

**IEEM NOVEMBER 2007 FELLOWS LECTURE  
ENVIRONMENTAL STEWARDSHIP: FROM DISFUNCTION TO  
CONNECTIVITY ROGER CROFTS**

**Introduction**

Those working in the field of ecology and environmental management wish to see gradual improvement in environmental quality. In our highly managed environments in the UK, the reality is that maintaining environmental quality and natural environmental processes is not getting any easier. The situation is complex. There are a wide variety of owners and managers of land having different objectives, and managing their land for different outcomes. There are a plethora of strategies and plans. And the number of bodies, governmental, private and charitable, makes the position confusing to say the least. Fragmentation of habitats is continuing as a result of agricultural intensification, under management of land, urbanisation, renewable energy infrastructure and improved transportation networks. One might conclude that despite the great efforts on biodiversity and landscape diversity conservation in the last decade and a half, the battle is not being won.

Many talk of connectivity as the answer. I consider this is the case but not just in the traditional sense of ecological connectivity between habitats and using corridors to build networks of protected areas. To achieve connectivity is a rather more complex business as I shall argue in this paper. It requires connections beyond the purely ecological if it is to succeed.

**Disfunctions**

Much of the problem is a result of the lack of connections between different policies, to old style thinking and action, and to the failure to get the message through to those who make the key decisions.

There are many disfunctions around us and many are still occurring. I shall state just a few to emphasise the challenge that we have to face and overcome if improved environmental stewardship is to be achieved.

On many soft coasts and along the lower and middle reaches of rivers hard engineering solutions are still favoured despite the unbelievable mistakes of the past which have undermined the natural working of these systems. The political and economic imperatives to safeguard land and building appears to ignore environmental common sense.

The Mid-term Review reforms of the Common Agricultural Policy are bringing greater intensification in the prime agricultural, especially arable, areas, and under management and near abandonment in the hill areas where sheep numbers are declining rapidly. Is this what we really intended through the formulation of new agri-environmental programmes in the 1990s and the breaking of the link between financial support and production? I do not think so. There are unintended environmental consequences which must be addressed in the next review.

Protected areas not working because habitat fragmentation is major problem and there is insufficient public and political support. The 'benefits beyond boundaries' arguments, so well set out at the Vth World Parks Congress in Durban in 2003, have not been well articulated and there is an uneasy truce between local communities and protected areas authorities. More significantly, the long-standing ideas of buffering protected areas from the surrounding non-protected territory have rarely been implemented, despite the long-standing thinking and action under the UNESCO Biosphere Reserves approach as revised through the Seville Agreement of 1996. And the decade old Pan European Ecological Network, as part of the Council of Europe's PEBLDS, has been virtually ignored until literally months ago in the UK. Perhaps a classic case of the 'not invented here' syndrome. We are so far behind in our thinking and especially in our action in the UK compared with many other parts of the world that it is little wonder that habitat fragmentation continues and the ecological durability protected areas is not secured.

A vast effort has been invested in implementing Natura 2000. But little thought has been given to the fact that it is an old fashioned, site based mechanism, a top down classification approach, and can only succeed because the legal basis is very strong. The identification of sites has become a political bargaining mechanism between the BINGOs, MS governments and DG Environment. Is it worth the effort? To call it a network is a great fallacy: it is a series of unconnected sites, maybe better termed a suite. But certainly not a network in any ecological sense of the term. It ignores the delivery agents, ignores modern consultation processes with legitimate stakeholders, and ignores the dynamics of nature. In addition, Article 10, the door to connectivity, is something that DG Environment officials have avoided considering until a few months ago.

There are many worthy efforts on landscape. Rebuilding the stone walls and bringing back the hedgerows are important, but are hardly going to solve the problems of fragmentation and loss of key cultural features. The European Landscape Convention is a step forward and certainly better than the original ideas favoured by some of our British colleagues for a directive-style approach. It is only now that the statutory agencies have been given the support from government to develop implementation plans for the component countries of Great Britain. The ICOMOS UK/IUCN UK Landscape Working Group is helping to stimulate action on implementation. In this work, we must be careful not to isolate natural and cultural components of landscape, as they are part and parcel of the whole.

Then there is the challenge of new uses of land. There remain polarised views on the benefits of the production of vegetable oil from oil seed rape despite its visual intrusion and its negative effects on the human nostrils and respiratory system. There are certainly also divided views on the development of energy crops: are they environmentally neutral, are they preferable to energy from any forms of fossil fuel sources? Surely, we should be reducing energy consumption dramatically: that is what the Royal Society of Edinburgh report on energy concluded and that is what the international energy experts advised.

The CBD has arguably been a great advancement in concerting action for biodiversity conservation through the BAP process. As a result there are hundreds of SAPs, some

HAPS, but no EAPs (Ecosystem Action Plans) Where is the ecosystem functionality in all of this to ensure that species and habitats survive and ecologically healthy in the longer term?

So far, the potential effects of climate change have not been factored into managing our important and representative plants and animals, ecosystems and landscapes. There is an urgent need to do this as change is occurring and the predictions of the types of changes in the future are becoming more scientifically robust.

From this rather negative assessment, can we conclude that the UK is: failing to use its knowledge base, ignoring how the environment works, not listening to environmental systems common sense, and not thinking in the longer term? Have we lost the art and science of connectivity? Is our leadership inadequate? Have we any sense of a longer term vision?

Are we already too late? Is it all gloom and doom? Or am I exaggerating to make a point? Certainly, the approaches in use at present are not the solutions. But I am by philosophy and design an optimist.

I do not think the answer to these questions is entirely negative. We have environmental experts and environmental managers who have long known many of the answers. The issues are keeping our knowledge up to date in the present and foreseeable environmental circumstances, to factor in the social, economic and political contexts to make environmental action relevant, and making sure that those who make decisions and take action are as well informed as possible.

There is a real and ever increasing need for ecosystematic solutions (if I can be excused the use of such a term). We need a new Ecosystem Approach. I am becoming less convinced about the approach under CBD COP Decision V/6 Although its basic philosophy is sound, its 12 Principles and 5 Operational Guidelines mean all things to all people and has not been taken on board in the UK despite presentations many years ago on the approach to senior departmental and agency officials.

The basis of the new approach is 'connectivity' in a variety of ways. The remainder of the paper sets out my suggestions in the form of '**The Three-Point Plan: integration and connectivity**'.

## **The Three Point Plan**

### **1. Connecting nature**

In any approach to connectivity, restoring and improving connections in nature and in natural systems is essential. Three aspects of connectivity are highlighted.

#### **(1) Connecting protected areas**

There is a need to develop effective networks and corridors to link the core of protected areas and to achieve adequate buffering from activities beyond the boundaries. Protected

areas need to be designed and managed within appropriate bioregions as part of whole ecosystems and whole landscape approaches. The science of networks and corridors is not perfect but the knowledge base is improving all of the time and new work has recently been published that provides an improved scientific basis. In the true spirit of the Precautionary Approach, connecting protected areas through corridors and networks is essential for biodiversity and landscape diversity reasons. The Papallacta Declaration of the IUCN WCPA mountain connectivity conference in November 2006 supports this approach and stated

*maintenance and restoration of ecosystem integrity requires landscape-scale conservation. This can be achieved through systems of core protected areas that are functionally linked and buffered in ways that maintain ecosystem processes and allow species to survive and move, thus ensuring that populations are viable and that ecosystems and people are able to adapt to land transformation and climate change. We call this proactive, holistic, and long-term approach connectivity conservation.*

There are many excellent examples of connectivity approaches, most notably the Meso-America Biological Corridor, and others are being developed, such as the Yellowstone to Yukon Corridor in North America, Alps to Atherton in Australia; these are predominantly in mountain regions but some are in river basins. In Europe, the PEEN system has been developed in a number of central and east European countries and The Netherlands to cover the whole of the national territory. In addition, specific corridor initiatives are being developed in the Alps, the Apennines, and The Cantabrians to Pyrenees. There is a great deal of activity in the UK identifying the basis for corridors and habitat networks and these are described in the conference proceedings. We need a whole range of scales from the local to the national, and covering whole landscapes rather than just the relatively easy parts along the river valleys and in the uplands. One interesting approach is being developed in Wales by Plantlife International as part of the identification of Important Plant Areas. Zones of opportunity are being identified to provide adequate buffering for core areas, create connections between core areas, and providing the basis for environmentally sensitive development.

## **(2) Connections in catchments**

River basin management is currently torn between meeting the needs for flood alleviation and for developing plans to achieve favourable ecological status to meet the obligations of the EC Framework Directive on Water. The focus on alleviation is inevitable as a result of the increasing number of severe flood events and the predictions that these will become more frequent as a result of global climate change. However, all too often the focus of action is at the point of flooding not on the source of the problems. The issue seems to be 'what is the government going to do about it?' The answer is quite clear; it is not just for the government and its agencies, but also for the land owner and the property owner, and the insurance companies helped by those who have scientific and practical knowledge of the characteristics of river systems. A more natural solution is required rather than building ever higher and ever more extensive flood barriers at the current points of flooding. This requires real river basin planning through implementation of the Framework Water Directive

The approach needed is simple: get back to the basics of river basin management. A number of measures should be carried out: reducing grazing levels in the headwaters through culling wild herbivores and managing down the sheep flock, stopping upland drainage schemes, improving timber extraction and re-planting methods, removing levees and other flood barriers to farmland, creating new flood plain woodlands and other natural ecological features that retain water, creating holding ponds and stocking them with native fish species, and not allowing housing on flood plains by doing a deal with the insurance industry. None of this is rocket science, so why have we been so incompetent? And why have English Environment Ministers recently said that we cannot avoid some new housing on flood plains?

### **(3) Connections through the soil**

Have we forgotten about the ecological and wider environmental role of the soil, not to mention geodiversity as a whole? Admittedly, it is not as bad as 15 years ago when soil productivity was seen as endlessly increasing and soil erosion thought to be non-existent by those working in government agriculture departments. The Good Agriculture and Environmental Code (GAEC) is a great step forward, but let us make sure that it works effectively in practice. And, what about soil biodiversity? A great deal of scientific investment has been made but has it improved practice on the ground?

A new approach is needed centred on ‘don’t forget the soil’. It is essential that the three main Conventions, CBD, FCCC and CCD, have linked and integrated strategies for the soil system. In turn, these should be linked to the achievement of the Millennium Development Goals and taking into account the outcomes of the Millennium Ecosystem Assessment. Adopting these connections might help to achieve some of the Millennium Development Goals. This is what the International Forum on Soils, Society and Global Change held in Selfoss Iceland in September 2007 sought to do and is following up with a programme of influencing at international and national levels.

## **2. Connecting policy**

There is a need to ensure that the key policy instruments are connected to each other and that there is connectedness in their delivery.

### **(1) Connecting the delivery of the Convention on Biological Diversity**

The UK and its component parts have been rightly praised for their approach, commitment and energy to the implementation of the CBD. NGOs have been the driving force for well over a decade from the original Biodiversity Challenge. It is all the more curious, therefore, that DEFRA appears to be wishing to omit the NGOs from the next stages of the implementation process. This needs to be averted as time has shown that without the commitment and activity of the NGOs implementation would have been much less effective.

There should be no complacency about implementation in the UK and its component parts. Key elements are still missing. The action plans are over focussed on species and the underlying thinking seems to forget the basic ecological fact that they will only

survive within habitats and wider ecosystems. So there is a vital and urgent need to refocus the action planning effort so that the SAPs are linked into wider HAPs and that Ecosystem Action Plans are developed.

There is also need to recognise the Ecosystem Approach as a classic common sensical integrated approach despite its complexity and to factor in the Approach in revised action plans. And there is also the need to determine how the UK is going to deliver its responsibilities under the Programme of Work on Protected Areas approved by the UK government in 2005. Basically, an integrated action plan on the various aspects of the CBD is urgently needed and that this should go up the scale from the unconnected to the connected.

### **(2) Connecting Natura 2000 sites as a network**

Natura 2000 is unique globally by seeking to achieve a consistent approach over 27 countries to the protection of species and habitats. But it has a long way to go to become a functioning network which is what the Directive calls for. Most policy makers clearly have not a clue what a functioning network is and the Directive's Article 10 is not a great deal of help. The recent guidance developed jointly by IUCN Europe and IEEP should help, along with the work of Graham Bennett. Let us show the way in the UK with the development of Natura networks in practice not just on paper. This is very challenging and will need careful work with planning and other authorities and with owners and managers of land. It is not an exercise just for experts in the statutory agencies

Also, there needs to be a formal funding delivery instrument. The review of funding of Natura in 2002-03 gave the answer but it was avoided and ignored by EC officials. We have a mechanism that really cannot be implemented effectively without a formal funding mechanism. The Eurocrats thought they had got out of the muddle by saying that existing funding instruments, such as the CAP, the ERDF and Cohesion Funds, should be used. Who were they kidding? Only themselves it seems as the funding for securing Europe's diversity of species and habitats in the longer term is far from resolved. This leads me to reform of the Common Agricultural Policy.

### **(3) Connections through reform of CAP**

The GAEC is excellent in theory but in practice the driving force is the global level playing field on world trade and the removal of subsidies. It will prove extremely difficult to achieve the right balance between food production and environmental requirements. For example, ending of set aside means that habitat and carbon sequestration gains are lost immediately. Why have the arguments for long-term set aside been ignored when they make such good sense? We should have a new regime which stimulates the highest levels of environmental stewardship: soil management, landscape and biodiversity management, carbon and other greenhouse gas sequestration, water management etc. In other words, a reformed CAP should be the critical instrument for maintaining food production but also achieving key environmental deliverables. So we really need a *Common Environmental Policy* instrument which stimulates farmers and other managers of land to produce the wide range of environmental goods and services which society requires alongside continuing to provide food of the highest quality.

We should not forget food production for our own domestic consumption and also for export into European and global markets; and also the ability to increase production as our national part in satisfying the increasing global food demand. Strategic approaches to safeguarding the most productive agricultural land, Classes 1 and 2, were phased out quietly many years ago. We need an approach that allows UK plc to supply food for the world market and allow the possibility of agriculture production expanding to meet world demand and, at the same time, maintain the highest environmental standards at the system scale. Allowing permanent development over the best agricultural land does not seem to me to be a very wise use of a non-renewable resource: the soil. We need to develop a more integrated, strategic and long term land use policy, rather than just grabbing at short-term solutions for specific problems like the provision of housing land.

### **3. Connecting organisations**

The third connection has to be about ensuring that people, in the form of organisations and stakeholders, are connected into environmental decision-making and environmental action. They are just as vital as nature and natural processes in our developed world.

#### **(1) Connections within organisations**

Too many organisations fail to be effective because they do not have a single culture, staff operate as separate groups, they fail to exchange knowledge and information, keep information as private material, and have strategies that are not accepted by all members. Phrases like ‘herding cats’ and ‘the silo mentality’ are resonant with and are a constant source of frustration to the organisational leaders.

The ingredients of the solution are simple but not always easy to implement as I know from practical experience both in the public sector and more recently in the NGO sector. Leadership from the top, collective agreement on the direction, inclusive approaches through a process of developing new ideas and practical solutions, ensuring closure of debate and the move to implementation, and the development of measurable deliverables are all key elements. To achieve this transformation is not without pain and frustration, but failing to act as one organisation with a clear sense of purpose and key measurable deliverables is an abrogation of responsibility on the part of the leadership and top management, and represents a state of anarchy on the part of staff. Sadly, this has been the case in the past in the conservation world and is still the case in some organisations. Frankly for those who cannot contemplate accepting the necessary organisational structure and cultural changes, their the only route is the exit one to somewhere else.

There is another very important element in making sure that organisations are functional and that they are delivering: connecting strategy and policy with both scientific and practical knowledge. This should be a continuing iterative process and not just from science to policy and practice, as all elements can inform and improve practice with others. My recent experience as a non-executive director of a knowledge transfer organisation (the Scottish Agriculture College) proves to me the essence of transferring learning from the field and the farm to the laboratory and the experiment, and to the need for a policy development unit to harness collective wisdom and develop new ideas.

## **(2) Connections between organisations**

The need for connections between organisations has been accepted for a long time. Indeed, in the conservation world it was a one of the drivers behind the merger between the Scottish arm of the Nature Conservancy Council and then Countryside Commission for Scotland and the formation of the Countryside Council for Wales in a similar manner way back in 1989. As someone deeply involved as a central government policy maker and then a public sector implementer of the changes in Scotland, I remain convinced of the benefits of merger. I am naturally delighted, therefore, with the establishment of Natural England. At long last this puts behind us the nonsensical separation of landscape and nature enshrined in the 1949 Act and the two different strands of thinking from the ecological and landscape schools developed from the mid 1930s onwards. And, I am pleased, in retrospect, that the Joint Nature Conservation Committee has a new statutory basis. But it does need to operate more effectively at the strategic UK and European levels in a way that the original body was never allowed to by its controllers in the agencies (and that included me personally as a CEO). But these are not the only connections.

There are critical ones between all parts of government, both national and local and with the statutory agencies on land use, planning, development control, regional economic strategies. And with the development of a more federal approach in the UK, there is the need to ensure that devolution of authority to Scotland, to Northern Ireland, and to a lesser extent to Wales, does not mean parochial approaches and a failure to recognise that connecting the pieces means transcending political and administrative boundaries, and also continuing to show leadership in the wider world of Europe and beyond. Here the role of the NGOs, individually and especially collectively, is so important. I welcome the success of the various national and regional LINKS and their sectoral offshoots, such as the Plant LINKS. The weight of collective knowledge and experience being brought to bear on government policy and action is vital if we are to develop more connected approaches than in the past. I also welcome the deep connections between the NGOs and the government and its agencies as the former are an excellent delivery vehicle for the latter's plans as I see regularly through the deep connections between Plantlife International and the three statutory agencies. But, a word warning: do not let the connections get so deep and embedded that the NGOS feel that they cannot criticise what government is or is not doing and that they cannot act as the agent provocateurs. I fear a little of this over closeness is occurring in Scotland in the desire to be Ministers principle advisers sitting at all of the tables of decision-making.

## **(3) Connections between stakeholders**

Last, but by no means least, in my list of necessary connections is the connection between stakeholders and the proper inclusion of stakeholders. The traditional approach is one of stand-offs with those regarded at best as 'not one of us' and at worst as 'the enemy'. Stakeholders should be engaged in strategy and policy development and most significantly in implementation. In defining who the stakeholders are we must be more radical than cautious. We need to break down the barriers that still exist and we need to view the world not just through our own environmental eyes but seek to understand it



from the perspective of others. There is a great deal of good practice that we can learn from. There are also an increasing number of those with expertise and experience in stakeholder engagement.. We should use them rather than thinking that those of us in the environmental field have all of the answers.

There are many new relationships that need to be developed, either because there is risk aversion from other interests, or because there are opportunities which would not be taken up. Let me give three examples from my recent experience. First, seeking financial support from the traditional banking sector for pro-biodiversity business (as it is now called) still proves to very difficult if not impossible. Fieldfare International Ecological Development plc has found this problem for our projects in the Ukrainian section of the Danube delta. Although there are various Europe wide initiatives on pro-biodiversity business and a great deal of debate, what is needed is leadership from the money lending institutions to set up facilities to encourage pro-biodiversity business. Second, there have been stand-offs for many years between the environmental community and the extractive industries. One of the breakthroughs has been to use the convening power of IUCN – The World Conservation Union to open productive dialogue between the two interests. Third, the PANParks initiative in Europe deliberately focuses on the linkage of core protected areas of wilderness characteristics and sustainable local tourism businesses. There are now 7 certified sites around Europe where partnerships between the protected areas authority and local tourism business partners are in progress.

If I have learnt only one thing from my years of roaming around the IUCN world, and especially with my protected area colleagues, it is that ignoring the key stakeholders is a recipe for friction, for non-delivery and for out right opposition, whereas effective inclusion brings so many benefits. I recall at the Fifth World Parks Congress in Durban in 2003, my greatest satisfaction in leading the Durban Accord and Action Plan process was the engagement of the statutory sector, the NGOs of all sizes and shapes, the youth constituency, the community caucus and the developmental interests. It was therefore of no surprise that the Durban Accord was approved by all three thousand participants by acclamation. Those who have the legal entitlement to the natural resources and those who have the traditional knowledge of their sustainable stewardship are without doubt key participants in any process of consensus building. The outstanding work around the developing world by IUCN colleagues, such as Gracia Borrinni-Feyerband, is testament to the progress that can be achieved. Certainly from a more parochial perspective, the consultation processes developed by Scottish Natural Heritage for the proposed Loch Lomond and the Trossachs National Park, and then improved consultation measures to engage with all of the local and national communities of interest for the proposed Cairngorms National Park, meant that the proposals to Ministers and then to the Scottish Parliament were rather more easily agreed to than if there had been the more traditional half-hearted attempts at consultation. It is vital therefore in developing connectivity on the ground that all of the relevant stakeholders, and most especially those that own and manage the land, are involved throughout.

So how do organisations connect all of the pieces together? It needs a combination of visionary and practical approaches, addressing the needs of nature and the environment, considering the factors that drive the current and future circumstances, and developing a clear plan of action. This must be accomplished with the active participation of all staff and the input of stakeholders. Scottish Natural Heritage developed such an approach in the late 1990s and published the outputs in 2002 as its Natural Heritage Futures Programme.

### **Overview**

So the ingredients of a new approach (I hesitate to call it a new paradigm as it is becoming such an out-moded phrase) are:

- ecosystematic functionality understood and practiced,
- evolution from the CAP to the Common Environment Policy,
- from protected areas in isolation to whole landscape approaches with protected areas linked by corridors to form ecological networks, and
- from unconnected to connected organisations and policies.

If the three groups of connections outlined are treated separately then it will amount to not very much, but if they are integrated then the outcome will be that the whole is greater than the sum of the parts. In other words, a connected and integrated approach brings substantial benefits.

### **The Connections**

#### **In Nature**

- Connecting protected areas through corridors
- Connecting through catchments
- Connecting with the soil

#### **In Policy**

- Connecting CBD delivery
- Connecting Natura 2000 sites
- Connecting CAP reform

#### **In Organisations**

- Connecting within organisations
- Connecting between organisations
- Connecting with stakeholders

If we can achieve these connections, then I believe that we will build more resilience into our natural systems to withstand natural and human change, such as climate change, and infrastructure development. We will have more effective deployment of public sector resources. Hopefully, we will also gradually overcome fragmentation in the landscape and in institutional mindsets.

### **What should IEEM and its members do?**

There is a clear role for IEEM, beyond its organisation of this important conference and publishing the proceedings. It is essential to get the message over to decision makers and their advisers. Do not be reluctant to do a little lobbying just as other professional institutions do so effectively. Also, I hope that Fellows and Members of the Institute who attended will promote the ideas and practice shared at the conference.

Coupled with this advocacy approach is the need to have continuing professional development focussed on new ideas and new approaches, and also refreshing the good and well tried and tested ideas and practices from the past. Have effective CPD that reflects modern ideas and those that have stood the test of time and the hard-won experience of your members themselves. The adage should perhaps be 'do not the latest fashion blind you to the well tried and tested solutions and approaches of the past'.

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