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An Introduction to the new IEEM Guidelines for Ecological Impact Assessment

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Ecological impact assessment (EcIA) is the process of identifying, quantifying and evaluating the potential impacts of defined actions on ecosystems or their components. If properly implemented, it provides a scientifically defensible approach to ecosystem management (Treweek 1999).

IEEM has developed its 'Guidelines for Ecological Impact Assessment' with the objective of promoting a scientifically rigorous and transparent approach to EcIA. The guidelines are also intended to provide a common framework to EcIA in order to promote better communication and closer cooperation between all the ecologists involved in any EcIA - whether working for a developer, for local authorities or other statutory organisations, or for NGOs. Overall, the intended outcome is that the guidelines will result in benefits for the conservation of biodiversity within the context of the promotion of sustainable development. Beneficial outcomes depend on input from ecologists at all stages from the early design of a proposal through to decision-making and its implementation.

EcIA can be undertaken in a wide range of situations, for example, to provide environmental information to accompany an application for a consent (which may be part of an Environmental Statement following a formal Environmental Impact Assessment), to guide a development brief or to inform a management plan. The purpose of EcIA is to provide decision-makers with relevant information about the ecological impacts associated with a proposal, including those that are beneficial as well as those that are adverse.

In relation to current practice in EcIA, these guidelines extend the boundaries on four key issues:

- identifying and evaluating ecological features;
- characterising and quantifying impacts and assessing their significance;
- minimising adverse effects and maximising benefits through the scheme design process; and
- identifying legal and policy implications and their consequences for decision-making.

Identifying and Evaluating Ecological Features

Identification of ecological features and their importance is first carried out at the scoping stage of any EcIA to support decisions about how to assist in focusing the limited resources that are available for ecological survey and assessment on those impacts that are likely to be significant.

The guidelines encourage an approach to evaluation that involves teasing apart the different values that can be attached to ecological features. The values that are identified are biodiversity value, social/community value and economic value; legal protection needs to be considered separately. Features that are important for social/community or economic reasons should be identified as part of assessments of the socio-economic or community effects of a proposal. The impacts on these features should be assessed by the ecologist but, the significance of the impacts will then be determined by the socio-economic/community specialist.

Focusing on assessments of biodiversity value, it is recommended that the levels of value that are used should be based on a common geographical scale that is designed to facilitate the determination of the legal and policy consequences of significant impacts. The following geographic frame of reference is proposed for use in any EcIA:

- International.
- United Kingdom.
- National (*i.e.* England/Northern Ireland/Scotland/Wales).
- Regional.
- County (or Metropolitan - *e.g.* in London).
- District (or Unitary Authority, City, or Borough).
- Local or Parish.
- Within immediate zone of influence only.

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Contents

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Thinking Sustainability

With the deadline on applications for Chartered Environmentalists through the Grandparenting route fast approaching, it is highly encouraging that there has been such a positive response from IEEM Members. Applicants will know that there are three questions to answer which are intended to test understanding of sustainability in its overall sense - environmental, social and economic.

In my last editorial, I was sceptical that the Gleneagles summit was going to move the environmental agenda forward. Although heralded as a significant shift by the Bush camp to recognising that Global environmental change might be an issue, it fell far short of what is really needed but was then quickly followed by the declaration that technology would solve the problems. Will the tragic events in New Orleans help to sway the arguments?

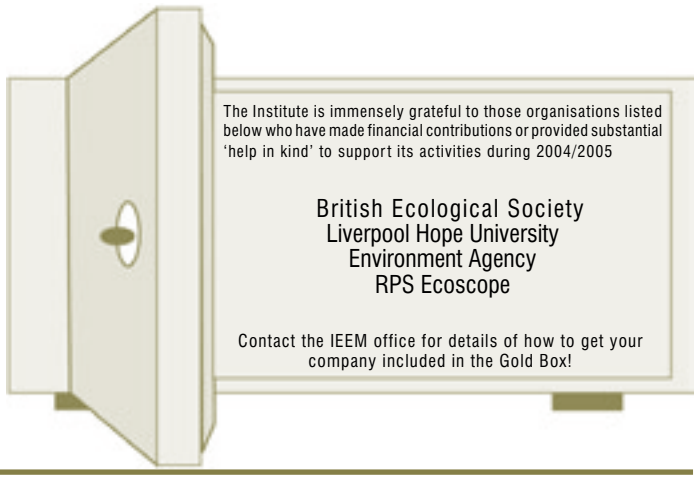
By the time that this editorial is printed the crucial meeting of the United Nations General Assembly will have taken place. This will be the first occasion when the presence of the newly appointed US representative on the United Nations John Bolton will be felt. The signs are not encouraging. He appears to have little time for many aspects of the United Nations work and within the context of sustainability, the United Nations Development Programme and the Millennium Development Goals. He has apparently demanded no fewer than 350 amendments to the blueprint restating the ideals of the UN. These eliminate all specific reference to the Millennium Development Goals, the Kyoto treaty and the battle against global warming and targets on poverty. The Development Goals set targets to be achieved by 2015 on issues such as poverty, education, disease, trade and aid. We shall see whether in the horse-trading that will undoubtedly feature, these views are tempered

In the last week though there have been two events which highlight the positive and the need for the UNDP to remain intact.

I attended the BES Lecture at its Annual Conference in Hatfield given by Professor Gordon Conway. This was a tour de force which focused on how ecology can contribute to increasing agricultural yields giving many successful examples over a considerable time. The goals of the UNDP were clearly stated within the talk.

Then there was the publication jointly by the World Resources Institute, the World Bank, UNEP and UNDP- World Resources 2005 - the wealth of the poor – managing ecosystems to fight poverty. It clearly states that environmentalists cannot solve this problem alone – governance, control of corruption, trade activities of multinationals all have a role. Conservation of the global environment cannot be done in isolation from human communities and their associated demands. So we return to the three underlying principles of sustainability – environmental, social and economic.

Jim Thompson



It is generally straightforward to evaluate designated sites against these categories (*e.g.* SSSIs are of national importance), although for sites of less than district-level importance there are often no predetermined levels of value. The same problem often applies to evaluating habitats and species (although there are exceptions, e.g. recognised ways of defining internationally/nationally important populations of waterfowl).

Attempts were therefore made during the development of the new EcIA guidelines to define how habitats and species could be assigned to different levels of value. However, such definitions proved to be unworkable in that they cannot accommodate all the factors that should influence the definition of value, for example, in relation to the size or conservation status of species populations or, for habitats their quality. Furthermore, the value of a species or a habitat may change depending on whether it is being assessed, for example, in the south of England or the north of Scotland. Consequently, tabulated boundaries between different categories of value become difficult to define with precision.

The Guidelines therefore propose an approach to valuing features that involves professional judgement, but makes use of available guidance and information together with advice from experts who know the locality of the project and/or the distribution and status of the species or features that are being considered.

Quantifying Impacts And Assessing Their Significance

The concept of significance lies at the heart of EcIA and subsequent decision-making. An EcIA carried out as part of an EIA must identify the significant impacts that a proposed development is expected to have on flora and fauna; significance assessment is also an important part of EcIAs undertaken for other purposes. Information about potentially significant adverse effects is initially used to determine whether there is a need to refine the scheme proposals in order to avoid, reduce or compensate for such effects. When potentially significant impacts have been investigated and all necessary mitigation has been included, the revised scheme is then subject to re-assessment. The conclusions about the significance of residual impacts after mitigation are used by the authority that is responsible for determining whether to give consent to a particular proposal and deciding whether to impose planning conditions or legal obligations in order to safeguard ecological resources.

The starting point for any EcIA is to determine which ecological features are of sufficient value that an impact upon them could be considered significant. This should involve using the results of the evaluation (relating to biodiversity value as described above), and applying a threshold level of value to determine which features can be considered to be of sufficient importance that impacts upon them (whether beneficial and adverse) could be considered significant. Added to these should be any features that have been identified as being important for social, community or economic reasons - together with legally protected species.

For all of those features that are of sufficient value that they could be significantly affected by a proposed development, it is necessary to determine whether the changes that are likely to be brought about by the development could result in a significant impact. For those impacts that are likely to be significant, it is necessary to quantify the impacts, making explicit reference to aspects of ecological structure and function on which the feature depends. The assessment should consider:

- confidence in predictions (levels of uncertainty);
- extent;
- magnitude;
- duration;
- reversibility;
- timing and frequency; and
- cumulative effects and in-combination effects.

Having undertaken this assessment, the challenge is to determine whether the impacts are significant. There are a number of approaches for determining significance in current use. Most typically, significance is defined using a matrix in which ecological value and magnitude of impact are combined to determine different grades of significance (for example, in the biodiversity sub-objective of the 'Environment' objective of the Department for Transport's Transport Analysis Guidance, see www.webtag.org.uk).

The term 'magnitude' in this context is in reality short-hand for the integration of a number of factors which characterise the impact, including extent (area), duration and reversibility, as well as the size of the impact in quantitative terms. In such matrices 'magnitude' is ranked into categories such as Major/Intermediate/Minor or High/Medium/Low. However, given the fact that 'magnitude' in this context is an amalgam of a number of very different factors, in practice it is difficult to define these categories and their boundaries with precision. This obstructs a clear understanding of the EcIA process and, typically, results in an EcIA lacking rigour.

Using a wholly subjective link between value and 'magnitude', matrices generally assign different levels of significance to various cells in the matrix. Decision-makers using the results from such a matrix then have to distinguish between, for example, an impact of 'medium significance' against one of 'low significance' without any guidance other than an intuitive understanding of these terms, which are inevitably subject to individual interpretation.

The IEEM guidance promotes a more transparent approach in which a beneficial or adverse impact is determined to be significant or not, in ecological terms, in relation to the integrity of a defined site or ecosystem(s) and/or the conservation status of habitats or species within a given geographical area, which relates to the level at which it has been valued (see below). The decision about whether an impact is significant or not is independent of the value of the ecological feature (other than in the context of the threshold described above). Subsequently, the value of any feature that will be significantly affected can be used to determine the implications in terms of development control or other policies.

Using this approach, there will be some situations where an ecologist concludes that a site is of sufficient value that it could be significantly affected, but then, having undertaken further analysis, concludes that the integrity of the site will not be affected *(i.e.* there will be no significant effect on the site itself). However, this will not preclude there being habitat features or species present on the same site that are also of sufficient value that they could be significantly affected and for which the ecologist concludes that there will be a significant effect on their conservation status. This will trigger the policies and/or legislation that apply to features/species populations of that level of value. For example, whilst a particular impact may not be considered likely to have an adverse effect on the integrity of a Special Protection Area (SPA), it may be found to be likely to have a significant effect on the conservation status of a species within the SPA that is not a qualifying species relating to the site's classification.

It should be noted that the concepts of integrity/conservation status are not always relevant to assessments relating to legally protected species, for which the EcIA has to demonstrate why the development will not result in the law being contravened. This does not, per se, require an assessment of the significance of any impacts (on the basis that one cannot advocate a development that contravenes the law). However, for legally protected features that are also of high biodiversity value, it may be necessary to carry out an assessment of the significance of any impacts as well.

Integrity

The EC Habitats Directive (Article 6) introduces the term 'integrity' in considering the ecological significance of an impact with reference to European sites. Integrity is not defined in the Directive, but official guidance on nature conservation provides a definition in relation to European sites that can be applied more generally: 'The integrity of a site is the coherence of its ecological structure and function, across its

whole area, that enables it to sustain the habitat, complex of habitats and/or the levels of populations of the species for which it was classified' (paragraph 20 of the joint ODPM Circular 06/2005 and Defra Circular 01/2005 to accompany Planning Policy Statement 9 in England and paragraph 8 of Technical Advice Note 5 in Wales).

The concept of 'integrity' was originally applied to ecosystems but can be applied to sites that can reasonably be considered to represent an ecosystem. To understand impacts on integrity it is necessary to take account of ecosystem processes and functions. Use of the concept of ecological integrity must recognise that ecosystems are inherently dynamic and can change in both time and space and that their boundaries are not fixed but are both dynamic and permeable. It is also necessary to take an integrated approach and to look at specific impacts in the context of the overall functioning of the whole system. There may be components of an ecosystem that appear to have little value themselves, when considered in isolation, but nevertheless play an important part in maintaining or supporting the overall value of an ecosystem.

Conservation Status

The Habitats Directive provides a definition of 'conservation status', for habitats and species [Council Directive 92/43/EEC, Article 1, sections (e) and (i)]. The new IEEM guidance uses slightly modified versions of these definitions, such that evaluation of conservation status can be applied to habitats or species within any defined geographical area and will relate to the geographical scale at which the feature is considered important:

- for habitats, conservation status is determined by the sum of the influences acting on the habitat and its typical species that may affect its long-term distribution, structure and functions, as well as the long-term survival of its typical species within a given geographical area; and
- for species, conservation status is determined by the sum of influences acting on the species concerned that may affect the long-term distribution and abundance of its populations within a given geographical area.

Finally, the determination of the significance of beneficial or adverse impacts may be assisted by reference to the conservation objectives for any feature where these are available or can be agreed.

Minimising Adverse Effects And Maximising Benefits Through The Scheme Design Process

There is a growing body of opinion that new developments should deliver net ecological gain rather than simply being designed to achieve mere damage limitation. Right from the start, proponents of any scheme should therefore incorporate, as part of the proposals for scheme design and implementation, measures that are required to deliver ecological enhancements as well as measures to:

- avoid adverse ecological impacts - especially those that could be significant;
- reduce adverse impacts that cannot be avoided; and
- compensate for any remaining significant adverse ecological impacts.

The objective should always be to agree the identified measures with the proponent of a scheme so that they become part of the scheme that is subject to detailed assessment. A shopping list of 'proposed mitigation' at the end of an EcIA is of very little value as it requires the authority making the decision about an application for a consent to enter into discussion with the proponent to agree what will be implemented. An EcIA is effectively meaningless if it provides an assessment of the significance of the residual impacts of a scheme based on the proposed mitigation measures being implemented even though these measures have not been agreed by the developer.

In agreeing how a scheme can be changed to include mitigation measures or ecological enhancements, it is important to ensure that any uncertainty associated with the implementation of ecological aspects of the scheme design is adequately reflected in the assessment of impacts and their significance. It is also important to identify any requirement for monitoring, for example, to allow aspects of the scheme to be adjusted during construction and/or operation to improve benefits or reduce adverse effects.

Environmental Action or Management Plans are often a very effective means of incorporating into one document all those aspects of the scheme that are being taken forward for ecological or other environmental reasons, including monitoring. Such a plan can be subject to enforcement through a condition attached to a consent or through a legal agreement.

Identifying Legal and Policy Implications and their Consequences for Decision-making

Decision-makers have to test whether a proposal, together with all of its constituent parts, that might have been designed to deliver environmental enhancement, mitigate potential effects or compensate for unavoidable effects:

- complies with legal requirements (*e.g.* a licence for any work affecting legally protected species or a Land Drainage consent);
- meets national and local policies; and
- equires conditions and/or legal obligations to be attached to the consent.

The scoping stage presents the first opportunity to make explicit the legal and policy context in which the EcIA process should take place. All those involved in the overall design, planning and implementation process should be fully aware of this context. Failure by a proponent to take account of the legal and policy context, and to provide sufficient information to comply with these, may result in an application being refused.

What Happens Next?

The proposed consultation draft of the EcIA guidelines was presented to the IEEM annual spring conference in May 2005. The final consultation draft has been sent to the four country nature conservation agencies (Countryside Council for Wales, English Nature, Environment & Heritage Service (Natural Heritage Directorate), Scottish Natural Heritage), the Environment Agency, the Scottish Environment Protection Agency and the Environment & Heritage Service (Environmental Protection Directorate) with the intention of obtaining their endorsement. This version of the guidelines has also been sent to a large number of organisations for information and is available on the IEEM website.

It is hoped that the final version of the guidelines will be launched at the IEEM Annual Autumn Conference, in Bournemouth in November. It will be made available to all attendees on a CD and will also be available online on the website. The theme of the conference is Sustainable New Housing and Major Developments - Rising to the Ecological Challenges. The new guidelines are very relevant to this whole topic.

The online format of the guidelines will allow them to be updated at regular intervals to take account of changes in legislation and policies as well as developments in the science that underpins the EcIA process.

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Treweek, J., 1999. *Ecological Impact Assessment*. Blackwell Science, Oxford.

John Box, Helen Byron, Karen Colebourn, Nic French, Mick Hall, Richard Knightbridge, Mike Oxford, Jo Treweek and Mike Wells formed the Steering Group which has drawn up EcIA Guidelines.

A Canadian Experience in Environmental Protection and Biodiversity Conservation

Reverend Mr Mark B. Stagg

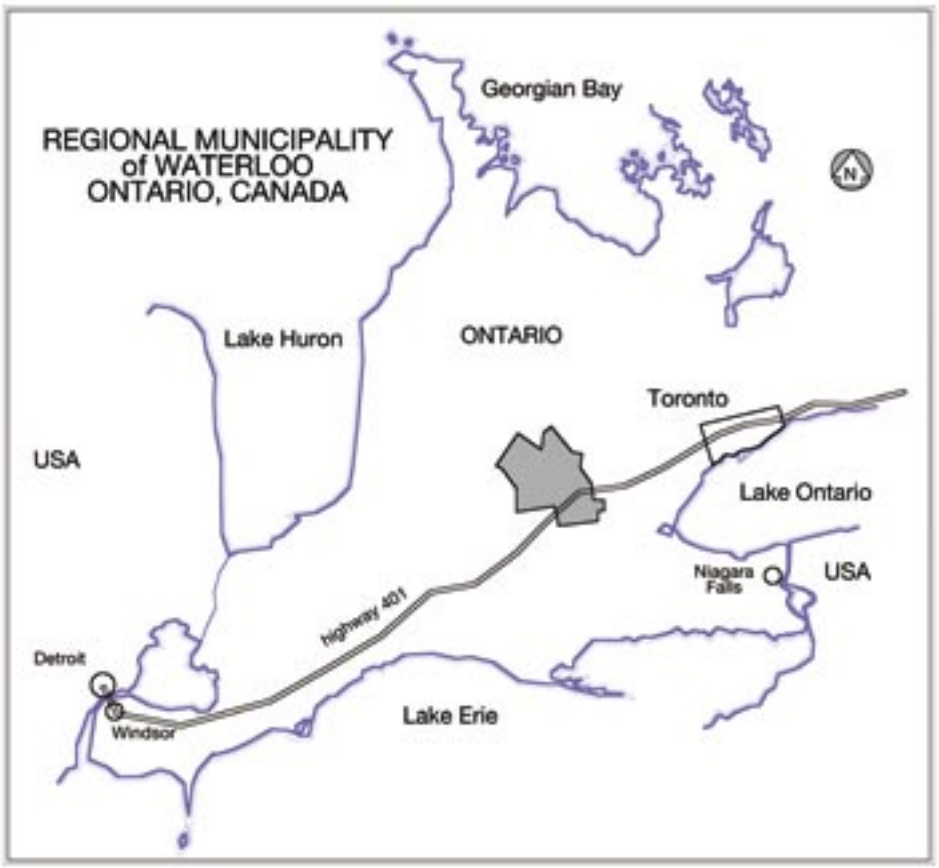
While each geographic area has its own unique ecological characteristics, some of the processes whereby important environmental features can be maintained are common and might be shared with advantage. This is the objective in describing a process that was commenced in the Regional Municipality of Waterloo, Ontario, Canada in 1973 and continues today. In particular, this article will describe the process of creating Environmentally Sensitive Policy Areas (ESPAs) in the original Regional Official Policies Plan (ROPP). These Policy Areas would by their nature and the protection provided achieve a measure of biodiversity conservation, a term not in use in Ontario in those days. Today, as a result of experience, the criteria for ESPA designation has been streamlined and the Regional Municipality is proposing to designate some larger Environmentally Sensitive Landscapes (ESLs).

The Regional Municipality of Waterloo was created by an Act of the Ontario Provincial Government and came into being in January 1973. The Regional Council, as an 'upper tier' municipal council was given overriding planning authority and considerable engineering (road, water supply and waste management) responsibilities. Council was also made responsible for policing and some aspects of public health and social services. A larger number of local municipalities were consolidated into three Cities and four Townships (rural areas with some small towns and villages). These 'lower tier' municipalities were and are responsible for their own detailed planning, road management, sewage disposal, libraries, parks and recreation, with their planning decisions having to adhere to the policies of the ROPP.

The Region covers 519 square miles and in 1973 had a population of 254,000 (now grown to over 460,000). The new Regional Council was charged to prepare a ROPP. This had to address the serious challenges and constraints that were a major reason for the creation of a new Regional Municipality. This offered opportunities for holistic, integrative and innovative solutions.

Challenges in 1973

1. The geomorphology of the Region witnesses the signature of the last Ice Age. Its rolling topography barely masks a large number of moraines, drumlins, eskers, kettles, alluvial outwashes and old lake beds. As a consequence, the Region is richly endowed with very large areas of prime agricultural land with high capability, major, large sand and gravel resources, large tracts of deciduous woodlands and many marshes and wetlands (a number with lakes) as well as a large regional aquifer that provides the main water supply. Within these woodlands and wetlands are found a range of rarer plant, mammal, insect, reptile and bird species. Some of the landforms would be considered comparatively rare for Ontario. In many instances, the prime agricultural areas, the gravel resources and important environmental areas were (and are) in immediate proximity to each other and in some cases, overlap.
2. The three cities of Kitchener, Waterloo, and Cambridge had for over 100 years been important manufacturing centres. Positioned astride the main highway (401) from Toronto to Windsor and the



USA, the cities were continuing to grow as auto-part manufacturers and other industries moved in.

3. Urban expansion to accommodate rapid population growth threatened to sprawl outward and over prime farmland. Further suburban and rural housing had the potential to intrude into and damage environmentally sensitive areas. Population growth also threatened to outstrip the apparent supply of water from the deep aquifer, and to outgrow the capacity of city sewage treatment plants to treat effluent to a level acceptable for release into the Grand River, a source of water supply to downstream municipalities. There was also a need to consolidate planning regulations to prohibit urban type development in flood-plains. (The Region decided to pump excess spring runoff from the Grand River to recharge ground aquifers and then use that water for municipal supply and to augment summer and fall river flows).
4. Continuation of traditional solid waste methodologies threatened to rapidly consume existing disposal capacities. (The Region augmented an aggressive recycling program to divert material away from disposal sites).

Opportunities

1. Of significant assistance to the apparent daunting task were two related factors. For a good number of years, the previous municipal government's work in the planning field had (a) made a good proportion of the population aware of the planning issues; thus there was a grass roots acceptance that action was needed and (b) had produced and developed a good number of local politicians who became technically knowledgeable and conscious of positive public interest.
2. The Region was and is home to two universities, including one with a department of environmental studies, a third nearby housed a department of agriculture with supporting biological expertise. Over the years, a solid grass roots movement of naturalists had evolved. Collectively, a considerable amount of field data on various areas of environmental interest had been collected and popular support for protective action was evident and available.
3. As in many jurisdictions, the farming community is well organized in Ontario, locally, through its Waterloo Federation of Agriculture. While one of its prime objectives undoubtedly is to influence the political process to seek and maintain subsidies and tariff protection, and with supply management also important, the Association also does excellent work in promoting good agricultural practices. Once it was understood that the regional planners were heavily in favour of protecting lands with prime capability, and that the proposed protection of environmentally sensitive areas would not generally impinge upon farming operations, the WFA supported the planners' initiatives.
4. Municipal and senior governments. There was an intense sense of discipline whereby attention was focussed upon matters of regional interest. Specifically, details of a local or 'lower tier' municipal concern were left to them to resolve (within the framework of regional policies). In the broader political sense this was a major and critical ingredient to completing the ROPP in record time and in the end without a single appeal (from either 'lower tier' municipalities or property owners) for review. Secondly, several of the staff, including this author, had previous experience in the private sector bringing with them a keen understanding that 'time means money', not only to the developers, but also for themselves. Work was always scoped to identify the essential 'must do's', to include really relevant 'should do's' and to wave off the 'could do's'. When the public, including developers asked questions, they were answered, promptly.

Balance and Principles

The brief description of the Region given above, should give a sense of the intensity and not necessarily complementary pressures that were being faced. The population was growing in excess of 3% *per annum* creating demands for new urban development. The urban areas were tightly bound by prime agricultural land. The prime gravel and sand resources were usually covered by good land. The environmentally sensitive areas were often to be found within the city limits, or next to gravel resource areas, and so might be lying in the path of oncoming urbanization or a new highway serving same. These conditions would be familiar to all working in the planning and environmental fields.

The solution came in balancing the various claims for primacy. It was recognized that political support could be gained to preserve prime natural areas provided that the right to continue to use the land for the then legally permitted uses were not 'confiscated'. It was also recognized that population growth in the Region (which would slow some in the next 20 years) had to be accommodated. Fortunately, there was widespread public support to halt rural and suburban sprawl.

The subdivision of land in rural areas for non-farm related residences was halted and those who sought the rural life had to settle for a 'lot' in a small town, village or hamlet where that lot could be serviced (municipally or privately). Now new development is only allowed where there are municipal services. This took the pressure off efforts to develop scenic woodlands and waterside locations (frequently to be designated as environmentally sensitive) for the simple reason they were beyond the urban envelopes of the cities, towns and villages. The privately owned woodlands within the cities sometimes presented a greater challenge and residential density tradeoffs were sometimes necessary. Then the developer could afford to deed (donate) the sensitive woodland area to the government authority.

A professional is always driven to collect and have the 'complete' information on any subject. As a general rule, if $10 gives one 90% of the information one seeks, gaining 95% will cost $20 and costs escalate thereafter. With the support of the environmental scientists, the '90% level' was accepted; but the areas were (and are) physically huge (often hundreds of acres) and how could legally binding designations be technically researched and imposed? The way out was to place an approximate 'blob' on the map and establish a legal mechanism whereby more precise boundaries (and remedial actions and so forth) would be established at a later date, as and when and if any application for a land use change was made or an application made to mine resources. Woodlands as such were reasonably protected by a Regional Tree Cutting Bylaw (which limited or stopped the cutting down of trees).

As the preparation of the ROPP proceeded, the process of defining boundaries, and very often remedial measures to prevent adverse development impacts, was called into play. Sometimes the evaluation required would be quite simple and informally came to be known as a 'quick and dirty'. 'Quick', as it was recognized that a prime selling point to the development industry was the ability to demonstrate that this new 'extra' step in the approval process would not cause delay. 'Dirty', as usually one would rush back into the office with messy footwear. The need for good will, public service and common sense cannot be underrated when one is leading the official process into new fields.

A fundamental principle of the ROPP was 'that the Regional Municipality of Waterloo is in a position to influence the pattern of development in the Region in ways that will protect the environment of the Region'. That principle flowed through to influence all ROPP policies and actions. During the 30 years since the original ROPP was adopted, it has gone through several reviews and rewrites. The principles of sticking strictly to regional only matters, continuing priority in serving the public and a significant widening of appreciation and support for preservation of the environment have contributed to the maintenance of the original ESPA designations and indeed the addition of 12 new areas.

Ecological and Environmental Advisory Committee (EEAC)

This group was constituted as a sub-committee of the Regional Council's Planning Committee (elected) to advise them and staff on

a range of matters. Members consisted of academic and Provincial Government professionals, some private sector professionals and representatives of the agricultural community and development. They provided critical input to the process of defining and identifying ESPAs, reviewing and recommending upon Environmental Impact Statements (EIS) and to commenting upon any subdivision or severance application or application to re-zone land adjacent to an ESPA. The Committee also preformed a public education function (the media attended all its meetings) and could bring new matters and concerns to the attention of Regional Council. Members of the EEAC served in a voluntary capacity and excused themselves in any case of real or possible conflict.

In Canada, then and now, there was and is a large contingent of the public who have an interest in environment matters. Some are quite keen and call themselves 'environmentalists'. Review of literature indicates that the 'species' is also abundant in Europe. Most are positive, helpful and appreciated. A few are not. The EEAC was very valuable in that, with some of its members having very high national standing, its statements were nearly always accepted as being scientific and professionally sound. Wilder 'tree hugging' criticism could then be dismissed.

Environmental Impact Statements
Reference has been made to the need for EIS to refine the boundaries of an ESPA or to evaluate a development proposal next to or apparently intruding into an ESPA. The Regional Municipality modelled its requirement after those required pursuant to the Provincial Environmental Assessment Act.

Criteria to Identify Areas of Environmental Sensitivity
It being clear that there was a mandate to identify and protect areas of environmental sensitivity of Regional significance, Regional staff, with considerable input from the EEAC, developed a set of criteria to identify these areas. At first, the staff attempted to create criteria for areas of 'higher' sensitivity and areas of 'lesser' sensitivity. However, it was decided it would be premature to prejudge the exact quality of an area, more exhaustive studies were better left to a later date when, required and were achieved through the studies required for an EIS. The criteria used in the original ROPP had a particular focus on rare and/or endangered species. Variously for each ESPA, information lists identified plants, birds, insects, reptiles and mammals; in odd cases, rarer fish would also be listed.

Then with Provincial Government funding, a group of senior and graduate students, directed by Dr. George Francis, University of Waterloo, conducted the record search and field studies required to accumulate the required data. As a result, a couple of proposed areas were dropped, since the information collected to date was considered to be insufficient and/or inconclusive. Some 69 areas were proposed for designation in the original ROPP.

Over the years, the Province has taken an increasing interest in the preservation of the environment. Noting that, and also the particular factors most often quoted in the hundreds of applications for development adjacent to ESPAs, in 1998, the Regional Municipality of Waterloo streamlined its criteria for the designation of ESPAs to state it must:

a. be identified by the Province as a Provincially Significant Life Science Area, a Regionally Significant Life Science Area, or a Provincially Significant Earth Science Area: or
b. fulfil at least two of the following criteria:
   i. comprise ecological communities deemed unusual, of outstanding quality or particularly representative regionally, provincially or nationally;
   ii. contain critical habitats, which are uncommon or remnants of once extensive habitats such as old growth forests, forest interior habitat, Carolinian forest, prairie-savanna bogs, fens, marl meadows, and cold water streams;
   iii. provide a large area of natural habitat of at least 20 hectares, which affords habitat to species intolerant of human intrusion; or
   iv. provide habitat for organisms indigenous to the Region recognized as nationally, provincially, or regionally significant; or
c. fulfil one of the criteria in b. above and any two of the following:
   i. contain an unusual diversity of native life forms due to varied topography, microclimates, soils, and/or drainage regimes;
   ii. perform a vital ecological function such as maintaining the hydrological balance over a widespread area by acting as a natural water storage discharge or recharge area;
   iii. providing a linking system of relatively undisturbed forest or other natural habitat for the movement of wildlife over a considerable distance;
   iv. serve as major migratory stop-overs; or
   v. contain landforms deemed unusual or particularly representative at the regional scale.

Interfacing with the Public and landowners
In November 1974, the Regional Municipality published (and circulated to every regional household) its second edition of the 'Conestoga Wagon', which presented a first draft of the ROPP. Included was a chapter setting out environmental policies and a Policy Map showing proposed ESPAs. At this point in time the areas were shown in general 'blob-like' terms. The proposed policies received favourable comment from the public and no serious adverse opinions were received.

In the spring of 1975, the Region's Planning Committee directed the staff to inform the individual landowners, who might be affected, of the proposed designation and related policies. Individual letters were sent to some 1,242 owners of property within or abutting proposed designated areas. The letter indicated what was being proposed and enclosed: a copy of the aerial photo of the property (at a scale of 400 feet to 1 inch) with the proposed ESPA marked on it, an extract of the proposed policies, and the technical ecological data pertaining to each area. The letter invited persons with questions or concerns to contact the Regional staff. Over 100 individuals or groups responded and in virtually every instance a meeting was held on site with the persons concerned. In many instances the landowner and staff would walk the area.

Particularly important were the discussions that took place respecting current land management practices and how the owner might continue to enjoy the use of the property without damaging the sensitivity of the area. In a number of instances the landowner was made familiar for the first time with existing zoning regulations and also regulations regarding the prohibitions of building within areas liable to flooding and/or placing fill material in those areas. Also new to a number of owners, were the provisions and advantages of agreements pursuant to the Woodlands Improvement Act. (Basically, by agreeing to manage the woodland to produce some timber, an owner could get a portion of their property taxes remitted). The comments made as to potential problems and from actually seeing some sites for the first time, provided a major source of refinements to the proposed policy areas before they underwent final political review.

In a number of cases, the landowners themselves expressed appreciation in obtaining further knowledge of the natural characteristics of their property. Some 15 property owners were not satisfied with the results of meeting with Regional staff and appeared before the Regional Planning Committee; two went on to appear before the Regional Council. Eventually, the owner's interests were satisfied, in some cases by adjusting the boundary of a proposed designated area, but in no instance was any proposed area deleted.

Regional Official Policies Plan
The policies were and are extensive and can only be summarized here.

(It should be explained here that at the 'lower' local municipal level there are two levels of planning regulation in Ontario [and most of the other Provinces and Territories]. There is the official plan, which establishes legally binding policies, usually for broad land use groups and by general subject matter. Detailed control is exercised through Zoning Bylaws, where exact permitted uses are listed with yard, bulk, site coverage, parking and other specific requirements.)

The ROPP recognized the continued legal use of land as set out in local municipal official plans and zoning bylaws on the following lines:

i) farming operations provided they do not lower the groundwater level through drainage of swamp areas;
ii) continued management and harvesting of timber in a woodlot pursuant to an agreement under the Woodland Improvement Act;
iii) use of wood and cutting for personal use pursuant to the terms of the Region's Tree Cutting Bylaw;
iv) construction or expansion of a residence on a legal lot in accordance with municipal bylaws and an approved site plan;
v) construction or expansion of a build on an existing cleared site in accordance with municipal bylaws provided it does not physically and biologically affect the sensitive area;
vi) use of the area as a private garden or woodlot ancillary to a main use; and
vii) use of the area for an approved forest and wildlife management project.

The policies continued by addressing the question of what happens if and when an application is made for a development adjacent to or intruding into an ESPA. A first step would be to examine through an EIS whether there was a negative impact and how it might be acceptably reduced or mitigated through some remedial action. Frequently, it was found that it was a matter of maintaining the status quo in terms of water flows, water quality and water tables. Sometimes a solid fence would serve to keep people and dust from getting into an area.

The policies provided for using all the powers available under the Provincial Planning Act and/or other legislation and requiring the lower tier municipalities to do the same to limit the proposed development proposal so that negative impacts could be reduced. The policies provided for the public purchase of the affected property if the owner agreed. This is not an option that has been exercised. If all else fails, then the Regional Council can amend the ROPP to eliminate the ESPA (in part or whole). Over the 29 years the ROPP has been in existence, one ESPA has been removed but 12 have been added.

The Evolving Process

Reference has been made above to the growing interest of the Government of Ontario in preserving important environmental features. The Province has identified, and requires that, Provincially Significant Wetlands (PSWs) be identified and protected from development in regional plans such as the ROPP. The Province also provides for the designation of Environmental Preservation Areas (EPAs). Provincial Planning Policies issued pursuant to the Planning Act and fulfilling 'Smart Growth' objectives, further reinforces keeping built development within serviced urban areas and maintaining prime agricultural areas and preserving natural areas. The whole science and philosophy of preserving natural areas has evolved from just preserving very special areas, or 'green islands' to maintaining natural systems over much wider areas.

Building on this momentum, the Regional Municipality is now proposing to designate two Environmentally Sensitive Landscapes (ESLs) with one or two more to possibly follow. The first two ESLs are about 5,000 and 3,600 acres each in area. The criteria are broader than those for a ESPA and have a wider area flavour to them. The range of uses permitted within an ESL would be similar to those allowed in ESPAs. One of the keys of the regional approach is to validate the designation using the logic, arguments and principles expressed in Provincial Planning Policies.

Conclusion

Beyond using sound science and being transparent in dealing with landowners, the broader success of implementing measures to save important environmental elements can be seen to rest on one factor - the regional staff always limited their proposals to what the political process, supported by an informed public, would accept. Certainly not perfect, but very substantial in what has been achieved. The most important accomplishment has been that landowners and the public were given the opportunity to understand the importance of natural area protection in the context of the bigger picture. Early consultation was and remains critical to the success.

The author is grateful for information provided by Mr. Christopher Gosselin, Manager of Environmental Planning regarding recent and current activities of the Regional Municipality of Waterloo. He would also thank Mr. Mark L. Dorfman, Past President of the Canadian Institute of Planners, who was a senior official of the Regional Municipality from 1973 to 1983 and who reviewed this article. The author alone is responsible for its contents.

Reverend Mr. Mark B. Stagg is currently a permanent deacon in the Roman Catholic Diocese of London, Canada. He was the first Director of Planning, Regional Municipality of Waterloo from 1973 to 1979.

Quality Review of Continuing Professional Development (CPD) Returns

Linda Yost CEnv MIEEM

The Professional Affairs Committee (PAC) at its June meeting took the opportunity to review the quality of a sample of the 2003-2004 CPD returns. The sample showed that some members undertake much more than the minimal 20 hours required training for CPD, and that they are taking advantage of the range of structured and unstructured opportunities available to them.

What was not clear from the sample was whether members are planning their CPD in the longer-term as many returns noted several training events attended but only on one topic, for example, bats or badgers.

The Professional Issues Series No. 3: Continuing Professional Development provides guidance not only on recording, but also on how to plan CPD. In planning, CPD members need to consider not only employer requirements but also the development of skills beyond their current role and should be looking for opportunities to broaden and deepen their knowledge and keep up to date on a wide range of subjects and issues. Not only is it important to continually enhance skills and knowledge to improve career prospects, but it is also important in our 'knowledge based society' where 'the most valuable asset is investment in intangible, human and social capital and the key factors are knowledge and creativity[1].

Members are reminded that it is a requirement of their membership to undertake and record CPD. To maintain chartered status members will have to ensure that they submit their CPD returns when they renew their membership each year on the 1 October.

Below is an example of a completed CPD record. See *In Practice* No. 46.

Institute of Ecology and Environmental Management
Example CPD RECORD SHEET 2003 (Oct 02 - Sept 03)

Name:	Email:
Employer:	Tel:

CPD activity and name of provider for structured CPD	S/US	Skill developed	Date	
Material & Briefings on Habitats Directive for different MEPs.	US	Influencing and communication skills associated with Habitats Directive, political dimension & own work.	10 Oct, 6 Dec	7 x 2rs = 14hrs
IEEM Annual conference on urban ecology and nature conservation December 2003 - started new role in organisation	S	Raising knowledge & awareness of Urban Ecology issues	28 Nov	7hrs
Attendance & participation in internal "Development of Policy"	S	Raising knowledge & awareness of how to develop policy as part of skill development for new role	18 Dec	5 hrs
SeminarOn-line Library & Information Services Demonstration	S	Knowledge of search methods and tools available	17 Jan	2 hrs
Consolidation course on "Positive Power & Influencing skills" (Shepherd Moscow)	S	Consolidation of training begun in 2002 & competency development in these areas	21,30, 31 Jan	16 hrs
IEEM TECD Committees	US	Participation in committees & contributing to work of IEEM	6 Feb; 19 Jun	6hrs
Management of Workplace stress workshop (internal course as part of H & S training)	S & US	Participation in seminar – H & S awareness raising and follow-up work with team on risk assessment (led session)	6 & 18 Mar	7 hrs
River Restoration conference 2003 (River Restoration Centre)	S	Technical knowledge raising on river restoration specialism.	28 & 29 Apr	12 hrs
IEEM short course on "Using Bryophytes as Habitat Indicators"	S	Development of technical knowledge in aspect of Ecology and its application.	15 May	6 hrs

1 "to become the most competitive and dynamic knowledge-based economy in the world, capable of sustainable economic growth with more and better jobs and greater social cohesion." (strategic goal for 2010 set for Europe at the Lisbon European Council - March 2000)

Professional Development Programme

Nick Jackson AIEEM

The IEEM's Professional Development Programme has grown significantly in the last few years. We are always seeking to improve the courses on offer and try to base the courses in locations that are accessible to all IEEM members. There are however certain gaps in CPD provision, which the IEEM seeks to fill. Below is a list of the 2005 courses and their locations in the UK.

WORKSHOP TITLE	LOCATION
Surveying for Bats and Development: The Consultants Approach	Beckenham, Kent
Aerial Photo Interpretation (API) and Habitat Mapping	Wellington, Somerset
Roads and Wildlife	Cardiff, Wales
Professional Practice: Tendering Guidelines	Grantham, Lincolnshire
Using Bryophytes as Habitat Indicators	Orpington, Kent
Ecological Evaluation and Impact Assessment	Perth, Scotland
Great Crested Newts - Survey, Handling, Licenses and the Law	Abingdon, Oxfordshire
Surveying for Reptiles	Epping Forest, Essex
Scoping Brownfield Sites for Protected Species	Buxton, Derbyshire
Surveying for Reptiles	Dunwich, Suffolk
An Introduction to 'Extended' Phase 1 Habitat Survey	Exeter, Devon
Water Voles - Surveying and Mitigation	London
Reptile Mitigation	Botley, Hampshire
Calcareous Grassland Identification	Wellington, Somerset
An Introduction to Translocation of Great Crested Newts	Warrington, Cheshire
Basic Taxonomy and Flowering Plant ID	Reigate, Surrey
Introduction to NVC Surveying for Woodlands	Northamptonshire
River Survey Techniques	Perth, Scotland
Great Crested Newt Survey and Mitigation Implications	Buxton, Derbyshire
Basic Introduction to Grasses	Settle, Yorkshire
Identification of Sedges	Settle, Yorkshire
Introduction to Geological Conservation	Dudley, West Midlands
An Introduction to Phase 1 Habitat Survey	Edinburgh, Scotland
Geological Conservation and Development	Dudley, West Midlands
Vegetative Identification of Neutral Grasses	Wellington, Somerset
Working with Soils	Stroud, Gloucestershire
Pond Creation and Management	Carsington Water, Derbyshire
Sustainable Urban Drainage Systems	Buxton, Derbyshire
Working with Crayfish, STAGE I	Settle, Yorkshire
Controlling Japanese Knotweed (and other invasives) in Swansea	Swansea, Wales
Working with Crayfish, STAGE II	Settle, Yorkshire
Protected Mammals in Ecological Impact Assessment	Stirling, Scotland
Delivering Integrated Coastal Zone Management (ICZM)	Newcastle
Lake and Reservoir Management	Carsington Water, Derbyshire
Phase 1 Habitat Survey	Cavenham Heath, Suffolk
Bat Survey and Identification	Cavenham Heath, Suffolk
Mapping for Ecologists	Reigate, Surrey
Practical Action for Water Voles	Rye Meads, Hertfordshire
A Survival Guide to Ecological Supervision on Construction Sites	Chester, Cheshire
Evaluation a Impact Assessment in Ecology	Buxton, Derbyshire
Professional Practice: Introduction to Contracts	Grantham, Lincolnshire
Winning Approaches - What do you need to do to convince a planning inspector?	Basingstoke, Hampshire
Reedbeds, Bitterns and Biodiversity	Rye Meads, Hertfordshire

We need your feedback on the following (by 1 November 2005):

- Are there any courses you think should be run nearer to you?
- Are there any subjects that are not covered at all in the programme?
- Are there any areas of the country where the IEEM training is 'thin on the ground'?
- Are you aware of any potential local experts in your areas that we could approach with a view to running future courses?
- Would you be willing to organise a training workshop yourself or would you be willing to facilitate the running of a course with a local expert?

If you would like to get involved in the provision of CPD courses or have any suggestions or comments for the 2006 course programme, then please get in touch with Nick Jackson at nickjackson@ieem.demon.co.uk or by phoning 01962 868626.

North East Convenor's Report for 2005

Steve Pullan CEnv MIEEM

This year has seen the region progressing steadily in terms of membership and attendance at events. The numbers have tended to fluctuate but we seem to have a steady dozen at most events. These topics have ranged from using and raising funds to recreate parkland on the grand scale by Mary Gough, Harry from the National Trust looking at the work being undertaken at Gibeside Chapel, an update on the BAP process from Liz Auty (Tees Valley BAP) and Andrew Lees (Durham BAP), and things are moving now on the Northumberland front with a possible BAP regional convenor. The conservation of the large heath butterfly in northern England by David Wainwright of the Butterfly Conservation Trust; our site visit in May to INCA and the way that large scale industry is helping to enhance the conservation interest of Seal Sands, to our latest event 'Seeds of Local Provenance'.

Seeing this is my last year as convenor I would like to look back over my three formal years in office and to the first two years as a shadow section. Firstly, I would like to thank all those committee members who have helped from start up to the present date in assisting in putting together the programme of events in the region. I am sure some committee members have felt that I have encouraged them to take part!! and then realized what they have got themselves into, but I hope that most have felt that it has been worthwhile. Secondly, I would like to thank all the speakers and venues who have continued to give the region their support and hope that Andy and the other committee members will continue to develop the region and the events into the future years. I do believe that the region will be the mainstay of the Institute, and remember, its your Institute as well as any committee member or Council.

Looking to the future I see the Regions being the mainstay of members' activity. Why do I say this? It comes to the heart of the Institute for me. Primarily I have seen, that it provides an opportunity to speak to other ecologists out-side of our normal work without the formal 'position' that has to be sometimes taken, especially with a Government hat on. As we all know, if you get two or three ecologists together, you can get four or even nine answers, or any number exponentially to the same question. I personally do not see this as a problem, ecology is not an exact science and is very much open to interpretation. However, by exploring the range of possibilities with other members of the profession you can start to come to a more sensible answer. This does not necessarily have to mean compromise, but can enlighten a new solution that all can support. It is in such meetings that such discussion can take place, or the links made so that people feel able to speak to each other in the formal setting, or expertise demonstrated by giving a talk, or contributing to the session that in the end allows such solutions to be explored or demonstrated. Hence, this is why I see the main activity of membership of the profession at this level of the Region but this could be the county, or even geographical area in years to come, but what is important is that the Institute continues to grow and that all ecologists in the region feel that they want to belong to the Institute. I hope that you will all agree to actively recruit one new member to the Institute next year and that by the next report, local membership is well over 100. I wish the committee well for the coming year and hope that members will support the regional committee in the events proposed.

Habitats in Ireland

Richard Nairn CEnv MIEEM

The first conference of the Irish Section of IEEM will be held on Monday, 17 October 2005 in the National Botanic Gardens, Dublin. The theme of this one-day meeting is 'Habitat Classification and Mapping'. The full programme and booking form are available on the Institute's website www.ieem.org.uk. Closing date for registrations is 30 September 2005, although late bookings may be accepted.

At first glance, it would seem that habitats in Ireland differ little from their counterparts in Britain. However, there are some significant contrasts. Well known for its forty shades of green, Ireland is dominated by grassland, mostly of the agricultural variety. Peatlands originally covered about 17% of Ireland and the range of surviving bog and fen habitats is quite significant. A wide diversity of other wetlands, from marshes to mountain lakes, extends the list of freshwater habitats. A large proportion of the midlands of Ireland are underlain by limestone, which outcrops at the surface in some distinctive areas, the best known being the Burren, in County Clare. A uniquely Irish habitat known as turlough (seasonal lake) also occurs in these karst regions. The coastline of Ireland is over 7,500 km long, and contains a rich variety of land and marine habitats, which includes some extensive areas of sand dune and machair.

Classification of habitats in Ireland is a key issue for professional ecologists whether they are concerned with conservation or development issues. For many years, the standard JNCC Phase 1 Habitat Survey approach was followed and, in Northern Ireland, this is still the predominant scheme in use. However, a new classification was published by the Heritage Council in A Guide to Habitats in Ireland (Fossitt 2000) and this has recently become the standard used by many professional ecologists in the Republic of Ireland. After five years of application, the time is right for a review of the Heritage Council scheme and a discussion on its correlation with the JNCC system and the EU Habitats Directive.

In recent years too, many professional ecologists have adopted the techniques of GIS for mapping and presentation of the results of habitat survey. There are various applications of this for environmental impact assessment, for conservation management plans and for local biodiversity action plans. There is a need for some standardisation in the use of GIS for habitat mapping and the development of a common legend. All of these issues will be explored at the IEEM conference in Dublin. The venue at the National Botanic Gardens is within easy reach of Dublin Airport and train connections from elsewhere in Ireland. Members in Northern Ireland are particularly welcome to attend. The meeting is open to both members and non-members, so please encourage your colleagues to attend. Bookings should be sent to IEEM head office in Winchester.

Lord Standford's Legacy

Andrew Baker MIEEM

Throughout this summer the National Environment and Rural Communities Bill (NERC) has progressed through the House of Commons finally completing the Committee stage on 5 July 2005. The NERC Bill arose from the Haskins review[1] on the delivery of government policies in rural England, which was in turn part of the Government's response to the Foot and Mouth epidemic and the associated economic turmoil rural communities suffered. In his report, Lord Haskins was critical of the sheer number of organisations responsible for the delivery of government policy in the countryside; the NERC Bill aims to implement many of his recommendations by rationalising those bodies dealing with countryside management and policy, including nature conservation and site protection.

One of the key aspects of the NERC Bill is the end of English Nature and the Countryside Agency (and most of DEFRAs Rural Development Service) to be replaced by a new organization to be known as Natural England. The Bill defines Natural England's remit as follows:

1. Natural England's general purpose is to ensure that the natural environment is conserved, enhanced and managed for the benefit of present and future generations, thereby contributing to sustainable development.

2. Natural England's general purpose includes:
   a. promoting nature conservation and protecting biodiversity;
   b. conserving and enhancing the landscape;
   c. securing the provision and improvement of facilities for the study, understanding and enjoyment of the natural environment;
   d. promoting access to the countryside and open spaces and encouraging open-air recreation; and
   e. contributing in other ways to social and economic well-being through management of the natural environment.

Clause 2 of the Bill has attracted particular scrutiny during the committee stage because of the potential conflict between promoting nature conservation and other stated purposes such as contributing to social and economic well-being and promoting access to the countryside. Many are concerned that for the first time since the creation of the Nature Conservancy in 1949, England will no longer have an independent science based advisory body with the sole remit of conservation of the natural environment, and that the new organisation will be presented with constitutional conflicts where conservation and other pressures on the countryside need to be weighed up.

This is of course not the first time that such conflicts have been debated. Between 1971 and 1974, Lord Standford chaired the National Parks Policy Review Committee which reviewed the National Parks of England and Wales. In his report Lord Standford stated:

'National Park Authorities can do much to reconcile public enjoyment with the preservation of natural beauty by good planning and management and the main emphasis must continue to be on this approach wherever possible. But even so, there will be situations where the two purposes are irreconcilable... Where this happens, priority must be given to the conservation of natural beauty.'

The Standford principle, as it became known, came to the fore during deliberations on the 1995 Environment Act and the proposed amendments to the National Parks and Access to the Countryside Act 1949. Discussions centred on Lord Standford's use of the word 'irreconcilable' which suggests that this means that reconciliation should be attempted before giving priority to conservation. In other words there was no outright presumption that conservation should have a greater weight than, for example, recreation or economic development. In the event however, the word 'irreconcilable' did not feature in that part of the Environment Act and where a conflict appears 'any relevant authority... shall attach greater weight to the purposes of conserving and enhancing the natural beauty, wildlife and cultural heritage...' conservation must have priority.

Conflicts of this kind are common place and are frequently battled out in planning committee meetings and public inquiries. Some would say that without giving conservation primacy in law, these battles will no longer be held in public but will carried out behind the closed doors between the various professionals within Natural England. A Standford clause amendment to the NERC Bill has been proposed but Ministers are reported as being resistant to accept the revision.

1. RURAL DELIVERY REVIEW – A report on the delivery of government policies in rural England.
Christopher Haskins October 2003.

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Other Recent Legal Cases

At Sheffield Magistrates Court Mr Robert Hanna, former director of Meadowlands Ltd at was convicted on four counts of theft and two counts of obtaining money by deception. Meadowlands was a major supplier of local provenance wildflower seed to many large scale restoration projects. Mr Hanna pleaded guilty to four counts of theft from Meadowlands Ltd. The two counts of obtaining money by deception related to the falsification of invoices from his charity Meadowland Trust Ltd, which were then used to obtain Heritage Lottery Fund and Landfill Tax grants ostensibly for habitat restoration works. The six convictions totalled almost £100,000. Mr Hanna received an 18 month custodial sentence and investigations of his assets continue.

Legislative Tauro-Scatology

In Practice is, of course, an ideal opportunity for IEEM members to update their knowledge of new and forthcoming environmental legislation. In this issue Basil O'Saurus, our very own Professor of Tauro-Scatology, gives us a briefing on a new Directive that will soon spew out of the Brussels' legislative mangle.

What is this one called, Prof?

It is, quite frankly, the Directive that we've all been working towards for years: the Mother of All Environmental Legislation, to put it mildly. The European Commission and the European Parliament are just ironing out the last few wrinkles in the Environmental Legislation Directive, and it should soon be published in the Official Journal.

What does it entail?

Well, you've seen all the headlines about climate change and you know of all the risks associated with global warming? The European Union has tried a number of initiatives in the past and there is, of course, the Kyoto Agreement. However, the forecasts still look gloomy and the Commissioners decided that an even more radical approach was required. And so, the Environmental Legislation Directive was born.

Tell us more.

Okay. Put simply, every time the EU passes a new Environmental Directive, there is a great flurry of activity throughout Europe so that all the Member States can transpose it into their own legislation. This means all sorts of co-ordination meetings and workshops, where officials work out a common implementation strategy to ensure a level playing field. These always precipitate specialist workshops where experts in particular disciplines gather to pore over the minutiae of each Article within the Directive and special task groups set up by the European Standards Organisation to make sure that the methods used in each state are comparable. Then there are bilateral meetings to consider transboundary issues and so on. You can guess the rest...

A new breed of environmental consultant evolves…, whose knowledge of the geography of the European Union is so acute that they not only know the name of every capital in Europe, but also the name of three local beers in each...

Possibly. But that is not, in itself, a problem. All it means is that these new über-consultants become better equipped to win pub quizzes. Mind you, the level of specialism required by these über-consultants means that most of them are saddos who did well in pub quizzes anyway. No; there is a direct, and possibly a causal relationship, between the quantity of environmental legislation produced by Brussels and the amount of carbon dioxide emitted to the atmosphere by the jets that carry these experts to their meetings. The more environmental legislation that needs to be implemented, the more global warming that ensues. Cut the legislation back to the bare bones, and we might start to make significant inroads into our carbon dioxide emissions.

And this applies to all European environmental legislation?

Not just European legislation. The Directive also limits the amount of environmental legislation that individual Member States can produce as well. How many miles do we all burn up driving to and from field visits and meetings that would not happen if there was no legislation that regulatory bodies and local authorities had to implement? Haven't you ever thought that you really ought to use public transport more, but then found that there is no bus service to the site that you need to survey?

Too right. Tell us, Prof, when will this new Directive be approved by the European Parliament?

We need just a few more meetings to iron out the final wrinkles and…

Sorry, Prof, did I just hear you say 'we' and 'meetings' in the same sentence?

But of course. Someone has to represent the UK at the specialist workshops called by the Commission. Though, to be frank, the allure of these meetings has faded in recent years. I'll be glad to leave my travelling days behind.

Your altruistic nature coming to the fore again, Prof?

No, the onset of the Single Market means that I can't even buy a cheap bottle of single malt in the Duty Free shop on the way home.

Countryside Quality Counts: Tracking Change in the English Landscape

Paul Mahony

The Countryside Quality Counts project (CQC) provides an opportunity for IEEM members to collaborate in the development of a national indicator of landscape change. Here, Paul Mahony explores the background to the approach and outlines its potential as an important, integrating tool.

Introduction

The English countryside is changing, that much is certain; yet the significance of change is far more difficult to ascertain. What is needed is a thorough understanding of the state of our countryside and how it is evolving, in order to ensure that policy is based on sound evidence and decisions are made within a relevant context. In short, we need to know how, why and where change is occurring - and most importantly - where it matters the most.

Background

The need for a good understanding of the state of our countryside and the ways in which it is being transformed was emphasised in the 2000 Rural White Paper for England[1]. The Paper stressed the need for future monitoring and made a commitment to publish an indicator of change in countryside quality that would take account of such attributes as biodiversity, tranquillity, heritage and landscape character – the latter being defined as 'a distinct and recognisable pattern of elements that occur consistently in a particular type of landscape'.[2] In response to this, the Countryside Agency took up the task of developing such an indicator, working in partnership with Defra, English Heritage and English Nature, through the Countryside Quality Counts (CQC) project.

The Context of Change

The extent to which changes in the elements that shape character matter for the overall quality of the countryside can only be determined by understanding the context in which they have occurred. In some places, for example, change may be transforming an area's character by adding new landscape patterns, while in others change may be restoring traditional patterns in a landscape that has been modified by recent activities.

For the purposes of the CQC project to date, the context of change has been understood in terms of the Joint Character Area (JCA) descriptions, published by the Countryside Commission and Countryside Agency/ English Nature in the late 1990s[3]. In addition to the features that make each JCA distinctive, these descriptions included the factors that had recently influenced them, or might influence them in the future.

Put simply, the aim is to understand the impact of change in terms of maintaining local distinctiveness. From an ecological perspective, the project tracks change at the landscape-scale, complimenting existing monitoring of habitats and species at a local scale.

The first review of countryside change was undertaken through regional consultations in the autumn of 2003, led by Professor Roy Haines-Young of the University of Nottingham. Local knowledge was drawn on from the start: stakeholders considered the adequacy and accuracy of the statements about change in the original JCA descriptions and the importance that had been assigned to them. They were then asked to review the associated statistical and geographical information and reach a conclusion on the significance of change for landscape character as represented by this data. It was through the consultation exercise that the judgement of change and significance was partly determined.[4] The next phase of the project will expand the evidence base and place even greater emphasis on consultation with the landscape community, so that the judgements about change can be made more robust.

CQC Headline Indicator

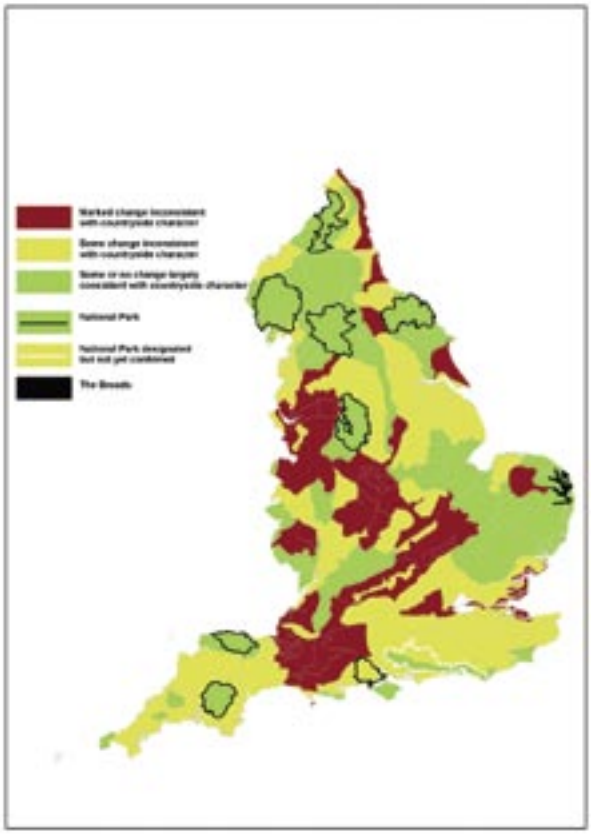
1. Between 1990 and 1998: 42% of our landscapes (65/156) were either stable or showed changes in elements that were consistent with existing character area descriptions

2. 26% of our landscapes (41/156) showed changes that were marked and inconsistent with character area descriptions

3. 32% of our landscapes (50/156) showed changes that were inconsistent but of less significance for overall character

	Number of Character Areas	% of Character Areas
Marked change inconsistent with character	41	26%
Some change inconsistent with character	50	32%
Some or limited change consistent with character	65	42%
Total	156	100%

NOTE: the map and statistics have been revised to take account of those assessments that were less clear cut across the assessment boundaries. Allocations now show those areas where change was 'possibly marked and inconsistent with character' in the MCIC group rather than SCIC. Those areas showing some or limited change that are consistent with character are merged into a single class. Reallocations have a marginal effect on the overall indicator statistics.



New Round of Consultation

In September this year, the CQC project is entering a new phase of development, aiming to refine and update the JCA profiles for the period 1998 to 2003. This will be carried out in consultation with the professional landscape community - again, putting people at the heart of the project.

The consultation will be substantially expanded and deepened from the previous assessment, in order to capture the important contextual information that will allow the project to make judgements about the significance of change. Landscape professionals and others will be consulted using an innovative, web-based approach during autumn 2005 and spring 2006. An updated indicator of change will then be delivered in November 2006 to coincide with the launch of Natural England: the new Government agency, comprising English Nature, parts of the Countryside Agency and most of Defra's Rural Development Service.

Applications of CQC

The diverse range of data involved enables the approach to be used for a wide range of applications, including monitoring the impact on agricultural landscapes of the new Environmental Stewardship schemes, and reporting on landscape change within National Parks and Areas of Outstanding Natural Beauty (AONBs). The CQC approach also holds potential to inform the monitoring of Regional Spatial Strategies and Local Development Frameworks, and will contribute to the evidence base underpinning the work of Natural England.

Looking ahead

The CQC project has developed an indicator that has addressed the ambitions set down by the Rural White Paper. The project draws upon local knowledge and understanding in identifying key issues of change, and bridges the scale between local and national work by helping people to locate themselves within wider trends. The indicator and the set of data resources that underpin it will help those concerned with the rural environment to demonstrate not only that 'countryside quality counts', but that an understanding of landscape character is critical for landscape monitoring.

The indicator for the period 1998 to 2003 will be published in November next year. Consultation on the JCA profiles will run from September to November 2005.

For more information about the Countryside Quality Counts project, and to participate in the consultation, visit www.cqc.org.uk

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Paul Mahony is the Creative Director of Countryscape, a multi-disciplinary consultancy combining expertise in design and communications, geographical information and landscape planning. Countryscape is currently co-ordinating the communications and consultation phase of Countryside Quality Counts. Email: paul@countryscape.org

Lancashire Coalfield Excursion North West Shadow Section Field Meeting 18 June 2005

Jeremy James CEnv MIEEM with Paul Rooney CEnv MIEEM

The second meeting of the NW shadow section led by Professor Tony Bradshaw FIEEM visited four coal spoil tips that have had varying degrees of treatment.

Cutacre, a large untreated tip, is typical of the sites that used to be in the coalfield until the 1950s. This particular site has been derelict since the 1930s from which time it has slowly developed a skeletal acid grassland with some scattered birch. *Deschampsia flexuosa* is abundant with few associated species and those that are present occur with low abundance. Due to the extremely low pH (c.3), large areas of the tip are still only sparsely vegetated with expansive areas of bare coal spoil. Whilst at the site Prof. Bradshaw introduced the group to the quaint local tradition of stone licking! Freshly exposed pyrites apparently has a delicious lemon flavour, confirmed by Paul Rooney who claimed to be quite refreshed by the experience!

The site is and has been an excellent resource for scientific research furthering the understanding of ecological processes in harsh environments, which has valuable applications for bio-restoration. Beyond its scientific worth the site has cultural interests in terms of the industrial heritage it represents and also provides an excellent site for local youths to ride their motorbikes!

Woodshaw in Aspull near Wigan, is a small heap that has been given simple tree planting treatment without any reforming of the spoil heap; it is an example of early 1960s low cost local authority approach. Tree planting has been successful; the site has a well established sycamore woodland and shrub layer but a relatively poor ground flora. Other species established from the original planting include: sweet chestnut, alder, birch, larch and sallow; this raised the question of how did they know which tree species to plant? A similar approach adopted at a nearby coal spoil site resulted in the complete failure of tree planting. It was suggested that the latter site may have been much more acidic. This visit sparked a discussion on ideas of how vegetation might develop at the site with thoughts of past natural, present natural and future natural…and eventually generated the brain teasing thought of what 'natural' might actually mean!

In the midst of the site visits, a break was taken at a pub by the Leeds and Liverpool Canal…refreshing brown liquids were consumed and discussions covering alien species, field skills and teaching techniques commenced... it took a some effort to depart from this site!

Chisnall Hall close to Copull, also near Wigan, is a large site that was given the full 'works' to return it to productive agricultural land with a Derelict Land Grant during the early 1980s. Improvement techniques included:

- earth moving to reform the spoil;
- mass liming (200 t ha^{-1}, 10x the normal rate of application);
- mass phosphate dosing;
- ripping the spoil to a depth of 80 cm to break up the compacted surface of the spoil; and
- harrowing and fertilizer dressing prior to seeding the site with an agricultural grass mix.

Chisnall Hall is a valuable scientific resource and has been used as a research site by ecologists. In this spirit, Prof. Bradshaw handed the party a spade and tasked us with investigating the soil profiles on the heap, quite a challenge on a hot day, after a pint and accompanied by a worried looking herd of bullocks! The aim of the task was to identify the reasons why the site is only able to support 50% of the numbers of grazing cattle found in similar surrounding pasture. The group bravely ascended the heap and began to dig. Several minutes later the group took a breather at the top of the hill and then decided to return to the safety of Prof. Bradshaw to divulge our post lunch inspiration! Impressively we were able to describe at least one reason why the soil might not be so productive, it was we explained a poorly developed soil being only three inches or so at its deepest and underlain by compacted coal waste. However, the group also noted an abundance of clover, several earthworms and a relatively lush sward, suggesting that some agricultural 'improvement' had been undertaken to encourage

productivity at the site, which had been poor in previous years. Methods of further agricultural improvement were discussed including the possibility of inoculating the soil with earthworms.

Colliers Moss in St Helens is a very large site where Groundwork began reclamation in 1990 using naturalistic treatment ('the modern, minimum cost ecological approach'). Groundwork purchased the site for £1 and received £500,000 in grant aid to reclaim the site. Various treatments have been applied at the site, examples of which include:

- liming (20 t ha^{-1} compared to 200 t ha^{-1} at Chisnall Hall);
- adding PFA in some places;
- using crushed local (disused) railway ballast for path foundations (hence the presence of species including yellow wort);
- creation of wetland on the tip surface; and
- sowing of heather.

The site is quite complex and this report cannot give justice to its interest and the previous work that has been completed at the site. The main discussion points focused upon:

- The need for scrub management on developing heathland that is being rapidly colonised by birch and sallow scrub. Rabbit grazing was also a concern on the more open areas of developing heath, which appeared to be preferentially grazing. Scrub management techniques including: burning, cutting and tractor mounted chemical wiping were discussed, all of which need careful consideration given the urban context.
- The contextual significance of the site; on the edge of a housing estate in St Helens was highlighted. It was noted that immense social improvements have been noted since the tip was 'improved'.
- Thoughts were then considered regarding the features of conservation importance. The site is a local nature reserve and includes some areas of untreated spoil which is now a scarce and decreasing habitat, in part due to reclamation and the possible future reworking of similar sites.

The Colliers Moss site was absolutely delightful with a wonderful mosaic of habitats, which were obviously enjoyed by the local community. We were fortunate enough to see flowering bee orchids and hear reed warblers calling (in St Helens!). Prof. Bradshaw told us that he recently walked the site with a friend; during the three hours they were on site they never retraced their steps!

These four sites tell an interesting story of how varying objectives and decisions have produced markedly different landscapes. They are

signposts of our industrial heritage and in some cases provide valuable assets for local communities. With the possible economic viability of spoil reclamation, sites such as Cutacre represent rare habitats that are of considerable value for scientific study or put a different way, they might be considered as sites of special scientific interest!

Immense thanks to Prof. Bradshaw for organising such a fascinating trip. His knowledge and enthusiasm provides us with inspiration and an appreciation of the special region in which we work.

Footnote

The first year of the NW shadow section has seen a promising start with an encouraging amount of interest and support expressed by members. Many thanks to Richard Scott of Landlife for our first event of the year and thanks also to all those who have supported the new section.

The next event is 'Bringing the Bittern back to Leighton Moss' on Wednesday 7th September 2005. This visit will consider EU Life-Nature projects to restore and link wetland habitats of particular importance for the Bittern. Indoor presentations followed by field visits to see mud-pumping operation, reedbed creation and water level management. This is a joint event with RSPB staff.

Please contact Paul Rooney, Chair of the NW section, on rooneyp@hope.ac.uk or 0151 291 3933 to book a free place at an event or for more details on plans for the North West section.

Environmental Conservation in Forgotten Parts of the UK's Territory

Dr Mike Pienkowski MIEEM

The UK Overseas Territories (UKOTs) are part of UK sovereign territories and their citizens are UK citizens. However, they do not receive regular support from the UK's conservation budget – but, because of their status as UK territory, the UKOTs are not eligible either for most international grant sources. This introduces major problems for conservation, because, in global terms, the UKOTs support a far greater wealth of biodiversity than mainland UK. Their human populations are generally less numerous than that of a small town in UK. The UK Overseas Territories Conservation Forum works to help people in the UKOTs to conserve their diverse and unique species and ecosystems.

Rock Iguana Cyclura carinata, one of nine endemic reptiles in the Turks & Caicos Islands. Work is in hand to study and conserve this Critically Endangered species, but threats from habitat loss to inappropriate development and introduced alien predators remain.

What are the UK Overseas Territories (UKOT)

The UKOT, located on the map, (and the Crown Dependencies of the Isle of Man and the Bailiwicks of Jersey and Guernsey, the latter including also Alderney and Sark) are all within the sovereign territory of UK, but are not represented in UK Parliament. Each UKOT (and CD) differs, as do the details of their relationships with UK. The inhabited UKOTs share in common that they have chosen to remain linked to UK, rather than moving to independence (or, in the case of one, a link to another country).

The human population in metropolitan UK is about 59 million, whereas those of UKOT vary between fewer than 50 persons to 59,000, mainly about 2000 to 20000.

	Human population	Land area (km²)
Metropolitan UK (GB & NI)	59 000 000	244 101
Total UKOTs & Crown Deps	406 150*	17 967**

* About half in the Crown Dependencies

** Excluding British Antarctic Territory, which is subject to the Antarctic Treaty

Why Are The UKOTs So Important For Global Biodiversity?

Although in most terms, the UKOTs may be considered by many people rather peripheral, this is not the case in respect of their biodiversity. Despite their generally small size, the UKOTs are far more globally important than metropolitan UK. There are many examples of this, such as proportions of world populations of various species supported. Some examples, centering on endemic species are given below. The Overseas Territories support:

- At least 10 times as many endemic species as Britain.
- About 500 endemic invertebrates so far found.
- At least 20 endemic bird species (compared to none or one in domestic UK).
- More than 200 endemic plant species; most occur on St Helena (46).
- One of the world's largest and richest atolls (Great Chagos Bank, British Indian Ocean Territory).
- At least 80 endemic species in the Bermuda caves system.
- 59 endemic of species of moss among 126 species recorded on Tristan da Cunha.
- Nesting of Green Turtle in 7 Overseas Territories.
- The Pacific's best large raised coral atoll (Henderson Island in the Pitcairn group).
- A key migration route for birds of prey (Gibraltar).
- 61% endemic among the 256 beetle species on St Helena.
- 19 endemic taxa of reptiles in the Cayman Islands.
- A majority of the world population of many species of seabirds in the South Atlantic islands.
- 22 species of whales, porpoises and dolphins around the Falkland Islands.
- One of the world's best examples of natural transitions between wetland ecosystem complexes in the Turks & Caicos islands.

Apart from its intrinsic importance, this biodiversity underlies much of the economy of these UKOTs, including via fishing, tourism based on natural resources, coastal protection and other factors.

Despite their global importance, severe impacts are occurring in several UKOTs to these globally important species and ecosystems, especially by habitat loss due to building construction, introduced species, illegal fisheries, and cruise-liner damage to coral reefs.

What is the UK Overseas Territories Conservation Forum

The UK Overseas Territories Conservation Forum works to help people in the UKOTs to conserve their diverse and unique species and ecosystems, and encourage sustainable uses. It was founded in 1987 when several conservation and scientific bodies in UK realised that the conservation of the hugely important biodiversity of the UKOTs was being totally neglected. In 1996, the Forum became a charitable company. Its member organisations are conservation and science bodies in UK and the UK Territories, and it has a wide network of voluntary collaborators. It works closely with Governments in the UK and the UKOT, and jointly chairs and organises a twice yearly meeting of NGOs and government departments and agencies on conservation issues in the Territories, as well as frequent informal meetings.

Current UK member organisations of the Forum include:

- British Microbial Biodiversity Association
- CAB International
- Fauna & Flora International
- Herpetological Conservation Trust
- Marine Turtle Research Group
- The National Trust
- Royal Botanic Gardens, Kew
- Royal Society for the Protection of Birds
- Royal Zoological Society of Scotland
- World Wide Fund for Nature UK
- Zoological Society of London

Member organisations in UKOTs and Crown Dependencies include:

- Alderney Wildlife Trust *
- Anguilla National Trust *
- Ascension Conservation Centre *
- Ascension Heritage Society *
- Bermuda Audubon Society
- Bermuda National Trust
- Bermuda Zoological Society
- Chagos Conservation Trust *
- British Virgin Islands National Parks Trust
- National Trust for the Cayman Islands *
- Falklands Conservation
- Gibraltar Ornithological & Natural History Society
- La Société Guernesiaise*
- National Trust for Jersey
- Société Jersiaise
- Isle of Man Wildlife and Conservation Division
- Manx Chough Project
- Montserrat National Trust
- St Helena National Trust *
- National Trust of the Turks & Caicos Islands *

* formed since 1987 (formation of the Forum)

In addition to its formal member organisation, the Forum operates as a network which includes:

- Working Groups, for the South Atlantic, the wider Caribbean, British Indian Ocean Territory and Pitcairn
- Friends of the UK Overseas Territories, providing for involvement of interested individuals
- Links with UKOT governments
- Links with UK government, including 2 formal meetings per year and frequent informal contacts

The Falkland Islands hold over 70% of the world's population of Black-browed Albatross Thalassarche melanophris. This and other seabird species need international action to overcome the serious impact of mortality due to fishing gear, especially of illegal, unlicensed and unregulated fisheries.

Some core objectives of the Forum include helping local people form conservation NGOs in all UKOTs whose population size is appropriate for this. Those local NGOs which have been established since the Forum's formation are noted in the list above. The most recent example of work to help establish locally based NGOs related to a National Trust on St. Helena. Much of this type of work is complete, although sometimes redevelopment work is required after setbacks, such as the redevelopment of the previously well established Montserrat National Trust after the volcanic emergency.

The second logical stage of work in partnership with UKOT conservation NGOs (and often too with local official bodies) is to help capacity development. As this develops, there is a progressive move to shift the balance of work to collaboration on increasingly ambitious projects, and away from organisational management, as this becomes internally established.

Jason Thomas, Environmental Health Officer, leads part of the discussion between Councillors, Heads of Department, other governmental personnel and NGOs in a workshop chaired by Isabel Peters and Mike Pienkowski, developing the Strategy for Action to implement St Helena's Environment Charter.

Close working relationships develop between those based in UK and partners in the Overseas Territories. The lead partnership with local bodies is sometimes taken by the Forum personnel themselves (such as with the Turks & Caicos Islands, and with some generic issues) and sometimes by one of its member organisations (such as RSPB with Anguilla National Trust and Ascension Island, and the Royal Botanic Gardens Kew and others in British Virgin Islands). Whichever body leads, other partners in the Forum network are brought in as appropriate.

In addition to these roles, the Forum:

- Advises governments and non-governmental organisations (NGOs) in the UK and the UK Overseas Territories (UKOTs).
- Acts as a co-ordinating link for voluntary organisations and individuals with special interests in the UKOTs, thereby providing a principal source of expert advice.
- Works with NGOs and governments to assess needs, identify strategies and find funding for conservation activities.
- Manages or co-manages conservation projects in the UKOTs.
- Maintains a web-database on the natural history and conservation activities of the UKOTs (www.ukotcf.org).
- Produces a newsletter Forum News, which shares information with groups in the UKOTs and others.

The Forum tries to coordinate efforts with UK Government, via:

- 6-monthly formal meetings and very frequent informal ones.
- Liaison and visits.
- Project ideas development.
- Main source of advice in the UK Ramsar Committee (on the Convention on Wetlands) on implementation in the UKOTs, and for some other Conventions.
- 1999 White Paper preparation and the Environment Charters (see below).
  Exploring with UKOT partners ways of progressing strategic environmental planning.
- Briefing to Governors.
- General advice.

The Forum tries also to encourage and facilitate exchange of developing expertise between UKOTs, for example by:

- Encouraging UKOT participation in UK delegations to environmental treaty meetings.
- Breath of Fresh Air conference, organised in London 1999 by FCO with Forum support.
- Forum and Gibraltar Ornithological & Natural History Society organised Calpe 2000 conference in Gibraltar with Gibraltar Govt support.
- Forum and Bermuda partners organised 2003 A Sense of Direction conference.
- 2006 conference being organised in Jersey.

- Newsletters, web-site, Working Groups.
- Collaborative projects.
- A web-site (www.ukotcf.org) which for some time has been a main source of information on UKOTs, and which now includes both static pages and a web-accessible database.

What are the Environment Charters?

The Forum developed constructive interactions with individual FCO officials from the early days of its existence, but this was very dependent on the attitudes of the individuals who occupied one or two governmental posts at any particular time. This was related to the low priority given by FCO to the environment, as well as the organisational absent-mindedness about UKOTs within Her Majesty's Government (HMG).

There were some changes from 1997, of which the Forum attempted to make use. With the transfer of Hong Kong to China, UK newspapers were filled with headlines such as "Britain loses last colony". The renewed – and highly destructive – activity of Montserrat's volcano shortly afterwards led to a slow dawning on the part of UK Government, press and public that there were other UK Territories. The mis-handling by HMG of the Montserrat emergency led to a review of HMG relations with UKOTs. In a speech at a conference of the Dependent Territories Association (now UK Overseas Territories Association, a gathering of UKOT Governments), the Foreign Secretary announced plans for a White Paper. At first, this was not to include consideration on the environment. However, UKOTCF pressed the need for inclusion of a chapter on environment, and proposed a 'checklist' approach, so that it would be agreed what needed to be achieved, but it would be up to UKOTs, with UK help, on how to achieve this. The 1999 White Paper adopted the check-list approach as the 'Environment Charter'. The White Paper announced also the first modest fund to help environmental conservation in the UKOTs, about £500 thousand per year from FCO and spread on projects across the 16 UKOTs.

Environment Charters between UK and UKOTs arose to address an anomaly. UK Government (HMG) is responsible in respect of UKOTs for international commitments, including Environmental Conventions etc., and for ensuring good governance. However, domestic legislation and implementation (including of international commitments) is the responsibility of the UKOT Government. Environment Charters provide a new mechanism to relate the international responsibilities of UK Government and the domestic ones of UKOT Governments. Their strategies for implementation provide the opportunity for strengthening both the efficacy and the democratic input into environmental policies and practices.

After two years of working out what an Environment Charter should look like, on 26 September 2001, Environment Charters were signed between HMG and UKOT Governments. The Environment Charters include statements of principles and commitments by both parties in respect of integrating environmental conservation into all sectors of policy planning and implementation. UKOTCF had always considered that the Charters would be of use only if they had a real effect on work on ground. In line with this, the first commitment of the UKOTs was to formulate a detailed strategy for action, and HMG's first commitment was to help build capacity to support and implement integrated environmental management. Informal feedback during 1999 to 2002 from the Territories, both to the Forum, indicated that the first need was for facilitation in developing these strategies for action. In 2002, following discussions between the Forum, FCO, and some of the UKOT Governments, the Forum started a facilitation project to develop a strategy for action to implement a first example UKOT to serve as a model to others. FCO agreed to part-fund this pilot by the Forum, working with Turks & Caicos Islands (TCI) Government, NGOs & others.

The facilitation exercise took about a year, comprising four periods of activities each covering 2-3 weeks in territory, between which the facilitators analysed the results of consultations and discussions, clarified points as necessary with local colleagues, and prepared for the next round of consultations. The Government of the TCI (the partners in the pilot) have adopted the resulting strategy.

Since then, the Forum has facilitated colleagues in St Helena to apply an approach based on this model, and advised several other UKOTs. Guidelines on the approach and the strategies for TCI and St Helena can be seen on the Forum's web-site (www.ukotcf.org).

Amongst the tree-ferns during a brief lift of the cloud in the cloud-forest of St Helena's Peaks. This ecosystem contains a remarkable variety of endemic plants. Valiant work is in hand to fight back the introduced invasive plants which are threateneing to swamp these, but more resources are urgently needed.

Does UK Government Support Conservation in UKOTs?

Unfortunately, despite the shared global responsibility for this biodiversity between UK and the UKOTs and the small economies and human populations of the latter, almost no UK metropolitan funding lines are available to conservation in the UKOTs. As noted above, FCO have budgeted about £500 thousand annually since 1999 (with one hiccup, when the budget got lost for one year until UKOTCF, the UKOTs and the FCO officials directly involved managed to remind senior officials and ministers of the importance of this fund). A similar amount has now been allocated by the Department for International Development (DFID). Commendably, in order to ease matters for the Territories, the two departments combine their budgets for this purpose as the joint Overseas Territories Environment Programme (OTEP). UKOTCF provides advice for this, and details can be found on its web-site (www.ukotcf.org).

HMG commendably invests many millions of pounds in biodiversity conservation in metropolitan UK, as well as some millions (at least £40 million per year) on foreign conservation. For one aspect of this, the Darwin Initiative, UKOTs are eligible, but only on the same basis as foreign countries.

A fundamental problem is that the support for environmental conservation in UKOTs is left to the lead policy department, FCO (which is not a major spending department) and to DFID (which is primarily concerned with foreign aid to the poorest countries, not UK's responsibilities to territories within its own state). The lead environment department, Defra, does not commit any funds regularly to UKOTs. As a consequence, there is only a tiny budget committed to UK's major responsibility in this area, the biodiversity of UKOTs, and it is widely recognised that OTEP can address only small projects. This is a severe failing – which appears to run counter to HMG's commitments under the Convention of Biological Diversity and other Multilateral Environmental Agreements.

UK Government reports reveal that about £1 million per year is spent by UK Government on conservation in the UKOTs. Its own reports reveal also that UK Government spends at least £460 million on conservation in Great Britain and Northern Ireland (in fact, rather more as the available figures were incomplete). When one bears in mind that there are at least 20 times as many endemic species in the UKOTs as in Great Britain and Northern Ireland (and similar ratios would be achieved if one considered other measures of global biodiversity or vulnerability), it seems that the UK Government spends 1/9200 th (about 4 orders of magnitude less) per endemic species in its Overseas Territories than in Great Britain & Northern Ireland.

The UK Government spends about 1/40 th of its contribution to international conservation contribution to conservation in its OTs (where it has a direct shared responsibility.)

Not only do UK official funds tend to exclude UKOTs, but so do most UK charitable and commercial sources, largely because of a lack of awareness when the funds were established. Several novel funding sources, such as the National Lottery, are major funding sources for conservation bodies in metropolitan UK, but the UKOTs are not eligible; usually the sources concerned think up reasons for this, if questioned – but these excuses simply hide the underlying cause of lack of awareness.

We are not suggesting that the spending by UK on conservation in Great Britain and Northern Ireland, nor its international contributions, should be significantly cut. However, the level of support for its responsibilities in UKOT is derisory. The work over the past decade and more by UKOTCF (which struggles along with no core funding from UK Government despite undertaking much voluntary work for it) and the success of the small projects funded by OTEP, its FCO fore-runners and the NGOs have demonstrated what can be done with very limited funding. They have also exposed the scale of necessary work which needs funding. It would not take much to make a huge impact. A tiny proportion of the funds which UK spends on conservation in Great Britain and Northern Ireland would have a very large percentage change to the spending in UKOT.

It is time to address some core issues. Surely Defra can find a way to provide significant funding. Surely the Department of Culture, Media and Sports has it in its power to make National Lottery funding available to UK Overseas Territories. There are all sorts of negative bureaucratic answers that can be made to these questions. But, if there is a will, a way can be found, even if legislation is required. Surely it is time that the UK Government started treating the UKOT and their British citizens more like the special parts of UK that they are, rather than odd and forgotten small foreign countries?

Although the scale of the discrepancy has only now become clear, the basic message is not new. UKOTCF has been pointing this out, perhaps in too civilised a manner, to UK Governments for over a decade. It really is time for UK Government to act. Almost incredibly, species which occur in UK Territory and nowhere else in the world are still going extinct – most recently the St Helena Olive, which went extinct in November 2003. Several other species are on the brink. This is a disgrace, and the lack of action by UK Government is a breach of its own international commitments. As always the UKOTCF is keen to work with UK Government in any way possible to change this situation and ensure long-term survival of the UK's most precious biodiversity.

Dr Mike Pienkowski is the Chairman of the UK Overseas Territories Conservation Forum .

The Parlous State of Invertebrate Ecological Assessment Amongst Consultancies

Keith Alexander CEnv MIEEM

I don't know whether Stephanie Wray was intending to be so provocative. ('First Catch Your Botanist', In Practice March 2005). I would like to think that the fieldwork aspects of ecological scoping and reporting involves rather more than just Phase 1 surveys, the rudiments of NVC, and surveys for badgers or dormice, as she defines it in her short article. It is an unfortunate fact that many plant ecologists – especially those that refer to themselves as 'general ecologists' – seriously believe that Phase 1 is actually a habitat classification that is relevant to animal ecology and that it is an adequate baseline approach for ecological assessment for anything other than vascular plants. It has long been recognised that plant habitat classifications are not equivalent to animal ones, but this situation appears to have passed most plant ecologists by. The issues are discussed in detail in Charles Elton's excellent book 'The Pattern of Animal Communities' (1966).

Stephanie bemoans the lack of field skills amongst plant ecologists. I sympathise with her concerns, but would like to assure her that things are far worse in animal ecology, especially my own specialism, invertebrate ecology. Many ecological consultancies claim to offer invertebrate surveys and assessment but all too often this means using an invertebrate specialist with some knowledge of one or two invertebrate groups and very limited knowledge beyond that; in many cases the invertebrate specialist is a taxonomist with little understanding of ecology.

There is a serious shortage of invertebrate ecologists let alone broadly based ones. This issue is in urgent need of IEEM attention as - at best - it undermines the credibility of ecological consultancies, which claim to offer such a service but use inadequately experienced invertebrate recorders, and – at worst – results in woefully inadequate ecological interpretation of inadequate invertebrate data. This can actually result in damage to ecologically sensitive sites. Few ecological consultancies have the necessary knowledge to appreciate whether or not they are providing a good quality invertebrate assessment. I have come across so many poor invertebrate assessments in recent years that I feel something needs to be done.

Can I suggest IEEM establishes an invertebrate ecology initiative to investigate the issues and establish some protocols?

Keith Alexander is a freelance ecological consultant specialising in invertebrate survey and assessment.

Editor's Note

Stephanie Wray's article was reprinted in the newsletter of Southern African Institute of Ecologists and Environmental Scientists. Members were asked to comment.

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Compiled by Jim Thompson

British Ecological Society

D. Maxwell and S. Jennings.
Power of monitoring programmes to detect decline and recovery of rare and vulnerable fish.
Journal of Applied Ecology 2005, **42**: 25-37.

Abundance trends provide key guidance when setting conservation priorities, whether indicating population decline, stability or recovery and so knowledge of the power of surveys to detect trends is essential.

The authors calculated the power of the English North Sea bottom trawl survey to detect decline and recovery of species vulnerable to fishing. The survey began after many vulnerable species had already been depleted.

The power of the survey to detect declines in the abundance of vulnerable species on time scales of < 10 years was low and the survey often failed to detect declines that would lead to listings under the IUCN A1 Red List criteria. Thus conservation prioritization based solely on survey data may fail to identify species at risk of regional extinction.

Power to detect trends in abundance was increased by developing a composite indicator that reflected trends in abundance of several vulnerable species. This indicator provided an overview of their conservation status. Conservation prioritization and management action should not depend on the statistical significance of recent abundance trends when low power is a consequence of historical depletion.
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T. P. Moorhouse and D. W. Macdonald.
Indirect negative impacts of radio-collaring: sex ratio variation in water voles.
Journal of Applied Ecology 2005, **42**: 91-98.
This is a cautionary tale for those working with this high profile species. In radio-tracking, a fundamental assumption is that tagged animals do not significantly differ, behaviourally or otherwise, from untagged animals.

The authors studied two populations of water voles *Arvicola terrestris*: one population was live-trapped from April to September for 2 years (2000, 2001) and then concurrently radio-tracked and trapped in a third year (2002). The second population was trapped only during 2002.

During 2002, a substantial decline in female numbers in the radio-collared population was recorded, apparently resulting from a male skew in the sex ratios of offspring born to this population. These results question the assumption that the use of radio-collars does not fundamentally affect the biology of collared water voles.
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C. R. Brakes and R. H. Smith.
Exposure of non-target small mammals to rodenticides: short-term effects, recovery and implications for secondary poisoning.
Journal of Applied Ecology 2005, **42**: 118-128.

Monitoring of exposure to pesticides in many countries shows extensive exposure of predators to anticoagulant rodenticides, which are used to control rats. Many predators and scavengers are declining in numbers, and exposure to rodenticides might therefore be of importance in conservation biology.

Predators and scavengers of poisoned rats are at most risk of secondary poisoning. However, several predatory species of conservation concern rarely eat rats, implicating non-target small mammals as the major route of exposure. This research investigated the importance of non-target small mammals as routes of exposure to rodenticide for predators and scavengers in the UK.

Exposure studies of non-target small mammals were carried out alongside routine rat control at five sites, around agricultural buildings and feed hoppers for game birds.

Three non-target rodent species fed on rodenticide from bait boxes during routine rat control treatments. A large proportion (48·6%) of individuals in local populations ate the bait: woodmice *Apodemus sylvaticus* were most exposed, followed by bank voles *Clethrionomys glareolus* then field voles *Microtus agrestis*.

The results showed that routine rat control reduced local populations of non-target small mammals. This may limit the food supply of some specialist predators. Most importantly, this demonstrates a significant route of exposure of predators and scavengers of small mammals to secondary poisoning. Rodenticides are applied on farms and game estates across the UK and the results suggest that less reliance on this practice as a method of control would be desirable.
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J. S. Rentch, R. H. Fortney, S. L. Stephenson, H. S. Adams, W. N. Grafton and J. T. Anderson.
Vegetationsite relationships of roadside plant communities in West Virginia, USA.
Journal of Applied Ecology 2005, **42**: 129-138.
This paper is included because of its implications not only for road construction but also other operations where there is severe disturbance of the land and where the temptation is to use non natives as a quick means of erosion control. It reports work from 13 major 4-lane highways in West Virginia. The resultant roadsides are highly disturbed habitats characterized by plant communities maintained at an early successional stage. They are often planted with non-native species and frequently provide vectors for the introduction and spread of invasive species. There is a need to balance the rapid revegetation of roadsides with the goal of maximizing use of native species and minimizing the introduction of non-native species.

Management goals should therefore include techniques for limiting the establishment of these species, and substitution of non-native species planted for erosion control with suitable native species.
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V. Vandvik, E.Heegaard, I.E. Maren and P. A. Aarrestad.
Managing heterogeneity: the importance of grazing and environmental variation on post-fire succession in heathlands.
Journal of Applied Ecology 2005, **42**: 139-149.
Semi-natural habitats have been shaped by human disturbance regimes for centuries. Land-use practices, such as cutting, burning, grazing and turf-cutting, have resulted in complex mosaic landscapes that are of high priority for conservation in Europe. Contemporary conservation subjects these systems to management regimes that are generally less diverse, than traditional land use, but the ecological consequences of these simplifications are unclear.

The authors investigated the interactive effects of fire and grazing on plant species composition and diversity along local environmental (moisture) gradients in coastal heathlands.

Fire induced strong successional trends in the species composition of the heathlands. These trends differed among heathland habitats, and with grazing. Strong interactions between fire, habitat and grazing implied that the effect of grazing on the successional dynamics differed among habitats. Species diversity decreased in the first year after fire but increased beyond the pre-fire levels during succession.

The results demonstrate that the two management practices do not have simple additive effects, as grazing created ecological opportunities for additional sets of species, increased variability among habitats, and added complexity to the post-fire successional dynamics. In order to preserve diversity, conservation management should thus aim to preserve the level of complexity of the traditional management regimes. Taking into account local environmental variability is also important.
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F. Bary, A.C.Gange, M.Crane and K.J. Hagley.
Fungicide levels and arbuscular mycorrhizal fungi in golf putting greens.
Journal of Applied Ecology 2005, **42**: 171-180.
Annual meadow grass *Poa annua* is the most problematic weed within sports turf in temperate climates. It is so abundant that herbicides cannot be used against it because almost total loss of the sward would occur. Arbuscular mycorrhizal (AM) fungi can be used as biological control agents of *P. annua*, acting to reduce its growth while increasing that of desirable perennial grasses. However, natural levels of AM fungi in amenity turf are very low. Sports turf is characterized by high fungicide usage, so this study tested the hypothesis that levels of toxic elements (derived from historical fungicide applications) and/or organic fungicides are related to the low mycorrhizal abundance observed.
The authors concluded low levels of AM fungi unlikely to be a consequence of excessive fungicide application. Levels of compounds applied in the last 20 years are very low and modern fungicides do not reduce existing AM colonization when applied to turf. Therefore, if AM fungi are added to sports turf to control *P. annua,* their effectiveness will not be compromised by current or past fungicide use.
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Golf Course Development, Almeria

M.A. Palmer, E.S. Bernhardt, J. D. Allan, P.S. Lake, G. Alexander, S. Brooks, J. Carr, S. Clayton, C. N. Dahm, J. F. Shah, D. L. Galat, S. G. Loss, P. Goodwin, D.D. Hart, B. Hassett, R. Jenkinson, G.M. Kondolf, R. Lave, J.L. Meyer, T.K. O'Donnell, L. Pagano and E. Sudduth.
Standards for ecologically successful river restoration.
Journal of Applied Ecology 205, **42**: 208-217.
This paper is part of a series of papers in the Journal of Applied Ecology dealing specifically with river restoration issues. Increasingly, river managers are turning from hard engineering solutions to ecologically based restoration activities in order to improve degraded waterways. There is growing interest in applying river restoration techniques to solve environmental problems, yet little agreement exists on what constitutes a successful river restoration effort.

The authors propose five criteria for measuring success. Firstly, the design of an ecological river restoration project should be based on an image of a more dynamic, healthy river that could exist at the site. Secondly, the river's ecological condition must be measurably improved. Thirdly, the river system must be more self-sustaining and resilient to external perturbations so that only minimal follow-up maintenance is needed. Fourthly, during the construction phase, no lasting harm should be inflicted on the ecosystem. Fifthly, both pre- and post-assessment must be completed and data made publicly available.

Determining if these five criteria have been met for a particular project requires development of an assessment protocol. They suggest standards of evaluation for each of the five criteria and provide examples of suitable indicators.

Despite the huge sums of money currently spent restoring streams and rivers there are no agreed criteria for what constitutes ecologically beneficial stream and river restoration. Such criteria should also help to clarify which activities qualify for ecological restoration funding.
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R. Jansson, H. Backx, A. J. Boulton, M. Dixon, D. Dudgeon, F.M.R. Hughes, K. Nakamura, E. H. Stanley and K. Tockner.
Stating mechanisms and refining criteria for ecologically successful river restoration: a comment on Palmer et al. (2005).
Journal of Applied Ecology 2005, **42**: 218-222.
This paper comments on the previous one and the authors agree that all the identified criteria merit inclusion in an assessment of successful river restoration. However, the practical application of measuring self-sustainability following restoration is potentially problematic and an explicit timeframe is needed to evaluate the results of the restoration.

A sixth criterion should also identify the ecological mechanisms by which the proposed activities will achieve their target.
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I. Leyer.
Predicting plant species' responses to river regulation: the role of water level fluctuations.
Journal of Applied Ecology 2005, **42**: 239-250.
One of the main targets of river regulation with dams and dykes is the stabilization of highly fluctuating water tables. While there is information about the overall impact of such regulation measures on plant species composition and richness, far less is known about specific species' response patterns to reduced water level fluctuations.

The response of 30 common grassland species to soil moisture and water level fluctuations was assessed.The majority of species responded significantly to water level fluctuations. Species of high elevation habitats occurred at lower elevations where water level fluctuations were reduced, indicating increasing drought at high elevation habitats. However, species that occurred in floodplain depressions tended to shift from lower to higher elevations to avoid permanent inundation.

Almost half of the species showed a significant preference for either highly fluctuating water tables, characteristic of the recent floodplain, or for stable water tables, characteristic of the older floodplain.

This study demonstrates that reduced water level fluctuations caused by the construction of dams and dykes lead to substantial changes in the spatial distribution of floodplain plant species and in species composition.
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G. J. Van Geest, H. Coops, R. M. M. Roijackers, A. D. Buise and M. Scheffer.
Succession of aquatic vegetation driven by reduced water-level fluctuations in floodplain lakes.
Journal of Applied Ecology 2005, **42**: 251-260.
In recent years, interest has grown in restoring floodplain function of

regulated rivers. Successful rehabilitation of riparian systems requires knowledge of how regulation of river flow affects biodiversity and ecosystem function. The effects of changes in the river's low water-level regime on aquatic ecosystems in floodplains has received little attention so far.

The aquatic vegetation of 215 floodplain lakes along the Lower Rhine (the Netherlands) was analysed in relation to lake characteristics and lake water-level fluctuations in 19992000.

Vegetation composition was related to lake morphology and age, cattle access to the shoreline, the amount of time the river was in flood, and lake sediment area exposed at low water level (drawdown).

In older lakes, water-level fluctuations are reduced due to an accumulation of clay and silt that 'seals' sediment, preventing drawdown during periods of low river levels. The results suggest that this clay sealing process is a major driving force for aquatic vegetation succession in floodplain lakes along the Lower Rhine, as succession drives from desiccation-tolerant species (e.g. Chara spp.) in young lakes to desiccation-sensitive species (e.g. Nuphar lutea) in old lakes.

In artificial lakes where drawdown was rare or absent, and the aquatic macrophyte vegetation was characterized by low species richness and frequent dominance by the invasive species Elodea nuttallii.

The results show that stabilization of river water levels during low flow may negatively affect vegetation composition and succession in floodplain lakes adjacent to these rivers. A management scheme including temporary lowering of the river water level, which results in drawdown of floodplain lakes, would enhance the ecological status of those rivers with stabilized water levels during low flow.
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M. J. Whittingham, R.D. Swetnam, J. D. Wilson, D.E.Chamberlainand R. P. Freckleton.
Habitat selection by yellowhammers *Emberiza citrinella* on lowland farmland at two spatial scales: implications for conservation management.
Journal of Applied Ecology 2005, **42**: 270-280.
Yellowhammer *Emberiza citrinella* populations have declined rapidly in the UK over recent decades, and a clear understanding of their habitat requirements is important to help inform conservation schemes. By use of a model the authors aimed to disentangle and rank the effects of winter versus breeding season habitat characteristics.

The authors considered data at two spatial levels: individual field boundaries and individual territories. Factors considered important in the literature comprised boundary height and width, and the presence of hedges, trees, ditches, boundary strips, tillage crops, winter set-aside and winter stubbles.

The model showed that winter habitats play an important role in determining where birds locate territories in summer. In particular, the presence of rotational set-aside fields in winter showed the strongest association with summer territories. There was a strong preference for territories containing trees.

Provision of winter set-aside fields for summer territory selection by yellowhammers is an important practical consideration for farm management where conservation is a priority.
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S.Wipf, C.Rixen, M. Fischer, B. Schmid and V. Stoekli.
Effects of ski piste preparation on alpine vegetation.
Journal of Applied Ecology 2005, **42**: 306-316.
Ski resorts increasingly affect alpine ecosystems through enlargement of ski pistes, machine-grading of ski piste areas and increasing use of artificial snow.

In 12 Swiss alpine ski resorts, the authors investigated the effects of ski piste management on vegetation structure and composition using 38 plots on ski pistes and 38 adjacent plots off-piste.

Plots on ski pistes had lower species richness and productivity, and lower abundance and cover of woody plants and early flowering species, than reference plots. Plots on machine-graded pistes had higher indicator values for nutrients and light, and lower vegetation cover, productivity, species diversity and abundance of early flowering and woody plants. Time since machine-grading did not mitigate these impacts even for those plots where revegetation had been attempted by sowing.

The longer artificial snow had been used on ski pistes , the higher the moisture and nutrient indicator values. Longer use also affected species composition by increasing the abundance of woody plants, snowbed species and late-flowering species, and decreasing wind-edge species.

All types of ski piste management cause deviations from the natural structure and composition of alpine vegetation, and lead to lower plant species diversity. Machine-grading causes particularly severe and lasting impacts on alpine vegetation, which are mitigated neither by time nor by revegetation measures. Extensive machine-grading and snow production should be avoided, especially in areas where nutrient and water input are a concern. Ski pistes should not be established in areas where the alpine vegetation has a high conservation value.
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Ski Pistes at Söll

H. Antonsen and P. A. Olsson.
Relative importance of burning, mowing and species translocation in the restoration of a former boreal hayfield: responses of plant diversity and the microbial community.
Journal of Applied Ecology 2005, **42**: 337-347.
The extensive loss of species-rich grasslands in Europe as a result of agricultural intensification has triggered a desire to recreate more diverse and natural grassland systems in set-aside fields. Appropriate management and species introductions are necessary to overcome residual soil fertility, lack of suitable plant propagules and dominance of undesirable invasive species.

A field experiment was performed in a former hayfield to test the effect of turf inoculation, mowing (twice annually) and spring burning. Changes in plant diversity, composition and productivity were assessed over a 3-year period.

Turf inoculation had little effect. Most of the measured variables in mown plots differed from the set-aside (control) plots, while burned plots displayed mainly similar responses. Mowing increased plant species richness and diversity, mainly by enhancing the number and frequency of forb species. Small-statured forb species were promoted by mowing, whereas tall leafy grasses declined. Mowing on soil communities increased soil respiration and stimulated arbuscular mycorrhizal fungi.

The results demonstrate the importance of reducing sward height in order to promote plant species coexistence in former boreal hayfields. In such systems, eliminating accumulated litter by spring burning has little influence on species composition when the sward is allowed to grow tall. Mowing is therefore the most efficient way of enhancing biodiversity.
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E. B. Nilsen, T. Petterson, H. Gundersen, J. M. Milner, A. Mysterud, E. J. Solberg, H.P. Andreassen and N. C. Stenseth.
Moose harvesting strategies in the presence of wolves.
Journal of Applied Ecology 2005, **42**: 389-399.
This paper may have implications for the deer population in Scotland when considered against the possible introduction of the wolf. These introductions pose challenges for wildlife managers, partly because the current optimal harvesting strategies of prey populations may be affected.

The work shows that managers facing the new challenges presented by recolonizing populations of large predators such as wolves may have to reduce the size of harvest quotas in order to avoid decreases in prey populations. The harvest yield from cervid populations is often important to local economies, and moose is the single most important game species in Scandinavia. It is therefore important to implement optimal harvesting strategies under these new conditions in order to prevent an unnecessary loss of yield, and success in this task may in turn affect local attitudes towards large carnivores.
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P. C. L. White, N.V. Jennings, A. R. Renwick and N.H. L. Barker.
Questionnaires in ecology: a review of past use and recommendations for best practice.
Journal of Applied Ecology2005, **42**: 421-430.
Questionnaires are used increasingly as a means of collecting data in ecology. The authors reviewed the use of 168 questionnaires from 127 papers published in 22 ecological academic journals and gave recommendations for good practice.

The recommendations for best practice were as follows: (i) the definition of the target population, any hypotheses to be tested and procedures for the selection of participants should be clearly documented; (ii) questionnaires should be piloted prior to their use; (iii) the sample size should be sufficient for the statistical analysis; (iv) the rationale for the choice of survey method should be clearly stated; (v) the number of non-respondents should be minimized; (vi) the question and answer format should be kept as simple as possible; (vii) the structure of the questionnaire and the data emerging from it should be unambiguously shown in any publication; (viii) bias arising from non-response should be quantified; (ix) the accuracy of data should be assessed by independent verification of the facts where relevant; (x) the analysis of potentially interrelated data should be done by means of modelling. Researchers should also consider whether alternative, interpretative methods, such as in-depth interviews or participatory approaches, may be more appropriate.
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S. J. Butler, R. B. Bradbury and M. J. Whittingham.
Stubble height affects the use of stubble fields by farmland birds.
Journal of Applied Ecology 2005, 42: 469-47.
In the UK, over-wintered stubbles are an important foraging habitat for farmland birds, many of which are of current conservation concern. Maximizing the value of stubbles for farmland birds has largely focused on increasing food abundance but has ignored other aspects of foraging behaviour, such as predator avoidance and vigilance.

The study investigated the effects of stubble height reduction on seed depletion and the within-field distribution of farmland birds. Stubble on one half of each of 20 fields was topped to lower vegetation height, while the other half was left untouched to act as a control area.

The abundance of granivorous passerines and invertebrate feeders was higher on plots with reduced stubble height, while the abundance of skylark and partridges was higher on control plots.

For many species, food accessibility and detectability are likely to have been higher, and thermo-energetic and mobility costs lower, on treatment plots. Stubble height reduction could have led to either an increase or a decrease in associated predation risk, depending on the predator escape strategy of a species. Granivorous passerines, which flee to cover, are likely to have benefited from the reduced visual obstruction on treatment plots, while partridges will have benefited from the greater protection offered by the longer vegetation in control plots.

Increasing the structural heterogeneity of over-wintered stubble is likely to increase its value as a foraging habitat, making it better suited to the foraging requirements and predator escape strategies of a greater diversity of species. Incorporating explicit management options into agri-environment schemes, such as the new Environmental Stewardship Scheme, may represent a cost-effective strategy to achieve this.
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P. M. Lourencol, J. P. Granadeiro and J.M. Palmeirim.
Importance of drainage channels for waders foraging on tidal flats: relevance for the management of estuarine wetlands.
Journal of Applied Ecology 2005, **42**: 477-486.
Despite covering a relatively small area on a global scale, estuarine tidal flats are vital to many aquatic bird species during much of the yearly cycle. Small-scale features of tidal flats, such as water drainage channels, can influence the carrying capacity of estuarine wetlands, yet their ecological impact is poorly understood. In this study the authors evaluated the influence of drainage channels on the quality of feeding habitat for waders in the Tagus estuary, Portugal.

Measurements were taken of the abundance of seven wader species at five distance classes from drainage channels, and analysed the variation in peck rates, step rates, turning rates and success rates. The density of macroinvertebrate prey and the sediment physical/chemical characteristics at different distances from the channels were also measured.

All wader species occurred at higher densities near the channels. In the study area 44% of the birds fed on just 12% of the available surface, less than 5 m away from drainage channels.

The study shows that the areas around drainage channels are particularly important feeding sites for waders foraging on tidal flats. Consequently, managers of estuarine wetlands should strive to preserve or improve channel networks. This can be achieved by (i) preserving saltmarshes and saltpans adjacent to tidal flats, (ii) minimizing the reclamation of upshore flats and (iii) avoiding embankments and canalizations of inland water flows that reduce the number of water entry points onto tidal flats.
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R. A. Hirst, R.F. Pywell, R.H. Marrs and P. D. Putwain.
The resilience of calcareous and mesotrophic grasslands following disturbance.
Journal of Applied Ecology **42**: 498-506.
Understanding habitat disturbance and recovery is vital for successful conservation management and restoration.

Grassland resilience was investigated on the Salisbury Plain Training Area (SPTA) in southern England, the largest of the UK military training areas. SPTA contains the greatest expanse of unimproved chalk grassland in north-west Europe, a habitat of particular nature conservation interest.

Historical aerial photographs were used to identify 82 calcareous and

mesotrophic grassland sites disturbed over a 50-year time period. Vegetation, soils and seed bank data were collected from each old disturbance site. Revegetation time periods following disturbance were compared, and habitat resilience following disturbance investigated.

The sampled calcareous grasslands were less resilient following disturbance than the mesotrophic grasslands, with slower colonization of bare ground and target species re-assembly. The mesotrophic grasslands typically took between 30 and 40 years to re-establish following disturbance, whereas calcareous grasslands took at least 50 years. It is likely that the resilience of grasslands such as those on SPTA may have been overestimated, and perceptions of habitat carrying capacity for disturbance events may require re-evaluation.
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C. J. Curtis, B. A. Emmett, H. Grant, M. Kernan, B. Reynolds and E. Shilland.
Nitrogen saturation in UK moorlands: the critical role of bryophytes and lichens in determining retention of atmospheric N deposition.
Journal of Applied Ecology **42**: 507-517.
Anthropogenic nitrogen (N) deposition may have several impacts on upland moorland ecosystems, including changes in vegetation composition, eutrophication and surface water acidification through nitrate leaching, but few studies linking N deposition to key biogeochemical processes have been published.

Past studies have demonstrated a decline in mosses and lichens in response to increasing N deposition. The authors show that reduced N retention might result, together with increased nitrate leaching into surface waters. The conservation of bryophyte and lichen flora on moorlands is therefore critical to prevent excessive nitrate leaching and associated surface water acidification and eutrophication. Ensuring management practices such as grazing or burning are at an intensity that does not further degrade the bryophyte and lichen communities may help minimize the impact of N deposition on freshwaters, but the only effective means to reduce the risk of N leaching is a reduction in N emissions.
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G. C. Smith, I. S. Henderson and P. A. Robertson.
A model of ruddy duck *Oxyura jamaicensis* eradication for the UK.
Journal of Applied Ecology **42**: 546-555.
Non-native species are the second most important threat to global biodiversity after habitat loss. The North American ruddy duck *Oxyura jamaicensis* established a feral population in the UK more than 40 years ago, and it is now threatening the endangered white-headed duck *Oxyura leucocephala* through hybridization..

A model was produced to provide the UK government with an assessment of whether sufficient ruddy ducks could be culled to allow the UK population to be reduced to fewer than 175 individuals (> 97% population reduction) within 10 years.

The mean time to achieve this was predicted to be between 3 and 5 years, with 14 or 15 control officers reducing the population by between 65% and 70% per year. There was an 80% certainty that the population could be reduced to this level by 16 control officers within 46 years if annual reductions of more than 60% were achieved.

This model can easily be applied to a range of eradication schemes where limited data are available on population size and culling efficacy. This would allow funding bodies to have a greater degree of certainty about the cost and outcome of a trial eradication programme.
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OBITUARY

Paddy Coker CEnv MIEEM

It is with great sadness that we report the untimely death of Dr Paddy Coker on 23 June 2005. Paddy joined IEEM in 1995 and served for some time on the Training Education and Career Development Committee and since 1997 on the Membership Admissions Committee (MAC).

The funeral service took place on 7 July in Farnborough, Kent. Tributes from former pupils, colleagues and friends were evidence not only of his enthusiasm for his subject, but also of his warmth as a person. He had worked as Senior Lecturer at the University of Greenwich (previously Thames Polytechnic) from 1971 until 1997. For much of this time he was also Chief Examiner for A level Environmental Studies for the University of London Schools Examination Board. He also lectured part-time in Ecology and Conservation at Birkbeck College from 1967 to 2002. As one member of MAC commented, 'I first met Paddy when I was a student at Birkbeck College and remember him for his highly infectious enthusiasm leading field courses – not many people can get you excited about mosses'.

In recent years he was Principal of his own consultancy, Dryas, and carried out many surveys and assessments for NGOs, private landowners, local government and statutory bodies. However, he continued to pursue his interests in education and research. He worked part-time for the Quality Assurance Agency for Higher Education and had served as external examiner and validator for several universities and colleges. He was also a visiting lecturer to many academic establishments both within the UK and overseas. As Richard Graves, Chairman of MAC, commented, 'we will certainly miss him as a person, and as the authority on degree validation and qualifications'

He had been busy as co-author with Dr Paul Ganderton on a new book, 'Environmental Biogeography' due for publication in June this year, and was also working on the second edition of 'Vegetation Description and Analysis' with Professor Martin Kent, due for publication in June 2006. He had also recently been helping to organise an international conference in Cardiff for 2007 for the International Association for Vegetation Science of which he was an active member.

He shared his expertise in bryophytes through several IEEM workshops over the past few years, which were popular and helpful to those who participated. His interest in conservation and landscape ecology extended beyond professional obligations. He served as Chair of Trustees for RTEC Conservation Trust, Belize, from 1998 to 2001, from 1991 as Governor and Honorary Treasurer of the Botanical Research Fund, and from 1989 as Trustee and non-Executive Director of The Burren Conservancy, Ireland.

Paddy's wife, Rosemary, and daughter, Bryony, along with friends and colleagues, are setting up a memorial fund in the hope of purchasing a piece of woodland, or part of a local nature reserve in Paddy's memory.

If you would like to make a donation to Paddy's Memorial Fund please make cheques payable to Mrs Rosemary Coker and we will be pleased to forward them.

Patrick David Coker, 1939-2005

News in Brief

RSPB Reports Mixed Fortunes For Upland Birds
The Repeat Upland Bird Survey is the largest bird survey ever conducted in the British uplands. It found evidence of large declines in some key upland species but also, by contrast, large increases of other important species. Ring ouzel has declined in at least three quarters of the survey sites. Other birds of particular concern are wading birds including the lapwing and curlew. By comparison stonechat and raven numbers have shown large increases in many areas.

For more information about the survey please contact the RSPB www.rspb.org

The Most Sustainable Ever Olympics
London plans to build on the ecological and sustainable ideals developed in Sydney and Athens. London proposes a variety of exciting sustainable plans including: to reduce the demand for energy and meet it from low carbon and renewable sources, to avoid landfill by reducing waste at source, then reusing, recycling and recovering all remaining waste; conserving natural habitats and wildlife, improving the quality of urban green space and bringing nature closer to people and also a showcase for sustainable transport.

If these plans come to fruition the legacy of the UK's sustainable Olympics could be far reaching.

For more information about London 2012 please visit http://www.london2012.org

Win The Chance To Survey Sharks
The Wildlife Trusts are offering one lucky person the opportunity to spend a week aboard Forever Changes, an 11.7 m survey yacht, to help survey for basking sharks. The survey is part of The Wildlife Trusts' basking shark project. Training will be provided, and as well as helping crew the boat, the winner will also take part in tracking and identifying any sharks seen.

To enter the competition and win a place on the 2006 survey, applicants need to answer the following question:

How long have basking sharks been known to live up to:
a) 15 years
b) 40 years
c) 50 years

Answers should be submitted on a postcard by 30 November 2005 to the Basking Shark Competition 2005, The Wildlife Trusts, The Kiln Waterside, Mather Road, Newark, NG24 1WT.

Autumn Watch
The BBC is running a survey about the arrival of autumn across the UK. It is in association with the Woodland Trust and the UK Phenology Network. The BBC is asking the public to watch out and record sightings of any of the six autumn events: the first ripe hawthorn berry, first tint of oak, first flowering of ivy, last swift, first ripe conker and the first ripe blackberry. To record your sighting please make a note of the date and the grid reference or postcode where you see any of the events and forward the information to the BBC www.bbc.co.uk

Launch of SNH Work on Coastal and Marine National Parks
Scottish Natural Heritage want views from a wide range of interests on the functions and possible locations for Scotland's first Coastal and Marine National Park. SNH has been asked to consider the statutory and policy framework and to identify potential areas for designation. The public is encouraged to take part through an interactive message board on a new section of the SNH website at http://www.snh.org.uk/strategy/sr-adnp01.asp, Tel. 01738 444177; Email emma.jordan@snh.gov.uk.

Parasite Threatens British wildlife
A new parasite has been discovered in Britain. The flatworm *Pseudamphistomum truncatum* is thought to have been introduced by ornamental fish imported from Russia and Eastern Europe and is now thriving in the Somerset Levels. The disease has so far been found affecting otters on the Somerset Levels. Be aware the disease is spreading and it is prudent to be cautious. The worm is passed on when animals, like cats, dogs, otters and foxes eat raw fish which have been infected. The disease can - in rare cases - affect people.The worms live in the gall bladder and can cause liver damage and jaundice.

First Release Of Silver-studded Blue Butterflies In UK For 10 Years
Fifty female silver-studded blue butterflies are being released on Ockham Common in an attempt to save the species from extinction. The silver-studded blue *Plebejus argus* was once common across the UK, but has declined dramatically over the last 30 years. It is now extremely rare and has become confined to small, fragmented heathland areas.

Extinct Plant Returned To The Wild
Interrupted brome was only ever found in southern England. It was last seen in the wild in 1972 and thought to be a casualty of changing farming practices. English Nature has attempted to re-establish the plant back into the countryside. It can be found at Aston Rowant National Nature Reserve in the Chilterns. Interrupted brome used to be quite common in fields of wheat and clover, growing alongside other arable weeds like poppies. It was only saved from becoming completely lost by being grown in pots on a windowsill by a Cambridge botanist, the late Philip Smith. If successful the aim is to re-introduce the plant to other locations in the south of England, in the hope that it will once again become a familiar farmland plant.

Planning To Protect The Irish Environment
"Mind the environment and check the facts" is the message to plan and programme makers in Ireland. The Environment Protection Agency has recently launched a new website section to provide detailed information on the environment. Under the new Strategic Environmental Assessment Directive, an environmental assessment will be required when national or local plans and programmes are being developed. The new website section will help both plan/programme makers and the general public in their search for relevant environmental information.

The website section is located at www.epa.ie/TechnicalGuidanceandAdvice/StrategicEnvironmentalAssessment

Irish Ecologists Take Note
Clare County Council is currently compiling a list of ecologists who are available to carry out ecological surveys, environmental impact statements and other such work. This list will then be made available to members of the public who require this type of work be carried out. Interested parties should contact:

The Heritage Officer,
Economic Development and Planning Dept.,
Unit 1, Westgate Business Park,
Kilrush Road,
Ennis,
Co. Clare, Ireland

Protection of Hen Harrier in Ireland
The Department of the Environment Heritage and Local Government has outlined proposals to designate Special Protection Areas (SPAs) for hen harrier, one of Ireland's rarest birds of prey. The breeding population is mainly concentrated in the south-western counties, particularly around the Mullagharierk Mountains, the Boggeraghs, Ballyhouras, Nagles and Kilworth Mountains.

The designation of land as a SPA is not intended as an inflexible barrier to future development. It will be a complex task to balance and reconcile the requirements of afforestation, windfarming and nature conservation. They are not mutually exclusive but practical solutions will have to be found and implemented. In general existing farming activities are likely to be fully compatible with the conservation requirements of hen harriers and other bird species.

For more information please visit www.environ.ie

Institute News

Professional Development Programme
Now is the time to consider whether you would like to offer a course in the Professional Development Programme for next year.
We will be getting all the contributions together in the Autumn with the idea that they will be ready for the November Conference. This programme has become quite a feature of IEEM and Nick Jackson deserves much of the credit for its development. This year alone over ***700 individuals*** are expected to have taken part. But of course it could not happen without members continuing to offer courses. Course tutors are paid a reasonable fee but apart from that, many find it a useful experience in itself. Taken overall, the programme has made a major contribution to the skills of IEEM members.

Membership Renewals
You will be pleased to learn that Council has decided to keep the membership subscription rates the same as last year for those renewing in October. All members will be receiving their renewal notices shortly. Once again, can I make a plea for prompt payment? The renewal notice is an invoice even if some financial administrators need persuasion on this point and it is not good use of IEEM's resources to have to issue a separate invoice.

IEEM November 2005 Conference
The programme is now almost complete and it promises to be a very successful occasion. Booking forms will soon be available on the website. The dates are the 15 – 17th November at the Carrington House Hotel in Bournemouth.

New Regulations For Fellows
Council at its last meeting agreed new regulations for Fellowship applications. There are currently only 14 Fellows and the general feeling is that there should be many more, perhaps comprising up to 10% of current Full members. Rather than a candidate having to make their own case for Fellowship, which some find an embarrassment, the emphasis will now shift to a sponsor making the recommendation on a candidate's behalf. There will still need to be back up evidence supporting the application.

Would You Like to Help on a Committee?
Every year the renewal forms offer the opportunity for members to serve on one of the various Committees of the Institute and for current committee members to stand for Council. This is a real way to get involved with the work of the Institute. Most of the Committees meet three times a year and there is sometimes work to be done in between.

IEEM Elections
At the forthcoming AGM members will be asked to vote on the President elect who will take office in November 2006, following the retirement of Chris Spray. Anyone who has suggestions for a suitable candidate should make their views known to Chris Spray,

This year also sees the resignation of Will Manley, having completed four years as Vice-President. Thanks are due to his support for the Institute since he first came on to Council at the AGM in 1996 and in particular for his recent initiative in involving RICS in a future joint conference. Again nominations for the Vice President are needed

There are also likely to be some vacancies on Council so, again, if you would like to be more involved with the work of the Institute do please consider standing.

The AGM will see the new Constitution being put to the membership for approval. The wrinkles have just about been ironed out and formal approval will be by Council at its meeting in October. There are no real changes proposed in the aims and objectives of the Institute but this new Constitution will rectify a number of anomalies in its structures and procedures

IEEM President Chris Spray Visits the Winchester Office
Chris Spray visited the Winchester office on 8th September to discuss current issues with IEEM staff and to see first hand how the office operates and what the current issues are.

Chris Spray and staff

SocEnv - Change and Developments
In July the Society for the Environment celebrated having 2,000 Chartered Environmentalists on its Register - less than 12 months after receiving its Royal Charter. This is real confirmation of the momentum that has built up during the last year.

CIWEM past President Professor Peter Matthews has been elected to be the new chairman of the Society for the Environment in succession to Will Pope. Peter Matthews is one the founder-Directors of the Society, a board member of the Environment Agency, a CIWEM Council member and a Board Governor for Anglia Polytechnic University and became Chair on 1st July 2005. IEEM wishes Peter well in his new appointment at this important point in the development of the Society.

The Vice Chairman is Dr John Brady of IEMA.

Will Pope, former President of IES, made an outstanding contribution to the establishment of the Society, leading it with great skill through the sometimes difficult negotiations which finally lead to the award of the Royal Charter. His chairmanship skills during several marathon meetings of the Board, charting its early progress and deliberating over some quite complex issues were greatly appreciated.

At its Board meeting on 6th September the Society was also pleased to welcome its newest, Constituent Body, the Chartered Institute of Builders. A number of other Institutions are currently showing very positive interest and it seems clear that the number of constituent bodies is set to rise.

I am pleased to be able to report that applications to be Chartered Environmentalists are continuing to arrive in force. We shall soon be close to the 500 mark for IEEM members, making about 20% of the total. I am afraid if you missed the deadline of 22nd September it will be a much more lengthy and much more expensive process to achieve Chartered status. As IEEM is currently snowed under with applications and becauses of the time necessary to clear the backlog, any new applications in the post grandparenting period are unlikely to be dealt with before early 2006.

SocEnv has a new Chief Executive,Dr David Hickie,who took up his post on 1 September. This was on the recommendation of the Contract

Review Panel chaired by Jim Thompson. He succeeds Dr Tim Bines, an IEEM Council member, who had taken the post on a temporary basis and is now much involved in a major initiative in Poland. Tim made a great contribution as the first Chief Executive, attracting new Constituent Bodies and developing and clarifying procedures. One of his initiatives was the M.O.U. with the London 2012 which is a significant building block. It is anticipated that this will result in a major conference in 2006 in which the significance of the environment in the London Olympics will be championed and developed.

David Hickie joins the Society with a wide range of experience in different aspects of the environment and in management roles in organizations and companies that champion a sustainable environment, including the Environment Agency, English Heritage and Severn Trent Water. On September 9th he visited the offices in Winchester to meet staff and to acquaint himself with the operations of IEEM. This was also a useful opportunity to discuss developments within SocEnv as it approaches (at least for IEEM) the end of the grandparenting period. We wish David every success in this pivotal position in the development of the Society

David Hickie signing up
(Left to right: David Hickie, Will Pope, Jim Thompson, Peter Matthews)

The designation ' Chartered Environmentalist' is renewable on an annual basis and is due with the IEEM membership renewals. Those whose renewal is due will be asked to pay £35.00 which covers the subscription to the Society and an administration fee charged by IEEM of £10.00.

The list of those who have been successfully admitted as Chartered Environmentalists since the last In Practice is included below:
Chartered Environmentalists
Dr Katherine Ader, Mr Jonathan P. Adey, Mr Richard Andrews, Mr David P. Appleton, Ms Emma J. Baker, Mr Christian Balling, Mr Alistair Baxter, Dr Stephen P. Birch, Ms Karen A. Blake, Mr Daniel Bright, Mr Peter Brooks, Mr James Calow, Mrs Mary F. Christie, Dr Sophie A. Clayton, Mr Iain N. Corbyn, Miss Lorraine Corscadden, Mr Robert Craine, Mrs Helen L. Crook, Mr Karl Crowther, Mr Allan L. Drewitt, Mr Michael J. Dunbar, Mr John Edwards, Ms Anna L. Firmin, Miss Susan Forster, Dr Stephanie Greshon, Mr Toby Gibbs, Dr Stephen D. Gibson, Dr Peter J. Gilchrist, Dr David A. Goode, Mr Giles Groome, Mr Leonardo Gubert, Dr Lin Hand, Ms Maria E. Hardy, Dr Gabriel E. Hemery, Mr David P. Holland, Mr Paul S. Holmes-Ling, Dr John Jackson, Mr Tony Jones, Mrs Louisa Kilgallen, Dr Jeffrey S. Kirby, Miss Megan Klaar, Dr Dorian M. Latham, Mr Stephen J. Lowe, Miss Louise C. Mapstone, Mrs Helen Markwell, Mr Peter R. Marsden, Mr Richard Nairn, Ms Pam A. Nolan, Ms Pernille Olsen, Dr Kate O'Neill, Mr Michael Padfield, Mr Paul A. Phillips, Mr Nigel Pilkington, Mrs Helen Rae, Mr John B. Ratcliffe, Miss Susan M. Rees, Mr Nick Roberts, Dr Mark F. Robinson, Mr Andrew Russell, Dr Linda Sadlier, Mrs Lesley Saint, Mr Simon W. Smith, Miss Katrena Stanhope, Mr Peter J. Stevens, Miss Jennifer Stuart, Dr Joanna Treweek, Ms Alison Turnock, Mrs Suzanne Van Hinsbergh, Mr John M. Warburton, Mr Richard Wardle, Mr Andrew Westgarth, Mr Dominic Woodfield, Mr Leonard S. Wyatt, Miss Nicola Young.

Don't forget to visit the SocEnv website from time to time - SocEnv.org.uk

EFAEP - the European Federation of Associations of Environmental Professionals.
IEEM is a member of the above organization which has a similar role to the Society for the Environment but in a pan-European context. It has an annual general assembly which was held this year on June 24th in London. The IEEM delegates were Mike Barker and Jim Thompson and Joel Bateman helped with the arrangements for the meeting itself. EFAEP is making real efforts to get itself firmly established and a visit to its website is worthwhile www.efaep.org. One of its current projects is to set up a European database of environmental experts which will operate in a similar way to the IEEM Directory. The project, carried out by AIAT and AISA, is based on a three-step (levels) approach. Level 1, with the basic features of the system, is complete. Level 2, which will provide a fully functioning system, will be finished by the end of 2005. IEEM members will be contacted in due course to make the arrangements for those wishing to be on the Database.

The General Assembly was very successful and four years after establishing EFAEP, and in line with the statutes, there were new elections. The new President is Jan Karel Mak from the Netherlands. He leads 'Deerns Consulting Engineers, a firm specializing in mechanical, electrical and energy engineering services. The Executive Committee now comprises the following:

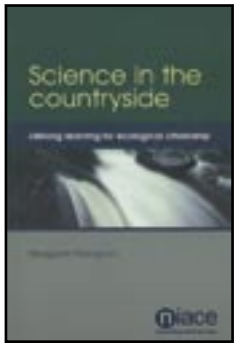
Jan Karel Mak (VVM, NL) as President (formerly Vice-President);
Dominique Bernard (AFITE, France) as Vice-President
(formerly President);
Matthias Friebel (VNU, G) as Vice-President;
Mario Grosso (AIAT, I) as General Secretary;
Jim Thompson (IEEM, UK) as Treasurer.
The meeting was held in very close proximity to Tavistock Square and a number of the delegates stayed in the Tavistock Hotel, all this being shortly before the London bombings. Several of the delegates to the meeting kindly expressed their concern for the welfare of IEEM representatives involved.

IEEM Staff on the Move
Joel Bateman will shortly be joining Hampshire County Council as a Network Support Officer in the newly formed County's Natural Resources Initiative Advisory Group. Joel has been with IEEM since starting as a trainee in February 2002, then becoming the External Relations Officer. He has made a major contribution to the development of the Institute in a number of ways and particularly his work on the External Affairs Committee, In Practice, IEEM website and the Society of the Environment's Website. We wish him all the very best in his new wider environmental role.

News of Members
Colin Buttery, former Treasurer of IEEM has moved from the London Borough of Westminster to be Director of Parks and Deputy Chief Executive, The Royal Parks Agency. He has a wide remit from dealing with the ceremonial to promoting biodiversity in the various London Green Spaces as well as involvement with the London Olympics

Mike Barker, Chairman of the External Affairs Committee has now moved from Southern Water to Entec UK where he is principal consultant heading the planning and appraisal team.

Recent Publications



Science and the Countryside Lifelong learning for ecological citizenship
Author: Margaret Pilkington
Available from: www.niace.org.uk
Price: £18.95
ISBN: 1 86201 213 X

Science and the Countryside provides a picture of how and why learning through fieldwork leads to a better acquisition of skills needed for biodiversity conservation students and ultimately professionals.

The book starts by setting out the need for a wider understanding of how science works and sets out a philosophy for science teaching, which relates to fostering independent learning while preparing people to take part in biological conservation work. It moves on to illustrate how the widely used NVC system of classification can be extended to provide genuine open-ended exercises for adult ecology students.

The author describes how adult conservation education can be taken into the community by using an ecological experiment at a local nature reserve. The ecological experiment is further discussed when the author considers whether the students participating in the research are acquiring identification skills. This theme is continued by looking at other types of field research used to build up understanding of habitats. The book concludes by looking at the implications of policy and practice of adult education.

This book is designed for teachers and lecturers in adult education, but remains relevant for other science educators. It describes ways in which difficult concepts and complex skills are explained and mastered by Pilkington's students.

Environmental Quality in Spatial Planning - Incorporating the natural, built and historic environment, and rural issues in plans and strategies
Available from: the Environment Agency or http://publications.environment-agency.gov.uk/pdf/GEHO0605BJGU-e-e.pdf

Environmental Quality in Spatial Planning is a guidance document for the preparation of regional spatial planning strategies and local development frameworks. The four agencies involved with this text were the Countryside Agency, English Heritage, English Nature and the Environment Agency.

The guidance is produced to help planning authorities and regional planning bodies in preparing plans and strategies under the new planning system. It is intended to supplement guidance produced by the Office of the Deputy Prime minister.

A wide variety of subjects are covered which are highly relevant to planning authorities,but the information is limited to an overview of each subject. The guidance document itself has limited information and is very much an overview. However, it is supported by a series of supplementary files available from the Agencies websites; these discuss the key messages and explain the points in further detail and provide more information to assist their delivery. The document itself is very much an overview of how the Agencies have set out to provide planning authorities with their views so that high standards of environmental quality can be reached within spatial planning.

This is an important document for all those involved in the planning process and should be read with access to the Internet so that the supplementary documents can be downloaded. Each section has a series of recommendations clearly highlighted.

Start with the park: creating sustainable urban green spaces in areas of housing growth and renewal
Author: CABE Space
Available from: www.cabe.org.uk
ISBN: 1-84633-000-9

Start with the park is a good practice guide for everyone involved in the processes of sustainable growth and renewal in England. It is particularly relevant to the creation and care of green spaces in housing growth areas and housing market renewal areas. It will inform and inspire strategic decision-makers working on local delivery and partnership bodies, local and regional authorities, government departments and other national agencies, private developers, housebuilders and registered social landlords and community and voluntary sector groups.

The book comprises five sections:

- The need for quality green spaces.
- Green spaces in areas undergoing major change.
- Planning green infrastructure.
- Thinking about design.
- Delivering better green spaces.

This is a resource that can be referred to regularly, and is a gateway to other publications offering more detailed guidance. Above all, it shows that meeting the demands of housing growth and renewal is not just about units of housing, it is about transforming neighbourhoods.
With the upcoming IEEM conference concentrating on Housing and Ecology, this book is a good introduction to sustainable urban green spaces.

Proceedings of the Peterborough Remote Sensing Workshop 30 September 2004
Author: Various
Available from: English Nature
ISBN: 1 85716 873 9

Aerial photography has been available since the late 1940s and fixed-point photography has been used for many years as a way of comparing condition over time and deducing change. The development of satellites and digital imagery has led to spectacular advances in remotely sensed images. Wetland habitats can be difficult to distinguish between, and map, some forming mosaics. This workshop was convened to explore just how well remote sensing can map types of wetland, especially lowland raised bogs.

The proceedings contain papers on the Geoland project, remote sensing for marine SAC monitoring, the Dorset Heathland Survey, three papers on lowland raised bogs, and the use of remote sensing as a tool for mapping detailed large scale changes in northern peatland.

This publication will appeal to biological recorders, ecological consultants or anyone with an interest of GIS and remote sensing.

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 24th October, 2005. 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.

Full Membership Applications
Dr Patricia C. Alamada-Villela, Mr Paul J. Arkle, Mrs Joanna M. Bagnall, Mr Richard S. Bennett, Ms Helen M. Bibby, Mr David J. Bigden, Dr Paul C. Bond, Mr J. Ross Bower, Dr Polly L. Bown, Miss Anna E. Bradnam, Dr Lee D. Brady, Mr Robert D. Brown, Mrs Sarah J. Chimbwandira, Mr Paul E. Cobb, Mr Keith Cohen, Ms Rebecca M. Collier, Ms Judith A. Cox, Mr Angus J. Duncan, Mr Seumus P. Eaves, Mrs Sarah L. Faulkner, Ms Wendy J. Fenton, Mrs Stephanie M.M. Ferguson, Dr E. Maeve Flynn, Mrs Flora Grigor-Taylor, Mr Peter E. Hague, Ms Caroline B. Hanks, Mr Simon D.J. Holden, Mrs Sally G. Hope Johnson, Miss Morgan A. Hughes, Miss Kirsty J.W. Hutchison, Miss Rebecca Inman, Mr Cory H. Jones, Miss Annabel J. Keast, Dr Timothy J. King, Miss Charlotte M. Lamble, Mr Richard E. Law, Mr Todd R. Lewis, Mrs Carol A. Littlewood, Miss Shirley Macgowan, Mr Richard J.C.MacMullen, Mrs Margaret S. Magee, Miss Orla C. Maguire, Mr Quentin F. Mair, Mr Thomas A. Mallows, Dr Daniela Mayes, Mr Clive Mellon, Mrs Rebecca J. Mills, Mr Andrew J. Mitchell, Mr Graham D. Morgan, Mr James A.J. Mortimer, Mr Thomas L. Munro, Miss Patricia J. Neylon, Dr Elizabeth G. O'Beirne-Ranelagh, Mrs Monica J. O'Donnell, Dr Declan O'Mahony, Mr Dave Ottewell, Mr Jonathan Panter, Ms Nicola Penford, Mrs Cecilia M. Port, Miss Catherine L. Potter, Mr James R. Primrose, Ms Kate Proctor, Mr Cliff R. Pullen, Miss Kerry L. Rhodes, Dr John Robertson, Dr Derek G.S. Robeson, Dr Susan J. Rodway-Dyer, Mr James N. Russell, Miss Elizabeth J. Seal, Mr Edward W. Senior, Mrs Janet Slattery, Mr Russell J. Spencer, Ms Julia H. Stansfield, Ms Caroline A. Stewart, Miss Anita L. Stone, Mr Roland T. Stonex, Ms Catherine Storey, Ms Lucy Sumsion, Mr Jeremy T. Taylor, Mr Paul M. Thomas, Mr Benedict R.E. Thorne, Mr Richard Tisdall, Mrs Fiona L. Wells, Mrs Marian Wilby, Miss Corin K. Wilkins, Mr Matt P. Willmott, Mr Ian J. Wrigley

Associate Applications
Miss Jennie E.C. Allen, Miss Catherine E. Anderson, Miss Tanya Bartlett, Miss Lorna M. Bousfield, Miss Elizabeth S. Brooks, Miss Amaryllis C. Chaney,Miss Caroline Chipperfield, Mr Rupert A. Collins, Miss Zoe Connolly, Miss Helen J. Crabtree, Miss Chloe Delgery, Mr Rafe N. Dewar, Mr Christopher D.Dyson, Miss Sally S. Eaton, Miss Marie S. Evans, Miss Marlies Fell, Mr Adam Fitchet, Mr Russell E. Grey, Ms Liza J.K. Hollinghurst, Mr Neil T. Ireland, Mr Robert A. Logan, Mrs Suzanne M. Lumsden, Mr Thomas B. McArthur, Miss Katherine J. McCombie, Mr Jamie McGilp, Mr Alastair J. Miller, Miss Jane E. Morris, Miss Rebecca K. Morris, Miss Laura Murray, Ms Ann T. O'Leary, Miss Louise F. Pymm, Mr Oliver J. Ramm, Miss Fay L. Robinson, Mrs Rebecca A. Schofield-Sambrook, Mr Michael D.C. Sharp, Mr James G. Simpson, Dr Robert J. Simpson, Miss Sophie A. Smith, Miss Rebecca M. Tarry, Mr Matthew Tooby, Dr Sarah E. Toogood, Mr Daniel C. Watkins, Dr Lisa Webb, Miss Elizabeth Wickens, Miss Sue J. Wilson, Ms Sheila Wiseman, Miss Hannah L. Wood, Dr Sarah Yarwood-Buchanan

Admissions

Full Members
Mr Ron H. Allen, Mr Jonathan Barnes, Mr Benjamin M. Benatt, Mr David Bevan, Ms Bronwen Bruce, Mr Dominic C. Coath, Mr Peter M. Dullaghan, Dr John Feltwell, Ms Victoria G. Fletcher, Miss Charlotte Harris, Dr David S. Hubble, Mr Philip Macari, Miss Siân McDonald, Mr Guy D. Morrison, Mr Paul J. Murby, Mrs Jane L. Nordstrom, Dr Paul O'Donoghue, Miss Leela E. O'Dea, Mr Alan D. Preece, Dr Alan F. Raybould, Dr Ingo Schüder, Miss Nicola Tallach, Ms Alexia Tamblyn, Mrs Alice Tree, Mrs Angela M. Walker, Miss Faith Wilson.

Associate Members
Mrs Melanie J. Ashton, Mr Richard J. Belt, Dr Cathy M. Bennett, Mr Nigel H. Bousfield, Dr Craig Brakes, Mr Tom Chambers, Mr Thomas N. Collier, Miss Suzanne Cooper, Mr John Darbyshire, Miss Jennifer R. Davis, Miss Ruth C. Fletcher, Miss Hannah Graves, Mr Richard C. Harris, Mr Stuart Hunt, Mr Conor Kelleher, Miss Katie Lawrence, Miss Morna C. McBean, Miss Kim A. Olliver, Miss Helen M. Parish, Mr Craig Sandham, Mr Joe Stevens, Mr Kenneth Taylor, Miss Catherine E. Warner, Ms Catherine A. Weightman, Miss Lauren West, Mr Joseph W. Whittick, Miss Hannah K. Wilson-Smith, Mr Thomas A. Worthington, Miss Clare Wyllys.

Upgrades – Associate to Full
Mr Shaun Baker, Dr Edward Bodsworth, Mr John P. Cottington, Mr Ian Davidson-Watts, Mr Neville Drummond Makan, Mr Kevin D. Du Rose, Mr Richard Gill, Ms Leila R. Griffiths, Mr Mark Jackson, Miss Erika Luukas, Miss Heather Mansfield, Mr Alastair Ross, Mr Keith Ross, Dr Robert Souter, Mr Peter J. Stronach, Mr Jeremy Truscott, Mr Matthew Vesey, Dr Suzanne A.J. Wilkinson.

Affiliates
Mr Alastair M.A. Campbell, Mrs Alison Carroll, Mr Jason Gillingham, Mr Rupert D.M. Heath, Mr David Inman, Miss Rosalyn A. Kaye, Mr David Kingsley-Rowe, Mr Julian T. Partridge, Mrs Amanda Williams.

Students
Mr Christopher D. Booler, Ms Yvonne Cohen, Mr Shahul H. Abdul Haleem, Miss Judi M. Forsyth, Miss Marianne James, Miss Laura McKinnon, Mr Mohamed H.M. Siddeek.

The Course programmes for 2005 for the Centre for Alternative Technology, Field Studies Council, Losehill Hall, Plas Tan- y- Bwlch and BTCV are all now available. Each offers a wide range of courses that might be of interest to IEEM members. Information from:

Centre for Alternative Technology: Further details about each course can be obtained from Joan Randle.

Tel: 01654 705950, Fax: 01654 702782, http://www.cat.org.uk

Field Studies Council: For a copy of the FSC Courses 2005 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, http://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, http://www.btcv.org

06 October. Putting Farm Conservation into Practice Scottish Section Annual conference. The Town House, Melrose in the Scottish Borders.
Details from Nick Jackson nickjackson@ieem.demon.co.uk or 01962 868626.

12 October. Integrating Water and Soil Strategies Translating Research into Action. SOAS, London
Details from CIWEM Justin Taberham justin@ciwem.org or Tel: 0207 831 3110.

17 October. Habitat Classification And Mapping - Towards Best Practice. National Botanic Gardens, Glasnevin, Dublin 9 IEEM Irish Section Conference.
Details from Nick Jackson nickjackson@ieem.demon.co.uk or 01962 868626.

31 October. Proven Technologies from Europe. Hamilton House, Mabledon Place, London.
This waste management industry event aims to uncover what technology is already at the UK's disposal.
Details from CIWM http://www.ciwm.co.uk/ or 01604 620426.

31 October - 2 November. Crop Science and Technology 2005. BCPC Exhibition. SECC, Glasgow, Scotland. The 2005 Congress has three broad themes: crop protection, environment and regulation, and crop production, and the food chain.
Details from Tel: becky.dyer@bcpc.org or 01420 593 200.

03 November. Professional Practice: Introduction to Contracts. Grantham Lincolnshire. An introduction to the requirements and responsibilities of managing a contract. Part of IEEM CPD programme.

05 November. Conservation and Biodiversity. Herpefauna Group of Britain and Ireland. The Woodhatch Centre, Reigate, Surrey.
Details from julia.wycherley@virgin.net or rickanstis@aol.com

09 November. The environmental impacts of fluoride pollution. Northumberland Wildlife Trust, The Garden House, Gosforth Newcastle. 7.00pm Start. Prof. Alan Davison will consider the role of fluorine as a pollutant and its impact on the environment compared to the other more common pollutants, ozone, sulphur.
Details from Andy Cherrill andrew.cherrill@sunderland.ac.uk.

14-15 November. Integrating Land Use and Flood Management. London. Rural issues on 14 November and urban issues on 15 November.
Details from Ms Sue Frye email: sue.frye@ice.org.uk

15-17 November. IEEM Annual Conference - Development and Ecology. Bournemouth. Looking at the Impacts of Housing Developments on Ecology and Ecologists.
Details from Nick Jackson nickjackson@ieem.demon.co.uk or 01962 868626.

15-17 November. IFM Annual Conference - Fisheries on the edge. The Lowry Centre, Salford.
Details from email: v.holt@ifm.org.uk or Tel: 0115 982 2317.

16 November. Winning Approaches - What do you need to do to convince a planning inspector? Basingstoke, Hampshire. This course is most suitable for people with limited experience in this field and will focus on practical demonstration of the skills required to be an effective and relaxed Expert Witness. Part of IEEM CPD programme.

23 November – 4 December. National Tree Week. Get involved with the Tree Council's 30th Anniversary.
Details from www.treecouncil.org.uk or 020 7407 9992

24 November. East London Regeneration and Olympic Partnership. Central London. A one day event to discuss how East London regeneration strategies will be developed through partnerships in the context of the winning Olympic bid.
Details from Tel: 020 7970 4738

01 December. EMS National Forum 2005. Queen Elizabeth II Conference Centre, Westminster, London. This event will be the third annual EMS National Forum and aims to follow on the success of previous year's conferences.
Details from IEMA www.iema.net or 01522 540 069.

14 December. Reedbeds, Bitterns and Biodiversity. Rye Meads, Hertfordshire. Run jointly by the Hertfordshire & Middlesex Wildlife Trust and the RSPB, this course will identify the criteria for establishment and enhancement of reedbeds, outline the detailed design and construction process and review the success up to date. Part of IEEM CPD programme.

03 April 2006. Managing Access in the Countryside. Manchester Metropolitan University. The event seeks to address major issues of countryside access and accessibility.
Details from e.price@mmu.ac.uk.

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