Paper Number: 3872

# Managing geodiversity for biodiversity – and vice versa - strategic approaches from the UK

Page, K.N.

School of Geography Earth and Environmental Sciences, Plymouth University, Drakes Circus, Plymouth, PL4 8AA, UK. kpage@plymouth.ac.uk

---

Active geomorphological systems, as well as 'static' geological features and materials, underpin all natural ecosystems, both by releasing nutrients and by providing the physical structures and processes which influence the character of ecosystems. Although both these geological and ecological features can have a 'heritage' value, ecological conservation often takes priority and geodiversity values can play little role in determining management priorities - even leading to damage to the latter. Conversely, uninformed management of geological features can also have negative effects on delicate or rare ecosystems. In reality, however, most of this damage is avoidable and a result of a lack of understanding of the other aspect of natural heritage by the site managers. In the UK, for instance, although geo- and biodiversity conservation is linked through legal systems, there are many examples of such conflicts. In Devon, however (SW England), an integrated, strategic approach, has been developed, the Devon Natural Diversity Action Plan (http://goo.gl/kEbiIV [1]). The strategy provides integrated Action Plans for a wide range of habitats, including both active and static geomorphological (e.g., *Dynamic coastal landforms and habitats* and *Periglacial landscapes and related ice age features*) as well as more characteristically geological features (e.g., *Pits, quarries and cuttings*) [1]. The Devon AP has been very successful in raising awareness of both aspects of natural heritage conservation and guiding conservation management - and the links drawn between geo- and biodiversity are fundamental to the effective establishment of contemporary environmental management strategies related to *Ecosystem Services*.

An alternative approach and scale for integrated natural diversity management has been developed in Wales, however – as implemented by the national agency, Natural Resources Wales. LANDMAP is a multidisciplinary landscape assessment system which maps, separately, with a GIS system, landscape areas with a particular character for respectively, geodiversity, biodiversity, archaeology and historical and contemporary cultural attributes (http://landmap-maps.naturalresources.wales). Each landscape character area is fully described and its properties characterized, evaluated, and management and conservation recommendations and guidelines set. By viewing several GIS layers together, it is possible to identify links between different landscape features including, crucially, the foundation that the geological and geomorphological structure of the landscape provides, underpinning all other characters, from ecological to cultural. LANDMAP forms the basis for landscape-scale planning decision making in Wales, for instance in relation to wind farms. In an analogous fashion to the Devon BAP, the management of geodiversity is integrated with biodiversity, but now also incorporating human cultural values, and the links are explicitly stated in published guidance [2].

Both the Devon and Welsh approaches clearly demonstrate that the integration of the management of all aspects of natural environment is possible, and the methodologies and results are such that they can be readily adapted to any regional context globally. Crucially, by developing integrated approaches, a simplified and holistic process for heritage conservation can be developed which both minimises the risk

of any potential conflict between priorities, and can help make the best use of the often very limited resources available for positive conservation management activity.

*References:*

[1] Page KN (2016) In: *Les Inventaires du Géopatrimoine: Enjeux, bilans et perspectives* (in press).

[2] Page KN (2014) *LANDMAP Guidance Note: Guidance for Wales. LANDMAP and Geological Landscapes*. Natural Resources Wales (available via: http://goo.gl/TKmCte).