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# ON THE FRONT LINE FROM THE URBAN EYE OF THE VOLUNTARY SECTOR

*Mathew Frith, MIEEM*

It's not as enjoyable as it might seem working in the voluntary biodiversity conservation sector. Especially in a city. Under-resourced, under pressure, and often feeling one is the last bastion between an assertive, profit-driven developer, a disinterested and obstructive planning department, and a site which is valued for its wildlife interest. Mike Wells' welcome article Making a Difference<sup>1</sup> resonated with me whilst working within the voluntary sector. Although I now work elsewhere, I thought it appropriate to belatedly respond, with a view 'from the other side', and to highlight any recent changes that may have occurred since then.

I used to work as a conservation manager within an urban Wildlife Trust. Dealing with planning applications was just part of a wide remit, and although for a period we had a team of three, for much of the 1990s this responsibility fell onto one member of staff; for an area that covered 32 unitary authorities. Despite the situation being ameliorated by the existence of a local authority-funded advisory unit (and to a lesser extent the local offices of English Nature and the Environment Agency), nevertheless a large number of planning applications came in each week, a majority of them having at least some, usually adverse, impact on biodiversity. In addition there were enquiries by planners and developers' consultants, as well as calls from community groups and concerned individuals about sites which were under threat in some way or other.

Systems were put in place in an attempt to prioritise our responses, and information prepared to help train volunteers keen to get involved.<sup>2</sup> The lack of resources meant that these were never as effective as we would have liked, and they often became weakened for a variety of reasons. One could never tell whether involvement in the form of a simple response letter would end there. Many became complex, involving public campaigns, media interest, and often aggressive face-offs as the planning process enforced a polarisation between various camps. When I left, a significant number of development proposals were still 'live', many stretching back up to five years. A few of these, almost three years later, have still yet to be resolved. In one particular instance, a wood that I once managed for the Trust was subject to development threats that had started in 1983, rose to an exhausting crescendo of three Public Inquiries within six years, and only receded after a fourth in 1993. It's probably safe as it ever could be now, thanks to the huge efforts of volunteers. I don't think this is unique.

From a staff perspective, Wildlife Trusts and other voluntary organisations are complex beasts. At one level staff are endeavouring to objectively pursue biodiversity conservation goals within the parameters of the national, regional and local frameworks. At another they are reflecting the wishes of the Trust's members, most of whom are volunteers, channelled through a management council. The two are not necessarily the same. Although it's a generalisation, it's probably safe to say that the staff present a professional and broader understanding of the issues at hand, whereas members, although they may be experts on their own patch, are usually less familiar with the contemporary politic. Nevertheless, a Trust's council has to take account of members' views in its decisions; these may go against the professional advice of staff. This dynamic must be understood by external consultants.



**Photo 1: An inner urban brownfield; rarely did the Trust find itself in agreement with developers' ecological consultants on the value of such sites.**

## Common themes of concern

### Consultants expecting information for free

We were constantly asked for data on sites, and endeavoured to respond to all positively and quickly; by letter, for the record. If it was simple (e.g. 'Is this site a SINC?') we would try and respond with a simple letter. If a raft of data was requested, we would often point to sources and the likely costs of retrieval and administration. And if we held this data and highlighted the cost for its provision, we were unlikely to hear from the consultant again. In the ecological report that followed on from this enquiry we would often espouse the statement that we 'were consulted, but did not provide any data.' This negative wording hardly helped to embed trust between us and other parties.

Over and over again, it was expected that the Trust provide data free of charge. Whilst we had no desire to prevent data from being made available, it cost us – in staff time – to process and administer. All too often it appeared that consultants had hoped to obtain information from us for free – or had

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### Reform of the CAP at last!

The long awaited reform of the CAP has happened at last – but not without a struggle. Sadly the resistance of the French Government to the full extent of reforms means that yet another compromise has had to be reached. Well before the negotiations came to a head there were posters in France saying a firm 'non' to the Fischler proposals and, with their large number of farmers, often surviving on extremely small holdings, it is probably not too difficult to see why.

This is a step forward for Europe, which has received a cautious welcome from the statutory agencies and a more mixed reaction from the NGO's. The question is will the revisions work?

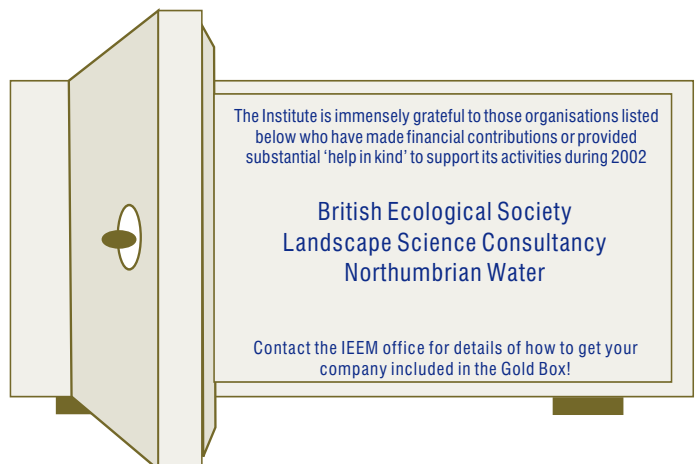
The Agencies jointly welcomed the result as offering the following opportunities:

Decouple most support payments from production; redeploy funds to address specific environmental concerns at the national or regional level; maintain existing arrangements for modulation as the means of funding rural development and environmental action by farmers; attach conditions to support payments that will help to protect wildlife and the wider environment and the countryside; develop a whole farm advice service to help farmers integrate environmental objectives into their businesses.

Although the UK has much to do at home, on a European scale reversing for example the decline of the cork oak industry in Spain and Portugal, of derelict olive groves in many parts of southern Europe and possibly traditional transhumance activities could bring much greater benefits. In terms of European biodiversity it may be that these and other such areas should be where the real focus should lie. The other real gain – though not perhaps from the viewpoint of say a Polish farmer – is the check on the production subsidies that could have applied to the accession countries and have led to a great intensification of agriculture in Eastern Europe. There still remains the serious impact of dumping subsidised food production on third world countries and the impacts on local land management. African countries see this as an issue on the agenda for the next round of the WTO talks. There is, however, much that we can start to do now, even if the solution is less than perfect.

The other significant event has been the assumption of the European Presidency by Italy. Apart from the spat with the Germans, the Italian government is causing great alarm among Italian NGOs with its attempts to roll back environmental legislation. It will be necessary to ensure that the environmental agenda is kept firmly in sight during the next six months of this Presidency.

One of the issues to watch, however, is the sluggishness of some of the European economies and the suggestion that sustainability and economic development are incompatible. If environmental legislation is seen to be a serious break on European economic prosperity, there could be a serious backlash - time for creative ecology to show what can be done!



failed to build-in data acquisition costs themselves. However, since 2000 more consultants contacting the Trust for data expect to pay for data search services, although resources within the organisation to interpret data are still problematical.

### **When is consultation consultation?**

We would often read in a report that we had been consulted. In reality this was rarely the case; often simply a 'request for data' (see above). This, of course, would have ramifications in our relationship with local authority planners, who would be confused by the developer demonstrating their efforts to consult, and we saying 'but we haven't been involved.' By which time, the process had often moved on too far.

In our view, consultation meant a request to meet with us, perhaps on-site, a discussion of the issues, an attempt to take on the issues of our concern within the development process, and on-going communicative relationship thereon. Despite matters having improved over the past three years, the organisation is still listed as a consultee purely on the basis of being sent a letter.

### **Volunteer costs**

Many Wildlife Trusts rely on volunteers for their work, including responses to planning applications. We tried to run a system whereby staff complemented the work of our volunteers, but we simply didn't have the resources to cover every eventuality. Many 'consultant' meetings would occur during working hours, making it almost impossible for volunteers to attend, and it wouldn't be a rare occurrence for more than one Council's evening planning meeting to take place on the same day.

Consultants usually include attendance at meetings within their costs. My costs were covered, as a staff member (although this would inevitably impact upon my other work commitments). But volunteers, not necessarily of the Wildlife Trust, came of their own accord, at their own cost. They might be prepared to do this once, but when a development proposal lasts for months - if not years - then many cannot afford to continue doing so, financially, let alone emotionally. Many have justifiably complained of fatigue, having been worn down by the planning process, and the feeling that their views are not taken seriously. Why should they bother? Again, lack of presence does not necessarily indicate lack of interest.

Rarely have I encountered an attempt by developers and local authority planners to try and make a consultative process that takes this and the above point into consideration. However, there have been a few instances where local authorities have tried to measure the costs of volunteer input in terms of attendance at meetings, and time spent on responding to reports, etc., and calculating these as costs. The results are often surprising, and have begun to change the way that volunteers' contributions are viewed.

### **Using national evaluative criteria in urban situations**

How often we tired of reading what application sites in question were not, rather than what they were. Statements would repeatedly say that because the site was not a NNR, SSSI or County Wildlife Site, it was of little or no interest. The Ratcliffe Criteria and National Vegetation Classification were routinely used to dismiss sites, rather than attempt to look at the site as it was, its current value, function and context, and work from there. This doesn't mean that these tools are invalid, rather that they have their limitations, most usually within the urban context. Urban habitats that don't easily accord with the semi-natural habitats, particularly those of post-industrial sites, were routinely 'pulled apart' in the reports, with the conclusion that they were 'artificial', 'temporary', 'easily re-creatable', or simply of no value.

The NVC, in particular, seems to have been used as an evaluative means to dismiss the vegetation communities on a site, despite the fact that it is a descriptive tool and to be used with caution. Even recently I have heard the NVC still being used as such. Nevertheless, the message appears now to be getting through, and there is evidence of the acknowledgement of the urban brownfield biodiversity creeping in.

### **Scientific value over emotional attachment**

Unfortunately the 'science' that helps to determine the outcome of development proposals on green spaces is ill-equipped to deal with emotional attachment to places. The cultural values of spaces are woefully under-developed compared to those of buildings. The Trust still finds language within reports that dismisses these values, on the possible basis that they are an obstacle to development that isn't based on rationality. And yet the efforts to conserve either the red kite or lady's slipper orchid can hardly be said to be based on rationality alone.

### **Anti-urban bias**

This was all too common, reflecting nothing more than the general bias within the biodiversity conservation sector as a whole. Objectivity being replaced by human bias, and which we spent far too much time trying to counter-balance with the facts. All kinds of stuff was thrown in to dismiss the biodiversity present – alien, non-native, and exotic species, artificial substrates, 'typical', common and widespread species, garden escapes – and if the site was also subject to the less attractive human activities [fly-tipping, car-burning], then the it didn't have a hope in hell. The presumption appeared to be that the development would be an improvement, especially if this was through some 'native-species tree planting'. Oh joy.

### **'Professional' and 'amateur'**

There was and, from what I hear, still is an element of snobbery at work. A number of consultants have dealt with the Trust (and possibly other voluntary organisations) at a superficial level whilst giving the statutory agencies more time and effort. There has at times appeared to be the assumption that dealing with amateurs from small NGOs is a waste of time, or more likely, the fear that they would let loose 'problems' by taking too antagonistic an approach. More than once I heard of efforts to by-pass the Trust, who would no doubt go straight to the press. And not without reason.

Local experts appear to be something to fear – unless one can subcontract, and effectively neutralise, them for their knowledge. However, this can be often be used for expediency, or – often unintentionally – focussing on one aspect of a development, but dismissing the wider issues. It can also be compounded by those consultants selling their services as local experts, but without enjoying the credibility from the regional biodiversity conservation sector, and/or refusing to work with them. One cannot blame developers – or planning departments – for being unaware of these complexities, but it demonstrates the need for a greater effort to promote professional standards.

### **We don't have to live here**

Part of the issue is that so many ecological consultants don't live in urban areas – possibly for very laudable reasons. In London, my recollection over eight years suggested that the majority of ecological surveys and reports appeared to be authored by people coming in from elsewhere, mainly rural areas. Whilst this in itself does not imply criticism of their ecological skills, one can question their understanding – let alone interest – of the context of many urban sites. I even suspect that many even believe that development should occur in urban areas (and in principle, I don't have a problem with that).



Just one example shows the type of thing we saw all too often. A 6ha site on the inner London Thames-side was surveyed for 'protected species' by the developer's ecologist. Badger setts were searched for – on a site unlikely to have ever supported them, certainly in the last 1,000 years. The report smartly concluded that the necessary search for protected species had been undertaken; the site supported none, development could proceed. However, the consultant had overlooked the Schedule 1 bird breeding on site. Was this sheer ignorance or a belief that the site could not possibly have any interest? The search appeared to be merely ticking the box, setting in motion an exhaustive and difficult campaign that is still to be happily resolved five years later.

### **Lack of critical evaluation within the planning process**

We recognised – I hope – the various constraints that many consultants were under; this was helped if they were open with us. But we nevertheless wanted them to do a 'good job'; a fair and objective assessment of the site, and if necessary, comprehensive and appropriate mitigation (or at very least compensation) proposals. A significant number appeared to fall short of this, and we hoped the local planning departments would be able to address this. But through lack of skills (or interest) held by planners, hierarchical constraints if ecology officers are employed by the local authority, and the sheer time (and often political) pressures of the planning process, many ecology reports of the consultants would be accepted as read. Issues we raised over a report's accuracy would be ignored. In one instance, a developer's woefully appalling report was criticised by the Trust, the local authority's (external) ecological advisors, the Environment Agency, and English Nature; it was still accepted.

### **Polarisation under the planning process**

Ultimately, the planning process is on the side of development. And in many authorities, planners are under considerable workload pressure (and often political pressure from Members). The process, if it unleashes significant objections to an application, ultimately forces sides into two camps, with planners in the middle, with often little time (or necessary skills) to bring about a more consensual resolution. Although we had experience of some expert planners, keen to address the concerns of objectors as best they could, we had all too much experience of planners with no interest, or no understanding of the issues at hand.

The biodiversity conservation sector is notoriously poorly paid, and I suggest that no-one enters the profession blindly in this respect. Through the efforts of some of the larger NGOs, the statutory agencies, and organisations like IEEM, there has been a welcome improvement in respect of salaries in some organisations over recent years. Nevertheless, many smaller conservation NGOs cannot afford to pay their staff well; many now trail behind the salaries of equivalent staff in local authorities and private consultancies. Many have no pension schemes or other benefits to compensate. No staff qualify for 'key worker' status, and consequently will be juggling a number of life-work issues, which can have an impact on the organisation as a whole (low morale, high turnover, lack of continuity, etc.). Although this doesn't directly relate to the issues of ecological assessment and development control, the accumulative impact of these can be significant.

For most people there is an in-built sense of inferiority if they are clearly more poorly paid than those they have to deal with. In some ways it directly impacts upon the clothes one can afford to wear to meetings (sad as it is, initial appearances still count for much). And the knowledge that for all one's expertise, one feels like and is often treated like an amateur (in the worst sense of the word). Even the membership fee for IEEM can be too much – for individual or organisation – which possibly explains the still poor representation of the voluntary sector in IEEM members.



**Photo 2: Green desert, Kennington, London. Improving green spaces for both wildlife and people between housing, both existing and that planned, could present opportunities for small conservation NGOs to work closely with new sectors.**

### **We've work to do too**

It's not always one-sided; the Trust and its staff were – and are still - not perfect in the respect of its planning application responses. I recognise from the outsider that our reactions could sometimes be vigorous, if not explosive, and that a developer would wish to avoid negative publicity if they could. There could also be questions asked about whether we addressed the real priorities; but this could justifiably be put to the other organisations working in the sector.

### **Who does what?**

The Trust has worked within a community of organisations that attempt to address the development threats and opportunities to areas of wildlife interest within the region. The exact relationships between these – and the division of responsibilities towards planning applications – is never exactly clear to those working within it, let alone to those who have to deal with us from outside. Efforts in the past to co-ordinate action have not succeeded, and even the Biodiversity Action Plan process hasn't improved on matters, apart from the notable exception of data management. Changing political circumstances at a regional level, and the uncertain nature of NGO funding will probably continue to hinder attempts at a more co-ordinated approach in the immediate future.

### **Addressing the image**

One issue that came to light from a number of applications, is that the voluntary sector needs to address part of its image or response mechanisms. Some planners, it has to be said, viewed nature conservation as an irritant, and its promoters as sentimentalists not living in the real world. Others associated us with a number of high-octane single-issue activists – the word wildlife often doesn't help, whether in a title of an organisation, or as a material planning issue. I suspect a widely held view is that promoting nature is seen to be a constraint against development, and in urban areas is not something we should be dealing with. This was partly reflected in the Government's Urban White Paper, and although much effort has been expended to improve matters through its work on urban green spaces, I suspect that such attitudes are still deep-rooted.

In addition, those of us who make up the biodiversity conservation movement – not least in the voluntary sector – are predominantly white and middle-

class. Add to this the still strong perceptions that we wear beards and sandals, have the social skills of a trainspotter, and are out-and-out bunny-hugging nimbys, does not give us the profile for us to give professional advice in the same manner as, say, a civil engineer or building surveyor or the political gravitas of a housing manager or children's welfare officer. This may seem extreme and unrepresentative, but it's what I've experienced.

### An improved understanding

Are things changing for the better? Anecdotal evidence suggests that they are, in parts. In the case of data requests from consultants, it has - because of an increased profile of the Trust's work on data collection and management. Since the development of an embryonic Local Records Centre - started in 1997 - the number of requests has doubled each year. In 2003 alone, there have been 81 data searches, 10 of which have been from new consultancies, the rest repeat business. Of 10 requests that weren't returned once the Trust sent out a quote and request form to fill in, only two were from new consultancies. The combination of a defined product, as well as - crucially - support from the regional authority, and the fact that each county now has a local records centre (or an aspiring LRC) charging for this service, the approach of consultants has changed. Hopefully to the benefit of all round.

Despite the great leaps made in national and regional planning guidance since the early 1980s, the importance of nature conservation in urban areas is still weak. PPG9 only goes so far, and we await its revision with guarded optimism. However, the revised PPG17 (Open Space, Sport and Recreation, 2002) is a considerable step forward, and could be a worthwhile tool.<sup>3</sup> Current initiatives seeking to address the impacts of construction, urban design and promoting sustainable drainage systems all suggest a growing need for a joined-up approach to professional practices in development.

In response, there has been a markedly growing professionalism within the NGOs, but there is a need to do more. Professional standards promoted by the Institute, and the CPD training to underpin this are essential, not least through to the smaller voluntary conservation organisations where membership is still low. In return, trustees of these organisations will need to recognise the importance of training and development of a broader range of skills for their staff and volunteers to deal with an increasingly complex world.

Most of those who wish to work for an organisation like a Wildlife Trust are passionate in their beliefs, and possibly see themselves, certainly in the urban context, fighting the good fight against big bad developers. The 'us and them' attitude is still there, although there is increasingly the recognition that such an oppositional approach (aided by a cynicism, if not antipathy, towards consultants who have 'crossed the divide') can be counter-productive. The difficulty will be to retain the healthy independence with a willingness to work professionally with those who have the power and will to impact upon wildlife habitats, and work in partnership to ensure that ecological damage is minimised and biodiversity benefits maximised.

**Mathew Frith is Vice-Chair of London Wildlife Trust. These views are his own and do not necessarily represent those of the Trust. Thanks to Mandy Rudd and Jenny Scholfield for their contributions.**

<sup>1</sup> Wells, M., 2000, Making a difference: the Ecological Consultant and sustainable development, In Practice, 27, 6-7, Institute of Ecology and Environmental Management, Winchester.

<sup>2</sup> Machin, N., 2000, Planning for the wild; how to use the planning system to protect London's biodiversity, London Wildlife Trust, London.

<sup>3</sup> Frith, M., 2003, Will 17 be better than 9?; Planning Policy Guidance note 17 Open Space, Sport and Recreation, in Ecos, 24, 1, British Association of Nature Conservationists, Cheltenham.

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# Reedbeds – An Ecological Solution for Failing CSO's

*Iris de Jongh, MIEEM*

## Failing CSO's

Combined sewer overflow (CSO) discharges into rivers and estuaries are often one of the most important sources of oxygen depletion and dangerous substances as well as algae and *E.coli*. This can have a negative impact on aquatic ecology and may often be the cause of bad odour and poor aesthetics. The traditional solution is to construct large storage or screening facilities. These are not always as effective as required and are generally very expensive.

An alternative would be to use reedbeds to provide both storage and treatment of the CSO discharge to protect the river water quality and ecology.

## Characteristics of a reedbed for CSO discharges

A reedbed for CSO's can be constructed to be fairly compact, since it would treat intermittent discharges instead of constant flows. A discharge would first be stored and then circulated for a given time. This is fundamentally different from using a reedbed for treatment of continuous flows, where a much larger reedbed would be needed.

A typical reedbed for CSO treatment would have a system of wide and shallow ditches with various species of reeds and wetland vegetation, preferably a pond with vegetation for sedimentation, and a circulation pump, preferably with a cascade (to increase oxygen levels).

The construction of reedbeds for CSO treatment has several major advantages:

- Due to the wastewater circulation within the reedbeds, very good treatment levels of Biological Oxygen Demand (BOD), Chemical Oxygen Demand (COD), coliforms, metals, hydrocarbons and fairly good removal levels of nutrients can be achieved;
- Reed vegetation provides passive and active aeration;
- Reeds have the ability to neutralise extreme high and low pH values in a relatively short time;
- Reedbeds provide a good habitat for wildlife and can be attractive landscape features, especially by varying the reed species;
- Reedbeds are low maintenance and very accessible for maintenance staff;
- Reedbeds could be as much as 50% cheaper to construct than concrete basins;

Obviously a reedbed requires more space than traditional systems, which can be quite a challenge in existing urban areas. However, relatively simple measures may be possible to transfer the CSO discharge to a more suitable location.

## Ecological benefits – a Dutch case study

Several reedbeds for CSO's have been constructed in the Province of Utrecht in The Netherlands, the oldest being from the 1980's.

This first reedbed for CSO discharge has been monitored to follow its water quality impact and ecological development. Based on the positive results of the monitoring exercise, two more were constructed and one more will be constructed this summer.



**Photo 1 – Reedbed in Houten**

The first reedbed, which was constructed in the city of Houten, will be used for this case (Photo 1). Houten has a combined sewer system that overflows via its CSO's on average twice a year. The Provincial government does not allow this without any mitigation, which has traditionally been through concrete basins. A study was undertaken to assess if there was a cheaper and more environmentally friendly solution. Results showed that treatment with reeds would be as much as 50% cheaper. Permission was given to construct one reedbed, which would have to be monitored for 5 years to prove that water quality standards were met and no negative impacts were observed.

The reedbed is built up out of shallow watercourses of 10 m wide (see photo) with maintenance paths in between. Initially the beds were planted with *Scirpus lacustris* (Common Club Rush). A pump and weir manage the water levels and discharges. The pump has a cascade to provide aeration. On one side of the reedbed a small wetland area has been landscaped. An artificial Martin Bank (Photo 2) and an artificially constructed bat cave (inside the nearby noise bund) have been added to the site to further enrich the species diversity. It was envisioned that both swallows and bats would be attracted to the insect rich environment of a reedbed.



**Photo 2 - Reedbed just after cutting and Martin bank**

The authorities have undertaken a full monitoring program to assess groundwater quality, surface water quality and ecological development.

Groundwater (at two levels) and bed sediment was sampled once a year for 4 years. Groundwater samples were analysed on

Phosphate, COD and Zinc. The sediment samples were analysed. The results showed a temporary minor increase in levels of Mineral Oils in the sediment and COD in both groundwater and sediment. The effect on all other parameters was negligible during the monitoring period. Surface water quality was monitored by monthly sampling and by following two forced CSO events in more detail. The results showed that the water quality of the stream in which the reedbed discharges, is influenced only locally and only moderately at that. The additional aeration as a result of the cascade worked very well.

Two years after the construction of the first reedbed an ecological survey was undertaken. Another one was undertaken six years after construction. Two years after development the flora and macro-fauna indicated an unpolluted, but, as expected, nutrient-rich environment. Species diversity was still relatively low. The presence of *Gyrinus natater* (Whirligig beetle) and *Gallinago gallinago* (Snipe) were unexpected. Six years after development over a hundred plant species were identified on the site and in the water. The Common Club Rush that was initially planted was largely taken over by *Phragmites australis* (Common Reed). In 1991 nearly 40 species of macro-fauna were identified. The survey was undertaken for two days during the same week at three locations in the reedbed, Unfortunately only one macro-fauna survey was

undertaken and therefore the development was not followed in more detail. It was however apparent that the species diversity was nearly twice a high as in the surrounding watercourses.

There are 7 species of bats in the area, although none have been connected directly to the reedbed. A site-specific bat survey has not been undertaken as yet.

There is a problem with *Ondatra zibethicus* (Muskrat), a semi-aquatic rodent of North American origin, on the site, but this is a problem nearly everywhere in the Netherlands. These animals undermine the maintenance paths and damage the reeds. Traps are used to keep the population down.

**Comments**

I would be very interested in any comments on using reedbeds for failing CSO's. Would this work in the UK or maybe not? How could species diversity be further increased? Please feel free to e-mail me on [iris.dejongh@fabermaunsell.com](mailto:iris.dejongh@fabermaunsell.com).

**Iris de Jongh is a senior environmental scientist at FaberMaunsell.**

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# Wet Woodlands: The Way Forward?

Stuart Ireland

## Introduction

Wet Woodlands are a priority habitat under the UK Biodiversity Action Plan (UKBAP), and yet the creation, restoration and management of these systems are poorly understood. Wetland habitats have undergone an extensive decline in distribution and cover over the last 60 years. In Europe, lowland wetlands have been extensively drained for agriculture and urban development. River engineering schemes for flood control and navigation, lowering of water tables, power generation, ground water abstraction, waste disposal, pollution and mining have all contributed to wetland loss (Bardsley et al, 2001). This article describes research into the establishment of the field layer as part of a multi-faceted research approach adopted by The National Forest Company and Severn Trent Water Ltd.

Wet woodland occurs throughout Britain on poorly drained or seasonally wet soils (UKBG, 1998). The former Nature Conservancy Council surveyed wet woodland in the UK and estimated there to be 25,000 – 30,000 ha of ancient semi-natural woodlands of this type. Data collected by the UK Biodiversity Group (UKBG) indicates that the area of recently created wet woodland may be at least as large again, giving an estimate of the total wet woodland area within the UK as 50,000 – 70,000 ha.

Within the UK, the UKBG has developed a series of national Biodiversity Action Plans (BAP) providing targets for the protection, restoration and creation of wetland habitats. Combined with changes in attitudes to wetland conservation during the past decade this has led to: the creation of new wetland habitats; restoration of debilitated wetland habitats; efforts to halt and reverse the decline in existing wetland habitat; and the prevention of the loss of associated wetland flora and fauna.

Habitat Action Plans (HAPs) were generated for priority habitats including wet woodland. Table 1 details the relevant restoration/creation targets as detailed in the Wet Woodland HAP.

Action	Area (ha)	Completion Date
Complete restoration of former native wet woodland on ancient woodland sites	1,600	2010
Complete restoration of former native wet woodland on ancient woodland sites	1,600	2015
Complete establishment on unwooded sites or by conversion of plantation	3,750	2010
Complete establishment on unwooded sites or by conversion of plantation	3,750	2015

**Table 1: Restoration/creation targets for wet woodland (after UKBG, 1998 and JNCC, 2001)**

The creation of new wet woodland throughout the UK will be undertaken to meet the targets detailed by the UKBG. Within new wetland systems, habitat creation will require specific topographical and hydrological criteria in order to support the desired habitats. However, without the appropriate ground

flora species present, these created habitats will not establish to meet the objectives of the habitat creation projects.

The research group set up by Aston University and Middlemarch Environmental Ltd with support from the National Forest Company and Severn Trent Water Ltd is assessing various aspects critical to the achievement of wet woodland restoration/creation targets. A full-time PhD research project investigating the hydrological requirements of wet woodland has recently been completed, with part-time research projects investigating the establishment of the field layer and the management of wet woodlands to increase biodiversity underway. Through these innovative projects, the research group aims to present a 'best practice' guide to the design, creation, establishment and management of wet woodlands.

Clive Kebel, Chief Officer, Land and Project Development at the National Forest Company stated that:

*"The creation and management of wet woodlands is important to the National Forest Company. Nature conservation is one of the core objectives in the creation of The National Forest and wet woodlands make a significant contribution to the achievement of targets in our Biodiversity Action Plan in terms of habitats and species. We welcome having been able to contribute to and accommodate this innovative piece of research. It is exciting to use The National Forest to trial new techniques and we hope that the results of the research will be applicable here and in other parts of the country where wet woodlands are being created or brought into management."*

This article describes the research being undertaken into the establishment of the field layer vegetation within the wet woodland system, detailing the aims and objectives of the research, outlining the current state of knowledge, describing the selection and establishment of experimental sites and discussing the initial costings associated with the experiments.

## Aims & Objectives

The aim of the research project is:

"The quantification of planting methodologies for wet woodland ground flora within newly created wetland nature reserves".

The project outcomes will be the development of cost/benefit analyses for the various planning methodologies for wetland ground flora and the development of a protocol for the establishment of wet woodland ground flora.

To attain the stated aim of the project, a series of objectives have been set:

1. The identification and establishment of suitable experimental sites;
2. Regular monitoring of fixed quadrats within the experimental sites;
3. The development of cost/benefit analyses for the various planting methodologies.

In addition to these objectives the research will endeavour to collate the current practice approach adopted by land managers throughout the UK through a simple questionnaire. It is apparent from the currently available literature that there is some disagreement on the benefits of field layer planting within newly created wetland systems.

## Current Knowledge

A review of the existing literature relating to wetland creation/restoration and to wet woodlands has highlighted a lack of specific knowledge regarding the most cost effective approach for establishing the field layer. Some authors argue that seeding or planting in newly created habitats is costly and the benefits questionable (Odum, 1987), however others (Reinhart and Warne, 1992; Mitch and Gosselink, 2000) have shown that the introduction of 'desirable' species through seed or plant material increases the long term biodiversity of the habitat.



The predominance of research into the creation of woodland communities has focused on the canopy species, and although increasingly the field layer's contribution to the overall biodiversity of the woodland has been recognised and examined, research is currently directed at more terrestrial woodland habitats.

**Site Selection**

To enable the investigation of the potential biodiversity benefits, and to quantify the cost effectiveness of various planting techniques experimental sites were selected using a series of criteria for an 'ideal' wet woodland site.

The selection criteria for the experimental sites were determined by designed habitat type (target NVC Community), extent, canopy species planting date and environmental variables (slope, aspect, hydroperiod etc.). In addition, the permission of the landowner for the establishment of experimental areas was required.

With respect to the environmental variables an ideal wet woodland study site would be located within the floodplain providing periodic inundation (annual winter inundation, summer inundation at 1 in 5 year interval) and wet soils. The sites should be relatively macro-topographically flat with areas of sufficient size to allow installation of experimental blocks with little change in slope and aspect. These conditions will reduce variables within the experiment providing data that can be assessed effectively.

The selected NVC community for this research is W6 *Alnus glutinosa* – *Urtica dioica* community. This habitat has been selected from discussions with the Forestry Commission who stated that within the Midlands Region floodplain habitat restoration will primarily occur within ex-arable land and plantation sites, which may result in W6 communities being the target habitat due to the high nutrient levels within the soils.



**Photo 1 – Sowing the seeds**

To facilitate investigation of the effect of canopy species on the establishment of the ground flora the research requires a variation in age of canopy species – ideally a newly planted site (photo 1) and a site with tree species providing an almost closed canopy.

Currently, two research sites have been identified, the Leam Valley Local Nature Reserve (LVLNR), Leamington Spa, Warwickshire (newly planted trees with an open canopy) and the Burton Mail Centenary Woodland (BMCW), The Washlands, Burton-on-Trent (5 year old trees with a predominantly closed canopy).

**Experimental Setup**

The initial preparation of the experimental planting areas was rotoation to provide a uniform planting medium, however the BMCW site had a more established field layer than the LVLNR, which may have an effect on the habitat establishment.

In order to quantify the most cost effective approach to the establishment of the field layer vegetation several planting techniques are being investigated.

1. Natural Regeneration/Colonisation
2. Turf Translocation
3. Seeding
4. Plug Planting

To replicate the most commonly used techniques the seed has been broadcast as a multi species mix at 4 g m<sup>-2</sup>, whilst the plugs have been planted in single species drifts at 9 plugs per m<sup>2</sup>. Soil translocation and pot planting have been rejected from the research due to similarities with selected methods and financial and spatial constraints on the research.

**Monitoring**

Within each of the planting blocks, two permanent quadrat pegs have been installed (Photo's 2 and 3). Monitoring of the vegetation is undertaken monthly in the first six months, and thereafter bi-monthly. At each monitoring visit a species list is compiled for each quadrat, with percentage ground cover and average vegetation heights recorded.

This data will be utilised to assess the 'success' of the various planting techniques at creating a W6 woodland ground flora against the NVC criteria.



**Photo 2 – Installation of permanent quadrat pegs**

**Cost Analysis**

The costs associated with the various planting techniques are given in Table 2. For all planting methodologies the pre-treatment at each site was identical, whereas purchase of materials, transport and labour elements varied between methodologies.

**Summary**

Although the creation of new native woodlands is generally thought to be well understood, it is apparent that the establishment of the field layer, particularly within wet woodlands, has been largely under resourced. This element of the team's research will inform the targetting of available resources for the field layer element of a wet woodland creation project.

The adoption of a multi-faceted approach to research into wet woodland restoration/creation will enable the production of a manual to assist landowners and conservationists in identifying appropriate sites for the restoration/creation of wet woodland. In addition, the research will enable the biological diversity of the woodlands created/restored to be maximised within the available resources.

Element	Area (m <sup>2</sup> )		Capital/Equipment /Transport Cost (£)		Labour Time (man days)		Labour Cost (£)	
	LVLNR	BMCW	LVLNR	BMCW	LVLNR	BMCW	LVLNR	BMCW
<b>Pre-treatment</b>								
Raking off vegetation	0	260	£0	£0	0	0.5	£0	£75
Rotovation	1470	260	£92	£69	3	1	£450	£150
<b>Planting Technique</b>								
Natural Regeneration	80	20	£0	£0	0	0	£0	£0
Turf Translocation	120	40	£15	£45	3	1.5	£450	£225
Seeding	200	100	£174	£87	0.2	0.1	£30	£15
Plug Planting	200	100	£342	£171	3	1.5	£450	£225

**Table 2: Costs for Establishment of Experimental Sites**

**Notes:**

1. Labour Costs are calculated at £150 per man-day.
2. Transport Costs are calculated at £0.50 per mile and include return journey.
3. Plugs cost between £0.21 and £0.31 at time of purchase (Ranunculus repens plugs were supplied free of charge). Actual costs have been utilised.
4. Translocation costs assume no machinery usage.



**Photo 3 - Permanent quadrat**

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# Shaping Up for the Flow: Conference Summary

Nick Jackson

This conference took place on the 4<sup>th</sup> June 2003 and was the first IEEM conference to be held in London. There were speakers from a wide range of backgrounds, including statutory organisations, non-government organisations, practitioners and academia. The day was billed as “an essential day for the ecologist and environmental manager who would like to know more about current initiatives in monitoring the aquatic environment including the requirements of the Water Framework Directive and Site Condition Monitoring”. This article will try to summarise what was said on the day and the overall views that were made.

The day started off with Kathy Dale, MIEEM, giving a general introduction to monitoring. She covered the basics of why we should be monitoring, who monitors, what is being monitored and when it has to be monitored by. She also covered current and future problems with monitoring strategies.

The next speaker was Graeme Storey from the Environment Agency and he gave a general introduction to the Water Framework Directive (WFD). The directive was broken down for everyone to the following basic points:

- Prevention of deterioration and enhancement of aquatic ecosystem status,
- Promotion of sustainable water use,
- Reduction of pollution from primary substances,
- Prevention of deterioration / reduction of pollution of groundwater,
- Contribution to mitigating effects of floods / droughts.

He also gave a schedule by which various deadlines of the WFD have to be met; this culminates in 2015 when various environmental objectives have to be achieved, and the next set of objectives published.

Next was Peter Hale from the Department of the Environment for Northern Ireland and he was putting into context the development of international standards. His talk covered the bodies responsible for standardisation, what they do and how they interface, the progress to date and developments for the future.

The last talk before Lunch came from Roger Sweeting of the Freshwater Biological Association and he spoke about the European Union (EU) STAR project. There are 14 countries participating in the project. The STAR project aims to determine the most suitable methods and give a picture of which biological assessment methods are most useful in which regions and on what sort of rivers.



Martyn Kelly

After the break the subject turned to quality assessment. Martyn Kelly, MIEEM, spoke about assuring the quality of biological and ecological assessments in the aquatic environment. He talked in some depth about the benefits of using automated systems and artificial intelligence (AI) as a method of identification and classification, using diatoms as specific examples. The success rates of these methods were reported to be very good. He also spoke about the debate over sampling frequency against sampling precision.

The next speaker was Niall Grieve from the Centre for Aquatic Plant Management. He spoke about monitoring issues and modelling using AI, in particular the EA/SNIFFER Project. This is a predictive system used to assess ecological status of rivers and lakes.

The next speaker on the programme, Rob Cathcart from English Nature, was unable to attend and the Institute is profoundly grateful to Ann Skinner, MIEEM, for stepping in at the last minute to take his place. The talk was on the EU Life in Rivers Project. This four-year project, which runs to December 2003, is developing approaches to the conservation of rivers in the UK proposed for protection as Special Areas of Conservation (SACs) under the European Habitats Directive. These form part of the Natura 2000 network across the European Union. The aims of this project are to produce monitoring protocols for condition assessment, to develop conservation techniques and to disseminate best practice in the UK and the EU.

Willie Duncan was the next speaker, from the Scottish Environment Protection Agency (SEPA) who spoke about determining ecological status.



Eirene Williams

The final speaker, and possibly the most thought provoking, was Eirene Williams, MIEEM, from the University of Plymouth. She spoke about the skills required to monitor fresh waters and went on to question the availability of people with such skills. Her talk was split up into two parts, the demand for these skills and the potential supply of new skills. It was obvious from all the previous talks of the day that people with ecological skills would be needed to implement the WFD. The main agencies *claimed* they could meet all the WFD obligations by readjustment of their staff job descriptions and reprioritisation of their overall workload. This seemed like a somewhat cavalier attitude to skills gaps and a feeling that there would always be consultants out there who could be called in to fill them. As for the supply of fresh ecological skills (primarily identification / taxonomic knowledge) there is a distinct lack of these coming from universities today, maybe due to timetable pressures, lack of teaching staff, or indeed lack of students applying in the first place.

IEEM would like to thank all of the speakers and delegates for making this an interesting and memorable occasion. IEEM is planning to make the speakers presentations available with the possibility of publishing them on our re-vamped website ([www.ieem.org.uk](http://www.ieem.org.uk)).



# External Affairs -Your Voice in the Wider World

Joel Bateman

The External Affairs Committee (EAC) is an IEEM committee which promotes the external identity of the Institute. This task involves many aspects - from attending conferences, seeking out new organisations which IEEM should be working with or should join, to responding to consultations from the government and many more. The EAC was one of the original Committees of the Institute, formed to seek out opportunities to promote professionalism in ecology alongside other functions of the Institute such as workshops and conferences. It provided advice on government policy on ecological and environmental management issues. However, with fluctuations in member's interests the EAC has in previous years never quite fulfilled its potential.

That was until its resurgence late last year. Perhaps I am counting my chickens but with a renewed interest in the committee and with so many pressing issues on the government's agenda it seems that the timing was ideal. Along with new leadership in Mike Barker, a new member of staff at IEEM headquarters, and the commitment of its members (some coming from as far afield as Switzerland!), I believe the EAC is not only here to stay but also going to make a lot of noise and have a very positive impact for ecological professionals.

This article is mainly about the consultation side of EAC's work. A lot of focus has been placed on this recently, and despite the Chairman worrying that the EAC will become a consultation sausage factory I think it is an important aspect of its role within IEEM. The EAC has been busy in recent months and has already responded to consultations on a wide variety of important issues from DEFRA's Agri-Environment Scheme to CIRIA's Biodiversity Indicators Web consultation. Furthermore a very positive contribution is now coming from the Scottish Section and from members in Wales. Perhaps soon with the setting up of more sections, IEEM can have a local impact too. But for now I think it is best we stick to frying bigger fish.

Consultations are government's, organisation's and companies' means to get their proposed policies reviewed and advice given before they become firm policy or guidance. Consultations occur in many formats from single specific questions to general comments on the whole approach. No matter what format they come in, it is important that IEEM makes a response as this is a positive way to promote the profession of ecology and environmental management. This is one of the main goals of the Institute. Consultations may also be the last opportunity, before government passes legislation.

IEEM has made responses to 10 consultations since the revamp of EAC. As members, you are welcome to request a copy of each consultation response. All information about the consultations IEEM is responding to can also be found on the website.

IEEM usually makes some general recommendations on each consultation. Occasionally this is the most appropriate approach to take such as that shown below for the Air Transport Consultation Response:

*The Institute feels that environmental and ecological protection as well as biodiversity conservation should have major influence on the choice of the*

*proposed UK's Air Transport Network developments. IEEM regrets the loss of any habitat that has been identified as having particular interest in terms of ecological interest and biodiversity value.*

*Areas of high ecological importance should be given full consideration alongside other issues before any developments are undertaken. In the current climate of over production of agricultural products, less regard should be given to the loss of purely agricultural land than to areas of significant ecological value. However, agricultural land can have pockets of high ecological value and this also needs consideration. IEEM recommends that where appropriate, Statutory Agencies should be contacted to check both sites and species to ensure the highest level of advice is given and due precaution be taken before development permission is granted. The Statutory Agencies will also be able to provide advice on guidelines for designated areas of ecological importance such as Special Sites of Scientific Interest. Extra protection should be given to sites of international importance such as Special Areas of Conservation, Candidate Special Areas of Conservation as well as Ramsar sites amongst many others. Should a development be chosen on a site of high ecological importance then IEEM urges that all practicable care is taken to minimise the impact on the ecology and biodiversity of the site.*

*IEEM also advises that only trained professionals should undertake survey work, preferably members of professional organisations, such as IEEM.*

*IEEM recommends that the precautionary principle should be instrumental to all decisions, and designs should focus on prevention of habitat and biodiversity damage in the first place rather than mitigation for damage caused. In the event of damage being caused the most creative solutions for mitigation should be employed.*

A key message in each consultation is that wherever it impinges on work which an ecologist or environmental manager might undertake, those persons involved should be fully qualified professionals who are members of a professional organisation (such as IEEM). Although with many consultations there are lots of general points that can be made, the real impact and value comes from specific recommendations. This is where the expertise of the membership is paramount and where it has the most impact. The EAC needs more people who are willing to take a little time and produce comments on any number of questions raised by the consultations.

The EAC meets physically only twice a year as much of the communication is done via an email loop. The next meeting is on 25<sup>th</sup> September 2003 and should any one be interested in attending, contact Joel Bateman at the office who will be able to answer your questions.

The EAC is still looking for people who would be interested in being involved by joining our emailing group. These are the first people who will hear about the consultations to which IEEM is formulating a response. With the new database now operational it is possible that the External Relations Officer may approach you if you have indicated you have expertise in a particular field that IEEM is responding to. It is often the case that a member may be responding to a consultation in a different capacity e.g. member of some other organization or on behalf of an employer - this makes life a little easier although we will still be looking for an overall IEEM viewpoint.

Although the value of consultations is universally recognised, it is equally recognised that they are not easy. One of the advantages of the Society for the Environment is that it may be possible to pool resources to produce a common response.

# BES / IEEM Workshop: Biological Recording, Survey and Monitoring

Nick Jackson

Both the BES and the IEEM have identified biological recording, survey and monitoring as an area that has been neglected in mainstream education and training and consequently the growing demand for these skills is not being met. This seminar was the first in what is likely to be a series of workshops that brings together interested parties from employers to trainers to seek a co-ordinated solution to this problem. The seminar was organised by Andrew Pullin of Birmingham University, with the input of IEEM particularly from employers involved with practical ecological work.

The day was split up into talks from various employers and trainers in the morning, and smaller breakout sessions discussing some of the key issues in the afternoon.

The first speakers were Richard Knightbridge, MIEEM (Entec UK) and Andy Tasker, MIEEM (Warwickshire Wildlife Trust) who spoke about employer's views on demand for biological recording, survey and monitoring skills. Both speakers echoed very similar views. The following are some of the skills that potential employers are looking for in new employees:

- Knowledge of policy / legal context to nature conservation
- Knowledge of ecological principles
- Field skills
  - Ability to identify a wide range of common species
  - Knowledge of techniques (surveys, monitoring etc.)
  - An enthusiasm to learn more about 'natural history'
- Analytical and report writing skills
- Personal Qualities
  - Self-presentation
  - Confidence
  - Enthusiasm
  - Some business awareness

The next speaker, Tim Bines, MIEEM (English Nature) talked about the problem of recruiting appropriately skilled employees. He spoke of the large training budget that English Nature has to keep knowledge levels of its employees high, and how their competencies are annually checked. He said there was a generalised need for the following skills: Conservation (legislation, identification, assessment, management), Business (advocacy, staff and personnel management, finance, project management). Recruitment is difficult because few graduate candidates have good field skills, a passion for learning about the natural environment or an ability to write well.

Steve Tilling from the Field Studies Council spoke next about the trainer's view of what is currently available in terms of training. He brought to light some all-too familiar issues. Some of these included fewer permanent staff with identification skills, fewer opportunities for internal training, a diminishing pool of external trainers and an increasing demand for accreditation. Some of the solutions put forward to combat these problems were more lobbying for fieldwork in schools, increased training for external tutors and provision of other support (publications etc).


The morning session finished with short talks on the following: Training the trainers and the problems of provision of courses and accreditation, and a Vision of partnerships between employers and trainers.

The afternoon breakout sessions were split into the following categories:

1. The employer's view – mismatch between demand and supply of skills,
2. The trainer's view – what sorts of CPD courses will provide the necessary skills?
3. The educator's view – what sorts of courses at what levels are required?
4. The strategic view – what sort of framework and partnerships are required to get this issue moving forward?

The facilitators of each group reported their findings to the rest of the workshop during a final summary discussion. It is hoped to make all of the outputs from this very informative day more widely available.

The views expressed at this meeting suggest that this problem lies at all levels of education and therefore to solve it, efforts need to be made at the school, undergraduate and postgraduate (CPD) levels.



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# European Federation of Associations of Environmental Professionals (EFAEP) - General Assembly on 12<sup>th</sup> June 2003 Progress Report

*Mike Barker, MIEEM*

The second meeting of EFAEP took place recently in Brussels and was attended by myself and Jim Thompson (Exec. Director) on behalf of IEEM. The meeting was well attended by the other organisation representatives and we successfully worked through a full agenda that confirmed the programme for formally registering EFAEP in Belgium, setting out how the Federation will operate and building on the agreed EFAEP objectives to form a series of priority actions. This article summarises the current position and the agreed way forward.

The meeting was hosted by VDI (The Association of German Engineers - a German member organisation) in the Brussels office of the Baden-Württemberg Region and chaired by the Vice-president Jan-Karel Mak of the Dutch organisation VVM (Netherlands Association of Environmental Professionals). The founding organisations incorporate 12 professional associations from 9 European countries representing almost 14,000 environmental professionals. It was reported that EFAEP would be successfully registered as a not-for-profit organisation within the next few weeks. The current Executive Committee set out how the organisation was to be organised and funded via a "one member / one Euro" levy on each member organisation until additional funding options can be explored (including the potential for EU support).

The Key Objectives of EFAEP are:

- To contribute to the development of a sound European environmental policy;
- To foster co-operation among European associations of environmental professionals;
- To foster co-operation between European environmental experts;
- To foster on-going education of professionals;
- To contribute to timely solutions for environmental pollution problems;
- To raise public awareness on environmental issues, and
- To influence EU decision taking on environmental issues.

The meeting confirmed that the "Vision & Values" statement would be finalised and published on the EFAEP website ([www.efaep.org](http://www.efaep.org)). The representation on the four working groups was confirmed at the meeting. These groups aim to tackle:

- Environmental & sustainability policy, strategy and legislation (IEEM will sit on this Group);
- Environmental education, information and communication;
- Waste management;
- Industry and environment.

Priorities for the Executive Committee, the secretariat and the working groups were then agreed including a timeframe for developing an EFAEP business plan and action plans for each of the working groups by December 2003. These will be approved and launched at the next meeting on the 5<sup>th</sup> December 2003 at the Pollutec environmental fair in Paris (see [www.pollutec.com](http://www.pollutec.com)).



**EFAEP members**

Presently the IEEM is the only representative organisation from the UK and brings an important ecological perspective to the Federation of Associations that have wide environmental remits. We are therefore able to ensure ecological, conservation and biodiversity issues are incorporated into the activities of the EFAEP. In time this will facilitate these core interests of IEEM to be represented effectively at a European level and particularly in influencing EU policies and legislation. IEEM is keen to support and encourage the establishment of a European wide body promoting environmental professionalism and best practice and will monitor the effectiveness of EFAEP in delivering this and review its membership at Council annually.



## THE NATIONAL TRUST

The National Trust is one of Britain's largest charities, managing over 248,000 hectares of land and 909km of coastline on behalf of the nation. The Trust carries out a programme of biological survey to inform its work, and this year we have a requirement for additional support from external contractors.

Over the summer 2003, we wish to carry out surveys out on a broad range of properties in our care. We require an integrated survey covering elements of the flora, fauna and earth sciences, together with an evaluation of the nature conservation interests. This would involve field survey of the whole site and the collation of relevant data from other available sources, such as National Trust staff, local Records Centres and statutory agencies.

The surveys will need to be carried out during August, September and October 2003. The properties concerned are located in Yorkshire, Derbyshire, Kent, East Sussex, Devon, Gloucestershire, Norfolk and Suffolk.

If you are interested in carrying out some of these surveys for the Trust, please contact Hazel Horton or Andy Foster at the address shown below for further information.

*The National Trust, 33 Sheep Street, Cirencester, Gloucestershire, GL 7 J R Q. Tel 01285 651818.*



## In the Journals

Compiled by  
Jim Thompson, Joel Bateman  
and Nick Jackson



### British Ecological Society

D. J. Kriticos, R. W. Sutherst, J. R. Brown, S. W. Adkins and G. F. Maywald.  
**Climate change and the potential distribution of an invasive alien plant: *Acacia nilotica* ssp. *indica* in Australia**  
Journal of Applied Ecology 2003, **40**: 111 - 124

*Acacia nilotica* is a spinescent woody legume that has become highly invasive in several parts of the world, including Australia where it has been declared a weed of national significance. Understanding the likely potential distribution of this notorious plant under current and future climate scenarios will enable policy makers and land managers to prepare appropriate strategies to manage the invasion.

CLIMEX was used to synthesize available information from diverse sources to model the invasion potential of *A. nilotica* and gain insights into the climatic factors limiting its range expansion. The model identified areas at risk of further invasion so that early preventative or ameliorative measures could be undertaken in a timely manner.

The potential distribution of *A. nilotica* in Australia under current climatic conditions is vast, and far greater than the current distribution.

Global climate change is likely to increase markedly the potential distribution of *A. nilotica* in Australia, significantly increasing the area at risk of invasion. The factors of greatest importance are the expected increases in water-use efficiency of *A. nilotica* due to increased atmospheric CO<sub>2</sub> concentrations, allowing it to invade more xeric sites further inland, and increased temperatures, allowing it to complete its reproductive life cycle further southward (poleward).

A crucial component in containing this invasion will be raising public awareness of the invasion threat posed by *A. nilotica*, its identification and suitable control techniques.

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K. C. Hamer, J. K. Hill, S. Benedick, N. Mustafa, T. N. Sherratt, M. Maryati and V.K. Chey.

**Ecology of butterflies in natural and selectively logged forests of northern Borneo: the importance of habitat heterogeneity.**

Journal of Applied Ecology 2003, **40**: 150 - 162

The impacts of habitat disturbance on biodiversity within tropical forests are an area of current concern but are poorly understood and difficult to predict. This is due in part to a poor understanding of how species respond to natural variation in environmental conditions within primary forests and how these conditions alter following anthropogenic disturbance. Within this context, the main aim of this study was to test the hypothesis that the gap and shade preferences of fruit-feeding butterflies in primary forest in northern Borneo can be used to predict species' responses to selective logging and thus explain changes in diversity and geographical distinctness in relation to habitat disturbance.

Overall, there was little difference in butterfly diversity between primary forest and forest that had been selectively logged 10-12 years previously. In contrast, there were marked differences in the composition of the butterfly assemblages

in the two habitats, which were strongly associated with species' gap preferences and geographical distributions.

This study highlights the need to sample at a sufficiently large spatial scale to account for impacts of disturbance on heterogeneity in forest environments. It also demonstrates how understanding the responses of species to natural variation in environmental conditions within undisturbed forest is crucial to interpreting responses of species to anthropogenic habitat modification. The results further indicate that selectively logged forests can make an important contribution to the conservation of tropical biodiversity, provided that they are managed in a way that maintains environmental heterogeneity.

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N. Vaughan, E-A. Lucas, S. Harris and P. C. L. White.

R.F. Pywell, J.M. Bullock, D.B. Roy, L. Warman, K.J. Walker and P. Rothery.

**Habitat associations of European hares *Lepus europaeus* in England and Wales: implications for farmland management.**

Journal of Applied Ecology 2003, **40**: 163-175

Numbers of European hares *Lepus europaeus* have declined throughout Europe as a result of agricultural intensification and the authors aimed to identify agricultural land management practices that may benefit this species. The paper is straightforward with a considerable amount of useful, practical information - in short something of a relief.

A postal survey of farmers was used to investigate relationships between the abundance of hares on farmland and current land management, the abundance of a possible competitor (rabbit *Oryctolagus cuniculus*) and the abundance of two predators (buzzard *Buteo buteo* and fox *Vulpes vulpes*). Questionnaires were sent to 3000 farms in England and Wales and 35% responded.

Hares were relatively common on arable farms, especially on those with wheat *Triticum aestivum*, beet *Beta vulgaris* or fallow land. They were less common on pastoral farms, where the likelihood of seeing hares was increased if improved grass, woodland or, in some cases, arable land was present. The association of relatively frequent sightings of hares with arable land was consistent at four spatial scales (farm, parish group, county and region).

Hares were seen rarely where foxes were seen frequently. Hares were generally only hunted on farms where they were common. Hence, records of numbers of hares shot may be used as indices of hare abundance but only in areas where hares are common.

Forty-two per cent of farmers believed that hares were declining. Hare numbers were most likely to be increasing on arable farms.

Changes in land management that provide year-round cover and forage may make farms more attractive to hares. To benefit hares, pastoral farms should have some woodland, improved grass and arable crops; arable farms should have wheat, beet and fallow land.

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R.F. Pywell, J.M. Bullock, D.B. Roy, L. Warman, K.J. Walker and P. Rothery.

**Plant traits as predictors of performance in ecological restoration.**

Journal of Applied Ecology 2003, **40**: 65 - 77

This is an interesting report on 25 experiments concerned with species-rich grassland restoration on ex-arable land and agriculturally improved grasslands situated at a wide range of locations throughout lowland Britain.

A performance index was calculated for each of 58 species (13 grasses and 45 forbs) for the first 4 years after establishment. Individual species showed large differences in performance indices. However, grasses consistently outperformed forbs. Table 2 in the paper is a very useful compendium of the results and could be used with the caution the authors suggest, as a league table to select species that will perform consistently well in restoration work. Efficiency might be increased by introducing only species with good performance, but this would lead to uniformity among restored grasslands and would diminish the benefits of habitat restoration for national and regional biodiversity.

The authors examined the linkage between species' performance and traits according to four hypotheses. The ability to establish and persist in restored vegetation communities requires: good gap colonization ability; strong competitive capability; and ability to undergo vegetative regeneration. Successful species are generalists associated with fertile habitats.

Within the forbs, good establishment in the first year was linked to traits determining colonization ability: ruderality, percentage germination of seeds and autumn germination. However, traits linked to competitive ability, vegetative growth and seed bank persistence became increasingly important determinants of success with time. Species with generalist habitat requirements, and especially those associated with fertile soils, performed increasingly well with time. This reflects the development of a closed vegetation in which the ability to grow vigorously and out-compete other established plants is important.

Stress-tolerators, habitat specialists and species of infertile habitats performed badly. This may reflect high residual fertility in restored grasslands and particular niche requirements of these species. This may be a problem as grassland restoration often targets communities characterized by species with these traits and many are food plants of invertebrates of conservation value.

Future work should focus on practical methods to increase the successful establishment of the poor performing but desirable species, by (i) targeting restoration to low fertility soils, (ii) changing the abiotic environment or (iii) the 'phased introduction' of species several years after restoration, when both the plant community is more stable and the environmental conditions are more favourable for establishment.

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**IEEM Workshop – restoring and creating wildflower-rich grassland on farmland.**

M. Sundbom, M. Meili, E. Andersson, M. Ostlund and A. Broberg.

**Long-Term dynamics of Chernobyl <sup>137</sup>Cs in freshwater fish: quantifying the effect of body size and trophic level.**

Journal of Applied Ecology 2003, 40: 228-240

The accumulation of contaminants in aquatic biota is a well documented phenomenon, with potential hazards for both ecosystem and human health. Anthropogenic contaminants often enter the environment episodically or as a single pulse. The type of contaminant, the biochemistry of the recipient system, and food web structure and dynamics may all influence the temporal pattern and the time before background levels are re-established. Radiocaesium (Cs) is ideal for studying the principles of bioaccumulation of pulsed contaminants because:

1. <sup>137</sup>Cs is an anthropogenic nuclide therefore background levels are naturally very low,
2. Cs is readily bioavailable and has simple chemistry,
3. Cs is a non-essential element,

4. Cs measurement is simple and samples can be stored for decades.

The large-scale fallout of <sup>137</sup>Cs from the Chernobyl nuclear accident in late April 1986 was a typical pulse contaminant.

In this study the authors investigated how the Chernobyl <sup>137</sup>Cs pulse had developed among fish populations in 3 Swedish Lakes during 1986-2000. In particular they were interested in quantifying the influence of fish size and trophic level on the time scale, maximum level, new steady-state levels and long-term decline rate of <sup>137</sup>Cs. The data included roughly 7600 fish from 8 species, covering different size classes and feeding habits.

Peak concentrations in different fish were attained 56-806 days after the fallout. This delay increased with body size and trophic level. The peak levels of <sup>137</sup>Cs increased with fish size but were highest at intermediate trophic levels.

About 10 years after the fallout the ecological half-life was no longer significantly different among fish or lakes, suggesting that a steady state among <sup>137</sup>Cs levels in fish had been reached.

The influence of fish size and trophic level on <sup>137</sup>Cs dynamics was consistent among the three lakes. The duration of the <sup>137</sup>Cs pulse in fish appeared to be regulated by fish eco-physiology, whereas the amplitude also appeared to be regulated by the lake characteristics.

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J. L. Pretty, S.S.C. Harrison, D. J. Shepherd, C. Smith, A. G. Hildrew and R. D. Hey.

**River rehabilitation and fish populations: assessing the benefit of instream structures.**

Journal of Applied Ecology 2003, 40: 251-265

River rehabilitation schemes are now widespread in the UK and elsewhere, but there have been few systematic assessments of their ecological effect, particularly on target organisms such as fish. Fish populations were therefore assessed in 13 lowland rivers using point abundance measures and depletion electrofishing. Each river was sampled in two reaches, respectively containing a small-scale rehabilitation scheme (artificial riffles or flow deflectors) and an unrehabilitated control reach. Detailed geomorphological surveys were undertaken for the two study reaches in each river to assess the physical and hydraulic effect of rehabilitation.

There were large quantitative and qualitative differences among rivers and some had relatively impoverished fish faunas. Overall, total fish abundance, species richness, diversity and equitability were not significantly different between rehabilitated and control reaches. This was true for both the sampling methods used. Bullhead *Cottus gobio* and stone loach *Barbatula barbatula* tended to be more abundant in rehabilitated reaches, but this was significant only for artificial riffles.

In general, rehabilitation schemes increased depth and flow heterogeneity, and fish species richness and diversity appeared to respond positively to increased flow velocity in restored reaches. However there were few significant relationships between the fish fauna and physical variables, indicating that increasing physical (habitat) heterogeneity does not necessarily lead to higher biological diversity.

The weak response of fishes to rehabilitation may have been because the schemes were inappropriate in design and scale for low-gradient rivers. Furthermore, fish assemblages may have lacked the potential for recovery because of poor water quality and/or because the schemes were isolated within longer sections of degraded river. The authors thought that more extensive and directed biological monitoring would be essential to improve understanding and enable future improvements in the design of schemes and selection of sites with greater potential for successful rehabilitation.

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R.I.A. Hirst, R. F. Pywell, R.H. Marrs and P.D. Putwain.

**The resistance of a chalk grassland to disturbance.**

Journal of Applied Ecology 2003, **40**: 368-379

This paper deals with the response of vegetative communities, resilience and resistance, to disturbance. Resilience refers to the time period required for a vegetation to return to its pre-disturbance state, and resistance describes the ability of a system to resist change when subjected to disturbance. Concepts of ecosystem stability, resilience and resistance have been discussed theoretically for nearly three decades and understanding the effects of habitat disturbance and mechanisms of recovery in practice are vital for successful conservation management and restoration.

The authors deal with the chalk grasslands within the Salisbury Plain Training Area (SPTA), the largest UK military training area. In order to understand the resistance and resilience of this habitat type imposed disturbance treatments were used.

The experiment was designed to compare the disturbance effects of a Land Rover, a truck and a Challenger II tank on a tall *Bromopsis erecta*-dominated chalk grassland community on the SPTA. Permanent quadrats were established on a site experimentally disturbed by single and multiple passes of the three vehicles and a tank turn (slew). Post-disturbance changes were recorded in the vegetation and soils in permanent quadrats.

It was found that one year after the disturbance, all the treatments still had significant soil compaction effects and all treatments except the single Land Rover pass resulted in a significant reduction in sward height. The grassland community sampled was significantly less resistant to disturbance by tracked vehicles than wheeled vehicle disturbance, with tracked vehicles creating the greatest recorded soil compaction and exposure of bare soil and longer-term changes in sward composition.

The authors suggest that chalk grassland is significantly less resistant to disturbance caused by multiple passes of tracked vehicles and tracked vehicle turns. The results demonstrate that even small-scale but acute disturbance events can have significant effects on plant community composition, and can have wider reaching impacts on other aspects of site management.

There are important implications for the management of off-road vehicles in recreational and agricultural contexts, and for the formulation of a strategic sustainable management plan for the SPTA that incorporates both military and conservation objectives. Site managers should be aware that certain activities not previously considered to be potentially damaging might be creating significant habitat disturbance effects, as changes to soil structure, functioning and fauna can occur in the absence of changes in plant community composition.

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M. Baguette and N. Schtickzelle.

**Local population dynamics are important to the conservation of metapopulations in highly fragmented landscapes.**

Journal of Applied Ecology 2003, **40**: 404-412

Population viability analyses (PVA) are extremely useful tools for the management of endangered species at the landscape level. Two main types of spatially explicit models are available to perform PVA: (i) presence – absence models, in which local populations are either existing or extinct at each generation, and (ii) structured population models, in which the dynamics of each local population are modelled. In this study, the authors compare the two approaches for the prediction of the persistence of a species living in a highly fragmented landscape.

The cranberry fritillary butterfly, *Boloria aquilonaris*, is an arctic-alpine relict species in western Europe. This particular species lives in landscapes where

altitude or the proximity to oceans provides the high humidity conditions required for the formation of peat bogs, the only habitat of the butterfly. In such landscapes, the distribution of the butterfly is fragmented, following the natural distribution of peat bogs; this fragmentation is increased by human-induced peat bog destruction.

The study of the dynamics of a highly fragmented metapopulation of the cranberry fritillary in a network of 14 habitat patches totalling 26.23ha revealed that: (i) the density at equilibrium was c. 700 butterflies ha<sup>-1</sup>; (ii) local population dynamics in small populations were negative; and (iii) six estimates of the growth rate showed large variations even in a large population. Both local extinctions and re-colonisation events are likely to occur, and two sites unoccupied during two generations were colonised in the third year.

The authors concluded that the future of this metapopulation was not guaranteed, given its large spatial scale and unbalanced, erratic local population dynamics. They thought that global warming could explain the instability of local population dynamics detected at this site in addition to the decline of this arctic-alpine relict species.

Presence-absence models based on metapopulation structure and habitat characteristics should provide relatively safe predictions, as the population network was just below the minimum amount of suitable habitat for the long-term persistence of a viable metapopulation. However careful investigation of local population dynamics showed a high instability in the network, which is confirmed by population extinction at a large site.

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G. J. Holloway, G. H. Griffiths and P. Richardson.

**Conservation strategy maps: a tool to facilitate biodiversity action planning illustrated using the heath fritillary butterfly.**

Journal of Applied Ecology, 2003, **40**: 413-421

The UK Biodiversity Action Plan (UKBAP) identifies invertebrate species in danger of national extinction. For many of these species, targets for recovery specify the number of populations that should exist by a specific future date but offer no strategy to achieve these targets.

The authors describe techniques based upon geographic information systems (GIS) that produce conservation strategy maps (CSM) to assist with achieving recovery targets based on all available and relevant information.

The heath fritillary *Mellicta athalia* is a UKBAP species used in the paper to illustrate the use of CSM. A phase 1 habitat survey was used to identify habitat polygons across Kent. These were systematically filtered using relevant habitat, botanical and autecological data to identify seven types of polygon, including those with extant colonies or in the vicinity of extant colonies, areas managed for conservation but without colonies, and polygons that had the appropriate habitat structure and may therefore be suitable for reintroduction.

Five clusters of polygons of interest were found across the study area. The CSM of two of them are illustrated in the paper: the Blean Wood complex, which contains the existing colonies of heath fritillary in Kent, and the Orlestone Forest complex, which offers opportunities for reintroduction.

Although the CSM concept is illustrated for the UK, the authors suggest that CSM could be part of species conservation programmes throughout the world. CSM are dynamic and should be stored in electronic format, preferably on the world-wide web, so that they can be easily viewed and updated. CSM can be used to illustrate opportunities and to develop strategies with scientists and non-scientists, enabling the engagement of all communities in a conservation programme. CSM for different years can be presented to illustrate the progress of a plan or to provide continuous feedback on how a field scenario develops.

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P. J. A. Vervuren, C. W. P. M. Blom and H. de Kroon.

**Extreme flooding events on the Rhine and the survival and distribution of riparian plant species.**

Journal of Ecology 2003, **91**: 135–146.

Although this paper relates to the extreme flooding in the Rhine experienced two years ago its results could very well apply to flood plains elsewhere. Summer floods whose severity is affected by flooding duration, submergence depth and underwater light availability, have a large impact on the zonation of riparian plant species.

The authors analysed the range and variability of these flooding components in the River Rhine and quantified their effects on the ability of *Arrhenatherum elatius*, *Achillea millefolium*, *Rumex acetosa* and *Rumex crispus*, to survive periods of submergence under experimental conditions.

Survival characteristics were used to model species' lower distribution boundaries for extreme and average floods and were compared with the current field distribution. Different light conditions were simulated by implementing three scenarios of suspended load.

Extreme deep Rhine floods are characterized by very low median light transmission levels (i.e. below 0.5%). The largest survival responses in the experiment were observed at such low levels (0.4–3.5  $\mu\text{mol m}^{-2} \text{s}^{-1}$ ). Strong effects of light were found in *R. crispus* and *A. millefolium*, but responses were weaker in *A. elatius* and *R. acetosa*. Submergence depth also affected survival, but not as strongly as light.

For the flood intolerant species (*A. millefolium* and *A. elatius*) the average flood was predicted to have little effect on field distributions under normal light conditions. However, their actual field distributions in 2000 corresponded to the predicted lower boundaries in the extreme years. This suggests that extreme years determine the distributions of these species for many years. The suspended load scenarios significantly modified the predicted lower boundaries in both extreme and average years, implying that plant lower distribution limits may be significantly shifted upwards or downwards depending on the suspended load of the river system.

The predicted lower boundaries of the intermediately tolerant *R. acetosa* and the highly tolerant *R. crispus* for both extreme and average years were below the actual field distribution in 2000. This suggests that their current distribution is only partly influenced by major flood disturbances and that other factors, either proximate or historical, may play a prominent role.

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S.I. Higgins, J.S. Clark, R.Nathan, T.Hovestadt, F. Schurr, J.M.V. Fragoso, M.R. Aguiar, E.Ribbens, and S. Lavorel.

**Forecasting plant migration rates: managing uncertainty for risk assessment.**

Journal of Ecology 2003, **91**: 341–347.

Anthropogenic changes in global climate are shifting the potential ranges of many plant species.

Changing climates will allow some species the opportunity to expand their range, others may experience a contraction in their potential range, while the current and future ranges of some species may not overlap to the same extent. Our capacity to generalize about the threat these range shifts pose to plant diversity is limited by many sources of uncertainty.

Forecasting migration rates for plants is fraught with many uncertainties.

For example the current wave of climate change is combined with habitat loss and fragmentation and selection may be against long distance dispersal, because in fragmented landscapes the risk of dispersal to unsuitable habitats increases with increasing dispersal distance.

The authors also advocate closer co-operation between researchers forecasting changes in climatic ranges and researchers forecasting migration rates.

Such co-operation will allow us to direct migration research towards species that are threatened by climate change and species that have expanding climatic ranges.

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P.A. Thomas and A. Polwart.

**Biological Flora of the British Isles No 224 - *Taxus baccata* L.**

Journal of Ecology 2003, **91**: 489–524.

The headings considered are similar to previous papers in the series: Geographical and altitudinal distribution, Habitat, Communities, Response to biotic factors, Response to environment, Structure and physiology, Phenology, Reproductive and seed characters, Herbivory and disease, History and finally a useful section on Conservation. This paper is a major piece of work with 324 papers cited.

*Taxus baccata* (Yew tree) is a native evergreen tree up to 20(28) m, often with multiple trunks and spreading, rounded or pyramidal canopy. It can form dense stands in oceanic climates but increasingly becomes an isolated understorey tree in more continental climates.

In Britain, yew woodlands are almost wholly confined to the chalk of the South Downs and, to a lesser extent, the North Downs in south-east England especially along the sides and bottom of dry valleys and on scarp slopes. There are also examples on the Magnesian Limestone of County Durham, the Carboniferous Limestone around Morecambe Bay and on the limestones of south-west Ireland, especially the Killarney woodlands. Further small stands of yew are found in Ireland on other limestone outcrops.

Individual yew trees are more widespread, occurring naturally in woods and on cliffs, including sea cliffs, especially on neutral to alkaline soils. The natural distribution is clouded by the extensive planting of yew trees, especially in churchyards, and it is virtually impossible to separate native and aliens

Yew has become locally extinct or reduced to small isolated populations during the last 4000 years in many parts of Europe and the former Soviet Union. It is now a rare and endangered species prone to extinction in the Mediterranean mountains of southern Spain, Poland, Bulgaria, in the eastern Transcaucasus and Norway.

A number of causes have been put forward for the decline of yew. In the Mediterranean flora of southern Europe this may be due to the climate becoming less oceanic. A variety of causes have been reported from elsewhere. However, a second major contributor to decline has undoubtedly been excessive felling.

Yew populations can expand where conditions are suitable and active management can also help. In Britain, the Forestry Commission recommended that rapid growth of yew can be promoted by felling the overstorey in yew-rich beech-ash woods. The yew will outcompete hardwood regeneration and dominate. However, once yew woodland is cut, it is more likely to regenerate to ash or birch in the first instance, with yew as a scattered understorey. Thus management should be restricted to only very occasional harvesting of yews. Around 50% of lowland yew woodlands in England are at present designated as SSSI's.

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# Advances in Environmental Assessment: Improving good practice

## *A combined note for three CIEF workshops held in March 2003*

*Editors Note; This compendium of discussions at the CIEF seminars might be useful for many IEEM members even if for those involved in the specific fields the information may be familiar.*

### SUMMARY

Since the mid-1980's Environmental Impact Assessments (EIAs) have had to be undertaken for major industrial and civil engineering projects. Proposed projects need to be measured for their potential impact on a number of fronts, including ecology, transport, pollution and archaeology, as well as the consideration of cumulative impacts. In addition, the policy context has recently started to change. For example, the EU Strategic Environmental Assessment (SEA) Directive was adopted in 2001 and this will have significant implications for the assessment of plans and programmes rather than individual projects.

The effective implementation of SEA will be an important step towards sustainable development whilst local authorities as well as clients and developers are starting to appreciate the benefits associated with the early appraisal of a project's environmental and social impacts. These seminars examined the likely implications of the SEA Directive for the planning and development sectors as well as highlighting advances in cumulative assessment, the development of guidance on ecological assessment and case study examples of good practice in environmental assessment.

### **The SEA Directive: the likely implications for planning and development**

*Carys Jones, EIA centre, University of Manchester*

Strategic environmental assessment (SEA) is the term used to describe environmental impact assessment at the policy, plan or programme (PPP) level. It is therefore the term used to describe the process of evaluating the likely significant environmental consequences of a policy, plan or programme before it is approved. Whilst Environmental Impact Assessment (EIA) is seen as routine, SEA is more rare.

However, there are considerable advantages associated with SEA, including:

- The consideration of environmental objectives during PPP making within non-environmental organisations
- Consultation and public involvement regarding environmental aspects of PPP formulation
- May render some project EIAs redundant
- May leave examination of certain impacts to project EIA
- Formulation of standard or generic mitigation measures for later projects
- Consideration of alternatives often ignored or not feasible in project EIA
- Determination of appropriate sites for projects subsequently subject to EIA
- More effective consideration or analysis of cumulative, synergistic, ancillary or secondary effects as well as long range or delayed impacts
- Analysis of impacts of policies which may not be implemented through projects.

The European "SEA Directive" 2001/42/EC on "the assessment of the effects of certain plans and programmes on the environment" omits policies (includes land use and sector plans and programmes only) and has no direct reference to the term SEA. A framework directive, it allows flexibility and is based on procedures similar to the EIA Directive.

The Directive requires the production of an environmental report (Annex I) and also requires:

- The existence of a "competent body"
- Consultation
- Monitoring
- Quality control

The environmental report should include the following information:

- Outline of plan/programme contents and main objectives
- Current state of environment and likely evolution
- Relevant existing environmental problems
- Environmental protection objectives
- Likely significant effects on the environment
- Measures envisaged to prevent, reduce and offset significant adverse effects
- Reasons for selecting alternatives
- Measures concerning monitoring
- Non-technical summary

The likely significant effects on the environment are defined as :

- Biodiversity, population, human health, fauna, flora, soil, water, air, climatic factors, material assets, cultural heritage including architectural and archaeological heritage, landscape and the interrelationship between the above factors
- Effects should include secondary, cumulative, synergistic, short, medium and long term, permanent and temporary, positive and negative effects.

The Directive covers:

Agriculture, Waste management, Forestry, Water management, Fisheries, Telecommunications, Energy, Tourism, Industry, Town and country planning / land use, Transport.

In October 2002, the Office of the Deputy Prime Minister (ODPM) established a preliminary list of plans and programmes which may be affected and concluded that 39 were probably covered, 44 possibly covered and 2 unlikely to be covered by the SEA Directive. It has yet to be confirmed how the directive will be implemented within the UK, although a multi-regulation approach (rather than one piece of legislation) is likely. The initial focus will be planning and it has yet to be decided whether it will be via central (nation-wide) or regional (e.g. assemblies) government. The key goal remains the same however – to integrate requirements and guidance into existing procedures.

In terms of guidance, the European Commission is producing some, as well as the ODPM. The ODPM guidance is currently being revised in the light of consultation, but will focus on the application of the Directive to spatial plans at the local authority and regional level. It will aim to be applicable to both SEA (baseline led) and Sustainability Appraisal (objectives/indicators led).

The potential implications for construction are obviously dependent upon the plans and programmes covered, and the industry needs to plug into the consultation process. But a process of "tiering" could result in:

- Some project EIA being redundant
- Certain impacts assessed in the project EIA
- Standard/generic mitigation measures for projects
- Certain locations (e.g. flood plains) may be dealt with at a higher level
- Other issues may be affected, including design standards, sources of materials, and transport options, as well as overall planning conditions.

For further information on the Directive see:

- DGXI, European Commission

- <http://europa.eu.int/comm/environment/eia/home.htm>
- ODPM Draft guidance  
<http://www.planning.odpm.gov.uk/consult/sea>
- EIA Centre  
<http://www.art.man.ac.uk/EIA/eiac.htm>

## The SEA Directive: Implications for planning and development in Scotland

*Nick Evans, Scottish Executive*

After an overview of the Directive and its objectives and despite on-going and lengthy interpretation one can determine certain implications for planning.

The key principles of SEA will place requirements upon those responsible for Structure and Local plans (possibly also Supplementary Planning Guidance), including:

- The implementation of practical and achievable assessment methods
- The early integration of environmental issues into plan development
- The identification of both positive and negative effects of a plan

In terms of detailed application, for a plan it is likely to mean:

- The complexity of environmental issues (e.g. biodiversity, population, climate, cultural heritage, landscape, etc) being properly reflected in the plan
- The development of a manageable set of environmental criteria
- A complex matrix of policies and proposals within the plan

One must ask if it realistic for SEA to assess all policies/practices put forward in a plan against all environmental criteria. Realistically, the plan needs to be assessed against the most important effects and key policies.

The Scottish Executive is raising awareness about the Directive (and providing an early warning) amongst planners via the Planning Bulletin, and a fledgling database of SEAs has been developed (contains 15 to date). A planning advice note on implementation and methodology is being developed and should be available in Summer 2003.

## The SEA Directive: the implications for the Environment Agency as both consultee and construction client

*Gerard Stewart, Centre for Risk and Forecasting, Environment Agency*

The Environment Agency (EA) has three main roles. It is:

- A construction client i.e. a developer
- A consultee, for example in relation to the land use planning process
- A regulator.

The Strategic Environment Assessment (SEA) Directive cuts across all these roles. Its purpose is to:

- Incorporate environmental issues in strategic decision making
- Involve the public or its representatives
- Educate decision makers.

In summary, SEA should predict likely environmental effects and use these predictions to inform and influence decision-making. The Directive is expected to come into effect in 2004. European guidance on SEA is still at a draft stage so there is some uncertainty about what will be covered, although plans that are likely to come under its jurisdiction include:

Environment Agency

- Catchment flood management plans
- Flood defence strategies
- National and regional water resources strategies
- Catchment management strategies
- Waterways plans

Other

- Regional planning guidance
- Regional spatial strategies
- Local development documents
- Water company plans
- Local transport plans
- Waste management plans.

Many of the steps of the SEA process are similar to Environmental Impact Assessment (EIA), although there are also significant differences.

Steps involved in a SEA process:

- Consultation
- Objectives
- Baseline
- Alternatives
- Significant effects
- Mitigation
- Monitoring

SEA requires applicants to generate alternatives to what is being proposed. For example a proposal for a major new road would have to demonstrate that no other suitable alternatives, such as better public transport, would meet the needs identified.

The SEA Directive presents a number of opportunities and challenges to policy makers and practitioners working in (these) fields.

SEA is a valuable opportunity to:

- Raise the profile of the environment in strategic decision making
- Address global impacts
- Assess synergistic and cumulative impacts
- Consider alternatives
- Reduce/avoid project level EIA
- Increase the use of EA expertise and information, and therefore its influence on development
- Develop closer working with partners.

There are also challenges such as:

- Legislation: what will SEA apply to? The ODPM is likely to make SEA compulsory for land use planning but separate legislation will be required for other relevant areas such as DEFRA
- Methodological: the SEA assessment process will be more challenging than previous regimes
- Information: existing data are of variable quality, and in some cases new research will be required
- Effective stakeholder involvement: involving relevant players – especially the general public – in strategic level consultation and decision making can be difficult
- Skills: SEA will require new and different skills, and this will involve raising awareness of what these are and providing relevant training.

The EA has set up an internal 'enabling project' to implement the Directive. It is also working with government departments (ODPM/DEFRA) to prepare for the implementation of SEA.

The Agency has commissioned research and development initiatives related to SEA. Currently tools and techniques in this area are limited although it is important to find out what does already exist – EA is researching this. It has also set up a strategic methodologies project to examine how social, economic and environmental concerns can be brought together under SEA.

In summary the Agency believes that SEA is a major opportunity to improve the quality of strategic decision making.



## What constitutes a good EIA: a local authority viewpoint

*Tom Jones, Surrey County Council*

“Environmental assessment is a social process, informed by science.” - Canadian Environmental Assessment Agency

The key objectives of an EIA are to:

- Meet requirements of the EIA regulations
- Make a positive contribution to the quality of the decision and the quality of the development.

There are a number of regulations that come under EIA in the UK (see below).

- Regulations covered by EIA
- Town and Country Planning (LPA/ODPM)
- Review of Minerals Permissions (MPA)
- Pipelines (DTI)
- Gas Transporter Pipelines (DTI)
- Land Drainage (DEFRA)
- Electricity Works (LPA/DTI)
- Forestry (Forestry Commission)
- Highways (LPA/ODPM)
- Uncultivated Land and Semi-natural areas (DEFRA)
- Harbour Works
- Nuclear Reactors (HSE/LPA/ODPM/DTI)
- Transport and Works (LPA/DTI)
- Offshore Petroleum and Pipelines (DTI)
- Fish Farming in Marine Waters (Crown Estates)

There are therefore a host of projects that are subject to an EIA. From a local authority perspective, the tools involved in carrying out an EIA include:

- Specialist guidance: this is available but it is essential to ensure that the approach chosen is verified by an appropriate body
- Audit trail protocol (screening, scoping and review): there is some discretion about how this is undertaken. Whichever approach is adopted it is important to comprehensively document all information as it may be needed later in court (Surrey County Council’s approach is set out at [www.surreycc.gov.uk/eia](http://www.surreycc.gov.uk/eia))
- Specialist consultants
- Consultation: this needs to include the general public.

Some authorities and applicants take the approach of doing as little as possible to meet the EIA regulations – this translates as seeking to avoid going to court. However this is a high risk strategy which could backfire, and also misses the value of the overall purpose of EIA.

A better strategy is to observe the following guidelines:

- Embrace the idea that good environmental sense is good economic sense: this is not just an environmentalist’s position. The World Business Council for Sustainable Development, which includes companies like BP and Renault, believes that we need to progressively reduce ecological impacts and resource intensity to a level at least in line with the earth’s carrying capacity’
- Consult early and widely: proper involvement of stakeholders, including the general public, can help to get an early consensus on what is acceptable, and should reduce the likelihood of appeal later on
- Maintain good communications throughout an EIA: a commitment to consultation should also include keeping people informed at every stage of the process
- Report concisely, objectively and clearly
- Make open, objective and consistent decisions.

There are a number of ongoing issues that are not yet resolved in the area of EIA including:

- Maintaining consistent standards: should there be an EIA body that oversees application of the Directive? If so, what would be the best agency for doing this?

- Consultation: most authorities and applicants are still reluctant to take a comprehensive approach to this, either because of resource constraints or because they fear that public involvement will have a detrimental impact
- Sub-regional processes: if the county function changes following the planning act how will a sub-regional approach be implemented? This is an important issue for the forthcoming SEA regime
- Where does SEA end and EIA begin, and vice versa?

## Offshore windfarm EIA and cumulative impact assessment

*Sue Sijvic and Wendy Hogben, RSKENSR Environment Ltd.*

Environmental impact assessment has been defined as “the process of identification of future consequences of a current or proposed action. It is an intensely interdisciplinary process that utilises the biological, physical, and social sciences in analysing the potential impacts of an action and devising strategies for minimizing or preventing such impacts.”

The objectives on an EIA are:

- To ensure environmental considerations are explicitly addressed into the development and decision making process
- To anticipate and avoid, minimise or offset the adverse effects of development proposals
- To protect productivity and capacity of natural systems and the ecological processes which maintain their functions
- To promote development which is sustainable

Cumulative effects may be defined as “changes to the environment that are caused by an action in combination with other past present and future actions” (Hergman et al 1999).

There are already requirements for cumulative impact assessment as a result of:

- EIA Directive 85/337/EEC and 97/11/EC (Indirect, secondary, cumulative, short, medium, positive and negative effects of the project)
- Habitats Directive 92/43/EEC in combination with other plans or projects
- SEA Directive 2001/42/EC – Plans and Programmes
- IPPC 96/61/EC Assessment of direct or indirect effects of operations

The main EIA process milestones are:

- Baseline and Scoping Report
- Environmental Impact Statement
- Environmental Management Plan
- Contractors Specifications
- Operating Procedures
- Major Accident Prevention Plan
- Decommissioning plan

The environmental statement needs to include the following:

- Need for the development
- Location
- Consents process (including consultation)
- Project description
- Alternatives considered
- Assessment methodology (including difficulties and lack of know how)
- Description of the existing environment
- Assessment of environmental effects (including construction, operation, decommissioning and cumulative effects)
- Mitigation measures
- Management and monitoring

Cumulative assessment can be:

- SPATIAL (effects over a large area)
- TEMPORAL (effects during a longer period of time)
- INCREMENTAL (effects on areas of special environmental

sensitivity due to interactions with other actions and not just the effect of a single action under review; other past, existing and future actions; significance of effects in consideration of other than just local, direct effects)

The principles of cumulative assessment are supported by a similar process to Environmental Assessment. In particular it involves professional experience and requires a clear statement about the boundaries of the study and methodology used. It is also important to state limitations of data and methodology and any particular lack of know how.

Various methodologies are in use:

- Expert Opinion
- Consultations and Questionnaires
- Matrices
- Checklists
- Spatial Analysis (GIS)
- Network and System Analysis
- Modelling
- Carrying Capacity or Threshold Analysis

However, whichever method is used it should be practical and suitable for the project, given the data, time and financial resources available. The selection of the methodology should consider the nature of the impacts, the availability and quality of the data, and the availability of resources (time, finance and staff). RSK ENSR were responsible for conducting cumulative impact assessments for two proposed windfarms in the Irish Sea, namely Shell Flat Offshore Windfarm (approx sea bed area of 44 km<sup>2</sup>, 90 wind turbines with cable running to Blackpool) and Barrow Offshore Windfarm (approx seabed area of 10 km<sup>2</sup>, 30 wind turbines with a cable running to Heysham). These are two of eighteen “blocks” for licensing being proposed by the government. Both wind farms were assessed in terms of:

- International impact (e.g. potential benefits gained by renewable energy use and reduced emissions)
- National impact (overall effects of wind farm development in the UK)
- Regional impact (e.g. socio-economic impact, specific environmental impacts like visual impact, changes to fisheries, impact on bird population and migration, etc).

A cumulative impact assessment matrix was established to assess human and biological and physical impacts (example below)

ASPECT	Environmental						Cumulative Impact
	Barrow wind farm	Shell Flat wind farm	Rivers gas pipeline	Heysham channel dredging	10M electricity cable	Medlock outfall	
Landscape and Visual							
Noise							
Geology							
Hydrology							
Ecology							
Archaeology							
Traffic							
Natural resources							
	Socio-economic						
Employment							
Finance							
Utilities							
Land use							
Loss of fishing grounds							
LEGEND	Negative	Slight negative	Slight positive			Positive	

**Fig 1. Cumulative Impact Assessment Matrix**

In addition, certain techniques were used to assess certain impacts e.g. photomontages to try and assess visual impact, whilst there was also the need to consider other users e.g. a new proposed oil pipeline. Overall, it was felt that cumulative impacts could be both negative and positive dependent upon the aspects assessed. For example, impact on future fisheries could be positive with the creation of artificial reef habitat).

In summation, cumulative impact assessment:

- is an integral part of the Environmental Impact Assessment Process;
- is required by legislation;
- contributes towards sustainable development;
- is good practice
- aids the decision making process.

## PUTTING PRINCIPLES INTO PRACTICE: A CASE STUDY OF A PIPELINE EIA IN THE SOUTH EAST

*Nikki West, RSK ENSR*

This presentation provided a case study within the Surrey/Hampshire area. The proposed (now approved) Frensham to Aldershot natural gas pipeline is approximately 11km of combination plastic/steel pipeline, with the majority of the route within the Surrey Hills Area of Outstanding Natural Beauty. Initially an Environmental Determination was submitted to the Department of Trade and Industry (DTI), including an Environmental Review. However this was refused based on comments received from the statutory consultees, and so a formal EIA was prepared as part of the application for consent for the pipeline and submitted in August 2002.

Constraints affecting route selection based on desk-top information

- Start and end points of the pipeline were fixed
- There are four SSSIs and six SNClS within one kilometre of the proposed route
- There are five SAMs, eight listed buildings and 56 *known* additional archaeological sites and ‘find spots’
- The River Wey and Blackwater River are both on the route and are considered to be ‘main’ rivers
- Areas of ancient woodland and numerous scatter mature trees
- Landscape features such as the Hog’s Back Ridge (part of the North Downs)
- Villages of Tilford, Seale, Tongham and Ash are on the route
- Area of difficult ground such as disused quarries, landfills etc

This range of landscape and other features ensured that substantial ecological and archaeological fieldwork was required. Because of the highly constrained area through which the pipeline is to run, it has been necessary to plan to run almost half of the route along existing highways and to adapt construction techniques accordingly.

Because of the number of landscape and archaeological features along the route this project has presented a number of problems:

- Public perception and communication: the pipeline has attracted local attention and opposition. Residents were unhappy about the lack of consultation early on
- Timing of surveys and fieldwork: the ideal time to undertake this work does not always fit neatly into a project schedule (for example winter is a bad time to be assessing a habitat for evidence of newts)
- Trying to keep all affected parties happy: while this is the aim it is not easy. In the case of the pipeline some residents were asking for one path to be returned to the ‘same or worse’ condition because they wanted to discourage mountain bike users. Accommodating diverse requests is difficult and requires ongoing communication so that all stakeholders feel informed.
- The pipeline received consent on 20 March this year, 15 months after the environmental assessment began.

## EIA and the Royal bank of Scotland's approach to it's world Headquarters in Gogarbur, Edinburgh

Bob Salter, RPS Consultants

RPS were appointed by the Royal Bank of Scotland six months prior to the appointment of the project managers – which was a key and positive move. Therefore RPS were able to work alongside the design team for the new headquarters building.

The project aims to deliver approximately 50,000m<sup>2</sup> of building for 3,250 staff; including office space, conference facility, leisure centre, childcare, and a health suite. In addition, it needs to cater for a potential future phase of office accommodation for approximately 1400 further staff. The building would need a high quality external environment and be delivered at the end of a three year construction programme in 2005.

The project has significant environmental issues and constraints associated with it. These include existing developments and brownfield land, scheduled Historic Monuments, a Site of Importance for Nature Conservation and ancient woodland.

An internal EIA process was established (Fig 3), the key being the assessment of risk, value and opinion. Communication was very important, with continuous exchanges within an integrated team. Outlining planning permission was requested in February 2002.

Additional external-focussed processes were established. These included a series of stakeholder consultation workshops. Designed to explain the project, they allowed for the appraisal of the Environmental Statement from a position of some knowledge. The key was to develop a good working relationship with both planners and consultees.

Cumulative impact assessment was conducted in relation to transport and the local economy. These processes resulted in:

- A full assessment of environmental impacts
- Consultation in advance with stakeholders
- Mitigation measures designed to reduce impacts and promote safeguarding
- Travel Plan to reduce dependence on car
- Landscape and habitat management plan to promote safeguarding of biodiversity
- Bird management plan to meet CAA objectives.

There is also on-going work which includes:

- Sustainability Review Group- continuous improvement towards maintaining a sustainable project
- BREEAM assessment (Target Excellent)
- Compliance with planning conditions
- Environmental induction package for all contractors and site workers
- Twice yearly review of project's sustainability

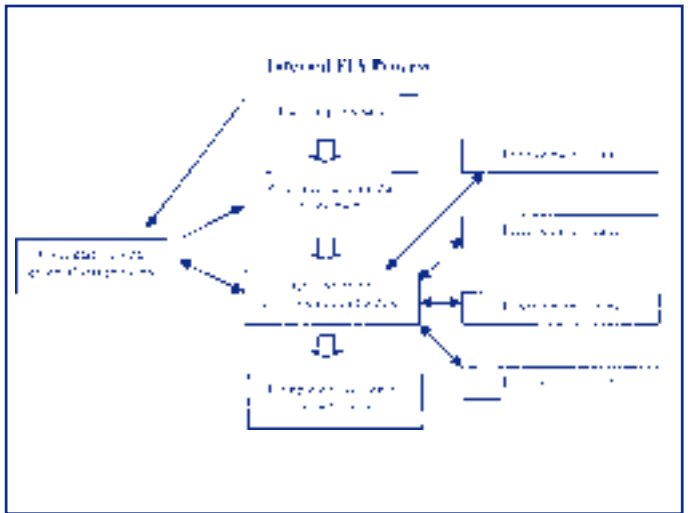


Fig 3. Internal EIA process

## Sustainability impact assessments: what are they and why are some London authorities requesting them?

David Cheshire and Bill Addis, Buro Happold

Sustainable development embraces:

- Environmental impacts
- Social impacts
- Economic impacts.

Since 1999 large building projects have usually needed to submit an EIA.

But sustainable development is not *just* about environmental issues, and the Environmental Statement that accompanies a planning application for a building usually now has a chapter on sustainability. This, however, has led to much confusion for both planning consultants and local authorities because it is very difficult to establish a meaningful baseline measure for sustainability.

In any case sustainability means different things to different people. For example:

- Designers tend to focus on environmental issues
- Politicians emphasise employment, public amenities, features for minority groups etc
- Local authority officers concentrate on longer term strategic issues such as public transport and the ratio of 'affordable' housing to private homes.

To counter this, a range of tools has been produced to assist with this complexity:

- Sustainability checklists: these act as a reminder of the issues that need to be considered, although they are not statutory
- Sustainable design/construction guides: a number of high quality manuals have now been published, often relating quite specifically to the local area in which they are produced
- Special Planning Guidance (SPG) on sustainability
- Sustainability Impact Assessment: this is now a requirement of some local authorities.

The last of these – Sustainability Impact Assessment – is a tool that the London Borough of Southwark has been experimenting with. Its approach (called Sustainability Impact *Appraisals* – SIA) aims to:

- Ensure that environmental, social and economic impacts are assessed and balanced to find the most suitable option for the development



Fig 2. The proposed project



- Demonstrate the impacts of the development and how they are being mitigated
- Meet government requirements in terms of environmental and transport assessments.

An SIA must be completed for developments that:

- Exceed 14 residential units and 1000m<sup>2</sup>
- Employ over 50 people, or cater for over 200 persons for D2 entertainment uses
- Create certain transport impacts
- Lie adjacent to or within an 'open space'.

SIAs must:

- Assess policy drivers
- Assess background and baseline conditions
- Tackle poverty and wealth creation
- Produce an effects analysis focusing on life chances, the environment ('clean and green'), housing, transport.

Given Southwark's high levels of disadvantage (and the need to be seen to be responding to this politically) aspects like poverty and wealth creation are high on the agenda. In comparison to EIA this approach is much more concerned with assessing the potential impacts of a development on people. It is about how we 'live' rather than simply the potential 'toxicity' that we might be exposed to.

Buro Happold has also developed a Sustainability Impact Assessment for projects. It has 24 criteria (half focusing on social and economic issues, and the other half addressing resource use and environmental impact). It is a visual tool which is a useful way of raising awareness of potential impacts. The criteria form two webs (see example boxes below) and potential building developments are ranked against likely impacts.

This is part of an overall approach to sustainability assessment which uses

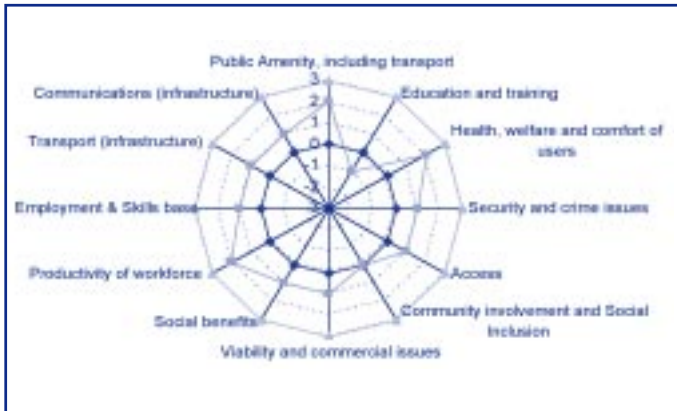


Fig 4. Social and Economic impacts



Fig 5. Environmental impact

a rigorous methodology to ensure that nothing is forgotten. As well as the project sustainability impact assessment it includes a project sustainability policy and sustainability action plan.

EIA has not been well developed for buildings in comparison with other construction like civil engineering projects where applicants need to have detailed responses to how they will mitigate their impacts. Although sustainability impact assessment approaches now exist for buildings (demonstrated by the two examples above), there is still a fundamental challenge to ensuring that tools like these become accepted. Buildings are often only fully designed after planning permission has been granted and by then it is too late to influence fundamental decisions via assessment tools.

In summary, then, the use of sustainability assessment tools for buildings is increasing rapidly, driven by the planning system, progressive local authorities and conscientious clients. However it is still unclear about how more widespread use of these tools (and EIA) is to be achieved, given the current requirements of the planning application process.

### Introducing new guidelines for ecological evaluation for proposed projects

*Karen Regini, Consultant*

The Institute of Ecology and Environmental Management is a representative body for ecologists working in the fields of environmental management and sustainable development. In response to member interest it set up a project to develop guidelines for ecologists for working with EIA (see [www.ieem.org.uk/Projects.htm](http://www.ieem.org.uk/Projects.htm)). This presentation summarises the guidance. The planning system is increasingly making it a requirement of local plans to deliver a 'net gain' (where possible) for ecology (see for example PPG9), within a context of wanting to:

- Enhance ecological value of an area
- Avoid adverse impacts
- Mitigate unavoidable adverse impacts
- Compensate for significant, unmitigatable impacts.

The exception to this process of achieving a balance between positive and negative outcomes is where the proposed development would occur within a site that comes under the remit of the European Habitats Directive. In these instances the development must not produce any adverse impact on the integrity of the site. If this can't be demonstrated, then the planning authority will not be able to grant approval. It is therefore important to deal with ecological issues on certain sites very early on in the development process. It is also illegal to recklessly harm protected species – the guidance advises ecologists to take into account the ecological value of a site while also recognising any relevant legal constraints.

From an ecological perspective scoping should go on throughout the whole development process. This is because it is impossible to tell in advance all that an ecologist will discover during fieldwork. The guidance sets out the following process for scoping:

- Consultation on identification of receptors, potentially significant impacts and methods
- Identification of opportunities to influence scheme design to achieve objectives
- Recognition of the iterative nature of the scoping process
- Look to extend research as far as is needed to assess impacts.

The guidance suggests that in scoping the site boundary ecologists think about the actual impact of the development beyond the site if necessary (for example, if it is beside a water course the impacts may be more far reaching). It avoids fixing a numerical radius as this is too inflexible.

The guidance also covers receptors. It is sometimes difficult to identify the actual receptor as there are often relevant sites beyond the actual development site boundary, for example other habitats of migratory birds. The guidance recommends that ecologists consider this question, come to a conclusion, and explain how they came to this conclusion – it is impossible to provide guidance that is appropriate for all circumstances.

The question of cumulative impacts is a particularly interesting issue in relation to ecology. Cumulative impacts can include:

- Combination of all impacts arising from the development on each receptor
- Combination with impacts arising from other developments
- Combination with natural or manmade trends.

It is sometimes very complicated to do a combination assessment, especially when a range of public and regulatory bodies are involved. This is a huge problem which is as yet unresolved. The guidance suggests the steps that ecologists might take to explain their recommendations and findings, and to avoid coming up with a statement which they can't substantiate.

The role of planning authorities is important in assessing cumulative impact. SEA will be crucial for improving the overall approach to cumulative impact.

In summary, at all stages along the development process, ecologists need to be able to substantiate their judgement about the ecological impact of a development.

## DISCUSSION

### *Participants discussed the timing of SEA guidance.*

The Office of the Deputy Prime Minister (ODPM) should be producing guidance in the summer (2003) however this will only cover those aspects of the SEA that relate to its responsibilities such as land use plans. Other areas of policy will require different departments to produce their own guidance, such as the Department for the Environment, Food and Rural Affairs (DEFRA). SEA is likely to cover similar environmental issues to EIA, but will also include health.

### *Delegates debated the place of cumulative impact assessment.*

Should it be a part of SEA, and if so where should the line be drawn: at the strategic level or to projects as well? It felt that assessing cumulative impact at a strategic level is more appropriate as it may often be too late to make these decisions about individual projects. The advent of SEA could be an opportunity for local authorities to deal with cumulative impact collectively through sub-regional joint working, something which councils are traditionally poor at doing. But it will need an unprecedented level of co-operation to put together strategies at this level and to use SEA positively.

One panellist was sceptical about the capacity of local authorities or other public bodies to be proactive about the use of SEA as it is not clear whose responsibility it is to consider likely impacts in advance of any proposals being made. It will continue to be developers who will need to consider the impacts of their proposals before submitting the plans – in other words, a reactive regime will continue.

Another countered this by arguing that SEA does put a responsibility on plan makers to be proactive about considering strategic environmental issues when drafting strategies, rather than only responding to development proposals.

One delegate wondered whether statutory consultees had a responsibility to apply a more strategic approach when responding to consultations that may be more project specific. One panel member indicated that in their experience there was no statutory responsibility on them to do this, and they didn't seem to feel they had a moral duty to take this approach either.

*How to consult the public on SEA issues was an issue, which exercised both panellists and delegates.*

Public consultation is often not valued by public bodies and yet SEA will require active public involvement.

From a council perspective it is often difficult to convince councillors and senior officers that dedicating decent resources to public participation is worthwhile. They are often concerned that public feedback will require them to alter their plans, as well as taking valuable resources. But early involvement of the public (for example at the scoping stage) could actually result in better solutions for local problems and challenges.

Participation needs to be more proactive, although it is difficult to involve the public in strategic level issues, which don't have an immediate personal impact. One delegate challenged this view however it is the experience of EA staff that this is the case.

SEA will require public involvement but its minimum requirement is likely to be unadventurous.

*The panels were asked how would they know when SEA has worked. Are decisions and conditions followed up on?*

Panel members agreed that SEA needs to be more than a paper chase. Some of the outcomes of an SEA process are very difficult to measure however others are more straightforward (for example energy use).

Local authorities have a legal requirement to enforce planning conditions, and this will feed into monitoring of decisions based on SEA. Developing a baseline will be important and the existing EIA process will help to feed into this.

Many private companies already have comprehensive performance management and assessment procedures. In this field ISO14001 is an important mark of credibility and this requires constant assessing.

Some panellists were more sceptical than others. One suggested there was a vacuum of information with little clear idea about what works or not. This meant accurate assessment of outcomes based on SEA would not happen, and an unwelcome impact would be an increasingly negative perception of the professions involved. However another argued that, compared with 30 years ago, standards and assessment procedures are far superior now.

*One delegate wondered whether financial penalties could be introduced for those who failed to implement the conditions attached to development as a result of an SEA.*

There was a suggestion that some local authorities are experimenting with fines for breaches of S106 agreements, for example failure to deliver on green travel plans.

Panellists were concerned about the legality of such an approach, and believed that unless fines were expressly permitted by the legislation, developers would simply go to court and prove that they did not have to pay.

*One delegate asked whether the Environmental Statement contained in an SEA was the right place to address sustainability issues.*

While SEA is not explicitly an assessment tool for sustainability, it does have a broader scope than EIA. An SEA Environmental Statement (ES) is therefore supposed to cover relevant sustainability issues raised by the strategy/project.

One panellist argued that 'there isn't much science in sustainability', and that it should therefore not be a part of an ES. The language of sustainability is aspirational and can therefore appear 'woolly' when compared with the rest of the ES. This potentially makes it liable to being challenged in the

courts. Despite this it is proving difficult to convince people to treat sustainability in a different way.

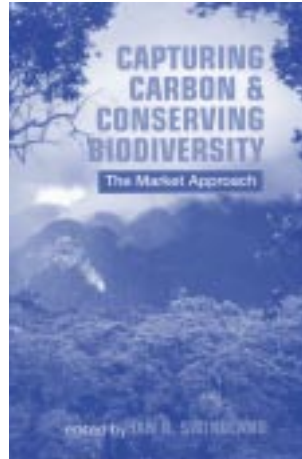
Another felt that one approach could be to look at the drivers for implementing sustainability (such as the unitary development plan) and try and link sustainability aspirations to these. This may help to ground the language and give it some substance.

One panellist pointed out that the ODPM has indicated that SEA should take account of wider sustainability issues, however to this point there has been little guidance about how this should be done.

**IEEM thanks the Construction Industry Environmental Forum for permission to reproduce part of the proceedings from the CIEF seminars conducted in March 2003.**

**For further information on CIEF, including details on how to become a member of the network and forthcoming events, see [www.ciria.org](http://www.ciria.org) or contact CIRIA on 020 7222 8891.**

## Recent Publications



**Capturing Carbon and conserving Biodiversity: The Market Approach**  
**Editor: Ian R. Swingland**  
**ISBN: 1853839515**  
**Price £19.95**

This book is certainly topical and deals with many of the key issues concerning carbon sinks and free market methods that could be used to help developing countries sustainably use their resources such as forests. Much of the information involved in this book is based around the tropical forest ecosystems.

Capturing Carbon and Conserving Biodiversity is split in to three parts:

**Part 1 - Carbon and Climate** - which discusses topics such as forests, carbon

and global climate and also develops many arguments, from potential carbon mitigation and income in developing countries to changes in use and management of agricultural and forest lands. With discussion of electricity generation and options for reduction in carbon emissions

**Part 2 - Environmental Services** - includes the influence of land-use change and landscape dynamics on the climate system and the relevance to climate-change policy beyond the radioactive effect of greenhouse gases; social capital from carbon property: creating equity for indigenous people, the role of sustainable agriculture and renewable-resource management in reducing greenhouse-gas emissions and increasing sinks in China and India. It looks at the population giants of India and China and reviews best practice agriculture projects in these countries. Then moves on to collateral biodiversity benefits associated with 'free-market' approaches to sustainable land use and forestry activities.

**Part 3 - the Future Model** - which discusses carbon sinks, emissions trading and greenhouse gas trading markets. Also discussed is how to design a carbon market that protects forests in developing countries and other methods of protecting terrestrial ecosystems and the climate through a global carbon market.

Capturing Carbon and Conserving Biodiversity deals with the age-old question "How do we do it?" with regards to green house gases and the impact global warming will have on species, and expands the idea that there is a need and potential to utilise carbon sinks, particularly in the developing world. This book also develops the initiative that market-based approaches can reduce carbon emissions and be a catalyst to prevent further depreciation in the quality of the planets biodiversity.

If you are one of those people who has always thought that making the environment profitable is the only way to save the planet but never quite had the argument to sway non-believers this book might be the one for you.



**Natural Heritage Futures**  
**Scottish Natural Heritage**

This is one of a suite of publications that Scottish Natural Heritage has prepared to guide the future management of the natural heritage towards 2025, within the wider context of sustainable development. Our landscapes and wildlife are highly valued assets that have often been shaped by human activity. Under sensitive management,

the natural heritage also has the potential to enhance people's lives and provide substantial economic benefits. As far as possible, these documents aim to identify common goals and encourage an integrated approach in which all sectors work together. SNH will use this initiative, called Natural Heritage Futures, to inform of its own priorities and as a basis for further work with partner organisations.

## New Articles Needed

Articles for In Practice are always needed.

Each page takes about 1,200 words and papers are welcome up to 4 pages, preferably in 1-page units.

It helps to have articles with good quality illustrations, photos or slides.

We reserve the right to edit or not to publish but most IEEM members who have submitted articles to date have had them published.

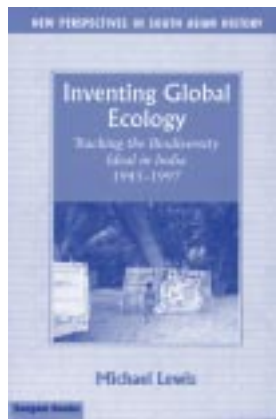
It is hoped to maintain future editions at 20 or 24 pages but this will be to some extent dependent on covering costs through advertising, sponsorship and other means.



There are 21 documents, which, together, cover the whole of Scotland, each presenting a vision for sustainable use of the local natural heritage, and the action required to achieve it. The 21 areas each have their own identity resulting from the interaction of geology, landforms, landscapes, wildlife and land-use – and hence are affected by different issues. There are also 6 documents detailing setting national objectives for different settings: Forests and Woodlands, Hills and Moors, Coasts and Seas, Settlements, Farmland and Freshwaters.

The vision and objectives for the natural heritage set out through Natural Heritage Futures link to a wide range of other strategies and initiatives, including A Forward Strategy for Scottish Agriculture, the Scottish Forestry Strategy and Biodiversity Action Plans, as well as local initiatives such as Indicative Forestry Strategies and National Park Plans.

The review copy of this publication was a CD-ROM but hard copies are available free of charge from Scottish Natural Heritage e-mail [pubs@snh.gov.uk](mailto:pubs@snh.gov.uk) or tel. - 01738 444177.



**Inventing Global Ecology – Tracking the Biodiversity Ideal in India (1945–1997)**

**Michael Lewis**  
**ISBN: 0 86311 863 1**  
**Price: £29.95**

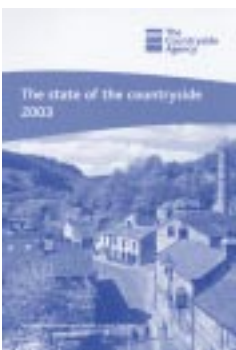
Blue Jeans, MTV, McDonalds, And... Ecology? We don't often think of conservation sciences as a U.S. export, but in the second half of the twentieth century an astounding array of scientists and ideas flowed out from the United States into the world, preaching the gospel of conservation-oriented ecology.

*Inventing Global Ecology* grapples with how we should understand the development of

global ecology in the twentieth century. Using India as the case study, Professor Michael Lewis considers the development of conservation policies and sciences since the end of World War II and the role of United States scientists, ideas, and institutions in this process. Was India subject to a subtle form of Americanisation, or did Indian ecologists develop their own agenda, their own science, and their own way of understanding the natural world? Does nationality even matter when doing ecology?

This readable narrative will carry you through the first fifty years of independent India, from the meadows of the Himalayan Mountains to the rainforests of southern India, from Gandhi and Nehru to Project Tiger. The special relationship in human and scientific terms that developed through the 1950s and 60s between Dillon Ripley (of the Smithsonian Institution) and Salim Ali (of the Bombay Natural History Society) is also of interest. Both general readers and specialists will appreciate this book.

This book is published and distributed from Sangam Books Ltd (0207 377 6399).



**The State of the Countryside 2003**  
**The Countryside Agency**  
**ISBN 0 86170 682 X**

*'The state of the countryside 2003'* report is the Countryside Agency's annual publication drawing together evidence from a wide range of sources to describe rural England. Within 20 indicator themes, the report presents and comments on information about the current position, recent trends and future challenges. They report on the 20 indicator themes in four sections—people and communities, services and lifestyle, environment and recreation, and

economy and enterprise. The report also includes accompanying information on the 15 headline rural indicators used by the Government to monitor its main objectives for the English countryside, as set out in the rural white paper of 2000. This year's report throws new light on many issues important to the future of the countryside and updates information the countryside

agency has reported on before. For example:

- new research shows how people view the countryside;
- data from a special rural-urban split from the General Household Survey reinforce the widely held perception of more 'community spirit' in rural areas;
- on access to affordable housing, the revised index of mortgage cost and income shows a clear north-south divide but also significant rural-urban differences;
- the sections on natural resources, sustainable land management and biodiversity show a mixed picture, with significant gaps in the ability to monitor some aspects, notably soil quality and the sustainability of agriculture;
- information on household incomes published in last year's report is updated and shows the latest position on earnings as well as profiling the distinctive characteristics of low income households in rural areas;
- finally, they include new data on access to affordable broadband, the availability of Public Internet Access Points and business Internet usage.

In presenting this data, the Countryside Agency have painted a comprehensive picture of the state of our countryside, analysing and reporting on around a hundred data sets in order to inform all those with an interest in the current state of the countryside and a stake in its future.

This publication provides a look at the 'big picture' (the data obtained from national sources showing trends nationally, regionally or for administrative areas) and the detail on the ground. This works both ways. Local practitioners need clear intelligence about how their areas compare with wider trends, whilst national and regional policy-makers benefit from an understanding of what lies behind headline figures and average measures.

A hard copy is available from the Countryside Agency for £5.00 or you can download a version from [www.countryside.gov.uk/publications](http://www.countryside.gov.uk/publications).



**The State of the Countryside 2020**  
**The Countryside Agency**  
**ISBN 0 96170 683 8**

*'The state of the countryside 2020'* examines the future of the English countryside. By identifying the main drivers of change and key uncertainties, and developing scenarios for the future, it shows how current trends and future developments might impact on rural areas and communities over the next 20 years.

The authors are not attempting to predict the future - nor are they setting out their vision of

what we would like the countryside to be like in 2020. Rather they have asked: what will shape the future and with what possible outcomes? Answers to these questions may help us to identify what we need to do now to achieve the most desirable countryside in the future.

The research behind this document was undertaken for the Countryside Agency by the Tomorrow Project, an independent charity supporting organisations and individuals in thinking about the future of people's lives in the UK. They used a combination of literature review, expert interviews and a two-part consultation with researchers, policy-makers and practitioners.

*'The state of the countryside 2020'* focuses on 'people and the countryside'. It asks who will live in the countryside, how will they earn a living and what will be their quality of life? The report also addresses the big issue of sustainability, asking whether or not, and how, environmental, economic and social sustainability of the countryside can be combined. It shows that we can achieve this combination, but it also points to the obstacles that will need to be overcome.

*'The state of the countryside 2020'* is by no means the last word. Thinking about the future has become increasingly important in many sectors in the last decade or so, but applying future thinking to the countryside is a relatively new idea. The goal of sustainability is widely accepted and the authors seem fully committed to it. But the means of attaining this goal in the countryside still need to be fully identified.

This publication is, only part of a process. It makes a contribution to an ongoing and widening debate.

A copy of this can be obtained from the Countryside Agency website: [www.countryside.gov.uk](http://www.countryside.gov.uk).

# Institute News

## Notice of AGMs

The Institute AGM will be held on 26th November at the Palace Hotel, Buxton and starting at 17.30. All members are welcome and entitled to attend whether or not they have registered for the Conference on Upland Ecology.

The AGM of the Scottish Section will take place on Wednesday 1 October, 12.45pm, Strathclyde Country Park Water Sports Centre, Motherwell.

The AGM of the NorthEast Section will take place on Wednesday 10 September, 6.30pm, The Cheviot Room, Quadrant Building, Newburn Riverside, Newcastle-upon-Tyne.

## Professional Development Programme

Bookings for the courses this year have probably been at an all time high but there are still some vacancies in some of the later courses. If you are thinking of going on a course, please check the website or phone Nick Jackson at the IEEM office for details of availability.

## The IEEM On Line Directory

The much trawled on-line database is about to go live! Many of you will have sent back the forms indicating how you would like to appear in the Directory. If you missed the deadline – do not worry as your name will be added once we have your consent and details. The Directory has three sections - a simple list of all members with their grades, a Directory of members who offer commercial services, available for inspection by all, and a member's section which includes the details of all the members who have agreed to be part of the Directory. This is password protected. Members can be searched by geographic area and key words. The great advantage of this new system is that it can be updated on a regular basis and is fully capable of coping with the numerous changes in title and working arrangements that seem to happen to IEEM members. This will be a great step forward for the Institute. Taylor Made devised and set up the software to convert the Paradox Data. Visit the IEEM website now to try the new system.

## The Queen's Birthday Honours

Among the substantial list of people who get cited on such occasions there do not appear to be any IEEM members this time. However Jane Smart, Executive Director of Plantlife International and Chairman of the UK section of IUCN was awarded an OBE for services to plant conservation. This is welcome recognition of the work done by Plantlife and Jane herself.

## Professional Conduct

The Code of Professional Conduct underpins the way in which IEEM members as professionals operate. A recent case has highlighted the need to have regard to the code in operating in arenas such as public inquiries. While a certain degree of attacking the credibility of a witness from the opposing side may be taken as par for the course, don't forget that if the opponent is a member he/she will work according to the Code and can be expected to act with the scientific integrity that compliance with the code implies. Of course this does not preclude healthy debate and disagreement about the issues but excessive personal attacks do nothing for upholding and promoting the standards of the profession.

## Flying the IEEM Flag

Don't forget that the future of IEEM depends on its ability to continue to attract new members and on convincing others that IEEM is really making a difference. If you produce publications, workshops or are involved in anything with a profile, don't forget the IEEM suffixes and please put in a plug for IEEM wherever you can.

## Staff News

Many congratulations to Joel Batemen, the IEEM External Relations Officer and Kirsty Ockleford who were married in Oakham on Saturday 28th June. The couple are currently enjoying the windsurfing in Lanzarote.

## Payment by Direct Debit

Don't forget it will soon be time for the membership renewal letters to be sent out. Now is the time to make the arrangements for payment by Direct Debit. Some members try to pay by Direct Debit after the reminders have been sent out but by then it is too late as it takes a while to process the bank details and set up the procedures. Anyone who would like a Direct Debit form should contact the office as soon as possible.

## News from Ireland

There is growing interest in Ireland in forming an Irish Section and it would be very good news if this could come about. To start the ball rolling there is likely to be a meeting in Ireland, probably in the Dublin area this Autumn - look out for further details on the IEEM Website.

## Society for the Environment

There have been regular updates in this section on the progress being made on the Society for the Environment. The Society is now firmly established as a company limited by guarantee and the IEEM representatives on the Board are Dr. Alex Tait and Dr. Jim Thompson. The application for a Royal Charter was submitted as required before the end of March and the outcome has yet to be heard. It was anticipated that the Privy Council would consider the petition at its meeting in July but this will now not happen until the Autumn pending consultation with various government departments and others. If approved we will now be looking to be operational by about January 2004. It is important to appreciate that the designation of Chartered Environmentalist although open to IEEM Full Members with an appropriate length of service, will represent real added value and a clear demonstration of a commitment to sustainability. There will have to be compliance with the constituent bodies requirements for CPD (please note those IEEM members who have not yet returned their forms for 2001-2002). The procedures for admission, rules of conduct, operation of Committees etc. are in various stages of planning and it really has been a major exercise on the part of those involved. Those members who are eligible for chartered status, who wish to do so will be 'grandfathered in' as chartered members. It is envisaged that a very significant proportion of current Full Members will automatically qualify once they have completed a simple application form. There will be two elements of fees - an initial £25.00 joining fee and a regular £25.00 membership fee payable to the Society for the Environment. In addition there will be a modest charge made by IEEM for its work in operating the procedures on behalf of Soc. Env.

## News of Members

### David Hill, FIEEM

Few members will need reminding of the success of the company founded by the ex President David Hill, FIEEM - Ecoscope Applied Ecologists. Well the Company is now part of the RPS Clouston group and is known as RPS Ecoscope Ltd. David is now Director of ecology for the whole group and is also a Director on the Board – good to see ecologists making it to that top tier of management.

### Michael Woods, MIEEM

At the Mammal Society's Easter conference Michael was elected chairman of The Society - congratulations! Michael would like to see closer working between IEEM and the Mammal Society.

### Richard Pryce, MIEEM

We would like to congratulate Richard on his election in May 2002 as President of the Botanical Society of the British Isles. He holds the position for a further two years. He is also a county botanical recorder and works closely with the voluntary wildlife movement.

# News in Brief

## Great Crested Newt Prosecution

In a landmark case a company and the developer were found guilty of eight offences of killing great crested newts (GCN) and damaging their habitats on an old Butlins site in Filey, North Yorkshire during 2001.



Great Crested Newt

English Nature had earlier been consulted on the proposal to develop this site and highlighted the presence of GCN and outlined the protective legislation and advised on mitigation to minimise impacts. The consultants found nearly 300 newts indicating a population of many 1000's. The newts were present in an old swimming pool and other water bodies throughout the site where large areas of derelict buildings rubble, rough grassland, trees and shrubs provided ideal nest habitat.

The proposed mitigation included the creation of replacement ponds and hibernacula on adjacent land as part of a 'newt reserve' this would have been combined with the translocation of newts in advance of the works.

Unfortunately large parts of the site were cleared without a licence, including areas of rubble, scrub and other vegetation from around ponds on the site as well as several small temporary waters.

The court felt there was no reasonable doubt that the defendant had destroyed areas used for shelter and protection by great crested newts and that there had been GCN's killed in the process. The convictions were made under the Wildlife and Countryside Act 1981. The court felt that these actions could have reasonably been avoided by applying for a licence and following the proposed mitigation plan.

This case will prove to be an important precedent for future cases because the defendants were found guilty of killing GCN's despite the lack of dead newts on site.

For further information on this case contact English Nature's North and Eastern Yorkshire Team on 01904 435500.

## Plant Crime Highlighted in Public Awareness Campaign

A new national campaign to raise awareness about the little known crime of stealing wild plants for commercial and private use has recently been launched. The Partnership for Action Against Wildlife Crime (PAW), which includes all organisations for wildlife crime enforcement in the UK, will distribute postcards of bluebells with the message: Stolen from the Wild, warning the public that many favourite garden bulbs such as bluebells and snowdrops, moss for hanging baskets or Christmas wreaths, and rare plants such as the Scottish Primrose, are taken in significant quantities from the wild, and could endanger species.

The PAW campaign has been organised by Scottish Natural Heritage, the wild plant conservation charity Plantlife Scotland and Strathclyde Police, with funding from the Scottish Executive.

The postcards are aimed at the general public – particularly gardeners – and will be distributed in the offices of conservation organisations, public visitor centres and garden centres. In the longer term, PAW hopes to develop guidelines with garden centres to ensure that products are bought from sustainable sources.

John Ralston, licensing officer at Scottish Natural Heritage said: "At this time of year people want to buy plants and hanging baskets for their gardens but we want them to be aware that they could be buying products which have been taken illegally or which are damaging the environment. We want people to ask more questions about the source of these plants and to encourage the development of a sustainable plant industry."

The gangs involved are often linked to other wildlife crimes, as well as house breaking, theft and drugs. It is illegal to take plants from the wild without the permission of the landowner and many species have additional protection under the Wildlife and Countryside Act 1981.

The native bluebell, *Hyacinthoides non-scripta* is under particular threat from Spanish, *Hyacinthoides hispanica* and hybrid bluebells, which have spread to the wild. To help quantify the problem the charity Plantlife is currently running Bluebells for Britain – a bluebell survey to see how widespread the three types of bluebell are and to raise awareness of the problem.

For bulb crime and green gardening tips click on [www.plantlife.org.uk](http://www.plantlife.org.uk).

## The lost world of Cantre'r Gwaelod revealed at Ynyslas

The legend of the drowned land of Cantre'r Gwaelod is coming to life this spring at the Ynyslas Visitor Centre in Borth near Aberystwyth. It is part of a national project, spearheaded by the Countryside Council for Wales, to use the arts to explain the significance of the natural environment at some of Wales' top National Nature Reserves.

Artists Jenny Fell, Annie Horner and Judy Macklin, have been working with local groups to make a colourful and intricate pebble mosaic which concentrates on Cantre'r Gwaelod which, according to the legend, lies in the depths of Cardigan Bay after a drunken night watchman fell asleep, failing to carry out his duty of protecting the land from the impending tide. The mosaic will also feature other images relating to life on the National Nature Reserve throughout the seasons.

Sian Shakespear, CCW's interpretation officer said: "This is a change of direction from the more traditional ways of explaining the importance of National Nature Reserves to visitors. The idea is to celebrate their nature through different art forms".

For further information, please contact Helen Evans, senior public relations officer or Sian Shakespear, interpretation officer, on (01248) 385500.

## Sunrise Survey 2003

The Bat Conservation Trust (BCT) is organising a nationwide survey of bats. The Sunrise Survey will take place on Saturday 26th July, and is so easy to do that you can participate just by standing outside possible bat habitats or by taking a short walk just before sunrise. BCT hope that by joining in you will get the chance to see these wonderful animals and make a positive contribution to their conservation.

An alarm clock is essential to this survey! You should be watching for bats at least 45 minutes before sunrise. Here are a few examples of sunrise times for the 26<sup>th</sup> July:

Belfast 5:24am, Birmingham 5:19 am, Bristol 5:26 am, Glasgow 5:12am, Inverness 5:02am, London 5:16am, Manchester 5:16am and Newcastle 5:06am.



Many bat species are very active just before sunrise as they return from feeding and at this time there is enough light to see them flying. Some members of a bat colony 'swarm' together just before entering their roosts. When 'swarming' happens just before the sun comes up, between one and two hundred animals fly around in a group close to where they will enter the roost. When a lot of bats do this together it can be spectacular! By looking for bats 'swarming' outside suitable places and trying to see where they are going in, you can identify possible roost sites. Sunrise provides an ideal opportunity to find out where bats are roosting without the need for any specialised night-viewing equipment. You can do the Sunrise Survey on any date three weeks before or after 26th July.

Bats use a variety of structures but most are in buildings (both old and modern). Small villages are the easiest as there are few buildings to check, and if a roost is present there is a high chance of finding it. Old bridges, churches, old barns and stonewalls with lots of nooks and crannies are also good places. Bats sometimes use tree holes and splits, and older, larger trees have a higher chance of containing suitable crevices. By going back to these same places in the future and re-surveying the Trust can check whether new roosts are being created or old ones lost. Along with information from their other projects, this will help them to understand what is happening in the bat population over time.

After collecting all the data they will report their findings on their website in the autumn.

For a registration form and more information about taking part please go to the BCT website [www.bats.org.uk](http://www.bats.org.uk)

#### Plight of the bumblebee

Intensive agricultural practices and a decrease in the number of insect pollinated crops have led to a drastic decline in bumblebee numbers over the past seventy years, with one species recently driven to extinction. As a result, gardens are now becoming increasingly important refuges for bumblebees and gardeners have a vital role to play in creating the right habitat to help these bees survive.

*"Without wild bees our gardens would be sterile places but we do not always give enough thought to how we manage our gardens to encourage these beneficial insects,"* said Fiona Reynolds, Director-General of the National Trust. *"Every garden counts in the wildlife stakes, whether large or small, urban or rural, with over 15 million gardens across the country, gardeners collectively can make a huge difference."*

Many gardeners mistakenly think that all flowers are beneficial to bees when in fact many modern hybrids are sterile and lack the pollen and nectar that are vital for the survival of native insects. The National Trust stand will feature a range of plants, such as simple 'cottage garden' varieties and herbs, that attract bees, butterflies and a host of other wildlife. Good plants for bumblebees are often white, blue, purple or yellow because bees see ultraviolet colours and make a beeline for them, so try planting these in your garden.

A common misunderstanding is that bumblebees are aggressive. This unfortunate mistake is usually caused by confusing bumblebees with wasps and honeybees, and results in large numbers of bumblebee nests being unnecessarily destroyed each year. In fact, these harmless insects are more likely to roll over on their backs and wave their legs in the air than sting you. To help identify the significance of formal, historic gardens as wildlife habitats,

this summer the National Trust will begin the first ever detailed survey of wildlife in its gardens. The Trust's Wildlife in Gardens Initiative aims to celebrate and, where practical, enhance the role of historic gardens in nature conservation. As part of this initiative and in recognition of the importance of bees to our gardens, the Trust will be finding out what species of wild bee occur in many of its gardens this summer. It is likely that some Trust gardens are strongholds for rare and declining bees. Wild bee experts are being brought in to search for scarce species and the discovery of entomological gold is anticipated.

For details of all National Trust wildlife and garden events taking place this year, visit: [www.nationaltrust.org.uk/gardens/bumblebee](http://www.nationaltrust.org.uk/gardens/bumblebee).

#### BirdLife assesses environmental impact of a war

BirdLife International recently announced it would send five teams of field biologists to assess the impacts of war in Iraq on the conservation status of key habitats, sites and species. The teams will focus on the Mesopotamian marshes Endemic Bird Area (EBA), 42 Important Bird Areas (IBAs), 24 globally threatened bird species, 3 endemic or near-endemic bird species and 5 endemic or near endemic bird sub-species as soon as it is safe to do so.

"BirdLife is concerned the conflict may have had environmental impacts on the Important Bird Areas and globally threatened and endemic bird species that occur in Iraq", said BirdLife International Iraq Project Co-ordinator Richard Porter "With infrastructure plans being publicly discussed, mismanagement of post-conflict reconstruction now probably poses the greatest threat to biodiversity and local wildlife communities", he said.



Basra Reed Warbler

A survey team composed of BirdLife staff from within the Middle East and Britain will travel from BirdLife's Middle East Region Office in Amman, Jordan, to Iraq as soon as it is safe to do so. "We anticipate the BirdLife teams will work closely with the United Nations Environment Programme (UNEP), a network of Iraqi ornithologists and conservationists, and other agencies committed to the conservation of biodiversity in Iraq. The information obtained will be vital for future conservation and land use policy."

One species of concern is the Basra Reed-warbler *Acrocephalus griseldis*. This near-endemic species is currently being reassessed by BirdLife for the 2004 IUCN Red List of Globally Threatened Species.

## Prospective members of IEEM

The following people have applied for membership of IEEM. 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 15th August 2003. 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.

### Prospective members of IEEM

#### Full Membership

Mr Richard S. Adams, Mr Jonathan Brickland, Mr Mark Clancy, Ms Rose Clarkson, Mr Michael Davies, Mr Tom C. Dearnley, Ms Elaine Dromey, Mr Robert A.C. Edmonds, Mr Jonathan P. Guest, Miss Rebecca J. Hall, Miss Claire L. Leech, Mrs Helen J. Markwell, Dr Kate P. O'Neill, Dr Sarah J. Preston, Mr Timothy F. Rafferty, Mr Richard Sands, Dr Iain Sime, Mrs Susan E. Steel, Mr Johnny Turner, Dr Jackie Underhill, Dr John Underhill-Day, Dr Anthony T. Walentowicz, Dr Anthony C. Warne, Mr David J. Weaver.

#### Associate Membership

Miss Louise Bebb, Miss Nichollette C. Brown, Mr Benjamin D. Crabb, Miss Helen E. Dixon, Miss Bonnie Eldridge, Mrs Gemma Fenn, Mrs Katherine J. Hall, Miss Alexandre Harper, Miss Lindsey Howard, Miss Johanna Joensalo, Mr Jonathan P. Kendrew, Ms Gemma E. Lee, Mr Martyn P. Macefield, Miss Colleen A. Mainstone, Mr Lee Mantle, Miss Clare H. Morris, Miss Crona O'Shea, Mr Kevin R. Patrick, Ms Judith Roberts, Mr John Robinthwaite, Mr Peter Robson, Miss Kate Taylor, Miss Amy Thristan, Mr Jeremy Truscott, Mr Richard J. Walls, Dr Clair Williams.

### New admissions to IEEM

#### Full Membership

Mrs Eleanor J. Anderson, Miss Melanie C. Archer, Mr Christian Balling, Mr Daniel Bennett, Mr Jonathan Bradley, Miss Andrea L. Buckley, Mr Brendan Burley, Miss Emma K. Burton, Dr Graham S. Burt-Smith, Mr Jon Chippendale, Mr Brian J. Chilcott, Dr Sophie A. Clayton, Mr Jeremy H. Clitherow, Dr Mark Crane, Mr Michael J. Dean, Prof Garth N. Foster, Mr Simon E. Green, Mrs Theresa E. Greenaway, Miss Marlynne Good, Mr Tim Goucher, Mr Gordon B. Haycock, Mr Michael Head, Ms Marie-Louise Hefferman, Mr I. Craig Higson, Mr Paul E. Hodges, Miss Tanya Holdsworth, Mr Tom D. Hounsome, Mr Oliver Howells, Dr Jonathan M. Huckle, Ms Jackie Hunt, Mr Adrian R. Hutchings, Mr Benjamin D. James, Mr Patrick James, Ms Kate Jeffreys, Dr Jennifer Jones, Mr Robin Jones, Mrs Tania L. Kaplan, Mr Dominic C.D. Lamb, Mr Simon C.R. Lee, Mr Frank Lucas, Ms Geraldine M. McGowan, Mr Charles C. Morgan, Mr Duncan J. Murray, Dr Larissa A. Naylor, Miss Gemma O'Connor, Mr John O'Reilly, Mr Timothy W. Outlaw, Mr Eric Palmer, Mrs Nicki C. Pearson, Mr Dominic W. Price, Mr Stephen Prosser, Dr Linda M.J. Sadlier, Mr Keith R. Stevenson, Miss Jennifer Stuart, Miss Kirsten Thorburn, Ms Penelope A. Ward, Mrs Louisa Watkins, Mr Daniel E. Wenczek, Ms Caroline J. Wilson, Mrs Yvonne M. Wright.

#### Associate Membership

Mr Daniel Ahern, Ms Lucy Arnold, Miss Carol A. Bannock, Mr David J. Black, Mr Dale Broadbent, Miss Paula Cass, Mrs Fiona Chirside, Mr Thomas G. Clarkson, Miss Joanna V.E. Cornfield, Miss Laura Cox, Mr Philip J. Croxton, Dr Anne J. Danby, Miss Eleanor Douglas-Hamilton, Miss Annabel Drysdale, Mr Kevin D. Durose, Miss Rebecca J. East, Miss Siân E. Edwards, Mr James P. Flanagan, Mr Thomas A. Flynn, Miss Leila R. Griffiths, Mr Leonardo Gubert, Miss Sarah A. Hammond, Mr Simon Inger, Miss Tessa L. Jenkins, Mr Anton Kattan, Miss Aida Khalil, Mr James E. Latham, Miss Kristina A. Lewis, Ms Estelle J. Linney, Miss Hannah C. Lynch, Mr Thomas M. Marlow, Miss Sophie Miller, Mr J. Nick Mott, Mr Derek G. Pears, Dr James D. Riley, Mr Max Robinson, Mr Alastair M. Ross, Mr James Ross-White, Miss Rebecca S. Sharp, Mr Christopher A. Shaw, Mr Thomas P. Smith, Dr Adrian D. Taylor, Miss Jane Tibbotts, Miss Emma Toovey, Ms Julia L. Verity, Mr Gavin R. Ward, Miss Ilona Weir, Mr Derek A. Whitcher.

#### Student Membership

Mrs Sue Bartlett, Mr Abraham I. Ejim, Mr Jonathan P. Guarnaccio, Mr Matthew J. Levan, Mr James P. Lewis, Mr Luke M. Shenton, Miss Carolyn Simpson, Mr Jonathan Taylor, Mr Chris Thaxter, Mrs Astrid M. Thompson, Miss Alice L. Unsworth, Ms Lisa R. Wright.

#### Affiliate Membership

Mr Stephen P. Daworiye, Mr Peter Middleton, Miss Helen Rosenbaum.

#### Upgraded Membership (Associate to Full)

Miss Lesley Clarke, Mr David J. Stanton

**The Course programmes for 2003 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 703743, Fax: 01654 703605, E-mail: joan@cateducation.demon.co.uk.

**Field Studies Council:** For a copy of the FSC Courses 2002 brochure, contact FSC head Office, Preston Montford, Montford bridge, Shrewsbury, Shropshire, SY4 1HW. Tel: 01743 850 674, Fax: 01743 850 178, E-mail: fsc.headoffice@ukonline.co.uk website 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.u-net.com.

**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: ETN@ukgateway.net

**4 September. Grasshoppers and Crickets.** Wicken Fen, Cambridgeshire. Details from the IEEM office or the website www.ieem.org.uk.

**8 - 10 September (2 nights). Working with Crayfish.** Malham Field Centre, Settle, North Yorkshire. Details from the IEEM office or the website www.ieem.org.uk.

**10 September. Controlling Japanese Knotweed - the Swansea Experience.** Guildhall, Swansea. Details from the IEEM office or the website www.ieem.org.uk.

**10 September. The England Rural Development Programme: Where we are and the possible future.**

5.00pm to 6.30pm to be followed straight after by the North East section AGM until 7.00pm.

The Cheviot Room, Quadrant Building, Newburn Riverside, Newcastle upon Tyne NE15 8NZ. Details from the North East Section Convenor Steve Pullan, e-mail: steve.pullan@virgin.net.

**8-11 September. CMA Annual Conference and AGM. "The Countryside Challenge for the 21st Century".** Aberystwyth. Details from: cma@writtle.ac.uk.

**9-11 September. British Ecological Society, Annual Meeting 2003.** Manchester Metropolitan University. Details from www.britishecologicalsociety.org, Tel: 020 8871 9797 or e-mail: meetings@BritishEcologicalSociety.org.

**10 - 17 September. The Centre for Research into Ecological and Environmental Modelling. Introductory and Advanced Distance Workshops.** Details from www.ruwpa.st-and.ac.uk (under workshops) or from Catherine Brown Tel: 01334 461829 or e-mail: cathy@mcs.st-and.ac.uk.

**24 September. Phase 1 Habitat Survey.** Mildenhall area, Suffolk. Details from the IEEM office or the website www.ieem.org.uk.

**24 September. Wildlife Management and Habitat Creation on Landfill Sites.** St Ives, Cambridgeshire. Details from Ecoscope Applied Ecologists Tel: 01480 466335 or e-mail: scoles@ecoscope.co.uk.

**1 October. Scottish members day & AGM. Environmental Justice - Rhetoric to reality.** Strathclyde Country Park Water Sports Centre AGM starts at 12:45pm. Details from Kathy Dale, Tel: 01339 887407 or e-mail: kd@northecol.co.uk.

**2 October. Remedial treatment for contaminated land, LACL workshop.** Newcastle. Details from www.ciria.org.uk/conferences\_021003.htm.

**15 October. Introduction to Aerial Photo Interpretation and Habitat Mapping.** Somerset. Details from the IEEM office or the website www.ieem.org.uk.

**22 October. Making the Most of Green Roofs.** St Ives, Cambridgeshire. Details from Ecoscope Applied Ecologists Tel: 01480 466335 or e-mail: scoles@ecoscope.co.uk.

**23 October. Institute of Biology Symposium - Why move genes around?** Royal College of Surgeons, London. Details from Amy Scales Tel: 020 7581 8333 ext. 237, e-mail: a.scales@iob.org.

**28 - 29 October. Environment 2003, Shaping Tomorrow's World Today.** London. Details from website www.environment-agency.gov.uk/conference or Tel: 01179 061339.

**30 October. Using Aquatic Invertebrates as indicators of biological water quality.** Buxton, Derbyshire. Details from the IEEM office or the website www.ieem.org.uk.

**IEEM 18<sup>TH</sup> CONFERENCE & AGM  
25<sup>TH</sup> – 27<sup>TH</sup> NOVEMBER 2003**

**UPLAND ECOLOGY  
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