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ORIGINAL ARTICLE

Principles and Practice of Geoconservation: Lessons and Case Law Arising from a Legal Challenge to Site-Based Conservation on an Eroding Coast in Eastern England, UK

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Abstract In order to conserve our geoheritage into the future, the principles and practice of geoconservation need to evolve and improve to meet the challenges and threats that lie ahead. Many sources of information and learning may inform the development of geoconservation. During 2008 and 2009, a legal challenge to the designation, for geoconservation purposes, of a stretch of coastal cliffs and foreshore in Suffolk, Eastern England, UK, was heard in the British courts. This challenge to the principles and practice of geoconservation, and the legal judgements that arose from it, provide geoconservationists with a stimulating and helpful source of learning and case law. The legal challenge, made by a group of local residents opposed to the actions of Natural England, the government organisation responsible for nature conservation in England, in designating geological features exposed in an eroding coastal cliff for conservation, tested both the application of British conservation legislation and the principles and practice of geoconservation as applied in Britain. The legal hearings raised questions about the definition of a 'geological feature', the methods used to define the extent of a protected site, the definition of 'conservation' as opposed to 'preservation' and the purpose of conservation within British nature conservation legislation. The issues raised, arguments presented and legal judgements reached are described and provide stimulating challenge and helpful support to those interested in, or involved with, conservation legislation, site designation and the principles and practice of geoconservation more widely. Key learning points of relevance to the geoconservation community are presented.

Keywords Geoconservation · Coastal erosion · Conservation designation · Legal judgements

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Introduction

If we are to successfully conserve and manage our geoheritage in the years ahead, the principles and practice of geoconservation need to evolve and improve to help meet the challenges and threats to our geoheritage posed by economic growth, new development, and social change (see Gray 2004; Prosser et al. 2006). The predicted impacts of climate change, such as rising sea levels and more extreme weather events, and in particular, the human response to these impacts in the form of coastal protection and river engineering, are likely to pose further challenges for geoconservation (Prosser et al. 2010). Thus, in order to safeguard our geoheritage, we need to continually challenge, develop and refine our understanding of the principles of geoconservation and the legal frameworks, site designation processes and practical action required to safeguard and manage our most important geological and geomorphological features and sites.

There are many sources of information, learning and experience, which can be used to develop and refine the discipline of geoconservation. These include research to develop or monitor the effectiveness of particular conservation techniques (e.g. MacFadyen and Batchelor 2010; Prosser et al. 2010), learning from the experience of designing and implementing a systematic site or policy based approach to geoconservation (e.g. Brilha 2005; Carcavilla et al. 2009; Fuerttes-Gutiérrez and Fernández-

Martínez 2010), gaining practical experience from the management of a geological reserve such as a Global/European Geopark (e.g. Gunn 2009), and sharing good geoconservation practice between, or within, countries (Martini and Pagès 1994; O'Halloran et al. 1994). Another far less commonly encountered means of challenging and developing our thinking arises when the principles and practice that are being applied to deliver geoconservation are subject to a legal challenge and judgement in a court of law. Such an instance occurred recently in Suffolk, on the east coast of England in the UK, and posed a number of important and thought provoking questions.

The case in question related to a legal challenge against action taken by Natural England[1] in their application of British nature conservation legislation to designate, for conservation purposes, a stretch of geologically important coastal cliffs and foreshore. Nature conservation legislation is long established in Great Britain and includes a robust legal process for designating and conserving nationally important geological and geomorphological features for conservation purposes (Ellis et al. 1996; Thomas and Cleal 2005; Prosser 2008). This legislation allows for areas of land that are considered to be of special scientific interest on account of their flora, fauna, geological or geomorphological features to be designated and conserved as Sites of Special Scientific Interest (SSSIs). Such designation of a site as an SSSI, under the *Wildlife and Countryside Act* (1981) and *Countryside and Rights of Way Act* (2000), is the primary means of conserving nationally important geological and geomorphological sites in Great Britain. Designation of an area of land as an SSSI does not guarantee that the features for which it has been designated will be conserved. It does, however, provide a strong degree of protection and requires that any development, or other activities that may impact upon the designated features, are subject to consultation and rigorous consideration with regard to their impact on the designated features before they are permitted to take place. If a development proposal or activity is deemed to be damaging the designated features and cannot be modified to eliminate or significantly reduce the damage, it may be refused planning consent.

In 2008 and 2009, a legal case relating to Natural England's use of this statutory nature conservation legislation to designate a nationally important geological site between Pakefield and Easton Bavents in Suffolk, Eastern England (Fig. 1), as an SSSI, came to a head. The legal challenge related to the application of the SSSI legislation in the designation of a site consisting of a stratigraphically

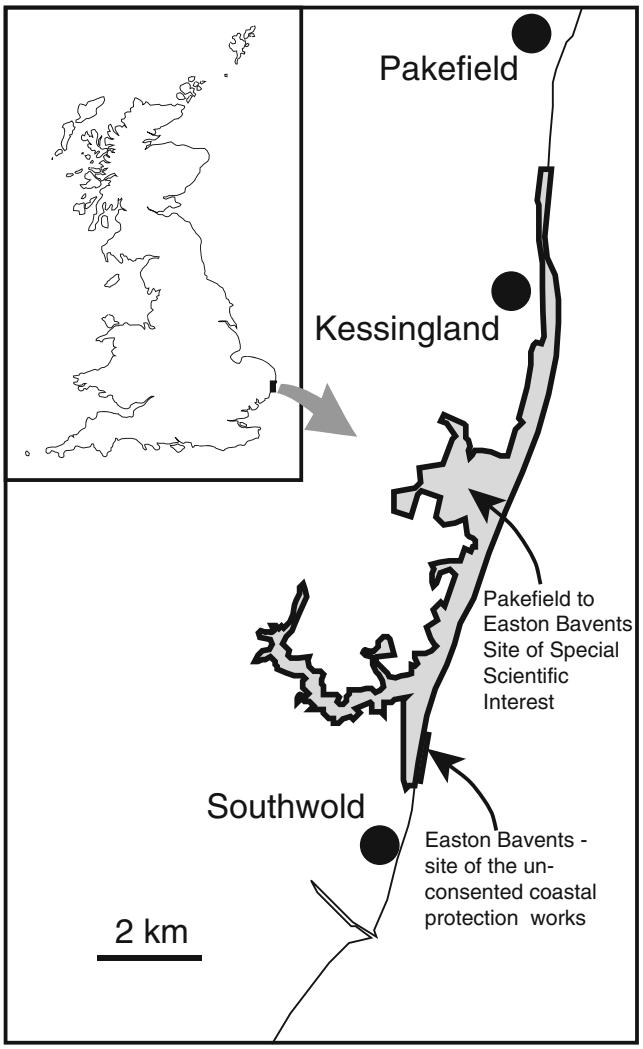

Fig. 1 Map showing the location of the Pakefield to Easton Bavents Site of Special Scientific Interest as redesignated in 2005, and Easton Bavents, the site of the un-consented coastal protection structure

and palaeontologically important sequence of Pleistocene sediments forming a stretch of eroding coastal cliffs and foreshore (Figs. 2, 3). The challenge arose as a result of the concerns of a number of the residents of Easton Bavents, organised under the name Easton Bavents Conservation (EBC), regarding the impact of natural coastal erosion upon their cliff-top properties. In short, the SSSI designation aimed at conserving the natural geological exposures in the cliff, sat uncomfortably with the local residents' desire to stop coastal erosion in order to protect their properties. To this effect, one of the residents had tipped soils and construction waste against a 1 km long stretch of cliff face in order to create a large coastal protection structure (Fig. 4). This tipping slowed erosion of the cliff but obscured the geological features exposed in it and, if maintained through ongoing tipping, would have been damaging to the special scientific interest of the site.

[1] Natural England is the government agency responsible for nature conservation, including geoconservation, in England. The designation of geological / geomorphological Sites of Special Scientific Interest is the primary mechanism of delivering geoconservation in Great Britain.

Fig. 2 The Westleton Member of the Norwich Crag exposed at the southern end of Easton Bavents Cliff showing trough cross-bedded sands and gravels that become slightly convoluted toward the top of the cliff. Eleanor Brown/Natural England

Fearing that the SSSI designation may result in planning consent for the long-term maintenance of the coastal protection structure being withheld, the residents, as EBC, launched a legal challenge against the SSSI designation and the principles of geoconservation that lay behind it.

The legal challenge, counter arguments and legal judgements, which form the basis of this paper, arose from two hearings. The first was a Judicial Review of the decision to designate the Pakefield to Easton Bavents SSSI and was heard in the High Court, London, from 17 to 19 November 2008. The second was an Appeal against the findings of the Judicial Review, held in the Court of Appeal, London, on 6–7 October 2009. An attempt to take the case to the Supreme Court and European courts for further hearings was refused in February 2010.

Fig. 3 Cliff section toward northern end of Easton Bavents Cliff. Sands belonging to the Chillesford Church Member in the lower half of the cliff are overlain by the darker clays and silts of the Easton Bavents Member, upon which the sands and gravels of the base of the Westleton Member are just visible at the top of the cliff. Eleanor Brown/Natural England

Fig. 4 Aerial photograph of the large coastal protection structure taken in September 2005 and showing its extent and impact in obscuring the geological features exposed in the cliff and foreshore. Copyright Mike Page www.mike-page.co.uk

Alongside these legal challenges, EBC fought an energetic media campaign. This made use of national and local television and newspapers to argue that the protection of their homes from coastal erosion was far more important than the retention of geological exposures for scientific study. Quite understandably, many in the media chose to portray the legal case as a battle between local people fighting for their homes and geologists that are interested only in watching the cliffs erode and fossils fall onto the beach.

This example stimulates thinking about the principles and practice of geoconservation, in particular, with regard to the practice of site designation. It is also important as it relates to geoconservation on an eroding coastline and to threats to geological features that arise from the construction of coastal protection schemes. Geoconservation on eroding coastlines brings many challenges and coastal protection has been the single biggest threat in recent years to the conservation of the UK's geoheritage. It is a threat that will only increase, if global average temperatures and associated sea-level rise maintain their current trends (Prosser et al. 2010). Many important geological features have been obscured behind seawalls and until relatively recently little thought was given to the knock-on effects, such as enhanced erosion on adjacent stretches of coast that can result from a scheme planned and constructed in isolation. Happily, coastal protection in the UK is now planned more strategically within the context of Shoreline Management Plans, which take natural coastal systems into account. The case also highlights some of the attitudes towards geoconservation that may arise amongst individuals who live near to a geoconservation site and who may be

adversely affected by the consequences of action taken to conserve the site. On occasions, these same attitudes may also be expressed by some in the media.

The purpose of this paper is to describe the legal challenges made, the counter-arguments in favour of geoconservation that were presented, the key legal judgements that were passed down and the learning points arising from this case. It is hoped that learning points from this case will be useful in avoiding similar challenges in the future and in helping those involved in developing thinking around the principles and practice of geoconservation, in particular, with regard to site designation, management and conservation on an eroding coastline.

The Site of the Legal Challenge

The Pakefield to Easton Bavents SSSI is nationally important within Great Britain for a number of features. Geologically, these include its Pleistocene vertebrate palaeontology and stratigraphy and its coastal geomorphology. Biologically, it is also important for its vegetated shingle, saline lagoons, flood-plain fens and nationally rare and scarce vascular plants and breeding birds.

The description of the reasons for designating this site for conservation purposes state that the exposed sediments at Easton Bavents and Covehithe are of national importance for the stratigraphical and palaeoenvironmental study of the Lower Pleistocene in Britain (Hamblin et al. 1997) (Figs. 2, 3). The geological features include exposures of the three major elements of the Norwich Crag Formation: the Crag itself (Chillesford Church Member), the Baventian Clay (Easton Bavents Member) and the Westleton Beds (Westleton Member). The site is the type locality for the Baventian Cold Stage of the Pleistocene. The stratigraphical relationship of the Antian Stage to the Bramertonian Stage and of the Baventian Stage to the Pre-Pastonian Stage is also well represented at this site. The site is also important for its Pleistocene vertebrate assemblages, which, for this part of the Pleistocene, are rare within northern Europe, and is also a source of a significant Early Pleistocene mammalian assemblage. The microtine rodent (vole) assemblages that occur here are of particular value for correlation with other Norwich Crag successions in Eastern England.

The site also yields internationally important evidence of early human occupation (Parfitt et al. 2005), although the significance of these finds was not realised in time for them to be included within the description of the reasons for conserving the site.

Although the geological exposures along this stretch of coastline had been designated as an SSSI for some years, the site was redesignated in 2005 in order to update the scientific description of the site and to clarify the position of the boundary of the site. The updated boundary was required because the cliff had migrated landwards due to coastal erosion and, as such, had moved to a position outside of the original SSSI boundary.

In terms of conservation objectives for the Pakefield to Easton Bavents SSSI, Natural England and the geological community that use the site for scientific research and education, based their thinking on the broad conservation principles that are widely applied to relatively extensive geological features exposed in sites made up of coastal cliffs and foreshore (see Prosser et al. 2006). These are: (1) seeking to retain a clear exposure of the geological features for which the site is designated, (2) maintaining the natural processes that are working to maintain clean geological exposures in the cliff-face, (3) avoiding the construction of any structures against the cliff-face, which may obscure the geological features and (4) discouraging disruption of the natural coastal processes, for example through construction of coastal protection schemes that may lead to increased erosion in adjacent areas and lead to demand for additional coastal protection schemes and hence to further impact on the designated features.

The Lead-Up to the Legal Challenge

The legal challenge described here arose as a consequence of the concerns of some residents of Easton Bavents, a small settlement at the southern end of the SSSI, about the potential threat to their cliff-top properties arising from coastal erosion. Although the cliffs had been designated as an SSSI some years earlier, the lead-up to the legal challenge started in 2003, when one of the residents constructed, without the appropriate planning consent, a large coastal protection structure made up of tipped soils, building waste and other similar material (Figs. 4, 5, 6). This structure, approximately 1 km long, 8 m high and 20 m wide, was constructed against the cliff face in order to stop erosion and protect properties on the cliff top and was maintained through on-going tipping between 2003 and 2005. As the structure obscured the geological features exposed in the cliff, Natural England and the geological community that used the site were keen for it to be abandoned to be washed away by the action of the sea, or at the very least for the appropriate planning process to be followed in order to determine whether or not the structure should be consented and retained given the importance of the geological features that were being obscured.

In 2005, Natural England launched a redesignation of the SSSI, partly to update the scientific interest of the site but also to clarify the position of the SSSI boundary given the landward erosion of the cliff since the boundary of the

Fig. 5 Taken in 2007 and showing the remains of the large coastal protection structure made up of soil and other material (the darker material against the lower two thirds of the cliff) placed against and obscuring the geological exposures in the cliff. Maintenance of this structure had ceased by 2007 but if continued would have permanently obscured the geological exposures for which the site is of special scientific interest. Patrick Robinson/Natural England

site was last defined. This redesignation, in clarifying the extent of the SSSI and the fact that the unconsented coastal protection structure lay within it, further increased the imperative for the planning status of the coastal protection structure to be determined.

In order to be in a position to maintain the structure within the SSSI, the residents either needed to seek planning consent for it to remain, which is the usual course of action in such circumstances or to challenge the legal basis of the designation itself and to seek to have it removed. They chose the latter approach and launched a legal challenge to the SSSI designation and to the principles of geoconservation that lay behind it. If successful in their challenge, the SSSI designation would be quashed and there would then be no requirement for the local planning authority to take account of the importance of the geological features exposed in the cliff when reaching a decision on whether or not to consent the retention of the structure.

The legal case to have the redesignation of the SSSI quashed consisted of two elements. The first challenged Natural England's approach to geoconservation and in particular the use of an SSSI designation to conserve the features on this stretch of coastline. The second challenge related to how the existence of a nearby Natura 2000 site (a European-wide wildlife designation) should have affected the process used in undertaking the redesignation. This paper describes only the first area of challenge, which relates specifically to geoconservation.

Fig. 6 Taken in 2007 and showing the remains of the large coastal protection structure made up of soil and other material (the darker material against the lower two thirds of the cliff) placed against and obscuring the geological exposures in the cliff. Maintenance of this structure had ceased by 2007 but if continued would have permanently obscured the geological exposures for which the site is of special scientific interest. Patrick Robinson/Natural England

The Legal Challenge

Background

As the government agency responsible for implementing nature conservation legislation in England, the legal challenge was brought against the actions of Natural England in designating the eroding cliffs as a geological SSSI. In particular, it challenged Natural England's decision-making with regard to the nature and extent of the geological features it sought to conserve, the way in which the SSSI boundary was defined on the ground and the conservation principles being used to decide whether or not promoting continued erosion of the cliff was serving to conserve or destroy the geological features of interest.

The Nature of the Challenge

The nature of the legal challenge was complex and related to both the principles and practice that Natural England, supported by the geological community, had deployed in designating the cliff as an SSSI. The key challenges can be summarised as follows:

Natural England was:

1. Misconstruing what is meant in British conservation legislation by a 'geological feature'
2. Designating the land behind the cliffs as an SSSI on the basis of its future, rather than its current, scientific interest

3. Seeking to destroy, rather than to conserve the geological features in the cliff and seeking to create new areas of special interest rather than to preserve existing ones
4. Designating areas of land for study rather than for their existing scientific interest

These four legal challenges are considered below, each under a broad heading capturing the generic nature of the challenge being made. For each challenge, the defence presented, the legal judgement passed and an interpretation of what this means in terms of geoconservation is given.

1. What exactly is a 'geological feature' in conservation legislation?

   This legal challenge was that Natural England, and thus by implication the geological community which provided it with advice, had misconstrued the meaning of 'geological feature' as applied to conservation legislation. EBC argued that Natural England's interest in maintaining a clean exposure of the rocks in the cliff-face, and the natural processes of erosion that maintained the exposure, meant that it was attempting to conserve the physical action of 'creating an exposure', rather than seeking to conserve the geological features themselves. As the action of 'creating an exposure' is not a 'geological feature', and as SSSI legislation relates only to the conservation of 'geological features', it was argued that it was illegal to apply conservation legislation in this way.

   In response to this argument, Natural England explained that the process of erosion was not being regarded as a 'geological feature'. Instead, it is the rocks that formed the cliff that is the 'geological feature' and it is this sequence that is being designated for conservation purposes, with the exposure of the sequence in the cliff-face being included within the boundary of the site as the place where the sequence of rock is best displayed.

   The judgement on this challenge from the Court of Appeal (Approved judgement of Lord Justice Mummery et al. 2009), paragraph 13, stated that:

   "[Natural England] was not saying that the act or process of exposure was a geological feature, it was saying that the geological features of special interest were not confined to the sediments behind the cliff face, but included the exposure. A geological exposure, as in the case of an exposed cliff or quarry face, is a geological feature. At the risk of stating the obvious, it is readily understandable that among the reasons why such a geological feature might be of special interest would be the fact that it is exposed".

   This legal judgement supports the case presented by Natural England and those geologists that submitted supporting evidence and confirms that a 'geological feature' consists of both the sequence of rock behind the cliff face, and the exposure of the rock where that occurs. In terms of conservation practice, this judgement supports the approach currently taken in Great Britain that a sequence of rock, whether or not exposed, is a 'geological feature' and thus can be conserved as an SSSI. Furthermore, it means that whilst the act of exposure is not in itself a 'geological feature', an exposure of a sequence of rock may be included in a site as part of a 'geological feature'. Thus, British nature conservation legislation can be used to designate a nationally important geological feature such as the sequence of rock behind this cliff face as an SSSI, even if it is not currently exposed. Should a site be designated without an existing exposure, however, a conservation management objective for the site is likely to be to secure access to the feature through creating and maintaining an exposure of it. In other words, a sequence of sediments can be designated and conserved as an SSSI, whether or not they are exposed, but this sequence forming the 'geological feature' would not be regarded as being in good conservation condition unless an exposure of it exists, or one could easily be created.

2. Should protected sites include only features of current interest or is it legitimate to include important features that may not be exposed until sometime in the future?

   As British conservation legislation refers only to features of 'special scientific interest', rather than to features of '*future* special scientific interest', the legal argument presented here was that only geological features exposed in the cliff-face, in other words the geological features that are currently visible, can be of special scientific interest. As such, the designated site should include only the visible strip of cliff-face itself and not any land behind it. As Natural England had included land lying behind the eroding cliff face within the SSSI, in order to ensure that the retreating cliff-face remained within the boundary of the site for a reasonable period of time as it eroded landwards, it was argued that the designation was illegal. EBC argued that the SSSI included the land behind the cliff face on account of its *future*, rather than its *present* scientific interest, and that this land would only be of interest in the future when exposed by coastal retreat. As such, it was proposed that the only legal site boundary would be one that included only the thin strip of land marking the cliff-face.

   Natural England explained that the 'geological features' for which this site was designated occurred

not only in the cliff-face but also in the sequence of sediments directly behind the cliff. As such, it was totally legitimate to draw a boundary greater than just the cliff face in order to include features of scientific interest which are of existing value, even if they will only be exposed in the future as the cliff erodes landwards. Furthermore, given that a large and expensive redesignation process has to take place each time a boundary needs to be updated to reflect landward retreat of a cliff, it would be sensible to draw a boundary that ensures that a retreating cliff remains within the boundary of the site for a number of years as it erodes backwards.

The judgement from the High Court (Approved judgement of the Hon Mr Justice Blair 2008), paragraph 74, stated that:

> "The 225 m of land [behind the cliff face] comprised in the SSSI as notified was based on a 50 year prediction of the effects of erosion....This is not an irrational basis in law for selecting an area of special interest....Nor does drawing of the boundary have the effect of notifying the land behind the cliffs as an SSSI on the basis of its future as opposed to current scientific interest. The fact that the fossils are currently unexposed does not mean that the land is not of current interest".

This judgement is important in supporting geoconservation in that it recognises that 'geological features' may extend underground behind a geological exposure and accepts that it is legitimate to include these features, if they are of scientific importance, within a designated site. It also recognises that the 'geological feature' in its entirety is worthy of conservation, and not just the exposure of it in a cliff-face. It confirms that drawing a site boundary that takes account of the mobile nature of an eroding, and thus retreating coastline, is a legitimate approach to conservation and that a site boundary that allows for the effect of 50 years of erosion is a rational approach to take in site designation.

3. Is the act of allowing coastal erosion to take place destroying or conserving the geological features exposed within the cliff-face as it is seeking to create new areas of geological interest rather than to conserve existing ones?

The legal challenge here was two-fold. Firstly, that by allowing the cliff to erode naturally, and in conservation terms retaining a geological exposure, the geological and palaeontological features within the cliff are being destroyed rather than conserved. Thus, by allowing the cliffs and the land directly behind them to be lost to the sea, the action taken by Natural England and supported by the geologists that use the site was promoting the *destruction*, as opposed to the *conservation*, of the 'geological features'. If this is the case, it is inappropriate and illegal to apply SSSI conservation legislation to a site where *destruction*, rather than *conservation*, is being encouraged. Secondly, it was argued that by allowing erosion to continue, no attempt is being made to conserve the features currently exposed in the cliff. Instead, it was argued that the process of erosion is being used to create new exposures and no attempt is being made to conserve the existing features exposed in the cliff.

This challenge relates to the fundamental principles of geoconservation where an approach based on conservation, rather than preservation (see Burek and Prosser 2008), is usually favoured by geoconservationists. Natural England argued that the conservation of extensive geological exposures, such as those in the cliffs of Pakefield to Easton Bavents, requires the maintenance of an exposure of the 'geological features' to maximise its conservation condition (see Prosser et al. 2006). The case was made that where a laterally extensive geological resource, such as a layer of strata, occurs in a naturally evolving cliff, conservation is best served through retaining an exposure of the feature by allowing natural coastal processes to operate, rather than attempting to prevent erosion taking place through building a seawall, and in doing so obscuring the important geological features exposed in the cliff.

The judgement from the High Court (Approved judgement of the Hon Mr Justice Blair 2008), paragraph 76, stated that:

> "Conservation is in my judgement a dynamic concept which may involve keeping things as they are, but does not necessarily do so. It may also involve allowing natural processes to take their course, as in the case of erosion by a river, or by climatic forces, or by the sea, and similar considerations will apply when the area of land is of special interest by reason of its flora or fauna".

The judgement from the Court of Appeal (Approved judgement of Lord Justice Mummery et al. 2009), paragraph 18, stated that:

> "Whatever may be the meaning of conservation in other contexts, one would have thought that allowing natural processes to take their course, and not preventing or impeding them by artificial means from doing so, would be a well recognised conservation technique in the field of nature conservation. "Conservation" is not necessarily the same as

"preservation", although in some, perhaps many, circumstances preservation may be the best way to conserve. Whether that is so in any particular case will be a matter, not for the lawyers, but for the professional judgement of the person whose statutory duty it is to conserve".

These judgements are extremely helpful to conservationists in supporting the validity of a 'conservation' rather than 'preservation' type approach to geoconservation. Whilst a 'preservation' type approach may be required in some instances, for example with finite fossil deposits or limestone pavements where features of very limited extent are involved, a 'conservation' approach allowing natural processes to maintain geological exposures is the only viable approach to conservation of laterally extensive features on an eroding coastline.

It is worth noting as context to this judgement, that a separate and earlier planning inquiry on a stretch of the same SSSI reported in February 2008 to the Secretary of State for Environment, Food and Rural Affairs (Smith 2008) that the aims of conservation legislation would be better served on this site 'by seeking to protect it from further erosion'. In other words, the view expressed by Smith was that the conservation of the 'geological features' in this case would be best achieved by protecting them behind a seawall. Fortunately for those interested in geoconservation, this view was not upheld in the legal challenge described here, as this would have then required major changes in British conservation practice as applied on eroding coastlines. For example, had conservation been defined as 'preventing the loss of sediment or fossil material to the sea', vast stretches of geologically and geomorphologically important coastline would have to be protected from erosion. Whilst preventing any loss of material from the 'geological features', this approach would have resulted in all cliff-exposures being obscured behind seawalls. The consequences of this being the loss of these geological features for scientific or educational use, disruption of geomorphological processes and the loss of the natural aesthetic quality of the coastline behind long stretches of seawalls.

4. What is the purpose of designating a 'geological feature' for conservation—is it to conserve the 'feature' or to create opportunities for scientific study?

The legal challenge on this issue was that instead of wanting to conserve the features that exist in the cliff, Natural England's true motive for allowing erosion of the cliff was to allow the opportunity for scientists to study new geological features as they become exposed as a result of erosion. Given that nature conservation legislation in Britain relates to the *conservation* of 'geological features', rather than to *creating opportunities for scientific study of* 'geological features', it was argued that use of a conservation designation in order to generate opportunities for scientific study was illegal and so the designation should be quashed.

Natural England explained that its objective was to conserve the 'geological features' of special scientific interest on a particular site. It argued that the fact that conservation is the primary aim of designation, this does not preclude a site from also being the subject of scientific study. It was pointed out that many SSSIs are subject to scientific study as well as conservation management, with the Pakefield to Easton Bavents site being the subject of at least 33 published scientific papers since 1962.

The judgement from the High Court (Approved judgement of the Hon Mr Justice Blair 2008), paragraph 74, stated that:

"Nor do I consider [Natural England] acted outside its statutory function of nature conservation by designating the land....for the purposes of study rather than for existing special scientific interest.[2] Study—in this case the study of sediments and the fossils they contain—is what a site of special scientific interest is all about. There is no incompatibility in this regard".

This judgement supports the argument that although 'special scientific interest' is the legal reason for the designation as an SSSI in Britain; this interest will often be closely associated with a site's value for study. As such, scientific study is likely to be associated with special scientific interest wherever access can be negotiated with landowners and is not an incompatible alternative to it.

The Findings of the Courts

Having heard the challenges made and the defence offered, the High Court confirmed in November 2008 that the designation of the Pakefield to Easton Bavents SSSI was lawful and the approach to conservation adopted was reasonable (Approved judgement of the Hon Mr Justice Blair 2008). The subsequent Court of Appeal hearing considered the same issues in 2009 and reached the same conclusion as the High Court, endorsing its findings

[2] This was not, in fact, the case—the site was designated for its special scientific interest, with its importance for study merely being a consequence of this special interest.

(Approved judgement of Lord Justice Mummery et al. 2009). An attempt by EBC to seek further hearings, in the Supreme Court and European Courts, was refused in February 2010 and brought the legal proceedings to a close. In reaching these judgements, the British legal system and the judges involved in this case have had to give considerable thought to the principles and practice of geoconservation and have strongly endorsed the approaches that are widely applied to the conservation and management of geological features on eroding coastlines.

Key Learning Points

It is possible to distil, from the challenges made, the defence presented, and the judgements and analysis described above, a number of generic learning points relating to geoconservation and nature conservation more widely. Whilst these are of particular importance in the UK context, many are also of wider international relevance in the development of geoconservation principles and practice, especially with regard to site designations and conservation on an eroding coastline.

1. It is always possible that challenges will arise to the principles and practice of geoconservation being applied in any given place, even where well established legislation is in place.
    - The principles and practice of geoconservation, especially with regard to conservation designations, are always vulnerable to a legal challenge. Defending such challenges can be intellectually demanding and expensive.
    - Even well thought through and long-established geoconservation principles, practice and legislation may be the subject of a legal challenge. Less well thought out conservation principles, practice and legislation are more vulnerable to being challenged and overturned.
    - Local communities or developers directly affected by the implications of geoconservation designations and management, in particular those seeking to manage coastal or fluvial processes to prevent erosion or flooding from damaging their property or a planned development, have most potential to come into conflict with geoconservationists.
2. It is essential that the principles and practice of geoconservation, especially where legislation is involved, are robust and well thought through.
    - In developing a geoconservation framework or legislation it is important to be precise about what it is intended to achieve and the wording used to describe this. In the case of site designation, is the framework or legislation intending to conserve features, enable scientific and educational study of features, provide public access to features or a combination of these things? In Britain for example, the geoconservation legislation is aimed at conservation of scientifically important features. This approach does not necessarily allow for conservation of educationally important sites and does not guarantee access for scientific study or educational use to any conserved feature. The permission for access remains with the owner of the land.
    - It is important to articulate clearly the relative role of ‘conservation’ and ‘preservation’ within the principles and practice being developed. This is particularly important in sites such as coastlines and rivers where dynamic processes operate. Is the aim to ‘preserve’ features and sites as they are or is it to ‘conserve’ them in a way that allows them to change, for example through coastal erosion, lateral movement of river channels or through collection of specimens? It may be that an element of both approaches is required depending on the nature of the sites involved (Prosser et al. 2006).
3. If the conservation approach being used involves the use of site designations, it is important that the nature of the designation and particularly the means of defining its boundary is robust and well thought through.
    - It is essential to prescribe the documentation and maps that are needed to describe the importance of the site and define its spatial location.
    - Be clear as to what should be included within a protected site. Is it the entirety of a geological or geomorphological feature of interest, the best bits of the feature or just a representative part?
    - Consider whether the site should include only features of known current importance or features that may become important as a result of being exposed in future—for example features and land lying behind an eroding cliff or a working quarry face?
    - Consider how the boundary of a site should be defined on the ground. If a geological or geomorphological feature is subject to natural processes, such as erosion and deposition and is likely to move laterally, the boundary needs to be defined to take account of this natural change. Either, the site boundary needs to be defined in a way that ensures that the features stay within it for reasonable period of time or regular update of the boundary needs to take place in order to take account of the changing position of the mobile features. Alternatively, a

designation scheme whereby the site boundary is mobile and moves as the feature moves could be devised.

- It may be helpful in gaining support for conservation to involve the local community in describing and defining a site being designated. How this should be done and who should be consulted, will vary from case to case. In the UK, a government-led drive towards localism and community led decision making will provide a greater impetus for conservationists and local communities to work together in identifying and protecting important parts of the natural environment.

4. Wider understanding amongst decision makers and the general public of the aims and benefits of geoconservation will help to reduce the likelihood of challenges to geoconservation and adverse publicity when defending sites threatened by damage

    - Consider initiatives to raise public awareness of the relevance of geology and geomorphology to the lives of the general public and decision makers as part of any geoconservation activity. There is merit in promoting the wider benefits of geoconservation, such as maintaining a natural and aesthetic coastline capable of attracting tourism and generating income, rather than just promoting the scientific benefits of conserving a site. Greater understanding and support for geoconservation will help to avoid situations such as that which arose at Pakefield to Easton Bavents.
    - Should objections to a geoconservation project or site designation arise, it is worth planning how best to present the positive benefits arising from geoconservation in the media. It is very easy for the media, and those objecting to a geoconservation project or designation, to portray geoconservation as an obscure activity standing in the way of economic growth or people protecting their property from erosion or flooding.
    - In attempting to build a relationship with the local community, geoconservationists should attempt to put themselves in the position of those objecting to a project or designation. Whilst the Pakefield to Easton Bavents case has provided important judgements with regard to understanding geoconservation, it is important to remember that cases such as this may be extremely stressful to those in the local community who may be adversely affected by the decisions that are made and do not help the development of conservation partnerships with local communities.

Conclusion

Legal action aimed at challenging a geoconservation project or designation is never desirable and a mutually acceptable solution is always preferable. The legal findings from the Pakefield to Easton Bavents case are, however, very significant, in particular with regard to developing our understanding of geoconservation principles and practice, especially where an eroding coastline in involved. The case also provides nature conservation case law, extremely important in Great Britain but also perhaps of relevance elsewhere in the World. The legal findings described here confirm both the importance of having a robust legal framework for the conservation of geological and geomorphological features and that the existing legislation, especially that around the identification and designation of nationally important geological features, is being implemented correctly in Great Britain. As such, the clarity about geoconservation and the principles behind it that are provided by this case should help to ensure that a similar challenge does not come to court again. More widely, it is hoped that the judgements passed and the learning points highlighted above will inform geoconservationists internationally and help support and inform work that develops geoconservation principles and practice, especially with regard to geoconservation designations and conservation more generally, where an eroding coastline is involved.

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