

# Geoconservation in practice – An introduction



## Introduction

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*This document provides guidance on the methods for protecting and enhancing our planet's geodiversity, with examples from around the World. 'Geodiversity', is a relatively new term, defined as the natural range of geological (rocks, minerals and fossils), geomorphological (landscape-shaping processes and landforms) and even soil features, but also includes the stone-built heritage, and geological museum collections and historical literature.*

The concepts of “biodiversity” (the variety of life on Earth) and “bioconservation” (the way in which we protect, manage and use our natural world sustainably to benefit wildlife and habitats), are now fairly well established. But what of “**geodiversity**” and “**geoconservation**”? Geodiversity's scientific and social values, and potential role in the wider sustainable management of landscapes are generally less well understood.

Geodiversity and its protection are not widely promoted in many parts of the world. However, recognising the value of geological features at the landscape scale, and integrating their protection and enhancement into plans for land management, can emphasise the underlying relationship between the surface features of our planet and the biological and human diversity.

Within biodiversity conservation, there is a growing emphasis on the ‘Ecosystem Approach’ promoted through the international Convention on Biodiversity. This approach attempts to integrate conservation and management of the natural living world with human activities at local, regional and global levels. Biodiversity is often related very closely to the physical structure of the Earth and the processes operating at the surface. Recognition of this fact, and our society's fundamental reliance on both the geological and biological processes that operate on our planet, is critical to sustainable use of our biological and physical resources. The Ecosystem Approach offers a conceptual basis for integrating geological and biological conservation, linking both to human activities.

Heritage – natural, cultural or a combination of the two – is a key component of sustainable development and

regeneration and recognition of the value of such heritage can be built into land management, conservation and economic planning. Heritage values of importance to local communities can be highly relevant to establishing constructive partnerships and local involvement in landscape management and associated economic initiatives. Recognition of these values can build on local community sense of place, sense of pride and sense of ownership.



*Interpretation Panel at Siccar Point. James Hutton (1726–1797) is known as the founding father of geology. The rocks at Siccar Point were the defining proof for his revolutionary Theory of the Earth. Now known as ‘Hutton's Unconformity’, the rock formation reveals a missing chapter in what Hutton referred to as ‘the annals of the Earth’. Hutton recognized that constructive geological processes, such as volcanism and mountain building, created strata of rock and sediment, and that breaks, or ‘unconformities’, in the chronology were caused by erosion or an absence of deposition over long periods of time.*



It is difficult to assign values to the natural world, in terms of money and its intrinsic importance. Economic analysis of the value to society of the goods and services provided by ecosystems is fundamental to management and policy making. Such analysis requires recognition of the twin pillars underlying these services, namely the biological and the physical.

Techniques to recognise and value biodiversity are now readily available and are increasingly being used in decision-making, in respect of use of biological resources. These techniques can be applied to geodiversity evaluation on a stand-alone basis, or as part of an integrated assessment of geological, biological and cultural heritage. This document seeks to explore these techniques by examining four key issues relating to the physical (geological and geomorphological) aspects of our terrestrial landscapes:

- defining the concept of geodiversity itself;
- explaining the techniques and concepts available to recognise and categorise geodiversity;
- how to value geodiversity, not as mineral wealth but as an element in the landscape, supporter of ecosystems and as a record of evolution of our planet;
- how to manage geodiversity at different scales in its own right and as part of wider natural and human systems.

This document presents a collation of material: case studies and guidance intended as a general introduction to the science of geoconservation. Some material is new, whereas some was originally presented at a conference held in the UK in 2004. This collation is not designed to be comprehensive but articles have been organised under the five key headings of:

- Concepts
- Recognition
- Value
- Management
- Promotion.

The document is therefore not designed for experts but for those looking for a brief introduction to the subject and practical examples of what can be achieved at local, national or global scales.

The main text begins with review of the definitions of geodiversity and geoconservation, and explores the emergence of the two terms on an international level. Illustrative case studies are used to demonstrate the way geodiversity is valued, promoted and conserved in subsequent chapters (i.e. theme-based approach).

The final section outlines the future of geodiversity and reviews the impact of changes in legislation and government objectives and recommends that a unified approach to nature conservation is adopted to ensure that geodiversity is a significant factor in the conservation field. However, this is dependent upon the availability of future funding sources to support nature conservation. Most European countries face difficulties in obtaining funding for geoconservation initiatives in the longer term.

It is envisaged that this publication will appeal to a wide audience and will include governments responsible for planning regulation, and stakeholders, organisations and voluntary groups who are working to record and protect our rich geodiversity. This publication is not intended to be a comprehensive guide, but aims to provide a spotlight on examples of best practice so that others may be able to follow or build upon.