recorder. Contact Samantha Rogers, MarLIN samro@mba.ac.uk, 01752 633336.

1 July 2006. Interdependence Day. Royal Geographical Society, London. Public event from 2-6pm. Interdependence Day considers new ways of debating and acting on the key challenges of environmental change and globalisation. It will comprise of interactive workshops, presentations by well known speakers, artworks and public debates. Tickets: £6. Tel: 01908 654456 E-mail: j.f.smith@open.ac.uk www.interdependenceday.co.uk

11-12 July 2006. BES/IEEM Symposium – Ecological Impact Assessment: Science and Best Practice. Bath Spa University, Bath and NE Somerset. This symposium is aimed to complement the Guidelines for Ecological Impact Assessment that are being prepared by IEEM by focussing on raising the standards of ecological science in EIAs. www.ieem.org.uk/Conferences.htm

15 July 2006. A field day at the Somerset Wildlife Trust. Taunton, Somerset. Starts at 11 am and will cover Wetlands Management in the Somerset Levels. After a briefing in Taunton library there will be visits to sites on the River Parrett Catchment Area. Cost: £3. www.rgs.org/NR/rdonlyres/A322EB21-5CAD-4490-9560-940D0CB97910/0/SummerBulletinFINAL.pdf

18 - 20 August 2006. British Birdwatching Fair. Egleton reserve, Rutland Water. www.bto.org/notices/diary_events.htm

22-26 August 2006. 1st European Congress of Conservation Biology. Eger, Hungary. Organised by the European section of the Society for Conservation Biology and aimed at promoting the development and use of science and policy for the conservation of European species and ecosystems. www.eccb2006.org/

1-2 September 2006. ICON'06 - Invertebrate Conservation in Ireland. Medical and Biology Centre, Queen's University Belfast. This two-day meeting will be the first major conference on this theme in Ireland. The meeting will comprise presentations by invited speakers, offered presentations, posters and a field trip to Peatlands Country Park, Co. Tyrone to examine the rich assemblage of peatland invertebates and in particular the only site for the wood ant *Formica aquilonia* in Ireland. www.royensoc.co.uk/

4-8 September 2006. 41st European Marine Biology Symposium. Cork, Ireland. The theme of the symposium is Challenges to Marine Ecosystems. www.embs41.ucc.ie/index.htm

5-7 September 2006. BES Annual Meeting. University of Oxford, UK. www.britishecologicalsociety.org

11-14 September 2006. BES/SGM Joint Symposium: Microbes, Macrobes and Ecology. University of York, UK. 159th SGM Annual Meeting. www.britishecologicalsociety.org

14-15 September 2006. Countryside Management Association 2006 Conference. University of Worcester.
'Towards Natural England?' will explore Natural England's emerging themes of promoting nature conservation and protecting biodiversity. Keynote speaker: Sir Martin Doughty. www.countrysidemanagement.org.uk/

14-16 November 2006. Practicalities of Climate Change: Adaptation and Mitigation - IEEM Annual Conference and AGM. Cardiff, Wales. www.ieem.org.uk/Conferences.htm

For details of all IEEM Workshops contact Nick Jackson
Tel: 01962 868626; e-mail: nickjackson@ieem.net
or Website: www.ieem.net