

NATIONAL AND INTERNATIONAL STRATEGIES FOR THE INTEGRATION OF GEOLOGICAL AND NATURE CONSERVATION

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Introduction

Earth heritage conservation, the protection and management of the record of the evolution of the planet through its rocks, minerals, fossils and landforms, is less well advanced than biological conservation. The threats to living species and the habitats that support them are now obvious and protection of biodiversity is a major global issue. The threats to geodiversity are less obvious but are very real.

A multitude of international measures exist for the protection of biodiversity but protection of Earth heritage at the global scale is limited. A number of initiatives are currently being developed which could provide an opportunity to promote interest in this aspect of conservation at the international level. Taken individually none of the current initiatives satisfy the need to have a global scheme which is capable of offering wide participation in an Earth science conservation programme.

The experiences of biodiversity conservation offer some lessons for Earth science conservationists which could be usefully applied to the development of a single, coherent international strategy. Such a strategy needs to build on local initiatives and consistent site selection criteria feeding into a global network.

The biodiversity experience

The conservation of habitats and species - the protection of biodiversity - is the aim of a wide variety of international conventions. The CITES, Berne, Bonn, Ramsar conventions, and the Convention on Biodiversity are all directed towards biological phenomena on an international scale. In the European Union context the development of the Natura 2000 series, through Directives relating to birds, habitats and vulnerable species, is the prime mechanism for nature conservation and aims to establish a series of protected sites across the Union.

Whilst the international conventions require more or less voluntary compliance, initially through signature of the convention and subsequently through acting within the spirit as well as the letter of the convention, European Directives are more prescriptive. The supra-national authority, the European Commission, can take action to ensure adequate measures are taken to implement Directives. In the case of nature conservation the Commission can act to ensure site selection adequately reflects the distribution and management requirements of habitats and species.

Conservation at the international level must be founded on active national programmes. Such programmes may be local or national in scope and may be based on voluntary action or be part of national legislative

programmes. To be effective conservation initiatives require both strong local community support for wildlife protection and strong national laws which impose penalties for those damaging this component of our environment.

As in other areas of society we are seeing the globalisation of nature conservation, a process which allows local issues of environmental protection and nature management to be projected into the international arena in a way which significantly reduces the role of national governments. The close involvement of Non Governmental Organisations in nature conservation work at all levels – local, national, international – provides a powerful force which can work with, or against, national governments.

The key points to be drawn from the biodiversity experience are:

- *Site selection must be rigorous* – sites selected for protection must represent significant elements which are worth conserving and which are representative of the conservation resource. Arbitrary selection of sites (without the use of consistent criteria) will serve no useful conservation purpose and will devalue effort. The protection of arbitrarily selected sites can give the false impression that effective conservation measures are being taken. Choice of appropriate sites without clearly defined criteria can undermine the ability of national law to protect such sites. Legal challenges to the importance of sites are common. Evidence that a protected area was selected on scientific criteria can be a strong defence against such challenges.
- *Local support is vital* – conservationists parachuting in from outside and imposing restrictions on local communities are not usually welcome. It is not sufficient to designate a site as important, or even pass laws, to achieve conservation objectives. Local recognition of the importance of nature and the need to conserve it are critical for effective protection.
- *Global networks* – in the internet age we are never truly alone. We can communicate with anyone and everyone in the world. The importance of global internet linked networks within conservation is growing. The sharing of experiences and ideas is of fundamental importance in recognising the needs of effective nature conservation and devising solutions to problems. Threats to remote sites can be publicised immediately and effectively to the benefit of those seeking to protect them.

The Earth heritage experience

There are no international conventions or European Directives which specifically promote Earth heritage conservation. Many countries have their own national

schemes for recognising and protecting important Earth heritage sites but the opportunity for using these national lists to inform the development of an international programme is currently limited. The UNESCO World Heritage List and the IUGS Global Geosites programme are the only international initiatives which offer international recognition for Earth heritage sites. UNESCO's Geoparks programme is designed to recognise the global importance of such sites but remains to be finalised and implemented.

The World Heritage List is UNESCO's prime mechanism for recognising and protecting cultural and natural sites of 'universal value'. There are currently over 600 sites inscribed on the WHL with an ultimate total of twice this number likely. Although the WHL contains a small number of geological sites, and is an important means of recognising some of the most important sites of this kind, the natural component of the WHL is likely to be dominated by biological sites. The biodiversity component of the WHL will always significantly outweigh the geodiversity component. The WHL, because of its highly selective nature, therefore offers limited scope for the encouragement of Earth heritage internationally.

The IUGS Geosites programme is designed to establish a global list of important Earth science sites using consistent criteria. The establishment of such inventories at the national and regional level is a prerequisite for effective conservation. The development of national/regional geological frameworks for site selection and the establishment of the relationships of individual sites within thematic networks is an important component of such work. Such inventories, undertaken by national bodies, volunteers or international organisations provide the basis for developing conservation strategies which not only protect important sites, but also link the site based initiative to wider issues. These issues include biological conservation, scientific research, education, and sustainable development.

In some countries the inventory work has been more or less completed. In the United Kingdom the site based approach to Earth heritage (and biological) conservation has proved a vital first step. Individual sites can only be managed in the context of the landscapes in which they reside and the UK conservation agencies have developed, and are implementing, landscape initiatives which are designed to tackle conservation issues in an holistic fashion. Solid geology, soils, geomorphology and biology are being brought together into integrated landscape conservation policies. This makes scientific sense but also recognises what has been described as the local 'sense of place'. Local communities intuitively identify with their own landscapes without necessarily understanding the complex interplay of physical and biological components involved.

The UNESCO Geoparks initiative seeks to encompass these wider issues (including economic and social) into a single site based scheme which is designed to

complement the UNESCO Man and Biosphere programme. The Geoparks programme has yet to be finalised and approved by UNESCO who are currently reviewing how this programme will relate to their other work and how best to integrate Earth heritage conservation into their programmes.

It is therefore not true to say that nothing is happening in international Earth heritage conservation. Rather, a number of strands exist or are emerging and what is needed now is a drawing together of some of these strands to produce an integrated international initiative which will draw wide support. What should such an initiative look like ?

A possible model for international Earth heritage conservation

A successful international Earth heritage conservation strategy is likely to include the following elements.

- *Strong local support for site nominations* – nominations for protected site status should ideally come from local communities rather than central government. Central government may offer advice and assistance but the drive for designation should come from local groups. This is currently the usual case with World Heritage nominations and underlies the proposed Geoparks programme.
- *Clear principles behind site selection* – sites selected for international recognition should emerge from regional and national inventories with a clear rationale for selection. The Geosites programme offers the only global mechanism for site selection in the absence of existing national inventories.
- *An holistic approach* – sites should link Earth science with biological, social and economic issues and promote a landscape approach to conservation bringing networks of individual sites together where possible. The selection of sites may be based on scientific grounds alone, but their protection and wise use must be undertaken in the wider scientific and social context.
- *Global networking* – linking of national programmes into international networks is critical for experience sharing. The ProGeo experience in Europe demonstrates the importance of this element.

Any global strategy for Earth science site protection must seek to protect the best sites whilst allowing participation by all countries which value their Earth heritage. The World Heritage List is too exclusive to achieve this aim but a new UNESCO initiative (such as Geoparks) may be appropriate, or remodelling of an existing programme. To be effective any such programme should draw together or link with existing initiatives such as Geosites.

Such a conservation programme needs to be implemented by a recognised international organisation. UNESCO seems to be the most likely candidate for such an organisation.