PROTECTED AREAS: AN OVERVIEW - ROGER CROFTS

Summary
Protected areas are a key mechanism for securing the conservation of nature and natural resources, and cultural landscapes. Their purpose is defined and the reasons for their importance described. The major issues facing protected area in the light of best and worst practice are identified and solutions offered on five key aspects: building resilience to change, stakeholder collaboration, effective management, appropriate resourcing, and policy mainstreaming.

What is a protected area?

There are many definitions of a protected area nationally and globally. Arguments can be interminable as it depends on the perspective of those involved. Are they places set aside for nature? Is their purpose to secure perpetual protection of species and habitats? Do they have a wider human society connotation as spiritual sites and cultural landscapes? All of these elements are important. That is why since the 2003 World Parks Congress a group of experts, led by Nigel Dudley, have reviewed the definition and clarified the purposes, governance, management effectiveness and all other relevant issues (Dudley 2008). The outcome was endorsed by International Union for Nature Conservation (IUCN) in October 2008. The agreed IUCN definition is recommended:

"A clearly defined geographical space, recognised, dedicated and managed through legal or other effective means, to achieve the long term conservation of nature, associated ecosystem services and cultural values". (Dudley 2008).

The precise meaning of each element is set out in detail in the Guidelines

The use of the term 'nature' is an important change. In the previous definition '…an area especially dedicated to the protection of biological diversity..' was the primary focus but during the review process there was recognition that all of nature, including the geological and geomorphological features, and earth systems and processes were also key elements. The elaboration of the definition in the revised guidelines is as follows: *"In nature always refers to biodiversity, at genetic, species and ecosystem level, and often also refers to geodiversity, landform and broader natural values"* (Dudley 2008).

Why are protected areas important?

Protected areas have been in formal existence since the middle of the nineteenth century and much earlier in a less formal sense through, for example, sacred areas in West Africa and the Pacific, historic reserves of great antiquity in Indian, and the royal hunting areas in many European countries. As these uses imply, they are areas set aside for a particular purpose, either to the exclusion of other activities or, at least, where other activities are subordinate. This concept is reflected in the IUCN definition discussed above. The evolution of the primary purpose of protected areas in Europe can be traced and is summarised in Table 1.

Table 1: Changing primary purposes of protected areas in Europe

- Royal recreation & hunting: 12th century
- Romantic period & cultural landscapes: 18th &19th century
- Alpine period & mountaineering: 19th century
- Nationals park & national identity: 20th century
- Multiple national approaches: later 20th century
- Natura: a continent wide species & habitats approach: current

Source: Crofts 2007

In a more popular sense, protected areas are areas whose primary purpose is to safeguard and secure the future of species and habitats, and of natural systems and processes. They are places where the world's finest nature, landscapes and cultural manifestations can be celebrated. They are places which can act as a break on, or a barrier to, those types of development which destroy or substantially impair nature and natural systems. In a world which is becoming increasingly urbanised, protected areas are arguably also places where human society can connect or reconnect with nature (see Harmon et al, 2008). These reasons are important in making the case for an individual new protected area or, at a larger scale, for a protected areas system covering a country or region.

In recent years, it has been increasingly important to consider protected areas in the context of the provision of environmental services and human benefits. This approach is important for two reasons. First, there has been a trend in the later twentieth century to consider protected areas as a strict preservation mechanism particularly for species and habitats. Increasing recognition of the important of their role in securing environmental systems and processes has lead to a broader approach. This is illustrated in Table 2.

Table 2: Services provided by protected areas

- ✓ Buffering the effects of climate change
- ✓ Storing water
- ✓ Storing carbon and other greenhouse gases
- ✓ Maintaining species diversity
- ✓ Providing human livelihoods
- ✓ Contributing to human health & wellbeing
- ✓ Providing inspiration & joy
- ✓ Providing beauty & grandeur
- ✓ Providing education, learning, research
- ✓ Protecting the homelands of indigenous peoples
- ✓ Supporting local economies

Protected areas are also important as a means of ensuring compliance with national and international agreements and obligations. Foremost of these, in a UK context, are two EU Directives: Council Directive 79/409/EEC on the Conservation of Wild Birds and Council Directive 92/43/EEC of 21 May 1992 on the Conservation of Natural Habitats and of Wild Flora and Fauna, commonly known as the Birds and Habitats & Species Directives respectively. The former provides for the protection, management and control of all species of naturally occurring wild birds on the European territory of EU Member States. The purpose of the latter is 'to promote the maintenance of biodiversity, taking into account economic, social, cultural and regional requirements'. The whole suite of sites under the two Directives should form a 'coherent European ecological network of special areas of conservation under the title Natura 2000'. There is no other regional mechanism of this type in any other part of the world and many lessons about its development and implementation need to be learnt.

Protected areas have long been recognised as a key mechanism for the conservation and protection of species and habitats *in situ*. This was formalised internationally through the Convention on Biological Diversity. Article 8 states that 'each contracting party, as far as possible and as appropriate: establish a system of protected areas or areas where special measures need to be taken to conserve biological diversity'. At the seventh meeting of the Conference of Parties in 2004, the signatories agreed to adopt a Programme of Work on Protected Areas (Decision VII/28) to "…support the establishment and maintenance by 2010 for terrestrial and 2012 for marine areas of comprehensive, effectively managed, and ecologically representative national and regional systems of protected areas…". Direct actions for planning, selecting, establishing, strengthening and managing protected area systems and sites; governance, participation, equity and benefit sharing; enabling activities; and, standards, assessment and monitoring are component parts of the programme. It is fair to say that there has been insufficient action in the UK and in other parts of Europe to recognise this responsibility and to take the necessary action.

A World Heritage Site is an international accolade for a protected area in recognition of its Outstanding Universal Value. Sites are inscribed on the World Heritage List of the UNESCO World Heritage Convention. This accolade is a major motivating force for national governments to propose sites, to ensure that they are better protected, and the threat of 'red listing' those sites that are in danger is a motivation for more effective management.

Protected areas are used as a key mechanism to achieve a variety of purposes. The IUCN guidance on their aims (Dudley 2008) is summarised in Table 3.

Table 3: IUCN guidance on aims for protected areas

- ✓ Conserve all aspects of biodiversity
- ✓ Contribute to conservation strategies
- ✓ Maintain diversity of landscape
- ✓ Large enough to ensure integrity and long-term maintenance
- ✓ Maintain values in perpetuity
- ✓ Management plan, & monitoring and evaluation programme
- ✓ Clear and equitable governance system

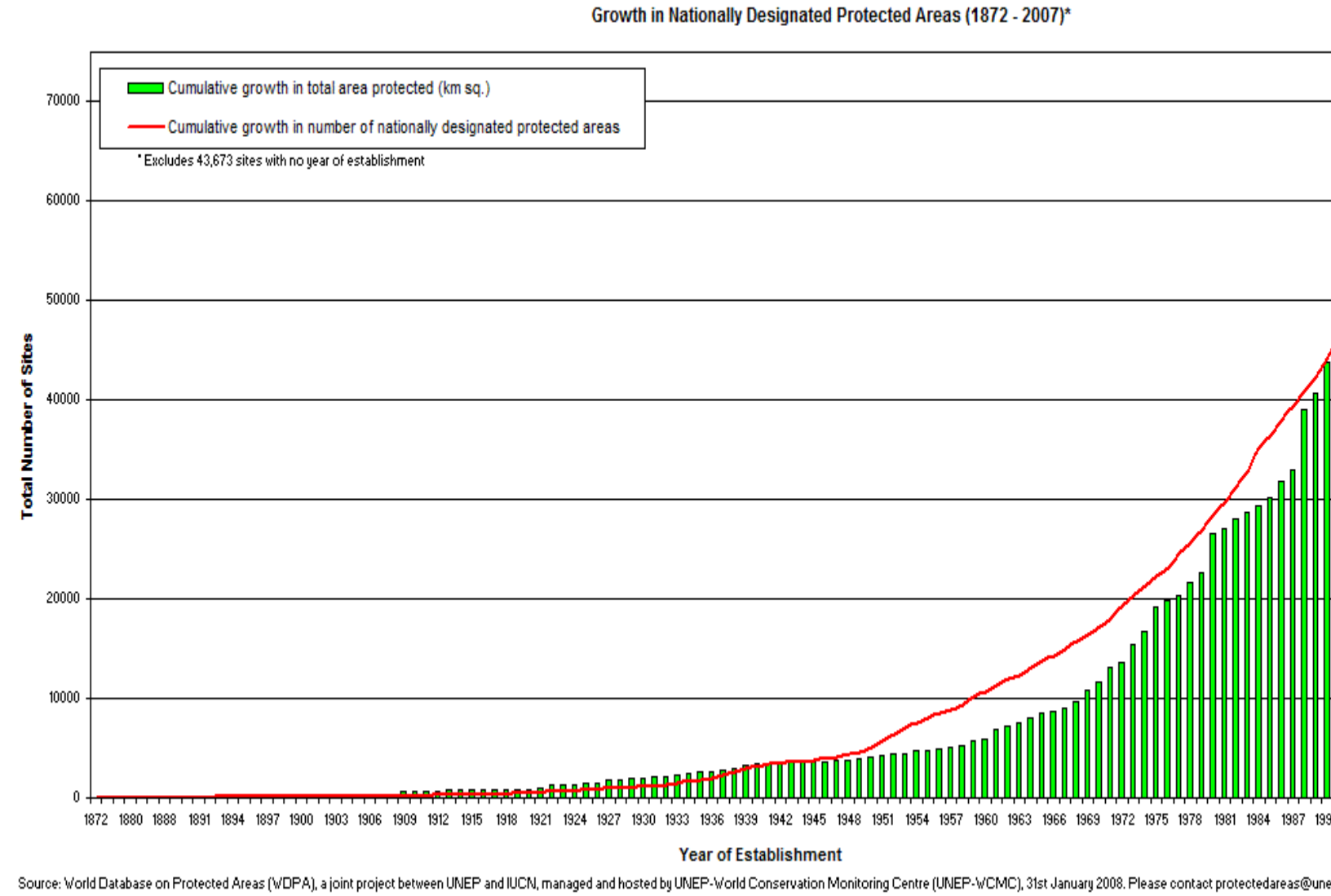
And where appropriate

- ✓ Conserve significant landscape, geomorphology and geology
- ✓ Provide regulatory ecosystem services
- ✓ Conserve natural and scenic areas
- ✓ Deliver benefits to resident and local communities
- ✓ Deliver recreational benefits
- ✓ Facilitate research activities and ecological monitoring
- ✓ Use adaptive management strategies
- ✓ Help to provide educational opportunities
- ✓ Help to develop public support for protection

Source: Dudley 2008

The growth of protected areas

Evidence of the importance of protected areas as a key environmental protection mechanism is illustrated in the statistics of their growth. Data held by the UNEP World Conservation Monitoring Service in Cambridge (www.unep/wcmc), as part of the World Database on Protected Areas, shows the following pattern of growth (Figure 1) (UNEP-WCMC 2008). The acceleration in growth of the land surface area designated from the early 1970s is noticeable. Was this, in part, a consequence of the first global environmental summit (The Stockholm Conference) in 1972 or were other factors at work? It is not clear. By the time of the Vth World Parks Congress in Durban, 2003, the proportion of the land surface with protected area status had exceeded the informal 10% target and stood at 11.5% (IUCN WCPA, 2004). However, the situation is highly variable between different biomes, with especially low levels of protection for temperate and sub-tropical grasslands, and for tropical and subtropical coniferous forests. In the marine realm, the situation is much worse with only a small proportion protected: 10% of the total global protected area is marine, with very few nations having substantial marine protected areas. It is also highly variable in terms the existence and strength of protection in practice.



The challenges facing protected areas

The remainder of this article addresses the key challenges facing protected areas and the action needed to address the position. These are drawn from experience through field visits, independent reviews, speaking engagements, attending conferences and seminars, and listening to experts.

It is all too easy to be complacent about the effectiveness of protected areas. The evidence of their growth presented earlier suggests real success and leads to the assumption that, once established, protected areas will deliver the necessary conservation aims and objectives in practice. Experience shows that this is far from the case. Probing below the high-level statistics shows that there are many issues to resolve. It is possible to characterise the worst and the best characteristics of protected areas from many parts of the world, but particularly around Europe over the last decade and a half. This is done in the hope that IEEM members will learn from the mistakes made elsewhere and adapt the best practice to the circumstances in which they are working.

The worst protected areas are characterised in Table 4.

TABLE 4: THE WORST PROTECTED AREAS

- Unresolved conflict between nature and development
- Unresolved conflict between developers and communities
- Natural assets seen only as money makers
- Species and habitats lost
- Values destroyed
- Natural systems functionality reduced
- Rules confusing and ineffective
- Management unfocussed
- Resources totally inadequate

On the other side of the equation, the best protected areas can be described as having the characteristics in Table 5.

TABLE 5: THE BEST PROTECTED AREAS

- ✓ Protect nature as the primary objective
- ✓ Managed as integral unit
- ✓ Part of a national system
- ✓ Local communities are actively engaged
- ✓ All stakeholders engaged in the governance
- ✓ Development complements and never undermines protection
- ✓ Government is committed
- ✓ Resources are available

In the light of experience, five specific issues are identified to define the challenges and the range of solutions available to ensure that protected areas are a more effective mechanism for achieving *'the long term conservation of nature, associated ecosystem services and cultural values'* of the IUCN definition.

(1) Resisting the development squeeze and coping with climate change by building resilience and connectivity

Many protected areas, especially in Europe, have been developed as bastions against intensive development of farming, forestry and economic infrastructure (UNEP-WCMC 2008). As a result, many protected areas are surrounded by activities which are inimical to their longer term existence as places where natural systems and processes secure the survival of key species, habitats and cultural landscapes. Pesticide transfer, eutrophication, and acidification are just three examples of many cross boundary transfers which affect the integrity of protected areas and undermine their functioning. In Europe, for example, there has been substantial fragmentation of habitats particularly since the middle of the twentieth century. Major causes of this fragmentation have been the EU Common Agricultural Policy's (CAP) objective to provide home grown food for Europe and the expansion of transport infrastructure and coastal settlements (see EU 2007). Overall, there remain too many examples of development winning over conservation of nature and natural resources and the erosion of the values of protected areas.

Climate change will have increasingly significant effects on protected areas. It will, in part, reinforce the need to have them as buffers and sanctuaries, and as recipients of

migrating species and translocation of species and habitats. But, it will also challenge the traditional view that protected areas remain in the same place forever. This may not be the case as species migrate pole wards and to higher altitudes, and as habitats are lost, for example in low-lying coastal areas and through desertification. There have been many assessments of the effects of climate change globally, but it is reasonably certain that regional and local variations will require scenario planning to inform mitigation and adaptation strategies. These should focus on the type and extent of changes expected in temperature, precipitation, sunshine, winds and storms so that strategies for protecting key biomes and tempering the effects of extreme weather conditions are planned for.

Overall to combat the effects of development and climate change, a more strategic approach to protected areas is needed. This should recognise the need for changes in land use and the development of infrastructure to cope with human needs, including food security and energy supply from renewable sources, and give greater recognition to the fundamental role of environmental systems and processes. This happening to a degree in Europe through changes in the CAP regime introduced in 2003 and through the adoption of Strategic Environmental Assessment of policies and programmes. But, these have not gone far enough and more fundamental changes are requires. In Scotland, for example, the need for a strategic land use policy framework has been advocated (RSE 2008) and this has been translated into a statutory requirement in the Climate Change (Scotland) Act 2009.

It is becoming increasingly recognised that individual protected areas surrounded by development is not a sustainable course for nature. The old adage '*islands of protection in a sea of devastation'* unfortunately still rings true. Moving *'from islands to networks'* has been a longstanding approach, specifically identified for example, in the mid-term review of the global protected areas programme in 1997 (IUCN WCPA 1997). The methodology and practical techniques of ecological connectivity and whole landscape approaches are now becoming more theoretically convincing, better known and more accepted in practice (IEEM 2007 and Hill 2009). This is especially the case in mountain areas (see Worbouys et al in press). Unfortunately, the experience gained through the Council of Europe's PEBLDS ECONET project on whole landscapes approaches to ecological connectivity focussing on lowland areas has not been adequately implemented across Europe and certainly not in the UK. There is a pressing need to develop formal ecological corridors and to ensure that, as far as possible, protected areas are connected to each other through whole landscape approaches at regional level.

A major issue will be how to build resilience to change in natural systems without going along the hard engineering route so often used in the past, especially along the coast and in river catchments. An in-depth understanding of ecological systems and their functionality will be a vital consideration. Also, the techniques for reintroducing extinct species from the experience gained in many countries and the more limited knowledge of translocation of species need to be fostered so that the information can be deployed effectively when needed.

(2) Moving from top down dictatorial approaches to more collaborative approaches and modern governance regimes

It is patently obvious in many countries, including the UK, that there are many disagreements between different interests in the establishment and management of protected areas. There is a strongly held view that protected area status takes away the rights of landholders and communities and imposes what is regarded as a negative nature regime. It is easy to characterise the opposing dimensions (Table 6).

TABLE 6: POLARITIES IN VIEWS OF PROTECTED AREAS

NATURE VIEW	versus	COMMUNITY VIEW
Too few		Too many
Too small		Too large
No more tourist provision		More visitor facilities
Better protection		Less protection
More involvement		Less involvement
Too much damage		Stop development
Too few controls		Too many rules
Locals negative		Locals ignored
More conservationists		Run by locals

It is possible to overcome these polarities with conflict resolution mechanisms run by those with relevant experience. But, it takes time, is frustrating and diverts energy and resources from what each side wants to achieve. There are plenty of good examples around the world of moving from polarised situations to ones of mutual respect and effective working (Borrini-Feyerabend et al 2004). Equally, readers will be familiar with those where the divides are too great to bring the sides together, as in the recent Trump development in Aberdeenshire, Scotland. The implementation of Natura 2000 offers one mechanism through the development of alternative sites for protection where it is deemed necessary for reasons of overriding national interest to develop a currently protected area.

Engagement of key stakeholders is essential in the establishment and management of protected areas. This approach has some downsides which should be recognised: there can be too many different interests to accommodate, it slows progress and often the level of agreement is best defined as the lowest common denominator rather than the highest common factor. But, it is not possible to progress a protected area without stakeholder engagement. Recognising and communicating the benefits of this more inclusive approach is a vital part of the process. There is a greater chance of agreement, progress is more rapid and, most important, it recognises the legitimacy of the different interests – resources owners, traditional rights holders, and local communities, alongside the range of conservation interests.

An essential component of stakeholder engagement is the use of modern governance systems. Many protected areas have no governance structure other than the executive management, and others have a largely top down governmental approach. Sadly, this is all too often the case in the UK, apart form the national parks. The revised IUCN guidelines (Dudley 2008) provide a classification of governance structure types which help to clarify the options available (Table 7). These new approaches provide the possibility of many different interests being involved in protected area management than ever before.

TABLE 7: PROTECTED AREA GOVERNANCE TYPES

A. Governance by government
- Federal or national ministry or agency in charge
- Sub-national ministry or agency in charge
- Government-delegated management e.g., to an NGO)

B. Shared governance
- Transboundary management
- Collaborative management (various forms of pluralist influence)
- Joint management (pluralist management board)

C. Private governance
- Declared and run by individual landowner or by non-profit organisations or by for-profit organisations

D. Governance by indigenous peoples and local communities
- Established and run by indigenous peoples
- Declared and run by local communities

Source: Dudley 2008

Examples are provided in the IUCN Guidelines and in accompanying publications referred to there. There is no one answer and the system adopted will depend on the particular national and local circumstances.

(3) Moving from designation to setting standards and achieving effective management

Too often in the past protected areas have had none or a weak legal status, have not had clearly defined aims and objectives, no formal plans for management, and no means of tracking progress. It is essential to ensure, at the outset, that a protected area or protected areas system exists in reality through legislative provision or other formal agreement. There remain too many instances where all that exists is a 'paper park' with no formal reality on the ground. Often, this is a result of lack of willingness by government to implement policy and statute in practice because of a mixture of opposition from other interests and a lack of resources.

So much effort is often put into obtaining agreement on a protected area that too little effort is put into its longer management and to measuring the effectiveness of desigantion. Effective management is a basic requirement. The key building blocks are clearly defined objectives, a plan with clear targets, milestones and output indicators, and a means for measuring achievement. The system of *Management Effectiveness Evaluation* devised by IUCN WCPA (Hockings et al 2006) has been developed and tested extensively around the world and forms the global standard to use. It can be adapted to local circumstances as the published case studies illustrate (Stolton 2008). For example, it has recently been adapted for evaluating the effectiveness of the Scottish National Nature Reserve network for Scottish Natural Heritage (www.snh.gov.uk).

A related relevant tool for improving performance on management and achieving higher quality standards is the revised IUCN guidelines referred to previously. They have been adopted in primary statute in a growing number of countries as a framework for developing national protected areas systems. There is a great deal of experience and

guidance available on national systems planning (Davey 1998). The Categories system has many uses which have evolved over time (Dudley 2008), for example, clarifying management objectives, providing an international standard, and helping to identify management objectives through zoning. Their use in the development of individual areas, in developing protected areas systems, and in practical management will provide valuable guidance, and help to set international standards.

Linking to other international systems provides the opportunity to improve performance on management. For example, the requirement to achieve *favourable conservation status* on Natura 2000 sites, periodic reviews of the state of protection for World Heritage Sites, and setting of clear government targets for achievement of favourable status for Sites of Special Scientific Interest in England, Scotland and Wales, have all helped to move the focus of attention to effectiveness of management.

(4) Acquiring the appropriate resources of funding, expertise and knowledge

The establishment and running of protected areas is a highly professional business. It requires a wide range of technical and professional expertise, well beyond the traditional bedrock of ecological knowledge, to embrace other scientific disciplines, education and communication, business planning and management, fund raising and commercial acumen, stakeholder engagement and negotiation skills, to name but a few. The executive requires a chief officer who can provide leadership and management skills, staff with an ability to be creative in finding solutions rather than being overwhelmed by problems, have the relevant skill set, be prepared to re-skill if appropriate, and be able to work effectively in teams and to work with colleagues across the structure and across the grades. Opportunities for exchange of practice should be taken up and time given by managers to allow this to happen. There are many channels, including the World Protected Areas Leadership Forum of WCPA, the Protected Areas Learning Network (PALNET) and the IUCN WCPA Best Practice Guidelines Series (www.iucn/wcpa), and the World Database on Protected Areas (www.unep-wcmc), as well as through established groups, such as the EUROPARC Federation (see www.europarc), and new training courses, such as the MSc in Protected Areas Management at the University of Klagenfurt in Austria.

There are many opportunities for gaining resources through business arrangements in protected areas, but these should never undermine the purpose of the area. Most important, in many countries, is the provision of resources from government for protected areas because either they are on state owned land or they are regarded as fulfilling national or international obligations and are deserving of financial support. Unfortunately, the resources available are only a small proportion of the resources required. So strategies for fundraising and the use of professional expertise in this field will become increasingly necessary. No longer can protected areas bodies expect money to be readily available. Calculating the financial contribution made by protected areas in the provision of environmental services, and social and economic benefits (see Table 2) will become increasingly important. This will help to acquire the resources necessary to maintain protected areas through gaining full recognition of their contribution to society (Harmon et al 2008).

(5) Securing recognition of the role of protected areas in other agendas and policies

Protected areas will remain isolated in practice and in policy if their needs and their benefits are not mainstreamed into other agendas and policies. Protected areas

organisations and non-governmental environmental organisations should strengthen the arguments for policy mainstreaming in all aspects of land use, resource development, energy, transport etc, and in developing the case for the reversal of those policies which have a negative effect on protected areas. The international agendas for poverty alleviation and water resource management, particularly through the Millennium Development Goals, for biodiversity conservation, for combating desertification and for climate change, through the three key Conventions, should be the targets if the role of protected areas in delivering benefits to society is to be accepted. Within the UK and Europe, arguing for fundamental changes to the Common Agriculture Policy and the Common Fisheries Policy, seeking an environmentally sensitive approach to the infrastructure for the energy provision from renewable resources, and ensuring that protected areas have a key role to play in addressing the challenges of climate change, are major issues that will have to be addressed effectively.

Conclusions

The challenges discussed suggest that an evolution of approaches to protected areas is necessary rather than sticking to the more traditional approaches of the past. Adrian Phillips has perceptively described the need for a new paradigm for protected areas in a seminal paper (Phillips 2003) which should be required reading for all IEEM members engaged in protected areas.

Another way of describing the need for an evolutionary change in approach is shown in Table 8.

TABLE 8: EVOLUTIONARY CHANGE IN APPROACH TO PROTECTED AREAS

FROM	TO
Preservation	Adaptive management
Sectoral	Integrated & cross sectoral
Scientific	Multifaceted knowledge
Environmental	People and environment
Top/Down	Both directions
National	Appropriate geographical level
Conservationist	All stakeholders
Nature	Social and environmental well-being

If the protected areas mechanism is to be used effectively, certain essentials require to be met; principally, protected area systems contribute recognisable benefits to the wider natural world and to human communities, and contribute to the resolution or mitigation of major human and environmental challenges. This is a perpetual activity requiring commitment from governments and all other stakeholders, learning from the best and worst experience from around the world, and using all of the expertise and experience of professionals in IEEM and further afield.

Images

1. Thjorsarver Ramsar site, Iceland: example of an area too small in scale to protect natural systems, not sufficiently protected legally and vulnerable to hydro-electric development. Promise of larger area and stronger protection by government in 2010.

2. Yellowstone National Park, Wyoming, USA: example of 'letting nature takes its course, management of major active volcanic caldera and natural regeneration of forest after accidental fire, alongside visitor management through the 'honey pot' approach.
3. St Kilda World Heritage Site, Scotland, UK: example of a protected area with multiple designations for natural and cultural heritage with protection guaranteed in perpetuity through ownership and management by a conservation charity - The National Trust for Scotland.
4. Galapagos NP, Ecuador: high endemicity and natural values being threatened by inadequate management and control so the archipelago is on the World Heritage Sites endangered list. Removal of non-native species and stricter controls on island development and visitor numbers is needed.
5. Serengeti National Park, Tanzania, Africa: privately-funded visitor accommodation in the core of the park developed sensitively alongside effective protection of species in their natural habitat.
6. Doi Inthanon NP, northern Thailand: interesting mix of objectives including celebration of nationhood and monarchy, forest conservation and horticultural activities for migrants to stem drug trafficking.

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