

The Co-Evolution of Ecological Practice and Employment Opportunities in Engineering and Environmental Consultancies in Ireland

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The practice of ecology in Ireland has undergone significant changes in recent decades. Traditionally, ecological studies were the remit of academic institutions, non-governmental organisations and freelance ecologists or specialist ecological firms. The accession to what was then the European Economic Community has resulted in a progressive increase in both the volume and nature of environmental and ecological studies which are undertaken as part of requirements for planning and for infrastructural development. This has also opened new and parallel areas of ecological work and research in Ireland and the adoption of new fields within the discipline of ecology such as restoration ecology, landscape ecology, industrial ecology and more specifically roads ecology.

After the recession of the late 1970s and 1980s the Irish economy went through a period of rapid growth and expansion through the 1990s in what came to be known as the 'Celtic Tiger' economy. This was paralleled by the entry into the Irish market place of a large number of UK based engineering and environmental consultancy firms, either directly or through the purchase of locally based firms as in the case of Atkins, which acquired McCarthy and Partners in February 1999.

Moreover, the growth in construction and large scale infrastructural projects in Ireland coincided with the introduction of fundamental European environmental legislation and its transcription into Irish law. This has included the Birds Directive (79/409/EEC) in 1979, Environmental Impact Assessment Directive (85/337/EEC) in 1985, and the Habitats Directive (92/43/EC) on the conservation of natural habitats and of wild fauna and flora in 1992. These have been complemented in recent years by additional legal instruments such as the Water Framework Directive (2000/60/EC), which rationalises and updates existing water legislation and provides for water management on the basis of River Basin Districts (RBDs).

Prior to accession to the EU, however, Ireland had already embarked on a strategy for the protection of biological diversity. The Wildlife Act of 1976 provided the legal framework for species protection and for a network of sites of ecological and geological interest, known as Areas of Scientific Interest (ASIs). Ireland was also a signatory to the Bern Convention (The Convention on the Conservation of European Wildlife and

Natural Habitats, 1979), the forerunner of the Habitats Directive which sought to protect species and habitats across Europe.

In the mid-nineties, following a successful legal challenge, the ASIs were replaced by a network of sites called Natural Heritage Areas (NHAs); these are designated to protect habitats, flora, fauna and geological sites of national importance. Together with Special Areas of Conservation (SACs) and Special Protection Areas for birds (SPAs) (Natura 2000 sites) these sites form the backbone of site-based conservation in Ireland. National Parks, Nature Reserves, Wildfowl Refuges and other designations further add to this network of protected sites, while instruments such as the Flora (Protection) Order, 1999 provide species-specific protection (in this case for a prescribed list of plant species).

Protection of the wider landscape under the European Landscape Convention (2000) and the reduction in the loss of local biodiversity are now also seen to be critical to the protection of biodiversity in Ireland. In the absence of legal instruments to protect these features we are likely to continue to lose semi-natural habitats and their attendant species. Our protected sites will become ever more isolated islands within a biologically denuded wider landscape in which homogenization becomes the dominant trend. The effective isolation of such sites also places them at greater risk of, for example, local extinction events in the absence of effective connectivity to facilitate animal and plant dispersal and hence gene flow. This is particularly pronounced amongst those taxa with limited dispersal capabilities.

Appropriate implementation of Article 10 of the Habitats Directive at the local authority level, which encourages the establishment of corridors and other landscape features between protected areas, is critical. This can be achieved through Local Area Action Plans and County Biodiversity Plans which should then feed into a National Network of Ecological Corridors in line with the National Spatial Strategy and the network of Natura 2000 sites.

The pace of recent development in the country has been such that biodiversity is increasingly under threat, especially in urban and peri-urban habitats. While the above mechanisms offer protection to species and habitats that are deemed to be of national or international importance, it does not effectively address biodiversity at the local level. One of the key constraints on protecting biodiversity at a local level has been the lack of readily accessible baseline data on habitats and species distribution within the counties. While datasets are available for designated sites, such as Special Areas of

Conservation and proposed Natural Heritage Areas, it is often the sites of local or county value that are at greatest threat. A first hand example is a small wetland on the outskirts of Cork City, which does not qualify for designation as a Natural Heritage Area, but hosts a diverse mix of poor fen, alder scrub and wet grassland.

However, since publication of the National Biodiversity Plan in 2002, great strides have been made to fill this gap. Through the preparation of County Heritage Plans, and more recently Biodiversity Action Plans, targeted studies have been identified and are now being commissioned to collate biological data, which will increase our understanding of biodiversity at the local level. These can in turn inform decisions as to whether a particular site is appropriate for development. The surveys include Phase 1 habitat surveys and more detailed assessments of hedgerows and wetland habitats, which are being commissioned on a county basis by Local Authorities. They are further complemented by a range of studies from the Irish Wetland Bird Surveys and Countryside Bird Surveys co-ordinated by BirdWatch Ireland, to the recent car-based bat survey undertaken by Bat Conservation Ireland. All such studies are leading to a greater understanding of biological diversity in Ireland and a resultant increase in the quality and comprehensiveness of ecological assessments being undertaken for planning of developments. The establishment of a National Biodiversity Data Centre should assist in the collation and dissemination of data collected from such studies.

One of the most significant developments has probably been the publication of a *Guide to Habitat Classification in Ireland* by the Heritage Council (Fossitt 2000) and the subsequent *Draft Habitat Survey Guidelines* (Heritage Council 2002). This has allowed for the implementation of a nationally accepted scheme

of habitat classification which facilitates inter-site and temporal comparison of habitat change. Ongoing national surveys such as the Native Woodland Survey and Semi-Natural Grassland Surveys (commissioned by the National Parks and Wildlife Service) are developing more detailed classifications of specific habitat types using modern ecological data analysis methods which will hopefully in time lead to an updated and improved national habitat classification system.

Road building represents the single biggest investment in infrastructure in Ireland in the last decade. In response to the requirement placed upon State bodies by the National Biodiversity Plan to integrate consideration of biodiversity into their strategic planning, the National Roads Authority (NRA) has been producing a series of ecological guidance documents. These include guidance on ecological impact assessment, bats, badgers, watercourses, etc. The NRA published *Guidelines for Assessment of Ecological Impacts on National Road Schemes* (NRA 2006) includes the only formally adopted scheme for the evaluation of ecological importance and assessment of development related impacts in Ireland. While it has been developed for roads it has, in the absence of an alternative scheme, begun to be used as the basis for assessments for a range of development types.

As a consequence of the above, Ireland has seen a rapid growth over the past 10 years in ecological recording and surveying throughout the country, with an associated growth in employment opportunities for ecologists. The need to undertake ecological impact assessments, as part of the Environmental Impact Assessment for large infrastructural developments, has led many engineering firms to develop in-house environmental skills. More recently, this has led to companies being able to support ecological staff who primarily

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undertake ecological work rather than multi-disciplinary environmental work as was previously the norm. Atkins in Ireland, for example, currently employs seven ecologists, most of whom dedicate their time entirely to undertaking ecological work.

One problem that has emerged as a consequence is a difficulty in finding suitably qualified staff, especially graduates with basic taxonomic skills. As Phase 1 habitat survey plays such a crucial role as the first step in evaluating the importance of a site, knowledge of plant and habitat identification is an invaluable skill. Sadly most university courses no longer focus on basic animal or plant taxonomy and identification skills, despite the emergence in recent years of ecological consultancies as a major employer of graduate ecologists. In fact, it is only in recent years that courses have begun to be specifically tailored to address this, such as the Masters in Biodiversity and Conservation at Trinity College Dublin and the new course in Ecological Assessment proposed at University College Cork. However, there is also a reciprocal role to be played by the industry in, for example, providing training opportunities, such as work experience as part of such courses, thereby furthering the development of closer links between academia and potential employers of graduate ecologists. This can only further enhance the quality of ecological assessments being undertaken by ecological consultants/consultancies. IEEM, through its student membership, could also play a leading role in furthering closer links.

One of the key advantages of working as an ecologist within a large scale engineering firm is the range of development types encountered for which ecological assessments are required, and thereby the range of ecological issues encountered. This in turn leads to ongoing professional development. For example, in the past number of years Atkins have undertaken studies on subjects as diverse as: specialist habitat and rare plant surveys; remotely operated vehicle surveys of marine biodiversity; designing bird studies to facilitate pre- and post-construction assessment of impacts of wind turbines on birds; undertaking wintering bird surveys to examine patterns of spatial distribution and seasonal variation in numbers at a proposed marina site; designing mammal mitigation measures for a large road scheme; and surveying for white-clawed crayfish.

By recently co-sponsoring the Roads and Ecology conference with Engineers Ireland, IEEM recognizes the need for closer communication and understanding to be developed between ecologist and engineer (or indeed the wider design team employed on many large projects). Working closely with engineers on a day-to-day basis fosters a better understanding between disciplines and hopefully helps to iron out prejudices that both parties bring to the table. It certainly trains ecologists to be much more focused when undertaking studies as engineers will always push one for clear and concise answers to their questions, though admittedly this is not always possible from an ecological perspective. By also educating engineers as to the rationale behind ecological impact assessment it can also result in ecological issues being considered much earlier in the design process when something can actually be done about identified constraints.

One key disadvantage is that much of the work done in such an environment is either published in the grey literature or left unpublished. As a consequence, large volumes of unpublished survey data are often held by engineering and environmental consultancies. The establishment of the National Biodiversity Data Centre may offer an opportunity to address this. Furthermore, the above can preclude easy movement of expertise from

industry back to academia where recruitment is very much driven by ones record of publication in peer reviewed scientific literature. It, however, presents no such obstacle to movement in the other direction.

No doubt, in years to come, as ecological practices continue to evolve so too will employment opportunities for ecologists. It is critical, however, that we ensure that academic and industry based training and career development continue to keep pace with such changes in order to continue to ensure the highest standard in ecological assessment, as espoused by IEEM.

References

Fossitt JA (2000). *A Guide to Habitats in Ireland*. The Heritage Council of Ireland, Kilkenny.

Heritage Council (2002). *Draft Guidelines for Habitat Survey*. Heritage Council, Dublin.

National Roads Authority (2006). *Guidelines for Assessment of Ecological Impacts on National Road Schemes*. National Roads Authority, Dublin.

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