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COMMISSIONED REPORT

Commissioned Report No. 194

A review of the benefits and opportunities attributed to Scotland's landscapes of wild character

(ROAME No. F04NC18)

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**A review of the benefits and opportunities attributed to
Scotland's landscapes of wild character**

Commissioned Report No. 194 (ROAME No. F04NC18)

Contractor: Centre for Mountain Studies, Perth College, UHI Millennium Institute in
association with Scottish Agricultural College

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Background

Scotland is renowned for its landscapes of wild character, with outstanding scenery, important wildlife, and opportunities for outdoor recreation. However, these landscapes are subject to change, and their use and management is a topic of considerable debate. Areas of Scotland that are particularly remote and rugged, with little evidence of human influence, are widely referred to as wild land, while others exhibit some 'wild' characteristics. Despite efforts to conserve and manage such landscapes, there is limited empirical information concerning their social, environmental, and economic benefits and opportunities.

This report has three aims:

- 1) to provide an overview of the legislative and policy context for Scotland's landscapes of wild character;
- 2) to identify the range of social and environmental benefits attributed to these areas through a review of existing literature and data; and
- 3) to provide an overview of projects/initiatives engaged in safeguarding, enhancing, and managing these areas.

Main outcomes and findings

'Wild land' is addressed in the policies of the Scottish Executive, Scottish Natural Heritage, the National Trust for Scotland and the John Muir Trust. These policies show reasonable consistency in basic interpretation of the concept, emphasising the (perception of) lack of current human influence. However, the concept is complex, and can also include recreation and ecological dimensions. From this starting point, and also considering spatial scale, a typology of Scottish landscapes of wild character is developed.

These landscapes are facing gradual attrition and loss due to a number of threats, including infrastructural development (eg, roads, energy), tourism and recreation, forestry, agriculture, and sporting land uses. Yet there are also many opportunities, including the need to diversify land uses, potential for targeted financial incentives, the development of economic markets (especially for tourism), and environmental (eg, habitat restoration, rewilding) and social (eg, youth at risk, post-conflict reconciliation) initiatives.

As a basis for policy and management action to counter such threats and realise such opportunities, valuation of the benefits and costs of wild landscapes is desirable. However, few studies allow the identification of the

economic value of the benefits accruing specifically from wild land. The most appropriate data refer to recreation and tourism; these show, for instance, that wild landscapes accounted for up to 19.9 million day visits in the HIE area in 2003, with associated expenditure of £411–£751 million, supporting up to 20,600 FTE jobs; and that hillwalking and mountaineering in this area increased by 19% from 1996–2003. Limited data for site-specific conservation values, assessed through willingness-to-pay surveys, range from £11/ha to £120/ha. Wild landscapes have been assessed as providing greater economic and employment benefit than agriculture and forestry combined, particularly in terms of productive output (tourism). It can therefore be concluded that such landscapes represent a competitive land use relative to ‘traditional land uses’. Furthermore, a range of other benefits are attributed to wild landscapes and their management. These include habitat conservation and restoration, educational provision, diverse health benefits, and ecosystem services such as flood mitigation and carbon sequestration. However, few of these benefits have been quantified. Likewise, with respect to the costs, few data are available; and as management costs are site-specific, generalisations are difficult. Nevertheless, assessment of data that is available suggests high net benefits of management for wild landscapes management.

A review of 23 initiatives for the safeguarding, enhancement, and management of wild landscapes was undertaken. These include projects on land owned by NGOs, government organisations, community organisations, partnerships, and private individuals, ranging in area from 660–50,000ha. These initiatives were categorised according to the typology and also according to four themes of management: large-scale woodland/habitat mosaic restoration; conservation and access; natural processes/non-interference; and sustainable land management. A number of pioneering approaches were identified. Key opportunities which emerged from the review included: diverse collaborative approaches; recognition that cultural or ‘traditional’ land uses can be compatible with the conservation of wild landscapes; and the diversity of funding sources. However, there are also costs and constraints, including: the general lack of funding for land management relating to the wild character of landscapes; high levels of grazing; plantation forestry; and certain conflicts between management objectives and conservation designations.

Recommendations are presented in five categories:

- i) enhancing the policy framework, starting from the development of widely-agreed criteria for wild landscapes, and possibly leading to the formal inclusion of wild landscapes as a principle within a range of Scottish national policies;
- ii) enhancing management;
- iii) fostering partnerships and collaboration;
- iv) promoting responsible tourism and recreation benefits; and
- v) recognising the benefits, including research which aims to evaluate the social, economic, and environmental benefits attributable to wild landscapes.

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1 INTRODUCTION

The Centre for Mountain Studies at Perth College, one of the Academic Partners of the UHI Millennium Institute, was commissioned by Scottish Natural Heritage (SNH) to undertake a review of the benefits and opportunities attributed to Scotland's landscapes of wild character. The study was funded by SNH in partnership with Forestry Commission Scotland, the Forestry and Timber Association, the Royal Society for the Protection of Birds, and the Wild Scotland initiative. All of these organisations were represented on the project Steering Group, and their thoughtful contributions are gratefully acknowledged.

This report has the following objectives:

- to review the concept of wild land and wild landscapes and attempt to develop a typology for Scotland's wilder landscapes;
- to provide a brief overview of the legislative and policy context for Scotland's wilder landscapes;
- to identify the range of social, economic and environmental benefits, and where possible costs, attributed to Scotland's wilder landscapes (actual and potential) and measure these;
- to provide an overview of existing, emerging and potential projects/initiatives for the safeguard, enhancement and management of Scotland's wilder landscapes, and relevant initiatives elsewhere; and
- to draw conclusions on the scale of benefits attributed to Scotland's wilder landscapes, and develop recommendations on the means of their evaluation, and opportunities and constraints to their full realisation.

1.1 Report methodology and overview

The initial stages of work for this review involved:

- 1) a review of relevant policy documents and literature relating to Scotland's wilder landscapes; and
- 2) the development of a qualitative research strategy for in-depth exploration of the policy context for Scottish wild landscapes. In particular, 15 interviewees were selected (see Annex 1) and approached for their views on a range of issues relating to wild landscapes and relevant policy, planning, and legislative measures. The respondents were selected from a variety of organisations for the considerable relevant expertise and experience they could bring to bear, with many holding relatively senior posts.

A semi-structured interview format was employed to ensure that respondents had the opportunity to explore areas of direct relevance to their position and area of expertise. To ensure a degree of continuity between interviews and also to allow for an element of 'choice' in interview discussion areas (dependent on the respondent's area of expertise), a comprehensive list of discussion themes was drawn up in advance (see Annex 2). In practice, questions were often fairly open-ended, in order to ensure that respondents had the opportunity to explore areas of interest and importance to them. All of the questions and themes shown in Annex 2 were rarely explored in any one interview, and question order was flexible to ensure a fluid discussion. The key overarching theme of all interviews was the identification of opportunities and constraints in relation to the policy, planning, and legislative context for Scotland's wilder landscapes.

Time constraints necessitated that all interviewees were telephoned rather than interviewed in person, with respondents being contacted by email initially, to set up a suitable interview time and date. Interview

duration varied from an average of 20–25 minutes to over 40 minutes. These interviews took place from 20 October to 14 November 2005. Four of the 15 interviews were recorded electronically, with note taking being the primary form of data recording. All quotes are verbatim and use brackets to ensure understanding of the context of a given comment when necessary. Interview data analysis involved fragmenting responses into key themes or discussion points, with the data from each interview being separated according to these themes. The sub-headings used in section 3 represent a refined version of these discussion themes.

To ensure their anonymity, respondents were grouped into two broad categories and coded (see Table 1). The code indicates the (broad) organisation type represented by the respondent. The number of respondents from each group who supported any given view or response is also shown after the code.

Table 1 Interviewee organisation and coding

Organisation type	Interview Code	No. of interviewees
Government Body	GB	6
Non-Governmental Organisation/Lobby Group	NGO/LG	9

As the interviews progressed, it became apparent that the majority of interviewees viewed the definition of both the wild land concept and the area of the resource itself as important issues, and a range of views were aired in relation to this theme. As a result, section 2 of this report (literature review, typology development and key issues facing wild land) also draws on these qualitative interviews to some extent, although the bulk of interview data is presented in section 3. Section 2 and section 3 of this review draw on both this qualitative data set and a range of literature sources, to ensure a comprehensive approach overall.

Section 4 presents the findings of a literature-based assessment of the costs and benefits associated with Scotland's wild landscapes. In particular, literature, documentation, and datasets which were seen as providing quantitative information relating to the values associated with wild landscapes were sourced through web-based searches, journal searches and through the discussions with interviewees and site managers carried out for sections 3 and 5 of this report.

Section 5 presents the findings of a review of the management of wild landscapes. In particular, this involved the use of questionnaires, with site managers being surveyed either by phone interview or through completing questionnaires, which were returned by email. In all, 23 sites were included in the final review, with information gathered relating primarily to: project and site characteristics (age, size, main habitats etc); management objectives, key obstacles and degree of public involvement; and projects' costs and benefits. Further elaboration of the methodologies and approaches taken to both the costs and benefits review and the management review is included at the outset of these respective sections. Section 6 presents a synthesis of the preceding chapters, drawing conclusions on the scale of the benefits and costs associated with wild landscapes and presenting recommendations relating to a range of relevant areas.

2 WILD LANDSCAPES – TOWARDS AN INCREASED UNDERSTANDING OF THE CONCEPT AND SURROUNDING ISSUES

2.1 Scottish wild landscapes – key issues of definition

This section attempts to highlight some of the key issues of definition surrounding the concept of ‘Scottish wild landscapes’. The term ‘landscape’ is a broad one, including both human perceptual elements and the physical fabric of the land itself. The concept of ‘wild landscapes’ is presented here to represent a range of landscapes with varying degrees of ‘wildness’ – a concept discussed in greater detail later in this section. To adequately understand what is meant by a ‘wild landscape’, this section first explores the concept of wild land, as much of the debate on Scotland’s wilder areas in recent years has focused on this term. It is important to note that the two terms are not interchangeable and, as will become evident, while all areas of Scottish wild land are in fact wild landscapes, this broader term can apply to areas not generally considered to be wild land.

2.1.1 Wild land, wild landscapes, and wilderness

Appreciation of wild landscape may be considered as part of the national psyche in Scotland, with the foundations for current attitudes to landscape having been established through Scottish writers, such as James MacPherson, during the romantic revolution of the late 18th century (Aitken *et al.*, 1992; Olwig, 1984). This appreciation for wild landscapes was also further evidenced by the growth in walking and climbing in wilder areas from the late 19th century onwards. However, despite this apparent growing appreciation for wild landscapes, early campaigns concerned with the conservation of mountain scenery did not generally incorporate the idea of wild land values (eg, remoteness) as distinct from wider landscape quality (Aitken *et al.*, 1992).

An exception in this regard was the establishment of a set of management principles by the National Trust for Scotland (NTS), following instructions in 1937 from Percy Unna, then a key financial supporter of NTS activities. The ‘Unna Principles’ are based in the maintenance of wild land values, being centred around maintaining an area’s primitive status through prohibiting the development of facilities such as accommodation and way marking (NTS 2002). In 1982, the Lurcher’s Gully inquiry, focusing on the expansion of the Cairngorm ski area, was pivotal in the creation of the Scottish Wild Land Group (SWLG), which continues to work to ‘*protect and conserve wild land throughout Scotland*’ (www.swlg.org.uk/about.htm). A year later, the John Muir Trust (JMT) was established, primarily in response to the sale of the Knoydart estate and anxieties about the management style of the NTS (Aitken *et al.* 1992).

John Muir, after whom the Trust is named, was born in Scotland but is best known for his work relating to wilderness in the USA (Nash 2001). This concept underwent a long – and continuing – development, in which the promulgation of the Wilderness Act in the USA in 1964 was pivotal (Nash, 2001). The Act also undoubtedly aided the early growth of a conceptual framework for debate on wild land in Scotland (Aitken *et al.*, 1992). It provides specific areas with the legal status of wilderness, which was defined as:

‘an area where the earth and its community of life are untrammelled by man, where man himself is a visitor who does not remain.’

The Eastern Wilderness Act, which followed in 1985, included changes to the original 1964 wilderness criteria to facilitate the inclusion of both smaller areas and previously damaged land in the more densely

populated eastern USA (Thorndike, 1999). The issue of what constitutes wilderness remains contentious in the USA, despite a history of legislation and the creation of the Wilderness Preservation System (Powell *et al.*, 2005). At the international level, IUCN – The World Conservation Union (1994) has also defined wilderness as:

'a large area of unmodified or slightly modified land, and/or sea, retaining its natural character and influence, without permanent or significant habitation, which is protected and managed so as to preserve its natural condition.'

The requirement for minimal or no human impact at a large scale evidenced in these definitions has led to the wilderness concept being largely excluded from the policies of European countries, mainly as a result of the absence of equivalent large-scale areas of unmodified land on this continent. Notable exceptions in this respect include the designation of 12 'wilderness reserves' in Finland to preserve wilderness character and protect the Sami culture, and the use of the term '*Inngrepsfrie naturområder*' (undisturbed nature) in Norway, to describe areas with limited infrastructure and 'wilderness-like' qualities (Powell *et al.*, 2005).

These fundamental differences of spatial scale and relative human influence in the North American and European land resource have led to the development and use of a range of somewhat different terminology in Europe, such as 'wild land' and 'natural areas', to describe areas with wilderness-like qualities. Scotland is no exception in this respect, with the term 'wild land' being increasingly adopted since the 1970s to describe Scotland's remote wilder areas. Aitken *et al.* (1992) point out that this shift away from the term wilderness also most likely reflects the recognition on the part of wild land proponents that wilderness in a Scottish context '*retains a pejorative connotation as a waste or desert place*'.

2.1.2 Definitions of wild land in Scotland

As with the wilderness concept in the USA, the concept of 'wild land' in Scotland is also contentious in terms of definition. Aitken (1999) highlighted this at the Wilderness Britain Conference in 1999, citing the prime issues facing the wilder areas of Scotland as: the development of the concept of wild land in Scotland; the definition of this landscape resource; and its future conservation. A number of respondents pointed out that the issue of definition remains a central constraint to the Scottish wild land agenda today (NGO/LG 2, GB 2), despite the inclusion and definition of wild land as a concept in National Policy and Planning Guideline (NPPG) 14 in the same year (Scottish Executive, 1999), and the release of a policy statement (including detailed criteria for Scottish wild land) by SNH on 'Wildness in Scotland's Countryside' in 2002 (SNH, 2002a), as discussed further in section 3.2. As one NGO/LG respondent stated:

'the wild land debate is a frustrated and often circular argument... we have no wild land relative to the U.S... I mean progress is being made [on defining wild land]... but the concept or the term it seems to be applied to a range of different types... well... different land use scenarios if you like'

Nevertheless, comparison of wild land definitions from wild land policies (Table 2) illustrates a relatively strong consistency of basic interpretation of the concept at the organisational level in Scotland. All four organisations, both governmental and non-governmental, emphasise the importance of limited impacts from 'human activity' or limited evidence of 'human artefacts' to any wild land definition. It appears, therefore, that there is general agreement at the organisational level that the lack of human influence or at least the *perception* of lack of human influence, is a fundamental element of wild land. The NTS also includes the

requirement for high-quality recreational opportunities within its definition, which highlights the emphasis placed on the experiential properties of wild land. It is important to note that while agreement on a fundamental attribute (lack of apparent human influence) of Scottish wild land is apparent at the organisational level, wild land has yet to be defined, in a locational sense, at the statutory level. As well as this, more detailed interpretations of what constitutes 'wild land' in Scotland do often vary, with different groups placing differing levels of emphasis on different criteria of wildness.

The issue of what exactly constitutes wild land in Scotland is complicated by the multi-dimensionality of the concept, which exhibits perceptual, recreational and ecological dimensions (Price *et al.*, 2002). The different interpretations of wild land apparent in Scotland are a product of the varying views on the relative importance of these three dimensions, and are discussed in more detail in the following section. The issue of definition, be it in policy or simply more generally, is not simply academic, and has implications for the conservation of the wild land resource. As one NGO/LG respondent stated:

'developers have exploited this difficulty [in defining wild land] through rapid development now before it's more clearly understood... I mean how can we protect something when we're not sure what... or where... it is'.

The SNH policy statement 'Wildness in Scotland's Countryside' acknowledges two frames of reference for wild land: the attribute frame (including the level of remoteness and presence of human artefacts); and the perceptual frame which is based in human perceptual responses, such as experiencing a sense of sanctuary and a degree of both physical challenge and risk (SNH 2002a). SNH, as well as the NTS and the JMT, differentiate between the two concepts of 'wildness' and 'wild land' (SNH 2002a, JMT 2004, NTS 2002), with wildness being the quality experienced (through such values as feeling close to nature and experiencing a sense of solitude) and wild land being described as '*extensive areas where wildness (the quality) is best expressed*' (SNH, 2002a).

Table 2 Wild land definitions in national and NGO policies

Scottish Office Development Department – NPPG14 Natural Heritage (1999)	<i>'Uninhabited and often relatively inaccessible countryside where the influence of human activity on the character and quality of the environment has been minimal.'</i>
Scottish Natural Heritage – Wildness in Scotland's countryside (2002a)	<i>'The term 'wild land' is...best reserved for those limited core areas of mountain and moorland and remote coast, which mostly lie beyond contemporary human artefacts such as roads or other development.'</i>
National Trust for Scotland – Wild land policy (2002)	<i>'Wild land in Scotland is relatively remote and inaccessible, not noticeably affected by contemporary human activity, and offers high quality opportunities to escape from the pressures of everyday living and to find physical and spiritual refreshment.'</i>
John Muir Trust – Wild land policy (2004)	<i>'Uninhabited land containing minimal evidence of human activity.'</i>

As Black (2005) points out, these two frames of reference are not mutually exclusive: one obviously influences the other, with the attributes of wild land, such as remoteness, directly influencing the user's experience. As SNH (2002a) points out, the perceptual responses of wild land users are likely to be more difficult to assess, being dependent on individual perceptions, although it is recognised that they are nevertheless, both identifiable and recordable. Attempts at defining areas of wild land in Scotland have so

far revolved around the attribute frame of reference (see Carver *et al.*, 2002, 2003, 2005), and Black (2005) argues for the need to further incorporate the perceptual response frame of reference into wild land definition and identification.

2.1.3 The relevance of ecology and culture to the wild land debate in Scotland

A key area of debate, inextricably linked to both the perceptual and attribute frames of reference for wild land, is that of the relevance of ecological and cultural components within the concept of wild land. The majority of interviewees – across all respondent groups – agreed that the wild land concept was primarily linked with experience and therefore that the attributes of primary importance were those which contributed to a user's wild land experience – a view commonly referred to as the 'recreational perspective' on wild land.

This 'recreational perspective' has implications in terms of the position of ecology within the wild land concept. The NTS, for example, includes access management and fencing removal within its prescriptions for wild land management, while deer control to combat overgrazing is not included with these management prescriptions (Johnson, 2002). This is not to say that the NTS do not control deer, but simply that this is treated as an issue separate from wild land. The key point is that, from the recreational perspective, the effects of overgrazing are, at most, a secondary impact in terms of wild land experience relative to the presence of intrusive human artefacts, for example. The view that ecological value is secondary to wild land relates to the emphasis placed on perceptual qualities in the recreational perspective, as one NGO/LG respondent stated:

'ecology is only important in so far as it influences a viewer's perception of naturalness... it's [wild land] mainly about landscape and human uses of landscape... or perceptions and enjoyment and the attributes that influence these'.

It is important to point out however, that a more 'ecology-based' view of wild land also exists. Fenton (1996) for example, states that wild land is '*land that is ecologically wild – where domestic species take second place to wild species and natural processes take precedence over artificial processes*'. Following this view, only the highest-value ecological areas would qualify for wild land status (Cairngorms National Park Authority, 2005). From the recreational viewpoint, overgrazing becomes a threat more directly relevant to wild land quality and management. The views of respondents reflect this division of views: some strongly emphasizing overgrazing as a key wild land issue (NGO/LG 3), while others regarding it as a secondary issue (GB 1) or one outside the scope of management for wild land values and more related to nature conservation (NGO/LG 1).

SNH (2002a) states that some areas qualifying as wild land in Scotland (according to SNH criteria) are not of the highest conservation value and can have a '*relatively uniform and uninteresting vegetation*' and that, while some areas of wild land may be ecologically degraded, the prime value of these landscapes for nature lies more in the extent of their near- or semi-natural habitats. Thus, any future vision for Scotland's wild places should include the aim of enhancing the diversity and quality of their vegetation cover and wildlife (SNH 2002a). A number of respondents also alluded to the high importance of the 'naturalness' of land cover and vegetation within the concept of wild land (NGO/LG 3, GB 1).

The issue of ecological restoration of such areas presents a further quandary for wild land from the 'ecological viewpoint', which has minimal intervention as a basic tenet of management (Cairngorms National Park,

2005). As one NGO/LG respondent commented, *'it's a catch 22... I mean restoration of so-called wildness can... at least in the short term actually take away from wild character through overly visible management... like tree planting for example.'* Many wild land areas could have a more diverse and, in some cases, wooded land cover if managed differently (SNH 2002a). Equally, habitats also *'strongly influence experience... and most wild land users prefer more natural habitats... even if they don't know what they're looking at'* (NGO/LG 1). The key issue in this respect is perhaps not whether restoration should occur on wild land, but rather that it be implemented in a fashion sensitive to the other characteristics of the resource.

The issue of management for restoration relates well to the idea that the wild land concept also has cultural components. Wigan (1990), for example, argues that the Highland sporting estate and associated sporting land management have been a major force in the conservation of nature and wild land. SNH (2002a) also recognises that the degree of wildness in many areas is an outcome of past and present management by the landowner and, in this regard, acknowledges that extensive range grazing (domestic stock) and sporting uses of the land will often be present in wild land areas without severely compromising wild land quality. Thus, a key issue is whether or not wild land implies the exclusion of so called 'productive land use', as one government body respondent pointed out: *'an over-emphasis on ecology could mean that people start to see wild land as meaning excluding people and well... any form of land use other than nature conservation... culture and management must feature [in any wild land definition] if we are to combat the view that wild land is a product of the clearances and implies land emptied of people...'*. In this context, it is worth noting that the specific lobby group for wild land, the SWLG, states that *'it is in favour of sensitive development of rural areas where it is sustainable and takes account of the interests of local communities'* (www.swlg.org.uk/about.htm).

Taking the cultural and ecological arguments into account, it becomes apparent that, even within the SNH criteria for wild land, areas with different degrees of management and 'natural condition' qualify as wild land in Scotland. As one government body respondent stated: *'even not taking the fact that wildness [as a quality]... is apparent outside wild land areas... I think that within wild land areas [as defined by SNH] there are well... degrees of wildness... I mean obviously Mar Lodge is different in terms of ecology to somewhere like Knoydart... but they're both definitely wild land'*. It is with this point in mind that the following section proposes an initial typology for Scotland's landscapes of wild character. It should be noted that the nomenclature of this typology is used in the remainder of this review, to distinguish between areas exhibiting different degrees of wildness.

2.2 Key wild land criteria – towards a typology of Scottish landscapes of wild character

This section proposes a typology for Scottish landscapes of wild character. Landscape is a broad concept, defined in the European Landscape Convention as: *'an area, as perceived by people, whose character is the result of the action and interaction of natural and/or human factors'* (Council of Europe, 2000). The use of 'landscape' here highlights that this typology is concerned with both the physical attributes of wild land and the experiential and perceptual frames of reference. Consequently, the term 'perceived naturalness' has been used as one of the four axes, to represent the viewer's perception of the relative naturalness of the vegetation and land cover, with the remaining three axes being concerned with attributes which directly influence a user's perceptions and experience: scale (both in terms of areal extent and topographic features), remoteness, and degree of human artefacts present.

The proposed typology attempts to account for the perceptual, recreational, and ecological dimensions of wild land as discussed above. The criteria chosen (Table 3) have been developed primarily from reviewing both NGO (JMT 2004, NTS 2002) and SNH policy statements for wild land, as well as other published literature, in an attempt to produce an inclusive range of criteria for landscapes of wild character. It should be pointed out that 'landscapes of wild character' does not equate directly with wild land and it is for this reason that the four landscape types proposed here are split into: wild landscapes (1A and B) which constitute areas of wild land (as defined by NPPG14 and SNH); and landscapes with wild character (2A and B) (Table 4). Thus, the concept of wild land has not been overly diluted and what could perhaps be termed the wild land 'ideal' remains as category 1A. However, it is important to note that category 1B also represents wild land, and such landscapes are likely to offer potential for restoration (particularly in relation to perceived naturalness). It is proposed that, in some cases, category 1B landscapes could, with sensitive management, move into category 1A wild land.

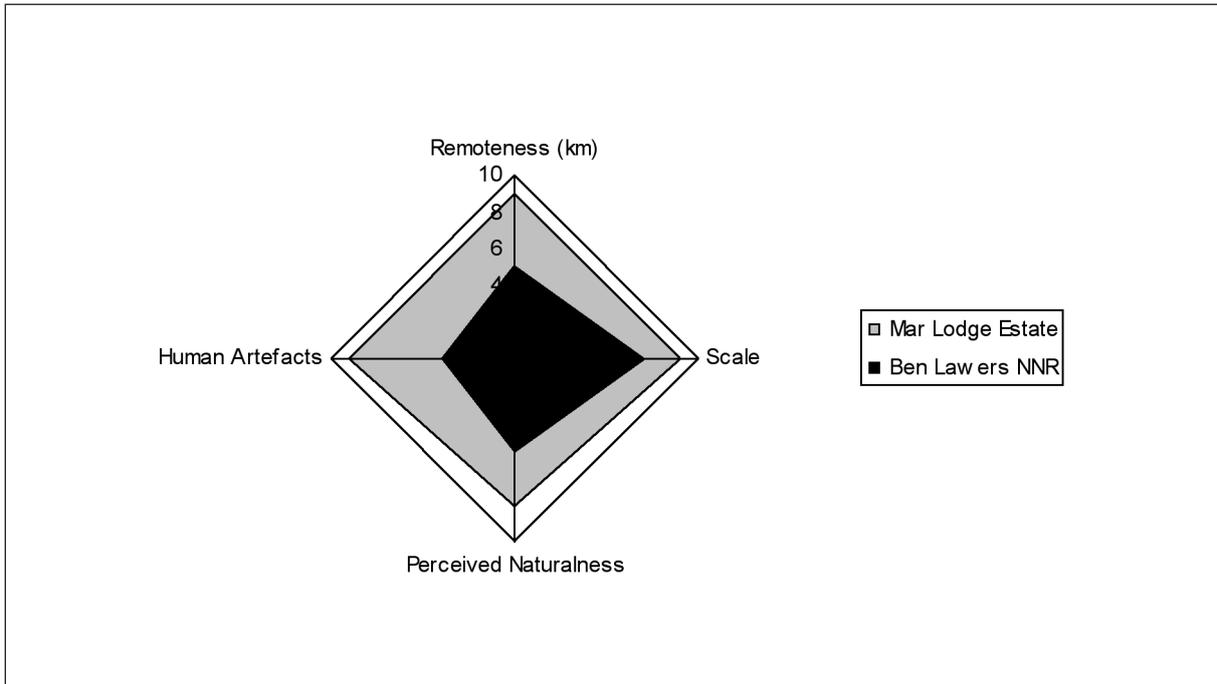
Table 3 Axes and criteria for a proposed typology of Scottish landscapes of wild character

<p>Axis 1 – Remoteness</p> <ul style="list-style-type: none"> ● Distance from settlements and public roads (3, 5 and 8km categories). ● Limited accessibility (either by lack of roads, scale or difficulty in passage).
<p>Axis 2 – Perceived naturalness – of vegetation, land use and wildlife</p> <ul style="list-style-type: none"> ● Vegetation cover primarily composed of functioning semi-natural or near-natural habitats. ● Presence of ecotonal habitats and habitats undergoing natural succession – natural treelines – contribute to wild character. ● Land use of an intensive nature (improved grassland/crops etc.) should not be present. Plantation forestry should either not be present or be of limited impact. ● Range grazing, field sports and public recreation can occur without being significant detractors – but could act as detractors dependent on intensity (eg, severe footpath erosion or large areas of visible overgrazing). ● Habitat management/ecological restoration work could also be seen as a detractor depending on intensity (eg extensive tree planting). ● The presence of domestic stock can be seen as a mild detractor; presence of large raptors as an enhancer.
<p>Axis 3 – Degree of Human Artefacts</p> <ul style="list-style-type: none"> ● Density and number of built developments (buildings, telecommunication masts, pylons, wind turbines, etc). ● Visible deer fencing and bulldozed roads. ● Impact from outwith the area (wind farms, visual, noise and light pollution). ● Level of path erosion visible in the area.
<p>Axis 4 – Scale</p> <ul style="list-style-type: none"> ● An area sufficient to provide visitors with physical challenge and engender a sense of remoteness. ● Striking topographic features or rugged terrain seen as an enhancer of this parameter. ● Areas of prime wild landscape should be a minimum of 2000ha+. ● Landscapes of wild character (not wild land) can occur at a smaller scale to a minimum of 250ha.

Table 4 Proposed typology of Scottish landscapes of wild character

<p>Category 1A – Prime Wild Landscapes</p> <p><i>High in all four axes.</i></p> <ul style="list-style-type: none"> • Minimum area 2000ha+ and remote, with areas 5–8km from nearest public road, limited accessibility. • Landscape generally exhibiting striking topography and often having areas of rugged terrain. • Large areas of semi-natural/near-natural vegetation (often mixed with woodland components representing an apparent successional climax). • Domestic stock absent. • Little or no plantation forestry. • No roads; other human artefacts absent or in low numbers/density and unobtrusive. • Limited visible effects of fieldsports (eg, muirburn) may be present.
<p>Category 1B – Compromised Wild Landscapes</p> <p><i>High in remoteness quality, may be compromised somewhat in terms of naturalness or may have low degree of human artefacts.</i></p> <ul style="list-style-type: none"> • Minimum area 2000ha+ and remote, with areas 5–8km from nearest public road. • Landscape generally exhibiting striking topography and often having areas of rugged terrain. • Areas exhibiting high remoteness and low to moderate density of human artefacts. • Some extensive range grazing by domestic stock may be present. • Some tracks and other human artefacts may be evident but only with limited impacts; possibly also some small areas of plantation forestry and evidence of sporting land use (eg, muirburn) – combined impact of land use must not heavily compromise wild character. • Habitats may not be in best condition or at optimum ecological status – potential for recovery.
<p>Category 2A – Landscapes with Wild Character</p> <p><i>Wild character compromised in at least one and probably two axes (can be < 2000ha).</i></p> <ul style="list-style-type: none"> • Few or no areas more than 4–5km from the nearest public road: qualified remoteness. • Human artefacts may be present and intrusive on some sites. • Currently some or all of land in use for one or all of the following: extensive agriculture; sporting (muirburn); ecological restoration (eg, re-forestation scheme – could in long term potentially increase wild character). • Tracks (bulldozed) or other artefacts likely to be present and sometimes very visible. • Domestic stock may be present.
<p>Category 2B – Compromised Landscapes with Wild Character</p> <p><i>Landscapes with wild character but compromised in at least two axes.</i></p> <ul style="list-style-type: none"> • Often smaller-scale landscapes than 1A, 1B and 2A. • No areas more than 2–3km from public road. • Remoteness compromised by access roads and visible bulldozed tracks. • Naturalness compromised by land uses such as areas of plantation forestry, visible overgrazing, clearly visible restoration work. • Edge effects likely from intensive agriculture, visible wind farms etc. • Visible human artefacts outside and within site.

Figure 1 Theoretical positioning of two landscapes (Mar Lodge and Ben Lawers NNR) on a proposed grid of wild character

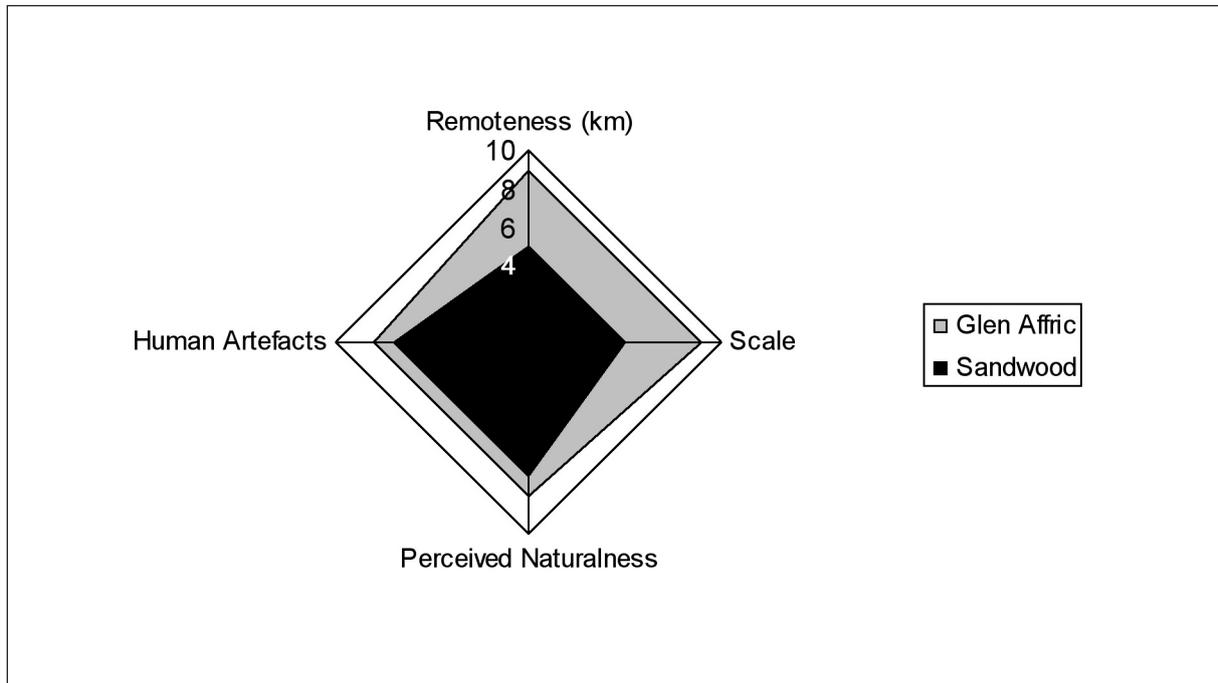


Figures 1 and 2 shows a visual representation of the four axes of wild character proposed in Table 3, using four key Scottish wild landscapes to illustrate differences in wild land parameters between these areas. In Figure 1, the wild character of Ben Lawers NNR is shown as compromised in three axes (due to the site’s proximity to the public road network, the heavily grazed nature of the vegetation, and the presence of buildings and a hydro-electric power dam) relative to that of Mar Lodge. Figure 2 shows that the Sandwood Estate’s overall wild character is compromised relative to that of Glen Affric, despite having a high degree of perceived naturalness and low density of human artefacts, due to the proximity of roads and the overall scale of the site relative to Glen Affric.

The key point is that it is the mix of a range of criteria, which produces an area of high wild character. While the grid proposed in Figures 1 and 2 is illustrative – except for the parameter of remoteness, measured in km – further development could include clarification of techniques to measure each parameter separately. Carver *et al.* (2002), for example, have used density of human artefacts and distance from nearest public road (remoteness) to define wild land within a GIS framework. It is apparent that perceived naturalness of land cover and vegetation may be a more elusive characteristic of such landscapes. However, it is suggested that a relatively simple list of landscape assessment parameters for naturalness could be developed following the criteria suggested in Table 3.

In practice, further development of the wild character grid shown in Figures 1 and 2 could incorporate the use of rings at different distances from the grid centre to correspond to degrees of wild character for any given landscape. Landres *et al.* (2005) propose the use of a similar grid to measure wilderness character in the USA, pointing out that, in any given area, the values of certain wilderness parameters will be higher than others. In this respect, the use of the grid as a management tool could help highlight which wild character parameters are low for a particular area and hence identify potential for improvement through sensitive management.

Figure 2 Theoretical positioning of two landscapes (Glen Affric and Sandwood) on a proposed grid of wild character



2.3 Key threats to landscapes of wild character

At the broadest level, the key issue facing Scotland’s wilder landscapes is one of gradual attrition and loss, as highlighted in the report on historic trends in the extent of wild land in Scotland by Carver *et al.* (2002) and SNH’s policy statement (2002). The key threats contributing to these losses relate to all four axes of wild character (section 2.2) and have been detailed in these documents and others (see Aitken *et al.*, 1992, Powell *et al.*, 2005) and are discussed briefly below.

A further issue which is not discussed below, but can nevertheless be considered an important indirect threat to Scottish wild landscapes is that of valuation. As noted by SNH (2002a) and a number of respondents, wild landscapes are one of the primary reasons tourists visit the Scottish Highlands. Yet a number of respondents recognised that these same landscapes are generally undervalued and lack a market price (GB 2, NGO/LG 2), and that this has been a factor in the slow development of protective measures for such areas. As one respondent stated:

‘the tourism sector is heavily dependent on wild land...I think the foot-and-mouth epidemic evidenced this very well... but they [the tourism sector] don’t invest in their core product and wild land in its own right is undervalued...’ (NGO/LG 1).

2.3.1 Infrastructural development

The development of infrastructure is a key area of concern which relates to loss of an area’s remoteness and influences a viewer’s sense of naturalness. In particular, a large number of respondents regarded the construction of bulldozed roads, often to provide access for recreation, forestry, or sporting land uses, as particularly detrimental to an area’s wild character. New roads of this kind continue to be constructed in the

Highlands (SNH 2002a). Further developments of concern include the installation of electricity pylons and telecommunications developments – as evidenced by the numerous lobby groups against such developments such as Cairngorms Against Pylons (see www.cairngormsagainstpylons.com). A key area of concern is that of construction for renewable (hydro-electric and wind power) energy sources, with a number of respondents identifying wind power developments in particular as the primary threat facing Scotland's wilder landscapes in the near future (NGO/LG 4, GB 1).

2.3.2 Tourism and recreation

Improved access and higher visitor numbers to Scotland's wilder areas may lead to greater economic benefits at regional and local scales. However, increased visitor numbers can also lead to the degradation of path networks as well as a loss of the key attributes (eg solitude, remoteness) which attracted many people to the area in the first place. Ski developments were also suggested as a threat to wilder areas by a number of respondents although, in the long term, they considered that the ski industry in Scotland was in decline and becoming less of a threat (NGO/LG 2). Aitken *et al.* (1992) also point out that the use of off-road vehicles, excessive mountain biking, and large events (eg mountain marathons) can also act as minor detractors to wild quality. Three NGO/LG respondents pointed out that it was often not actually increased visitor numbers which represented the key threat in this regard, but rather the potential for insensitively located built developments, which often occur in conjunction with higher levels of tourism and recreation.

2.3.3 Forestry

Forestry as a land use in Scotland has had significant impacts on landscape quality, and afforestation may have had more extensive impact on wild areas than any other land use (Aitken *et al.*, 1992). More recently, forest policies have advanced, and forestry strategies now aim at steering planting away from unsuitable ground (FC 2000). However, large tracts of plantation forestry remain throughout the Highlands and Southern Uplands and, as noted by Aitken *et al.*, 1992, the harvesting and removal of such plantations generally involves the development of tracks, further reducing the area of roadless terrain. Some interviewees also expressed concern regarding the continued use of non-native conifer species in areas of high wild land value, such as the central Cairngorms (NGO/LG 2).

2.3.4 Agriculture and sporting land uses

Agriculture and sporting land uses can have significant impacts on the naturalness of an area's vegetation. SNH and NTS both recognise that sporting and extensive agricultural land uses can occur on wild land without being significant detractors (SNH 2002a, NTS 2002). However, SNH (2002a) also recognises that overgrazing can detract from an area's perceived naturalness. A number of respondents concurred that overgrazing and insensitive sporting management were key issues directly relevant to wild land (NGO/LG 3), while others (NGO/LG 2) saw overgrazing and high deer numbers as an important issue which occurred on wild land areas, but one which was not integral to wild land quality itself.

It is also apparent that, while agricultural and sporting land uses in their own right can occur on wild land without being significant detractors, their nature and intensity are of considerable importance. As one respondent pointed out: '*sporting management could often be done more sensitively...I mean muirburn for example...it's about how it's done rather than if it's done*' (NGO/LG 1). The debate as to whether overgrazing by deer is a serious impact or a non-wild land issue (see section 2.1), highlights the importance

of what wild land users perceive as natural or wild in determining what constitutes a significant impact to an area's wild quality. Aitken *et al.* (1992) note that the perceptions and expectations of wild land users have changed, due to travel abroad and other factors. A greater awareness of what constitutes ecological degradation on the part of the average wild area user may, in turn, mean that land management issues such as overgrazing will become increasingly more integral to the concept of wild land.

2.3.5 Other threats

A number of other threats have also contributed to the decline in area and quality of Scotland's wilder landscapes. For instance, SNH (2002a) states that the expansion of fish farming in the 1980s, an increase in the use of upland areas for military purposes (including military aircraft), traffic noise, and light pollution have all had impacts on the quality of wilder areas. Aitken *et al.* (1992) also highlight the potential significant local impacts of mineral extraction, particularly large-scale quarrying, on areas of wild character.

One NGO/LG respondent also stated that helicopter tourism could pose a significant threat to wild land areas, with a proposal for helicopter tourism on Arran having recently gone ahead despite objections relating to the area's wild quality. The quite frequent changes in ownership of many of Scotland's finest landscapes may also be of concern in relation to the management of wilder areas. The main threat in this respect related to the idea that non-resident or short-term owners may instigate management of an unfavourable nature for wild land quality, such as the use of all-terrain vehicles and the development of bulldozed roads.

2.4 Key opportunities for landscapes of wild character

This section presents a brief overview of the primary opportunities associated with wild landscapes as recognised from the work done for this report. Section 3 presents a detailed analysis of opportunities and constraints as they relate to the policy and planning context for wild landscapes and, as such, a broader set of opportunities is presented here, in an attempt to clarify the primary potential benefits and opportunities associated with further management and creation of wild landscapes in the UK.

2.4.1 Need for diversification of land uses

A large number of respondents agreed that the economic future for farming, forestry, and sporting land uses in Scotland is uncertain for a variety of reasons such as the ongoing gradual removal of government subsidies (particularly those deriving from the Common Agricultural Policy, CAP), declining grouse numbers, and declining timber prices. Set against this, climate change and the overall sustainability agenda, including biomass production for the substitution for fossil fuels, may alter current economic and environmental perspectives. However, the overall uncertainty surrounding traditional land uses represents a key opportunity for wild landscapes, as it offers the prospect of large areas of land becoming available for restoration and management for wildness values. Financial support for the management of land for wildness values may also offer benefits of an alternative nature (eg ecotourism) to traditional land uses, which may appear as more favourable and beneficial in the current social and economic climates in the UK.

2.4.2 Potential for increased funding availability

The removal of production-based support for agriculture could imply greater availability of European Commission funds (CAP, but possibly also Structural Funds) for wild land restoration and management

initiatives. As the 'Wild Scotland' initiative points out in its feasibility study (Wild Scotland, 2003), the wild landscapes agenda needs to be proactive and strategic to minimize potential losses of subsidy opportunity. CAP funds could be transferred to regional development funds if alternative areas (eg availability of a wild area supplement within Land Management Contracts) for spending are not promoted and developed, which could result in this line of funding being lost to both agricultural and environmental interests.

2.4.3 Economic opportunities – market development

Two government body respondents highlighted the recent growth of markets, and the development of new markets, for activities related to the economic and social benefits of wild landscapes as key opportunities for the development and promotion of these landscapes. The eco-tourism market, in particular, is often considered as a growth market which relies heavily on the wild landscape resource and offers considerable potential for direct economic gain (Aykroyd, 2004), as reflected in the establishment of the 'Wild Scotland' group by the tourism industry, with support from government agencies (<http://wild-scotland.org.uk>).

2.4.4 Potential to counter threats from other land uses

The management of land for wild values or the acquisition of large areas for landscape and habitat restoration implies the avoidance of unfavourable development in these same areas (NGO/LG 3). In particular, a focus on wild values should mean the exclusion of unsuitable development such as large-scale wind turbines in sensitive areas, as well as the potential reduction of high levels of (potentially damaging) grazing by both domestic stock and deer. The creation of new areas of wild landscape and the expansion of existing areas should also result in a decrease in visitor pressure on existing wild landscapes.

2.4.5 Environmental opportunities

The environmental benefits of the creation of new wild landscapes or large-scale habitat restoration (often termed 're-wilding') and the protection of existing wilder areas are numerous. In particular, respondents highlighted the importance of the creation of new areas of rare habitats and the protection of existing habitats, the enhancement of biodiversity (eg, through the re-instatement of keystone species), the mitigation of floods, soil and water pollution alleviation, and carbon sequestration. An exemplar project involved with habitat restoration and multiple species re-introductions is that of Oostvaardersplassen in the Netherlands. The management of Oostvaardersplassen has in recent years expanded its plans and now aims to develop a network of habitat corridors throughout the Netherlands by 2018, utilising 'eco-bridges' over major transport routes and much larger-scale corridors of restored grassland through industrial areas (Aykroyd, 2005). A key point, in this regard, is that the conservation of wild landscapes is often attempted at large scales and could therefore provide a framework for the promotion of ecosystem management approaches or cross-border landscape conservation initiatives, as well as national-level 'ecological corridor'-based restoration and conservation initiatives (see section 3.3). The potential for both carbon sequestration and flood mitigation through the restoration of wild landscapes (particularly involving the establishment of native woodlands) and the creation of new wild landscapes is also likely to be considerable in the UK (see sections 4.4.1 and 4.4.2).

2.4.6 Social benefit opportunities

A range of social benefits are increasingly being tied to wild landscapes. In particular, exercise in the presence of nature, or the enjoyment of more natural surroundings, has been linked with considerable

physical and mental health benefits (Knopf 1983, Pretty 2004, Pretty *et al.*, 2005, Henwood 2002, Tabbush and O'Brien 2002). In a major study into the 'wilderness effect' in the USA, using responses from 1,380 persons, 700 questionnaires, 700 interviews, 52 longitudinal studies, and more than 300 personal responses to wilderness trips (Greenway, 1995), 90% of respondents stated the experience allowed them to break an addiction, 77% described a major life change on return (personal relationships, employment, housing, life style), 90% described an increased sense of well-being, aliveness, and energy, and 92% cited 'alone time' as the single most important experience of the trip.

Russell *et al.* (1997) demonstrated both social and economic benefits associated with US-based wilderness experience programs for Youth at Risk, highlighting the potential use of wilder areas in confidence-building exercises. USIKO, a South African organisation, also utilises wilderness therapy and a 'rites of passage approach' in developing relationships between young offenders and elder mentors from their community. The program, based in the Western Cape, has shown considerable success, with a number of reformed youths now active in work programs to reform new offenders (www.usiko.org). Such effects can be long-lasting, as shown by Kaplan and Talbot (1983) in a ten-year series of studies following Outward Bound-type programmes.

One NGO/LG respondent also pointed out that one element of the Northern Ireland peace process involved the use of outdoor activity programs in the Mourne mountains to alleviate stress and promote team building amongst the victims of terrorist activities and the ex-combatants themselves. The Glencree Centre for Reconciliation in Southern Ireland also engages in reconciliation programs (some of which involve outdoor activities) for those affected by the conflict in Northern Ireland and is located high in the Wicklow Mountains – a wild landscape area in its own right (www.glencree.ie).

A further area of opportunity, particularly from the youth and educational perspectives, is that of award schemes based on experiencing and promoting wilder landscapes, such as the John Muir Trust (JMT) award and the Duke of Edinburgh Award scheme. The John Muir Trust has now presented over 20,000 JMT awards since the awards inception in 1997. The JMT award scheme has four challenges, all designed to further encourage people to be active in wilder areas and to assist in the conservation and promotion of these same areas (see www.jmt.org/award/award/challenges). In a survey of award participants, Bushby (2003) showed that over 80% of participants agreed that the award scheme had increased their awareness of wild landscapes, promoted personal and educational development, and encouraged people to value wilder areas. The Duke of Edinburgh scheme is centred around personal development of those aged 14–25, awarding medals for (among other things) partaking in an 'expedition', which, in practice, often involves an overnight camping trip into a wild landscape (see www.theaward.org)).

The creation of new wild landscapes, as well as the management of existing areas and the increased promotion of the recreational use of such areas, is likely to provide key opportunities to deliver clear social and economic benefits, particularly from a physical and mental health perspective.

3 WILD LANDSCAPES IN SCOTLAND: THE POLICY, PLANNING AND LEGISLATIVE FRAMEWORK

This section presents an overview of the planning, policy and legislative context for Scotland's wilder areas. The review utilises both published literature and interview data in an effort to identify both the key changes to, and trends within, this framework as they relate to Scottish wild landscapes. In particular, this review attempts to recognise the opportunities and constraints presented by this framework for the safeguarding, management, and restoration of wilder landscapes, as well as for the creation of new wild landscapes. This section does not represent a comprehensive review of the details of these policies but, rather, seeks to identify key areas of direct relevance from a 'constraints and opportunities' perspective. It attempts to recognise both the areas of obvious relevance (land use planning and policy) and the broader policy drivers such as health and tourism.

3.1 The international context

Perhaps the key historical development of international significance in relation to wild land and wilderness has been the promulgation and implementation of the Wilderness Act in the USA, as discussed in section 2. Yet, while no direct wild land or wilderness policy exists at either the international or the European level, European policy does directly affect such areas in Scotland; the influence of Common Agricultural Policy (CAP) and the EU Habitats Directive are discussed with regard to national implications later in this section.

A key European-level development with direct implications for Scotland's wilder areas is the [European Landscape Convention](#), adopted by the Committee of Ministers of the Council of Europe in July 2000. The UK has signed, but not yet ratified this convention, and a number of respondents considered that, if the UK government were to ratify, this could add considerable weight to planning objections for unfavourable developments in wilder areas (NGO/LG 3). Specific measures in the Convention include awareness-raising in relation to landscape values and a requirement at the national level to put in place instruments aimed at protecting, managing, and planning national landscapes (Council of Europe, 2000). The Convention also offers the opportunity for local and regional planning authorities to receive the landscape award of the Council of Europe in recognition of high standards in sustainable landscape management and planning (Council of Europe, 2000).

Also of relevance is the Pan Parks initiative, a European-level initiative through which a network of wilderness reserves is being established across Europe, with the aim of both protecting and managing wilderness areas as well as promoting sustainable tourism in these areas (Kun, 2005). The initiative was founded in 1997 and represents a unique partnership between WWF and a Dutch private company – Molecaten – with the latter being sufficiently encouraged by prospective wild land benefits to invest substantially for a number of years prior to seeing any return. In practice, the Pan Parks initiative appears to represent a prime demonstration of the utilisation of wilderness areas in a sustainable way. The increased promotion and development of consistent 'standards' associated with Pan Parks appears to have led to increased levels of local development and economic growth from increased visitor numbers, and the further development and improvement of visitor facilities, in areas designated as Pan Parks (Cottrell, 2005). To date, eight wilderness parks have been established under the Pan Parks banner, in Bulgaria, Finland, Italy, Poland, Romania, and Sweden (www.panparks.org). Discussion at the Edinburgh Pan Parks Conference (November, 2005) included debate on [the appropriateness of designating a Pan Park in the Scottish Highlands](#).

3.2 Policy and planning measures of direct relevance to wild land in Scotland

3.2.1 Key NGO and Governmental policy on wild land

Despite a long history of recognition of the importance of Scotland's wilder areas from a range of perspectives (see Aitken *et al.*, 1992), it was not until relatively recently that the concept found formal recognition at the governmental level with the publication of NPPG 14 in 1999 (see section 1.2). This planning guidance states that:

'Some of Scotland's remoter mountain and coastal areas possess an elemental quality from which many people derive psychological and spiritual benefits. Such areas are very sensitive to any form of development or intrusive human activity and planning authorities should take great care to safeguard their wild land character.'

Following the publication of NPPG 14, SNH further developed the concept with the publication of its policy on 'Wildness in Scotland's countryside' in 2002, discussed in section 2. This statement seeks to support the policy approach taken in NPPG 14, SNH's approach being that: *'there are parts of Scotland where the wild character of the landscape, its related recreational value and potential for nature are such that these areas should be safeguarded against inappropriate development or land use change'*. To meet this aim, five key objectives are set out: safeguarding wildness and wild land; enhancing nature; responsible recreational use; recovery of past damage; and promoting awareness of the value of wild land.

To deliver these objectives, a number of actions are suggested, which include:

- engaging and building upon the existing National Scenic Area (NSA) designation system and other relevant national and local planning policies;
- reviewing General Permitted Development Order (GPDO) legislation from a wild land perspective;
- developing the recognition of wildness and wild land in all land use policies and support mechanisms;
- the cessation of military training apart from light-weight training in wilder areas;
- encouraging collaborative management approaches over wider wild land areas;
- encouraging more appropriate methods of access and recreation in wilder areas;
- encouraging actions to remove or minimise the affects of obtrusive activities and artefacts in wilder areas;
- the development of debate about the value to society of Scotland's wilder areas; and
- the development of guidance with respect to the location of Scotland's wilder areas.

A further area of policy development for Scotland's wilder areas is that which has occurred at the NGO level in Scotland; and in many respects, this appears as complementary to, and supportive of, the SNH policy statement. In particular, both the JMT and NTS, both major Scottish landowners, have developed policies for wild land in Scotland. Although these are formulated in some respects to direct internal management, they also include recommendations for policy development at the national level. The NTS, in particular, advocates as a key aim the development of a national strategy for the conservation and

enhancement of wild land (NTS, 2002), a recommendation echoed by a number of interview respondents (NGO/LG 4 and GB 1). In particular, the NTS recommends that any such strategy should incorporate:

- the identification of core wild areas and the protection of same using designation measures (the creation of new designations is not recommended);
- the consideration of smaller areas of wild land or areas with wildness qualities for protection (further NPPG development in this respect is recommended to stimulate debate and action at the local level);
- agreement on a set of principles for wild land management; and
- the establishment of best practice or exemplar sites for wild land management.

The JMT's policy on wild land advocates both the protection and enhancement of Scotland's wilder areas through habitat restoration, sensitive location of developments, no new development of access (paths), controls on low-flying aircraft, and increasing support for wild land nationally (JMT, 2004). The JMT also recognises the importance of the development of partnership management approaches, greater legislative protection for wild land at the national level, and the promotion of best practice for wild land management (JMT, 2004).

At a broad level, there is a good degree of consistency between these three governmental and NGO policy statements. All three organisations are apparently in agreement on a number of issues, including that: a new designation is not required for wild land protection; wildness occurs at a range of scales in the Scottish countryside; and further legislation is required to protect such areas from unsuitable developments. However, as pointed out in section 2.1, inconsistencies occur at the level of definition, and this disagreement is also apparent in relation to principles of wild land management. The NTS, for example, regards wild land management as being concerned primarily with issues relating to human artefacts and inappropriate developments, such as inappropriately-sited visitor facilities and fences and footpath erosion (see Johnson 2002), while SNH and JMT include the '*enhancement of nature*' (SNH, 2002a) or '*restoration of natural habitats*' (JMT 2004) as key aims within the scope of wild land management. In addition, there is more of an emphasis on collaborative or partnership-based management approaches to wilder areas management in the JMT policy statement (JMT 2004) than in the NTS and SNH policy statements.

In terms of future policy development, these inconsistencies could imply difficulties in reaching a consensus on what actually constitutes wild land management, with the NTS, for example, perceiving issues such as overgrazing and habitat restoration as being outside the scope of management for wildness and more related to nature conservation. It may also be the case that the three organisations place a varying degree of emphasis on community involvement in the management of wilder areas.

3.2.2 Wilder areas and Scottish planning legislation – constraints and opportunities

As previously noted, NPPG14 constitutes the primary government policy relating to Scotland's wilder landscapes. As a planning policy guideline, it should be taken into account in the development of regional and local structure and development plans. In particular, NPPG14 states that planning authorities should take great care to safeguard the wild land character of Scotland's remoter mountain and coastal areas (Scottish Executive, 1999).

A major weakness in the implementation of NPPG14, in relation to its requirement for consideration of wild character, has been the identification of such areas. The Highland Council, for example, included a policy on wild land in its draft structure plan in 1999, with a map of wild land zones based on intensity of recreation (Highland Council, 1999). However, due to concerns on the part of the Scottish Executive relating to the rigour of the assessment and mapping of wild land, both the policy and map were withdrawn from the final draft (Rennilson, 2004). A key requirement in this respect would appear to be the clarification in government guidance of the key criteria for wild land or wild character, to assist planning authorities in actually implementing NPPG14.

It is important to note that NPPG14 constitutes 'planning guidance' rather than formal planning legislation (NGO/LG 1), with the onus being on local authorities to further develop planning policy at the local and regional levels. Despite this, NPPG14 does recognise that wild character must be '*taken into account*' in considering planning applications (NGO/LG 1), and therefore represents clear recognition of the value of wild land and the sensitivity of such landscapes to certain types of development. A number of respondents noted the importance of maintaining this recognition of wild character in future reviews of NPPGs (NGO/LG 2, GB 1), with two NGO/LG respondents also identifying the need for further development and clarification of wild character as a landscape attribute in NPPG14.

A second area of relevance to wilder areas from a planning perspective is that of General Permitted Development Orders (GPDOs) under the Town and Country Planning Act (1997). These allow for certain developments (particularly certain agricultural and forestry developments) to proceed in an unregulated fashion. NPPG14 notes that, in certain circumstances, a planning authority may consider it necessary to withdraw certain permitted development rights in respect of designated areas (Scottish Executive, 1999). As one NGO/LG respondent pointed out, future NPPG review could extend this measure to allow for control of permitted development in areas with significant wild character, although this would, of course, be dependent on the definition of such areas.

A number of respondents also pointed out that scope existed for the removal of certain permitted development rights at the national level, to combat issues such as inappropriate location of forestry developments, bulldozed tracks, and farm buildings (NGO/LG 3). One respondent pointed out, however, that while forestry developments were not controlled by formal planning legislation, current FCS regulations, the use of indicative forestry strategies combined with forestry now being controlled by the Environmental Impact Assessment Regulations 1999 and by the Environmental Assessment (Scotland) Act 2005 implied that, as a land use, forestry is now less of a threat to wild character from a planning perspective.

However, some respondents did express concern over the unregulated use of fencing in forestry management, particularly in sensitive areas (NGO/LG 2). However, since June 2004, FCS has been a signatory to the Joint Agency Statement and Guidance on Deer Fencing along with the DCS, SNH, and SEERAD. Three respondents (NGO/LG 2, GB 1) also pointed out that a key constraint in relation to the withdrawal of permitted development rights would be the associated lack of flexibility within the agricultural sector to respond to changes in agricultural policy and particularly CAP reform.

A number of respondents also raised concerns in relation to the proposed National Planning Framework, as outlined in the current draft of the Scottish Executive Planning White Paper (Scottish Executive, 2005). In particular, one NGO/LG respondent expressed concern in relation to the lack of a right of appeal on the

part of individuals or local communities in relation to top tier (Scottish Executive level) developments. Two NGO/LG respondents also stressed the need for a community right of appeal in this regard, as well as for a public inquiry process for top tier developments, to ensure that the opportunity for objection exists outwith the Scottish parliament. These respondents noted that the opportunity for parliamentary debate in relation to such developments does not automatically imply that all top tier developments will necessarily be in agreement with local community aspirations or sensitive to an area's wild character.

At a more general level, almost half of the respondents stated the need for a greater level of landscape protection in Scotland, as one respondent stated:

'landscape needs greater recognition I think... and we should bring it more into the national planning framework... in a legislative sense...sure there's landscape mechanisms... but there's little real legislation or funding directly related to landscape as such' (GB 1)

In this regard, some respondents also noted the opportunity for further development of the idea that land managers and owners should have a 'duty of care' for the landscapes on their property, a concept which could be further developed in national planning policy (NGO/LG 2).

3.2.3 National Scenic Areas and Scottish National Parks

In relation to designating Scotland's wilder areas, the majority of respondents appeared to support the view of SNH (see section 3.2.1) that development of a new designation would not be a positive step in terms of policy development. Most were in favour of enhancement of existing designations and development of non-designation-based protective measures. In particular, enhancement of the existing National Scenic Area (NSA) designation was seen by most respondents as being of considerable importance in relation to the protection of wilder areas. In an SNH review of the NSA designation published in 1999 (SNH, 1999a), a number of key recommendations were made for future NSA development, which included:

- placing a statutory duty on local authorities to safeguard NSA areas and to produce, implement and regularly review a management strategy for each NSA;
- seeking changes under the Town and Country Planning system as they apply to NSAs – namely the withdrawal of certain permitted development rights; and
- seeking the revision of mainstream land management support schemes to ensure they contribute to NSA objectives, and additional incentives to influence land management.

The Scottish Executive has not yet responded¹ to SNH's recommendations and the NSA designation remains largely unchanged since its establishment in 1980, despite criticisms relating to the effectiveness of the designation as a protective mechanism for landscape (SNH 1999a, 1999b, CRC 1988). A number of respondents argued that this slow response to the SNH review was a product of concern within the Scottish Executive that protecting landscape would effectively slow the pace of development in Scotland (NGO/LG 3). As one interviewee stated:

¹ Editor's note: During the course of this review but after undertaking the policy review, the Scottish Executive issued a consultation setting out their proposals for NSAs (Scottish Executive Environment group, Enhancing our care of Scotland's landscapes. January, 2006).

'the Scottish Executive haven't moved on SNH's recommendations in five or six years... it's a disgrace... they've stalled the whole process just so developers aren't stopped...it's this fixation with development...but we have to start weighing up the pros and cons' (NGO/LG 1)

An important point to note, with regard to NSAs from a wilder areas perspective, is that the designation does not relate purely to wild land or even to the broader concept of areas exhibiting a high degree of wild character. The prime aim of NSA designation is to identify and protect *'those areas of Scotland which have been judged as being of national importance for their outstanding scenic value'* (SNH, 1999b). A number of respondents pointed out that the concept of 'scenic beauty', while related to wildness, was in practice considerably broader and even more difficult to define, which has obvious implications for interpretation of the requirements of NSAs at the planning level (NGO/LG 3). This difficulty in interpreting what NSAs are trying to protect has had direct implications for the development of NSA management plans by planning authorities. Rennilson (2004), for example, noted that, due to difficulties in reaching a consensus on the definition of wild land areas and associated policy, the draft management strategy for the Wester Ross NSA has not been adopted as full planning policy.

A further issue relating to NSAs has been the debate on extending the actual areas currently covered by the designation. SNH has recognised the importance of reviewing the potential for expansion of the existing suite of 40 NSAs, but has also noted the importance of first improving the existing designation (SNH 1999a, SNH 2000a). Respondents questioned on the issue generally agreed that there was a requirement for extension of existing areas, but only following improvement of the designation in its own right (NGO/LG 2), with NGO/LG 5 emphasizing the requirement that all core wild land areas (as defined by SNH) be covered by an improved NSA designation.

A number of respondents also highlighted the potential for development of the recognition of wilder areas and wildness as a landscape attribute in National Park planning policy in Scotland. The Cairngorms National Park draft park plan includes the objective of *'conserving and enhancing the wild characteristics of areas within the park'* (Powell *et al.*, 2005). In a supporting paper on wild land, the need to identify such areas based on attributes of remoteness, size, and lack of infrastructure is highlighted, alongside promoting a *'special wild land designation'* to protect such areas. Whether such a designation should be developed for the Park, or Scotland-wide, is unclear (see Powell *et al.*, paragraph 57).

The idea of a new designation would appear to conflict with the views of the majority of respondents in this study. One NGO/LG respondent, however, noted that a new designation may indeed be necessary due to the *'obscure nature of NSAs and their considerably broad remit'*. Wrightham (2002) also points out that any efforts at protecting wilder areas through national parks would be considerably localised as there are no immediate plans to establish further terrestrial national parks in Scotland. It should perhaps also be pointed out that the existing national parks constitute some of the most designated areas in Scotland, with numerous overlapping designations already implying a high degree of bureaucratic complexity in terms of land-use planning. However, national parks do represent a key opportunity in terms of acting as exemplars of land management in relation to conservation of wild character, with the potential for park authorities to lead the way in developing, defining, and protecting wild character (NGO/LG 3).

Respondents generally agreed that development of the concept of wildness within NSAs and national parks would be progressive moves in protecting the wild character of Scottish landscapes. However, all

respondents also felt that further moves (such as further NPPG development) would be necessary to ensure the protection of wild character outside of designated areas, as one respondent stated:

'sure designations are important...but we also need a proper way of protecting wildness throughout Scotland...there's always a creeping attrition at the boundaries of these sites [designated areas]... lines on maps just don't work on their own...we need a more holistic approach' (NGO/LG 1)

3.2.4 Policy and planning for renewable energy development

As noted in section 2.3, the majority of respondents highlighted current and future renewable energy developments as a key threat to the wild character of many of Scotland's landscapes. As SNH (2000b) points out, the growing support for renewable energy developments by the Scottish Executive is essentially a response to reduction targets for CO₂ emissions and fossil fuel consumption agreed to at the Kyoto Summit in 1997 and formalised through the development of the UK Climate Change Programme (DETR, 2000). This drive for renewable energy has focused primarily on onshore wind farm development, due partly to the relative lack of further opportunities in Scotland for hydro-electric power (HEP) plants outwith areas considered as environmentally sensitive to such developments (SNH, 2000b). Renewable energy developments, because of their dispersed nature, can also offer opportunities for rural enterprise and local economic gain in many of Scotland's more rural and economically fragile areas (SNH, 2000b).

A key development which has led to a significant increase in demand for power from renewable sources has been the Scottish Executive's Renewables Obligation, which requires that power companies purchase a set amount of power from renewable sources. The Ramblers Association Scotland (2004) points out that this obligation has led to a large number of companies becoming involved in renewable energy development and generally utilising the most cost-effective technology available, ie, large-scale onshore wind turbines, with little investment in alternatives or smaller-scale or offshore development. As SNH (2000b) points out, the scale of such developments, as well as the associated construction of access roads, can have a considerable effect on a landscape's wild character and on the way people experience the countryside.

The large numbers of current applications for wind farm developments would also seem to imply that the resources of lobbying groups and concerned organisations such as SNH are stretched in determining which applications give cause for objection due to potential environmental impacts. As one lobbying group respondent stated:

'there's some 2-300 planning applications [for wind farm developments] in at the moment...which leads to absolute chaos...we [lobbying groups] can't even look at them all, let alone object to them... we don't have the resources' (NGO/LG 1)

In response to concerns such as these, SNH recently produced a strategic locational guidance plan for wind farms in Scotland, which divides the Scottish landscape into three zones based on their relative sensitivity to wind farm developments (SNH, 2002b). The majority of respondents welcomed SNH's efforts in this regard. However, as three respondents (NGO/LG 2, GB 1) pointed out, this locational strategy represents guidance, rather than statutory legislation, related to wind farm location. Respondents questioned on renewable energy all emphasised the need for further development of criteria for wind farm developments and location in NPPG6, the national planning guideline for renewable energy developments in Scotland. This was seen as crucial to ensure appropriate decisions are made by local authorities, which are often under pressure to further economic development in their respective area.

From discussions with three respondents in particular (NGO/LG 2 and GB 1) and from review of a recent paper by Warren *et al.*, (2005) and renewable energy policy statements from both The Ramblers Association Scotland (2004) and SNH (2000b), three key opportunities for policy development may be recognised as having potential to further protect wilder areas without overly compromising opportunities for rural development:

- the further development of an integrated locational strategy for wind farm location in Scotland at a statutory level – incorporating the recognition of all wild land areas within the most sensitive landscape zone;
- the development of support mechanisms which favour both the development of alternative renewable energy sources (over large-scale onshore farms) and of smaller-scale wind farms in more sensitive locations; and
- the further encouragement of the use of a cost-benefits assessment approach on the part of developers and/or planning authorities for larger wind farms or developments in sensitive locations, to ensure all the potential costs and benefits (social, economic, and environmental) are considered prior to granting planning permission.

The Ramblers Association Scotland (2004) has noted that sufficient planning approvals have already been granted to meet the Scottish Executive target of 18% of electricity from renewable sources by 2010. In this respect, the Scottish Executive has time to make considerable changes to its policies on renewable energy to meet its 2020 target in ways which could offer more protection to Scottish landscapes, as well as commanding greater public support.

3.3 Biodiversity and nature conservation policy

Two key recent moves in terms of biodiversity and nature conservation in Scotland were the release of the Scottish Biodiversity Strategy (SBS) and the promulgation of the Nature Conservation (Scotland) Act, both in 2004. A key feature of the SBS is that it promotes the conservation and enhancement of biodiversity throughout Scotland, not just in designated areas, and places the onus for delivery of biodiversity on a range of groups, not just the usual governmental organisations and NGOs (Scottish Executive, 2004a). While the terms wild landscape and wildness do not appear within the SBS, a number of its objectives (see Scottish Executive, 2004b) could be said to represent opportunities for the wild landscapes agenda, particularly those relating to the conservation of biodiversity at the landscape and ecosystem level. These include:

- further development of collaborative action at the landscape scale whereby management of individual property holdings contributes to biodiversity and the delivery of sustainable development across the rural environment as a whole;
- reducing threats from key landscape/ecosystem-scale factors threatening biodiversity (eg habitat fragmentation) – in particular further develop strategic landscape scale habitat networks through land use incentives and planning control; and
- strengthening the role of natural processes within Scotland's forest and woodland resource.

The relevance of these objectives to the wild landscapes agenda would appear to strongly depend on the view taken on the concept of wild landscapes. As discussed above, the recreational perspective often implies placing less emphasis on the importance of ecological factors within the concept of wild land/landscapes. However, as ecological parameters have been given due recognition in the criteria for wild landscapes developed in this report (see Table 3 in section 2.2), these SBS objectives are of considerable relevance. The importance of the idea of the '*encouragement of natural processes*', for example, as well as promoting collaborative management have been discussed previously in relation to wild landscapes.

Taking a more general view, the SBS key objective of utilising a broader country-wide approach to biodiversity conservation represents an important change in thinking which relates well to the wild landscapes agenda. As one government body respondent pointed out: '*we're looking at biodiversity now throughout Scotland not just in designated sites...that was the old approach... but everywhere... . I mean biodiversity is more recognised than wild land...but maybe we need to take this kind of view to conserving wildness too.*' In other words, wildness as a landscape attribute could be promoted throughout Scotland, and the onus for conservation of wildness placed with a range of groups (as with biodiversity in the SBS).

This taking of a broader view to biodiversity conservation is a product of general concerns that, in practice, designations have limited impacts outside their own boundaries and represent a fragmentary approach to nature conservation (see Bishop *et al.*, 1997), even though almost one fifth of Scotland is under some form of conservation designation (Warren, 2002a). In relation to the conservation of wild landscapes, and particularly their management for the restoration of natural processes or '*re-wilding*', this broader-scale view of biodiversity conservation may also be more favourable than a designation-focused approach. As one respondent pointed out, management objectives relating to the restoration of natural processes (which can imply change to existing habitats) can actually often be seen to conflict with objectives for Sites of Special Scientific Interest (SSSIs) or Natura 2000 sites, which tend to promote stability rather than change and the maintenance of specific species and habitats (NGO/LG 1). As one GB respondent stated:

'conservation is very species-focused in the UK... perhaps if we took the idea of wild land on board a bit more this could be a way of shifting it more to landscape or ecosystem conservation.'

The idea of incorporating the promotion of wildness or wild landscapes within the biodiversity agenda could present an opportunity for increased funding, particularly with regard to the ecological or '*naturalness*' facets of wild landscapes. However, in practice, any integration of the two concepts is likely to encounter considerable opposition. In a study by Cooper *et al.* (2002) in the Cairngorms region, for example, a number of respondents felt that re-wilding at any significant scale would actually reduce biodiversity due to the associated scrub encroachment in areas of high biodiversity value. In the current study, the views of respondents in this regard appeared to be somewhat divided: some supported the idea of integration (NGO/LG 1, GB 1), while others felt that integration was unnecessary and would in practice be difficult to implement and even cause further confusion as to the definitions of wildness and wild landscapes (NGO/LG 2). As Cooper *et al.* (2002) point out, a key delivery mechanism for biodiversity targets in Scotland has been the support of low-intensity farming. In this regard, it would seem crucial that, for any integration of the two concepts to occur in terms of policy, the cultural facet of wild landscapes – which could be seen to incorporate low-intensity agricultural land use – would need to be further recognised and developed to ensure the idea of wildness or wild land did not automatically alienate the farming community.

3.4 Forestry

As noted in section 2.3, past forestry policies and the resulting developments have often been stated to lead to the degradation of the wild character of many of Scotland's landscapes. Recent developments in forestry policy have, however, led to a considerable decline in both the use of non-native species in Scotland and large-scale planting in upland areas. The current policy context for forests and woodlands is, in many ways, now often seen as offering considerable potential for enhancement of these same wild landscapes (Garforth and Dudley, 2003). In 2004, one of the questions in the consultation conducted as part of the review of land managed by Forestry Commission Scotland (FCS) specifically addressed such issues (FCS 2004a). The report of the working group that concluded this process noted that many consultees supported '*ideas such as Forest Landscape Restoration, the recreation of wilderness experience, restoration of natural treelines and open ground habitats, and the development of forest habitat networks*', and recommended that FCS should pursue opportunities in these directions (FCS, 2004b).

Forestry policy is a relatively complex area and, as such, given the scope of this review, the key opportunities and constraints for wild landscapes from a forestry policy context are presented here in brief, rather than in an in-depth discussion format. The opportunities and constraints listed here are the result of a review of a range of policy documents (including Worrell *et al.*, 2002, Rogers and Taylor, 2003, Scottish Executive 2000b, FCS 2005, FTA 2003 and Peterken *et al.*, 2004) and discussions with three NGO/LG respondents and one GB respondent.

The following key opportunities for Scottish wild landscapes from a forestry context may be identified.

- The shift in forestry incentives to favour management for public benefits, coupled with the re-positioning of the national forest estate (see FCS, 2004a) should imply an increase in the area of land potentially available for 're-wilding' initiatives or management for wildness values.
- The use of native species has become the norm for new broadleaved woodland; creating new native woodland, an aim often perceived as being in line with wild land restoration, is a key aim of the Scottish Forestry Strategy (SFS: SE, 2000) and Habitat Action Plans (HAPs) for forest habitats.
- The increasing use of natural regeneration in forestry as a woodland establishment mechanism would appear to be the most favourable method of woodland establishment from a wild landscapes context and would also help retain carbon stocks in soils.
- The current decline in timber prices, particularly from 'traditional' conifer forests, implies there is no longer an automatic financial incentive to use non-native species over native species in forestry developments, including in wild land areas. It does, however, point to the need to manage woodlands for the production of quality timber and to develop local, value-adding opportunities.
- There is currently considerable interest among a range of organisations in the establishment of 'new wildwoods' in the UK (see Worrell *et al.*, 2002, Rogers and Taylor, 2003).
- The SBS promotes the "strengthening of the role of natural processes within Scotland's forest and woodlands resource" and this emphasis on restoration is reflected in recent FCS policy documents, with key restoration measures including; the removal of fencing, the reduction of the prevailing introduced species, and the encouragement of natural processes such as low-intensity grazing (Peterken *et al.*, 2004), all of which could be seen as relating strongly to the concept of wildness.

- The development of the concept of forest habitat networks, which involve large-scale (cross-border) initiatives based on the establishment of a core forest area and the maximisation of habitat connectivity through the use of habitat corridors. This essentially constitutes an approach aimed at limiting habitat fragmentation and can also be seen as favourable from a wild landscapes perspective, particularly in relation to the level of perceived naturalness of a landscape.
- There may be scope for the development of a wild land supplement within the Scottish Forestry Grants Scheme to support zones of 'non-interventionist' management (NGO/LG 1 GB 1).

Despite the above, there remain key constraints for Scottish wild landscapes from a forestry context, for the following reasons.

- Owners are continuing to restock upland conifer forests with non-native species despite the current economic climate and potential adverse environmental impacts. The increased use of native species and open space in re-stocking, and higher standards in visual design, have ensured much lower levels of landscape impacts from upland forestry practices in recent years. However, concerns were raised by three NGO/LG respondents in relation to the continued use of non-native conifer species in upland areas of high wild land quality.
- Due to the lack of statutory recognition of the location of wild landscapes, these same landscapes may be susceptible to unfavourable forestry developments (as well as the associated development of tracks and fencing) if they are not protected through some other existing designation mechanism. However, the thrust of guidance (for example the proposed new Forestry in the Landscape Guidelines) now make this highly unlikely.
- There is currently a significant degree of debate relating to landscape restoration. This debate relates to both disagreement on what should be restored on any given landscape (eg what stage in history/what species mix should be aimed for), as well as disagreement over what techniques should be employed by restoration projects. Some respondents (NGO/LG 2), for example, pointed out that tree-planting actually constituted a considerably unnatural process in itself. Two NGO/LG respondents also noted that the visions of certain Scottish landscape-scale restoration projects were sometimes seen as conflicting with scientific evidence on 'what was there before'. In practice, these disagreements could lead to a fragmenting of views and a weakening of support for landscape restoration projects.
- The SFS promoted the further development of a forestry-based biomass industry in Scotland, an opportunity which was again highlighted in the recently released 2005 review of the SFS (FCS, 2005). In practice, the diversification of the forestry industry and the development of local biomass- or energy production-based forestry could have considerable benefits for the forestry sector and communities, as could the further development of carbon 'off-set' forestry planting. However, any developments which lead to greater levels of new planting (particularly if utilising non-native species in upland areas) could also lead to the loss of area available for re-wilding or management for wild landscape values.

3.5 Agriculture

A second key area of land-use policy which has had a considerable impact on Scotland's wild landscapes is that of European Union and national agricultural policy. The CAP in particular, which was based on production support throughout the 1970s and 1980s, has had a number of impacts on Scotland's wilder

landscapes. The overstocking of sheep, which has occurred in many areas as a direct result of livestock headage payments (Kirkpatrick *et al.*, 1999), has been associated with the inhibition of regeneration in semi-natural woodlands (Hester *et al.*, 1996) as well as the loss of heather moorland habitats (Kirkpatrick *et al.*, 1999). The 1992 MacSharry reforms of the CAP, as well as the establishment of the Rural Development Regulation in 2000, have marked a gradual move away from production support in the UK, in favour of agri-environmental and rural development schemes. As highlighted at the general level in section 2.4, management initiatives associated with conservation of wild landscape values, or restoration of the same, may provide a key future opportunity for upland farm diversification in Scotland. The poor economic viability of hill farms in particular, combined with the gradual removal of agricultural subsidies under the CAP, provides a clear opportunity for greater public support of farm-based wild landscape management initiatives in Scotland.

As Rutherford (2004) points out, the CAP is often misunderstood due to the inherent complexity of its support mechanisms. The following section attempts to highlight the most obvious potential constraints and opportunities for wild landscapes from a current agricultural policy perspective. These have been developed from conversations with GB (3) and NGO/LG (3) respondents, as well as through the review of a range of documents including Rutherford (2004), Rogers and Taylor (2003), Thomson (2002), Dobbs and Petty (2001), and Scottish Executive (2004c).

The following key opportunities for Scottish wild landscapes from an agricultural context may be identified.

- Changes in both the Scottish rural economy and world markets are likely to increase the area of land available for ecological restoration or 're-wilding', or simply management for wilder values. In particular, the removal of subsidies under the CAP is likely to:
 - a) necessitate much greater farm diversification; and
 - b) potentially release funds, previously locked into subsidy payments, for more environmentally-focused farm initiatives, including those involved with the enhancement of wildness and improvement of the quality and area of natural habitats.
- Negative perceptions of agriculture as a land use could mean more farmers will attempt to sell their land, which could in turn create opportunities for land acquisition on the part of organisations engaged in land management for wild values.
- Foot-and-mouth disease has undermined confidence in the livestock sector as a whole and this could influence farmers to explore other forms of land use and land management.
- The shift in CAP funding towards greater Pillar Two funding (the so-called 'greening' of agriculture) and the subsequent development of greater support for agri-environment and rural development should benefit wild landscapes through an emphasis on low-intensity farming practices and diversification of farming practices in general.
- Potential may exist for a wild land supplement within the Single Farm Payment (SFP) (GB 1). In practice, this could encourage farmers to adopt a degree of non-interventionist or minimal (extensive grazing) management as well as potentially safeguarding the granted area from unsuitable developments (tracks etc.).
- The development of Land Management Contracts (LMCs), involving the integration of all land management support schemes, such as the Scottish Forestry Grant Scheme and Less Favoured Area

Support Scheme, should result in a more integrated and transparent land management support system to deliver public benefits. Two NGO/LG respondents pointed out that landscape-level or cross-border activities between management units should be easier to implement as more LMCs are put in place. In this regard, LMCs would appear to provide a clear opportunity to further the development of management activities at large scales, which provide public benefit, including the management of landscapes for wildness values.

Despite the above, there remain key constraints for Scottish wild landscapes from an agricultural perspective, for the following reasons.

- A resistance to change on the part of the farming community due to ingrained traditions and ways of life could mean the implementation of alternative land management systems (such as wild land initiatives) could be difficult to introduce – the Farm Woodland Premium, for example, received low uptake in its early years. In particular, many landowners with an agricultural background are unlikely to consider a change in land use from agriculture to ‘wild’ woodland/forests because they associate woodlands with low incomes, reduced land values and lack of flexibility, and perceive themselves as lacking the necessary skills (Rogers and Taylor, 2003).
- There is a widespread perception among members of the land management community that wild land equates to empty waste land and goes against any form of rural development.
- The ‘*maintenance of areas of permanent pasture*’ component of the SFP scheme may restrict opportunities for habitat restoration, while the areas-based approach to the SFP structuring in Scotland may mean that many hill farmers will want to maintain large areas under grazing, thus limiting the areas available for ecological restoration.
- Recent CAP reforms include a requirement to maintain agricultural land in ‘Good Agricultural and Environmental Condition’, through avoiding the encroachment of unwanted vegetation on agricultural land. This requirement could imply that the potential gains in terms of the ‘naturalness’ of farmland vegetation associated with decreased grazing levels (resulting from CAP subsidy removal), could actually be lost if ‘unwanted’ (potentially wild and diverse) vegetation is simply to be removed from agricultural land.
- There is currently a lack of incentives for farmers to support any sort of agriculture-based approach to re-wilding at large scales (see Rogers and Taylor, 2003).

3.6 Deer

The issue of the impact of high red deer numbers and overgrazing in wild landscapes was seen by some respondents as outside the scope of wild landscape management, as discussed in section 2. However, as a number of respondents placed considerable emphasis on overgrazing as an issue directly relevant to wild landscapes, it is included here from a ‘constraints and opportunities’ perspective. The issue of deer fencing also relates well to any perspective on wild land, whether recreational or ecological, and is also included in this section. Further discussion on economic aspects is included in section 4.2.6. The opportunities and constraints presented here represent discussions with three NGO/LG respondents and one GB respondent, as well as the review of a number of documents published by the Deer Commission for Scotland (DCS 2004a, DCS 2004b, DCS *et al.*, 2004, DCS 2000).

The majority of respondents considered that identifying a figure for 'near natural' red deer densities is difficult, and generally preferred the idea of attempting to identify densities which limited extensive damage to semi-natural habitats. Red deer densities seen as potentially damaging to such habitats vary with season and habitat type. However, the general consensus was that red deer densities of 2–5 deer/100ha were compatible with natural regeneration of native woodlands. This figure compares well with the 4–7/100ha figure suggested by Staines *et al.*, (1995) for allowing regeneration in Scots pinewoods, as well as with the 5/100ha figure suggested for upland Oakwoods by Langbein (1997). To avoid loss of heather, Cadbury (1992) advises that red deer densities need to be less than 25/100ha on wet heath or blanket bog and less than 50/100ha on dry heath. These suggested densities can be compared with an average density of 11.9 red deer /100ha across all 37 DCS survey areas for Scotland (Hunt, 2003). However, densities across these search areas vary greatly, from 5.5 in Caithness and Sutherland to over 30 in Glenartney, with densities in certain areas even higher, such as 43 deer per/100ha at Caenlochan in the East Grampians (Hunt 2003).

A key opportunity for wild landscapes from a deer management perspective, with regard to deer densities, is the idea of encouraging sporting interests to pursue quality rather than quantity in their approach to deer management. Hunt (2003), for example, supports the view that current culls can be maintained in many areas from much lower on-site deer densities, and that higher deer densities actually adversely affect stag quality. Bullock *et al.* (1998), in a survey of amateur stalkers, showed that a potential market existed for a stalking experience which involved higher quality stags, stalked in a more mixed range of moorland and woodland habitats.

A range of other opportunities for Scottish wild landscapes from a deer policy and management perspective may be identified.

- The issue of high deer numbers and associated environmental impacts has become a much higher profile concern within the Scottish Executive in recent years, due in part to the issue being raised in the Scottish media.
- Deer numbers are now generally seen to be falling in many areas across Scotland due to increased levels of culling in certain areas, and the establishment of Deer Management Groups across Scotland by the DCS.
- The establishment of the DCS has led to an increased level of professionalism in the approach to deer control in Scotland.
- Potential appears to exist for removal or shortening of the closed season on deer in Scotland, which could have the affect of further reducing deer numbers in the long term.
- Grants to assist with deer control are now available from Forestry Commission Scotland as well as, to a limited degree, the SNH Natural Care Scheme.
- The issue of deer fencing is currently being dealt with through a consensus approach; the DCS and a number of other organisations recently published a guidance and mitigation statement for deer fencing in Scotland (DCS *et al.*, 2004).
- There is the opportunity for the development in land use policies of the placing of a 'duty of care' on landowners and managers to ensure environmental impact (and therefore deer numbers) is minimised within and outside of designated areas of wild landscapes (NGO/LG 2).

Despite the above, there remain key constraints for Scottish wild landscapes from a deer policy and management perspective, for the following reasons.

- Despite a general increase in the level of deer control in Scotland, a small number of respondents expressed concern that the DCS is not exercising its powers to sufficiently control deer on private land, to the detriment of habitat quality in certain cases.
- Concern was expressed in relation to the loss of jobs which could result from any significant reduction in deer stalking on private estates as a result of low deer numbers.
- The continued link between Highland estate values and deer numbers was noted by some as a key cause for concern, with high deer numbers often being a key element of estate values while, at the same time, incurring significant environmental damage.
- Despite the fact that deer numbers appear to be decreasing (see opportunities), the majority of those questioned on deer noted that the issue of high deer numbers was still highly significant, with deer numbers in certain areas regarded as being well beyond environmental carrying capacity.
- Cross-border filtering of deer populations from sporting estates with high deer populations into estates or conservation areas with lower deer populations was highlighted by a number of respondents as a key issue in relation to the conservation and management of wild landscapes. This was seen as a key constraint to deer control, as any large-scale fencing measures would also have the potential to considerably impact on wild landscape quality.
- Concern was expressed by a number of respondents in relation to the few incentives to control deer currently available in Scotland.

3.7 Tourism and recreation

The Scottish Tourism Strategy (STS) lists Scotland's 'unspoilt natural environment' and 'cultural distinctiveness' as key strengths of the Scottish tourism sector (SE, 2000b). A number of respondents also highlighted the importance of Scotland's wilder landscapes to tourism, from both the recreational and broader aesthetic perspectives. The reality of the importance of Scotland's wild landscapes and mountain areas to tourism, discussed below in section 4.2, was clearly evidenced in economic terms during the foot and mouth crisis in 2001, which had serious and direct impacts on Scottish tourism and outdoor recreation (see Thompson *et al.*, 2002). Two interviewees pointed out, however, that despite this dependence on Scotland's scenery, the Scottish tourism sector has until recently rarely been involved in the debate as to how wilder areas should be managed (NGO/LG 1, GB 1). Further to this it was pointed out (NGO/LG 1) that, while the tourism sector was heavily dependent on wild landscapes as a resource, this same sector was also responsible for a number of '*inappropriate developments*' in areas of high wild land quality. As one NGO/LG respondent commented: '*the tourism sector relies on wild land...but they're also constantly waiting to develop... and are often the key developer in these places... I mean the [tourism] industry uses it [wild land] but they don't invest in their core product*'. A key opportunity in this respect may be to further encourage the involvement of the tourism sector as a key stakeholder in debate about wild landscapes, at both local and national levels.

Three respondents (NGO/LG 1, GB 2) also pointed out that the Scottish tourism sector has shown a distinct lack of diversification in terms of service provision, despite an overall increase in the number of visitors seeking 'alternative' tourist experiences. In this regard, the STS (SE, 2000b) notes an increase in the demand

for activity holidays in recent years, which would appear to present a clear opportunity for further development of this facet of tourism which relates directly to the Scottish wild landscape resource. The wildlife tourism sector was also noted by two respondents as having grown considerably in recent years (NGO/LG 1, GB 1), with the opportunity for the development of standards of good environmental practice now, while the industry was still growing. A NGO/LG respondent also noted the opportunity of

'fostering a greater awareness among tourism marketing personnel that their activities can mean the need to measure impacts beyond economics'.

Visitor numbers to Scotland are likely to increase considerably over the next 20 years, with the Scottish Executive envisioning a growth in revenue of some 50% in the same period (SE, 2000b). The management of visitors to Scotland's wilder areas is therefore likely to require careful future consideration to ensure adequate protection from both the potential impacts of increased visitor numbers and the potential increase in development of visitor facilities. SNH (2002a) points out that no tradition of managing recreational activities in wild land areas exists in Scotland and that any such action could be controversial. SNH (2002a) in this regard advocates that any approach taken should be through consensus and involve working with the representative recreational bodies.

Two NGO/LG respondents agreed that the differences in the attitude of recreational users of wild landscapes in the UK, relative to those in areas like the USA, implies that visitor management needs to be carried out in a more sensitive and 'less controlling' manner than in equivalent US wilderness areas. In particular, one respondent noted the potential for the application of an equivalent to the 'Leave No Trace' program developed in the USA. This promotes responsible wilderness recreation through appropriate recreational behaviours, with the onus being placed on the individual, following the creation of awareness through brief training programs or general awareness-raising techniques (see Heywood *et al.*, 2001). The Northern Peripheries 'Nature Based Tourism' project has begun to promote such an approach. As pointed out by an NGO/LG respondent, scope exists for the incorporation of such awareness-raising within current outdoor pursuits courses in Scotland as well as within more general interpretation related to wild landscapes.

3.8 Health

As the JMT (2004) points out, recreation in wild areas provides physical health benefits through the prevention of disease associated with exercise, as well as mental health benefits such as the relief of stress, anxiety, and depression and contributing to improved self confidence and self esteem. This is further discussed with regard to economic values in section 4.3. A government body respondent also noted that a '*clear link existed between wild land, access and health improvements*', noting that the Executive's policies to improve health and access provide an opportunity to further the cause of wild landscapes through a less direct route.

The relevance of the Scottish Executive health agenda to wild landscapes lies primarily in the potential for promotion of these landscapes (NGO/LG 1). The Scottish Physical Activity Strategy (Scottish Executive, 2003) for example, as well as the current Scottish Paths to Health initiative (see www.pathstohealth.com), both promote walking across Scotland, although neither focuses particularly on wild landscapes, as they are primarily targeted at less active members of the general public. Despite this, as one respondent pointed out, promotion of the wild landscape resource does have a place in health policy, particularly from the point of

view of creating awareness that a high quality outdoor recreational resource exists in Scotland. As this respondent stated:

'wild land is a key part of cultural awareness of the outdoors as a resource in Scotland...wild land just because it exists in the Scottish mindset makes us more aware that the great outdoors is there to use...so we need more PR for wild land...I mean Canada...they improved the health of the whole population by promoting the great outdoors...'.(NGO/LG 1).

A further link between health policies and wild landscapes relates to changing land uses in catchments which supply water for domestic use. For instance, in 2000, a *Cryptosporidium* outbreak in Glasgow was blamed on oocysts from sheep grazing in the Loch Katrine catchment. One outcome was that all sheep were removed from the catchment and an Integrated Catchment Management Plan was developed (Babtie Group, 2001). This included a significant expansion of native woodland, a significant reduction in sheep densities from previous levels, and other management actions to foster nature conservation. The implementation of these activities is contributing significantly to the area's wild landscape characteristics (see also section 5).

3.9 Land ownership and land reform

A further area with potential to impact upon the Scottish wild land resource is that of policy which relates to tenure and rights of both landowners and non-landowners in relation to the land. Landownership and 'rights of tenure' have long been contentious issues in Scotland, which is perhaps no surprise, given that even today the country exhibits one of the most concentrated patterns of landownership in the world, with the bulk of the rural countryside in the hands of less than 1,500 estates, 600 of which comprise approximately 50% of the total area (Wightman, 2004). This pattern is even more pronounced in the Highlands and Islands where some 340 estates cover 2.1 million hectares and account for over half of all privately held land. Since the late 1990s, increasing concerns over environmental impacts related to private ownership in certain areas has led to a number of community and conservation buyouts in areas such as Mar Lodge and Assynt, which may be viewed as important wild land areas.

A key development in terms of policy in this regard was the passage of the Land Reform (Scotland) Act in 2003, which includes three main areas: a right to buy on the part of rural communities; a right to buy on the part of crofting communities; and increased public access rights. The Act has opened the gates to an increased diversity in ownership in Scotland, which in practice may have considerable consequences for wild landscapes. A number of key constraints and opportunities relating to ownership and land reform policy are outlined below and constitute the results of discussion (NGO/LG 2, GB 2) as well as document and literature review (see Wightman 2000, LRP 1998, 1999, Warren 2002b, Rogers and Taylor 2003, Trench 2004).

The following key opportunities for Scottish wild landscapes from a landownership and land reform perspective may be identified.

- The large extent of a significant number of landholdings is likely to be a significant factor in favour of wild land projects by public, NGO and private owners who perceive that such projects could help to achieve their objectives.

- The current expansion in community ownership in Scotland represents a generally well respected and apparently sustainable form of land ownership. In areas like Assynt and Knoydart, community or community/conservation NGO partnerships have developed management plans for large-scale landscapes, with an emphasis on both rural development and conservation of the areas' natural heritage (including wild character).
- Debates are ongoing within the Scottish Executive regarding the potential expansion of the Scottish Land Fund, which could mean greater availability of funds to support community or partnership purchases of wild land areas.
- A number of respondents noted that the huge expansion in forestry plantations in the 1970s and 1980s on private estates was evidence that private owners would most likely respond to a similar funding system for wild land development and maintenance.

Despite the above, there remain key constraints for Scottish wild landscapes from a landownership and land reform perspective, for the following reasons.

- A number of respondents pointed out that community ownership does not necessarily imply that land would be managed well from a wild landscapes perspective, pointing out for example that communities in disadvantaged wilder areas could be just as easily tempted by the returns from a wind farm development as a private owner.
- While it was generally acknowledged that conservation NGOs manage the land well in terms of wildness values, one respondent expressed the concern that this did not necessarily imply adequate community involvement or rural development objectives on the part of NGO landowners.
- It was also pointed out that NGO landowners have limited resources and, relative to private owners, only own a fraction of Scotland. The case of the Skye Cuillin still being on the open market was suggested as a key example in this regard.
- The reliance on volunteer labour and the lack of management expertise were also listed as concerns relating to community ownership initiatives.

3.10 Constraints and opportunities – key conclusions

At the level of Scottish government policy, the principal opportunities for giving clearer status to wild land would appear to lie in the inclusion of specific criteria in planning guidance, for instance in the revision of the National Planning Framework, NPPG 14, and GPDOs. These would also address other issues such as renewable energy developments. In addition, given the ongoing discussion about NSAs, consideration could be given to including wild land/landscape criteria in a revised NSA framework.

The SBS provides opportunities both for enhancing the ecological aspects of wild land/landscapes (restoration, habitat networks, landscape-scale approaches) and for increasing awareness of their characteristics. However, there are minimal funds allocated directly to the implementation of the SBS; this depends mainly on the allocation of budgets within the various concerned organizations and agencies. With regard to incentives, Natural Care and other instruments targeted at the management of designated sites may provide particular opportunities.

CAP reform presents opportunities for new ways of managing land, potentially increasing wild land characteristics in appropriate areas; but such opportunities need to be addressed through targeted and coordinated incentives at the scale of entire landholdings or even larger landscape units. A key question would be the definition of criteria of wild land/landscapes, in order to decide which landowners would be eligible for financial support; and what outcomes they would have to match (ie, monitoring). At the landscape scale, Deer Management Groups may be a useful mechanism for contributing to the maintenance of wild land quality or increasing the size of areas managed with a wild land emphasis, given that overgrazing by deer is regarded as a key issue in many landscapes of wild character. However, it is likely that considerable expansion of the general remit of DMGs would be necessary to adequately account for the diversity of issues involved. Land Management Contracts could also provide a basis for collaborative approaches to the management of large areas of wild landscape. LMCs should, in practice, provide a clearer understanding of individual landowner objectives, as well as providing the potential for strategic cross-border (ie, joint) land-use planning (and therefore wild landscapes management) through the relevant LMC administrative body.

An issue which must be carefully considered in relation to any potential changes to Scottish planning guidelines, GPDOs and designations, is that of the effect of such changes on flexibility in farm management. Maintaining flexibility will be of key importance as CAP reform results in the removal of production-based subsidies and leads to diversification into other areas of 'farming' or land use in general. An overemphasis on protecting wild landscapes through planning controls could actually result in farmers having an increasingly negative perception of the idea of wild landscapes. The maintenance of opportunities for farm diversification, as well as maintaining the cultural elements within the concept of wild landscapes could, in the long term, be beneficial for such areas.

As shown in section 4.2 below, the tourism and outdoor recreation industry derives significant financial and employment benefits from the existence and use of wild landscapes. However, making the links between these sectors and wild landscapes, particularly in economic terms, may not be easy. With regard to biodiversity conservation, certain companies which use high-quality resources (eg, for bird-watching) already pay landowners for access to this resource. This model might be possible for access to wild land for companies which gain direct economic benefit from this access. Tourism and recreation also bring opportunities for increased awareness, as recognized by the trend towards new interpretative facilities at some of the sites addressed in the survey (see section 5). Such facilities can provide direct income to owners of wild land. The tourism industry is, however, often criticised in relation to insensitive developments in areas of high wild character. It is therefore critical that this sector becomes more involved in the wider debate concerning wild landscapes in Scotland.

The social and health benefits of wild landscapes are apparent from section 4 of this report. It is apparent that considerable scope exists for further promotion of the recreational use of wild landscapes through the Scottish Executive's health agenda, and this could have considerable benefits for both the mental and physical well being of the many of the Scottish public. This promotion would also increase awareness of wild landscapes, not just with regard to their recreational potential, but in relation to their overall uniqueness at a European scale.

4 BENEFITS AND COSTS OF LANDSCAPES OF WILD CHARACTER

4.1 Introduction and methodology

This section presents the quantification of the benefits and costs of landscapes of wild character by drawing on published data to illustrate the different types of values that can accrue from such landscapes. A full glossary of the economics terms used in this section is provided in Annex 7.

The concept of total economic value (TEV) suggests that the value of an environmental resource is comprised of a number of distinct value types broadly categorised as use and non-use, as described in Table 5. However, a disadvantage of using existing data is that it is often not collected for the purpose to which we are putting it. Consequently, we expect there to be an incomplete coverage of TEV in any one study.

Table 5 Total economic value categorisation

Value type	Description
Use values	
Direct use	Values accruing to individuals and society from the direct use of a resource. This may be through either extractive use (eg, agriculture, forestry) or experiential use (eg, recreation).
Indirect use	Values accruing to individuals and society from services provided by natural functioning of a resource. These include ecological functions resulting from biodiversity; and buffering, filtering, and storage functions in hydrological and atmospheric cycles. For example: flood amelioration, pollutant filtering and carbon sequestration.
Non-use values	
Intrinsic/existence	Values accruing to individuals and society from the knowledge that an environmental resource exists in a particular state.
Option	Values arising from the potential use of a resource for future direct or indirect use.
Bequest	Values accruing to individuals and society from the knowledge that a resource is preserved for use by future generations.

Table 6 illustrates the different sources of use and non-use benefits and costs that can arise from wild landscapes. In respect of the costs listed under direct use values, these are, strictly speaking, opportunity costs in that they represent the benefits of foregone alternative land uses in areas managed as wild landscapes. As discussed in previous sections, depending on the definition of wild landscapes used, a wide range of direct uses arises. The users may also differ in their definitions of what constitutes wild landscapes. For example, landscapes which appear wild and untouched to some may, in fact, be the result of continued, albeit extensive, human management.

4.1.1 Economic values and economic impacts

The studies reviewed here primarily report on the economic value of wild landscapes². Direct use values are derived through the expenditure of visitors to areas of wild landscape or of those undertaking recreational activities associated with these areas. Indirect use values, such as ecosystem services, for example carbon sequestration, can be derived on the basis of avoided damage costs. Non-use values are derived through hypothetical valuations of conservation programmes and policies. Conservation values are typically site-specific and not reported with corresponding costs, so the values reported are not net of costs unless specifically stated.

Economic impacts are concerned with income and employment outcomes. These may be either direct impacts arising from visitor or management expenditure or indirect impacts accruing as income flows through the economy from the direct recipients. Appropriate multipliers³ can be used to derive the income and employment effects of visitor expenditure. Multipliers allow the calculation of the impact of each £1, or more commonly £1000, of expenditure in terms of the increased income and employment in the local economy. The extent to which expenditure impacts on the local economy through income and employment multipliers depends on the connectivity within those economies and the degree of leakage to other areas (Midmore, 2000)⁴. Midmore (2000) notes that multipliers vary according to the remoteness of the area concerned: increasing remoteness results in lower connectivity and higher leakages.

George Street Research and Jones Economics (2004) report income multipliers for the Highlands and Islands economy of 0.32 for overnight visitors and 0.28 for day trip visitors, and employment multipliers⁵ of 0.03 (overnight visitors) and 0.029 (day trip visitors). Where appropriate, the economic values derived from visitor expenditure are used to calculate the employment impacts.

4.1.2 Comparison of methodologies

The studies reported below have derived economic values and impacts using a number of methods. The direct use values for visitors and recreation have been derived from surveys of visitors (based on location and activity) and their associated expenditure. As people have alternative activities upon which to spend their time and income, we can take their expenditure as an indication of the value they place on that location or activity. This will not fully determine the value or consumers' surplus⁶ they derive from the activity, as we are unable to observe their behaviour in the event of higher prices, ie their full willingness to pay.

Whilst valuations based on expenditure have the advantage of using actual observed behaviour, a degree of uncertainty persists when inferring that these values are associated with wild landscapes. It would be more

² Two other useful reports of relevance in this context are by Willis *et al.*, (2000, 2003), focussing on the non-market benefits of forests, many of which are components of wild landscapes.

³ A full discussion of the calculation of income and employment multipliers is beyond the scope of this report. Further details can be found at: www.scotland.gov.uk/Topics/Statistics/14713/484

⁴ Leakage occurs when visitor expenditure is used to purchase goods and services from outwith the immediate local area or region.

⁵ Full-time equivalents (FTEs) per £1000 expenditure.

⁶ The satisfaction that consumers obtain from a good over and above the price paid.

precise to say that the values reflect a combination of landscape characteristics and the value placed on the activity being undertaken, for example hillwalking. Consequently, we should characterise these values as being of low to medium resolution⁷ with respect to wild landscapes, and the derived values as being maximum values.

The economic impacts of activities such as grouse moor and deer management have been reported, in either income or employment terms or both. With respect to grouse moors, the reporting of economic impacts appears to be preferred by researchers, as the average grouse moor operates at a deficit. In other words, although the values placed on grouse moors in landscape terms may be high, they have not been quantified.

Indirect use values are typically not transacted, nor have observable economic impacts. Instead, these can arise from avoided defensive expenditures for issues that arise from failures in ecosystem services, for example flood defence schemes in the lower parts of river catchments. In the case of carbon sequestration (or loss), the avoided (or incurred) costs may not be apparent at present⁸.

A number of techniques have been developed to allow the determination of monetary values for non-use values. These vary in sophistication, but the common approach is to elicit willingness-to-pay (WTP) data from respondents with regard to a change in provision of the resource of interest using the contingent valuation method (eg Bateman *et al.*, 2002). The extent to which intrinsic, option and bequest elements of non-use value can be isolated depends on the valuation scenario offered to respondents in survey questionnaires.

In terms of the confidence we can place on values, caution should be taken when progressing from estimates of direct use values based on observed behaviour and data towards non-use values elicited from hypothetical behaviour. However, that is not to say that non-use values are not considerable; they provide a valuable tool in determining policy priorities for delivering environmental resources that are of a non-market or public good nature. The resolution of these values with respect to wild landscape is also high, due to the ability of the researchers to control the valuation scenarios.

The different studies cited in this report were carried out in different years and hence the economic values will have been reported in values for that year. To account for the effects of inflation these values should be deflated to a reference year to allow direct comparison. Treasury GDP deflators⁹ have been used to deflate all values presented to a reference year of 2004, denoted as £2004, unless otherwise stated.

The costs and benefits of wild landscapes will accrue to different sections of society to a greater or lesser extent. Where appropriate, we indicate whether the costs and benefits accrue to landowners, local communities, wider society, or the government. For the government, and its agencies, the costs are likely to be monetary in terms of policy and administration costs, whereas the benefits will be non-monetary and will arise from meeting policy objectives.

⁷ 'Resolution' is not an economic term; it reflects the extent to which one can say that the information relates directly to wild landscapes. Low resolution means that the study may capture the value of wild landscapes, but it is not precise as there may be overlaps with other landscape types, eg the data on tourist day trips. High resolution means that the values are definitely for an area of wild landscape or an associated activity.

⁸ For example, estimates of the present value of CO₂ emissions from industry vary from £9.5 to £38.2 per tonne (£2000) discounted from damages to 2100 at a discount rate of 3%. <http://statistics.defra.gov.uk/esg/reports/foodmiles/annex3.pdf>

⁹ www.hm-treasury.gov.uk/economic_data_and_tools/gdp_deflators/data_gdp_index.cfm

4.2 Direct use values: value of recreation and tourism

Wild landscapes provide direct use benefits for recreation and tourism through the users' direct experience of, and interaction with, such landscapes. The United Kingdom Tourism Survey 2002 states that there were 18.5 million visits to Scotland in 2002 by UK-based visitors (49% Scottish) and 1.58 million visits from overseas, accounting for £3.7 and £0.8 billion respectively. These figures should only be considered as indicative of the 'market for Scotland', part of which includes landscapes of wild character.

4.2.1 Day visits to natural and wild landscape areas by the Scottish public

Table 7 presents the results of a survey of recreational day visits between July 2003 and June 2004 in Scotland undertaken by TNS (2005) on behalf of SNH. This study also estimated mean spending during such visits across a number of items. For illustrative purposes, Table 7 allocates the mean visitor spend across the different types of site visited, although caution is urged in interpreting the spending figures for each type of site. Overall, there were 188.7 million outdoor visits, with a total spend of £3.95 billion.

The data are not of sufficient resolution to identify specific visits to areas of wild character. For example, woodland and forests consist of both managed plantation and semi-natural woodland, of which an unknown proportion could be considered of wild character. Similar arguments can be made for other types of sites indicated in Table 7. In total, these types of site account for 112.3 million visits (59%) and approximately £2.36 billion of expenditure. More precisely, these sites could be considered as being of natural character. A more conservative estimate might include only mountain, hills, moorland and wildlife areas as being of wild character. Such areas attract 19.9 million visits (10.5%) and expenditure of approximately £411.4 million.

TNS (2005) found that 47% of day visits took place at sites within 10 miles of the respondent's home. The report does not present cross-tabulations of the data that would allow a determination of how these trips relate to the possible destinations of wild character. This is important as trips to areas of wild landscape will generally be of greater distance. TNS (2005) does report on the activities undertaken during trips. Those that might be considered to involve wild landscapes include hillwalking/mountaineering, wildlife/nature watching and bird watching; these constituted 5%, 8%, and 6% of trips respectively, 19% of the total. Consequently, an alternative estimate of the value of wild landscapes can be made. Assuming a constant average expenditure per trip, 19% of day visits would account for expenditure of £751 million.

Key points:

- **Natural areas account for 112.3 million day visits by the Scottish public**
- **Activities associated with wild landscape areas account for up to 19.9 million day visits by the Scottish public**
- **Between 10% and 20% of day visits by the Scottish public may be related to wild landscapes**
- **Associated expenditure is between £411 and £751 million per annum for day visits to wild landscape areas**

A number of studies have been undertaken that consider the economic impacts of more specific activities that take place in areas that can be considered of wild character with greater certainty.

Table 7 Visitor numbers and estimated spend for outdoor visits 2003/2004
Source: TNS (2005)

	% of visitors	Number of visits (m)	Expenditure (£2004m) ^a
Park/open space	21.4%	40.3	833.4
Beach/cliff*	10.8%	20.5	433.3
Woodland/forest owner unknown*	10.3%	19.5	400.1
Woodland/forest FC managed*	8.3%	15.7	333.9
Village	9.0%	17.0	354.9
Sea/sea loch*	8.6%	16.2	349.0
Mountain/hill/moorland**	8.5%	16.1	332.3
Loch*	6.6%	12.5	268.4
River/canal*	4.2%	8.0	164.9
Farmland	3.7%	7.0	146.3
Wildlife area**	2.0%	3.8	79.1
Other	6.5%	12.2	257.3
Total	100.0%	188.7	3952.9
Total natural character	59.3%	112.3	2361.0
Total wild character	10.5%	19.9	411.4

* May contain landscape of natural character

** May contain landscape of wild character

^a Food and drink; fuel; gifts and souvenirs; car parking; public transport fares; maps/guidebooks/leaflets; hire of equipment; and purchase of equipment.

4.2.2 Value and impacts of hillwalking and mountaineering: Highlands and Islands Enterprise area

Jones Economics (1996) undertook a study of the economic impacts of hillwalking and mountaineering¹⁰ that covered the highland topographical area (north of the Highland fault line) with a subset of the Highlands and Islands Enterprise (HIE) area. The study estimated that 767,000 mountaineers had visited the highland topographical area (506,000 HIE area) in the previous 12 months. These mountaineers spent £157.9 million and £104.1 million in the highlands and HIE areas respectively, accounting for 6100 and 3950 full time equivalent (FTE) jobs respectively. For comparison with the more recent day visit survey undertaken by TNS, the expenditure reported by Jones Economics can be deflated to 2004 values¹¹ and is equivalent to £193.5 million and £127.6 million in the highland and HIE areas respectively.

The figures presented by Jones Economics (1996) are now 10 years old, and require some updating. No specific studies have been undertaken, but more recent figures can be inferred from data collected for HIE and VisitScotland. George Street Research (2003)¹² surveyed visitors to the Highlands (HIE area) to

¹⁰ Specific activities included were: hillwalking with ascents of hills >2500 ft; technical climbing involving ropework on rock, snow or ice; ski mountaineering; and high-level cross-country ski touring.

¹¹ The HM Treasury GDP deflator for 1995/6 is 0.816 for a base year of 2003/4.
http://www.hm-treasury.gov.uk/economic_data_and_tools/gdp_deflators/data_gdp_fig.cfm

¹² The same data are presented in the more recent report for HIE by George Street Research and Jones Economics (2004).

determine their main activities and other characteristics of their trip. The survey found that hillwalking and mountaineering were the primary activities of 24% of visitors. VisitScotland (2003) published three-year averages for visitor numbers to the same area, which were estimated at 2.5 million. Although not a precise measure, this indicates that there were 600,000 visits to the HIE area by hillwalkers and mountaineers in 2003 which, compared to the 506,000 estimated by Jones Economics, suggests an 18.6% increase. Average spending per person per night was £51 (this accounts for visitors not making overnight stays): this translates to an average of £328 per person per trip. In aggregate, this indicates expenditures of £196.8 million by hillwalkers and mountaineers.

Key points:

- ***Hillwalking and mountaineering in the HIE area accounted for 600,000 visitors in 2003, a 19% increase since 1996***
- ***This generated estimated expenditure of £196.8 million***

4.2.3 Value of other wild landscape related activities: Highlands and Islands Enterprise area

The George Street Research survey also found that other activities related to wild landscapes also accounted for a large proportion of trips: bird watching (17%); visiting woodland/forest (18%); watching land-based wildlife (14%); and watching marine wildlife (13%). These indicate visitor numbers of up to 1.5 million. Caution must be advised with these estimates, as the extent to which wild landscape involved is not known, and there is also some double counting within the data, as visitors often undertake multiple activities. However, assuming the same average spend per trip as for hillwalkers and mountaineers (£328 per person), the maximum aggregate expenditure is £492 million for wild landscape-related visitors. Further aggregation of these estimates from the HIE area to the whole of Scotland is not possible as comparable data have not been collected elsewhere.

Key points:

- ***Up to 1.5 million visitors (excluding hillwalkers and mountaineers) undertook wild landscape-related activities in the HIE area in 2003***
- ***This generated estimated expenditure of up to £492 million***

4.2.4 Economic impact of visitor expenditure

Applying the employment multiplier of 0.03 (FTEs per £1000 spent) for visitors suggests that the employment effect of the visitor spending in the HIE area for wild landscape-related activity is 20,600 FTEs. This is based on total spending of £688.8 million comprising £196.8 million spent by hillwalkers and mountaineers and £492 million from other wild landscape related activities. Throughout Scotland, up to 22,530 FTEs may be supported by wild landscape-related day visits, based on expenditure of up to £751 million. As expenditure is to some extent spread throughout Scotland (fuel and other travelling costs such as meals), not all of the employment effect will be localised. These are not separable figures as some degree of double counting is inevitable between the HIE areas and Scotland as a whole, instead they indicate the likely scale of the economic impacts.

Key points:

- **Wild landscape related visits to the HIE area supported up to 20,600 full time equivalent jobs in 2003**
- **Wild landscape-related day visits supported up to 22,530 full time equivalent jobs throughout Scotland in 2004**

4.2.5 Economic impacts of grouse moors

The Fraser of Allander Institute (FAI, 2001) undertook a study of the impact of grouse moors in Scotland. Although, from a scientific perspective, it can be argued that grouse moors are managed landscapes, it might also be the case that, from a wider public perspective, including those who participate in grouse shooting, they are of wild character. FAI (2001) estimate that the total effects of grouse shooting in Scotland in 2000 included direct employment and income (wages) of 630 FTEs and £9.3m respectively. Indirectly, these effects resulted in 940 FTE jobs and an income of £14.8m. The direct and indirect GDP effects were £3.1m and £8.6m respectively. These figures can be compared to earlier estimates of the impacts of grouse shooting made by McGilvary (1995). McGilvary estimated a combined direct and indirect employment effect of 1239 FTEs and a GDP impact of £4.7m. The GDP effects should be deflated to a common year (2004 for consistency with other data) to allow proper comparison, and are estimated to be £5.93m and £9.34m for 1994 and 2001 respectively. Caution should be taken in interpreting the apparent improvement over the period, as grouse shooting is subject to cyclical fluctuations arising from weather and disease (McGilvary, 1995).

Key points:

- **Management of grouse moors directly contributed £9.3 million and 630 full time equivalent jobs in 2001**
- **Indirect effects were £9.3 million and 940 full time equivalent jobs in 2001**

4.2.6 Economic impacts of deer management

As a recreational activity, deer stalking, to some extent, relies on the presence of wild landscapes. However, we have been unable to identify any studies that have estimated the economic benefits of deer stalking when undertaken as a purely recreational activity. The most recent estimate of employment in wild deer management was 850 FTEs in 1999 (Hunt, 2003). Hunt (2003) notes that this figure also includes deer management activities such as fencing, and that precise estimates for deer management by estate staff are difficult due to the seasonality of management activities such as culling. The extent to which spending on deer management should be considered a 'benefit' is also debatable, as these are often defensive expenditures aimed at preventing damage caused by deer, as discussed in section 3.6. In addition to expenditures by individual estates, the Deer Commission for Scotland had a publicly funded budget of £1.5m for 2004/5 (DCS, 2005).

White *et al.*, (2004) estimated the impacts of damage by wild deer in the East of England to be between £7m and £10.2m, based on a population of 76,237 deer and a landscape density of up to 14.7 deer/km². This compares to a Scottish deer population of around 900,000 (all species) across a range of densities from 2.7 to 31.2 deer/km² for red deer (Hunt, 2003). A direct transfer of value between the East

of England and Scotland is not possible, due to the number of interacting factors that contribute to the impacts of deer, but the cost estimates are a useful indicator of the likely scale of damage in Scotland.

Key points:

- **Wild deer management supported 850 full time equivalent jobs on 1999**
- **Damage caused by deer to wild landscapes, although not quantified, may be substantial**
- **Direct use values: Health and social benefits**

4.3 Direct use values: health and special benefits

4.3.1 Health benefits

As discussed in section 3.8, the recreational use of wild landscapes can be argued to have wider benefits to society, as recreation can have positive impacts on the health of individuals and consequently reduces the burden of chronic ill health on the National Health Service, notwithstanding the costs of accidents and injuries. There are no specific studies that quantify the wider health benefits of wild landscapes or the activities undertaken within them. HIE (2003) found that 60% to 72% of participants in low-level walking and hill walking belonged to social groups¹³ A, B and C1, despite these groups making up 35% of the Scottish population. Participation amongst social group E was well-represented, but groups C2 and D were under-represented, at between 13% and 21% of participants whilst forming 40% of the population. It might be argued that chronic health problems arising from poor diet, lack of exercise, smoking and alcohol are more pronounced in less affluent social groups. Therefore, for the benefits of wild landscapes to be realised, some policy intervention may be required to encourage visits and participation in activities across under-represented social groups.

4.3.2 Educational benefits

Wild landscapes can provide an important education resource both in terms of providing an outdoor laboratory for scientific study and as a resource for physical activity. Richardson (2002) reports that wilderness has been found to promote team-building and co-operation and a greater respect for the environment. Section 5 also shows (see Table 19) that a large number of sites managed for wild landscape and conservation values engage in a range of educational activities such as ranger led walks, in-depth on-site and off-site interpretation, and on-site research and site visits by school groups as well as groups from colleges and universities. These activities can provide income to the owners of wild landscapes, and the resulting increased awareness may contribute to non-use benefits.

¹³ Social groups are defined on the basis of main household income earner as follows (retired people are assigned according to previous occupation):

A: Professional people, very senior in business or commerce, or top civil servants.

B: Middle management executives in large organisations; principal officers in local government and civil service; top management or owners of small business.

C1: Junior management; owners of small establishments; and all others in non-manual positions.

C2: All skilled manual workers, and those manual workers with responsibility for other people.

D: All semi-skilled and unskilled manual workers.

E: Those entirely dependent on the state long-term, through sickness, unemployment, old age or other reasons.

4.3.3 Social benefits: youth at risk, reconciliation

As discussed in section 2.4.6, arguments have been made for the benefits of wild landscapes in reducing youth crime. Again, there are no specific UK studies applicable to wild landscapes, but there is evidence that cultural activities can have positive effects. Ruiz (2004) reports that offending rates among young people in high crime areas have been substantially reduced following targeting of sporting and cultural activities in these areas. Such activities were found to have the positive effects of improved physiological and mental health, increased sense of well-being, personality development, and social learning. The relative costs and benefits of providing activities in wild landscape areas as compared to local neighbourhoods need to be fully assessed.

The use of wilderness experiences in youth programmes has been more fully developed internationally. In the USA, a wilderness experience programme, Wilderness Discovery, has been trialled for unemployed high school dropouts who had been participating in conventional employment schemes (Russell *et al.* 1998). The use of a wilderness experience was found to have a number of positive effects including empowerment through increased self-confidence and self-esteem; reduction of stress; and improved interpersonal skills.

Participants in the wilderness experience had lower subsequent drop out rates from the employment schemes, with an average reduction of 23%. The employment program itself was found to have a benefit cost ratio of 1.46:1, ie for every \$1 invested in the program an additional \$0.46 was returned in terms of reduced dependence on welfare payments, reduced criminality, and reduced drug and alcohol abuse. The wilderness experience was estimated to have a benefit-cost ratio of 1.52:1, ie an additional \$0.06 in benefit, a 13% increase, arose from incorporating the wilderness experience.

Wilderness experiences have also been used to facilitate reconciliation between former adversaries following the ending of conflicts.

Key points:

- **Health, educational and social benefits have been linked to experience of wilderness**
- **There is very little quantification of these benefits, and these should be investigated with respect to wild landscape.**

4.4 Indirect use values: Ecosystem services

Wild landscape components provide a number of ecosystem services, which can be broadly classified as indirect use values in economic terms. Ecosystem services cover a range of natural processes, such as the hydrological and carbon cycles, and biodiversity.

4.4.1 Hydrological cycle

Hydrological services include water storage and impacts on flow regimes that can reduce downstream flooding events and reduce soil erosion. In 2004, the Association of British Insurers (ABI) estimated that the average annual costs (to the insurance industry) of flood-related insurance claims in the UK was £400m (£2004) rising to £1.5bn (£2004) in years of extreme weather events. Looking forward to 2050, with the effects of climate change and more frequent extreme weather events, the ABI estimate that average annual flood costs will rise to £800m (£2004) and £4.5bn (£2004) in extreme years.

The extent to which areas of wild landscape can contribute to the mitigation of future flood damage cannot be easily quantified. Such areas are typically far removed from the urban areas where flood damage is most severe, and the extreme rainfall events that lead to flooding are often localised rather than catchment-wide. However, this does not preclude the inclusion of wild landscapes in broader land use strategies for hydrological and flood management. In particular, large-scale habitat restoration schemes resulting in re/afforestation may also provide benefits in terms of increasing infiltration and reducing runoff; though this may also be viewed as a disbenefit if the availability of water to supply reservoirs is reduced. These relationships are complex and not too well understood, and change throughout the process from initial re/afforestation to canopy closure (Willis *et al.*, 2000, Rogers and Taylor, 2003). Smaller-scale areas in the lower catchments of rivers that might be considered to have wild character (although considered degraded in terms of the wild landscape typology), may offer greater benefits in terms of flood protection and water quality through buffering and filtration.

Intensive agricultural production can result in incidences of poor water quality through contamination by faecal matter and cryptosporidium. Excessive nutrients can also be released, resulting in ecological damage to water bodies. However, as with flood mitigation, the extent to which wild landscapes in upper catchments can contribute to improved water quality may be limited.

4.4.2 Carbon cycle

Wild landscapes can contribute to the mitigation of climate change through their role within the carbon cycle, most notably in the sequestration and storage of carbon. Specifically, many wild landscape areas in Scotland are associated with peatland, which acts as a major store for carbon. More generally, soils in natural areas have higher levels of organic matter and reduced levels of carbon flux when compared to cultivated land.

Some evidence of the value of carbon sequestration is available, as it can be obtained from estimates of the damage costs of carbon emissions in a climate change context. These vary from £8.80 to £35.20 (£2004) per tonne (AEA, 2005). SQW (2004) state that peatland can uptake carbon at a rate of 0.239 tonnes of carbon (tC) per hectare per year, suggesting a value of sequestration of between £2.10 and £8.42 per hectare per year. McGowan *et al.* (2002) note that there are over 20,000km² of peatland in Scotland, suggesting sequestration of approximately 4.8 mtC per annum with a value range from £41.8m to £168.2m per annum. Milne *et al.* (2000) note that a low-productivity conifer plantation on peatland can increase carbon sequestration of peat by an additional 0.4 tC/ha/yr. Including tree production and litter carbon, the net carbon sequestration by the afforested peatland was 46.8 tC/ha over a 26 year period (Milne *et al.*, 2000). However, intensive afforestation of peatland can result in substantial carbon losses, primarily due to the associated reduction in moisture content (Willis *et al.*, 2000). Perhaps more important than current and future carbon sequestration by peatlands is the continued retention of existing stores of carbon which could be released as result of drainage, land-use change, soil disturbance (eg through timber extraction, ground preparation or road construction), or long-term climatic changes.

The contribution of forests to carbon sequestration depends on the species used, the nature of the planting operation, previous soils use and levels of carbon stored in soils, and the growth and harvesting cycle of particular trees planted (Willis *et al.*, 2000). However, no data are available which would show the potential value of specific wild landscapes for carbon sequestration; such data would have to be developed on a site-by-site basis.

4.4.3 Biodiversity

The value of biodiversity can extend through different aspects of TEV (Pearce and Moran, 1994). As well as providing direct experiential benefits to users of wild landscapes, biodiversity provides non-use values in terms of option, existence, and bequest value. By acting as a bank of genetic resources, biodiversity provides a source of genetic material that can provide future goods and services and provide a source of resilience against future disease threats to agricultural livestock and crops. In terms of current indirect use values, biodiversity maintains the healthy ecosystem from which services such as the hydrological and carbon cycles flow. The maintenance of natural areas, including wild landscapes and the services they provide can increase resilience to, and mitigate against, the uncertain future effects of climate change. All of these values are highly site-specific. However, some generic estimates have been made, for instance through the derivation of willingness to pay (WTP) for increased areas of different types of forests through focus group meetings (Willis *et al.*, 2003). These show, for instance, WTP values of £0.61 per household for an increase of 12,000ha of upland new native broadleaved woods. When aggregated up to the level of Scotland as a whole, biodiversity values of forests are estimated at £19 million per annum. However, this value is independent of the location; the proportion in wild landscapes is unknown.

Key points:

- ***Wild landscapes may contribute to flood mitigation and improved water quality***
- ***Wild landscapes perform a role in both carbon sequestration and storage, and in providing resilience to the effects of climate change***
- ***Wild landscapes can act as an important bank of genetic resources***
- ***Estimates of biodiversity values of specific habitat types have been made, but are required for specific sites.***

4.5 Non-use values: benefits and costs of conservation

Although conservation benefits can accrue to people who visit conservation sites as a direct use value, there is evidence that a large proportion of these benefits are non-use existence and intrinsic values.

4.5.1 Natura 2000 sites

Natura 2000 sites (Special Areas of Conservation, SAC, and Special Protection Areas, SPA) are designated primarily for the conservation of, respectively, habitats and species. As such they do not necessarily coincide with landscapes of wild character. However, they provide an indication of the non-use benefits associated with the more natural habitats associated with wild landscapes. Jacobs (2004) found that 99% of the benefits of Natura 2000 sites in Scotland were non-use benefits. There are 300 Natura 2000 sites across Scotland covering a variety of sizes and habitat types, as illustrated in Figure 3 (Jacobs, 2004). The estimated benefits and costs of these sites are presented in Table 8.

The estimates of benefits were obtained through the use of contingent valuation surveys¹⁴ of various stakeholder groups. Total benefits were estimated at £212.6 million, with use values contributing £1.6 million and non-use benefits £211 million per annum. These compare to administration, management, capital

¹⁴ Survey respondents are asked to state their willingness to pay for a policy change in a hypothetical market.

investment, opportunity and indirect costs totalling £26.7 million, giving a net benefit of £185.9 million. Interestingly, the bulk of these costs (60%) are shared equally between SNH and landowners. Whereas SNH can justify expenditure on the basis of its statutory duties and the provision of a public good due to the substantial non-use benefits, it is likely that landowners will be under-compensated for the costs they incur.

Jacobs (2004) also describes non-monetary or qualitative benefits in terms of the beneficiaries:

- Social: local communities;
- Cultural: local/regional communities;
- Education: all visitors;
- Research: scientific community;
- Environmental services: national and global communities;
- Health: local users and visitors.

Figure 3 Natura 2000 sites in Scotland (excluding Shetland sites) source: Jacobs (2004)

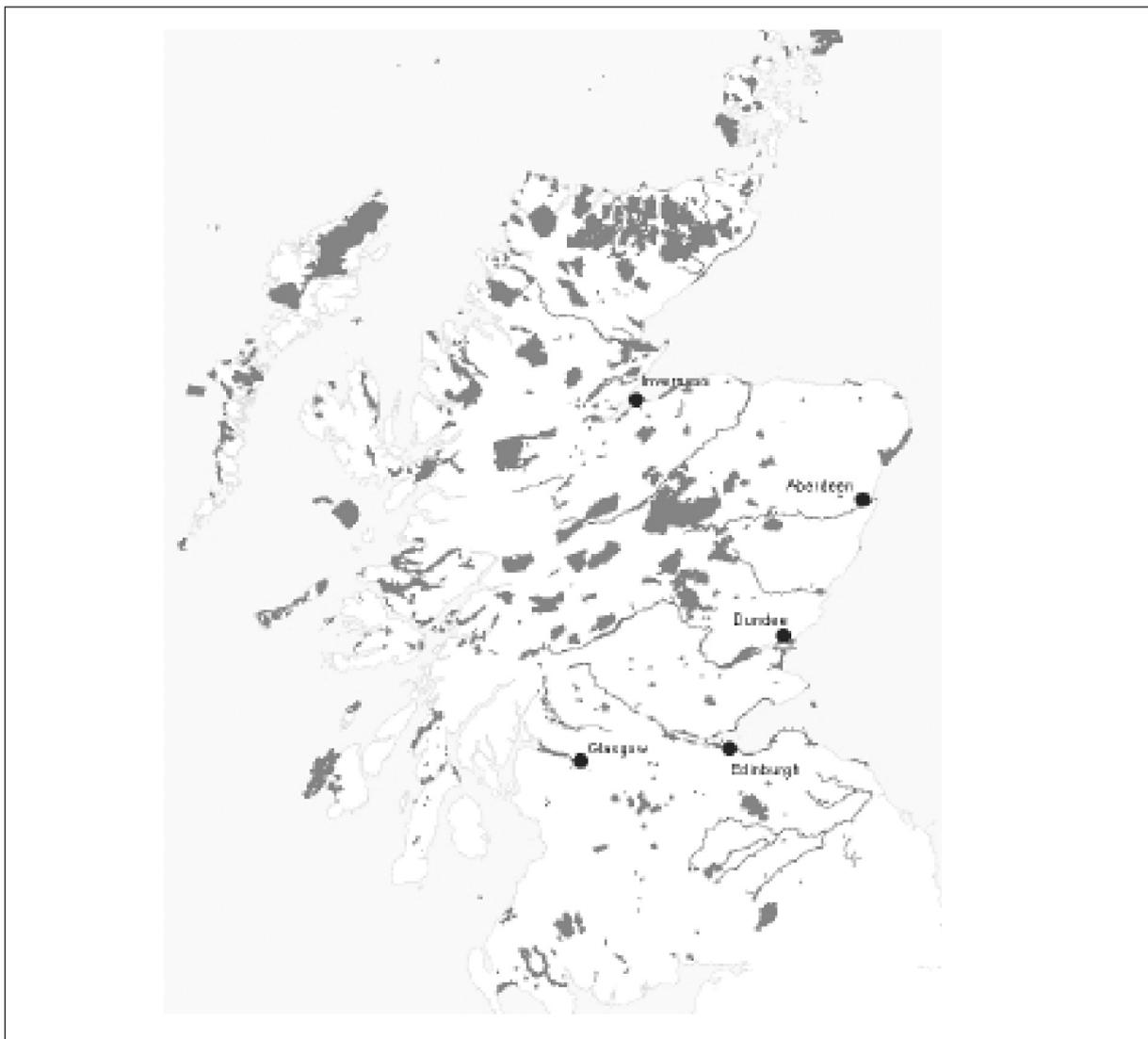


Table 8 Estimated benefits and costs of 300 Natura 2000 sites in Scotland
Source: Jacobs (2004)

Benefits	Adult population	Units	WTP per unit (£)	Total annual benefit (£)	%
General Scottish visitors use value	1816850	Visits/yr	0.50	908,425	0.43%
General non-Scottish visitors use value	894950	Visits/yr	0.70	626,465	0.29%
Specialist Scottish visitor use value	47152	Visits/yr	1.10	51,867	0.02%
Specialist non-Scottish visitor use value	39172	Visits/yr	1.20	47,006	0.02%
General public non-use value	2270000	Household	48.00	108,960,000	51.25%
Non-Scottish visitor non-use value*	17000000	Visits/yr	6.00	102,000,000	47.98%
Total				212,593,764	
Costs				Total annual costs (£)	
SNH				7,960,463	29.82%
Other Government agencies				3,402,815	12.75%
NGOs				3,016,300	11.30%
Land and riparian owners				7,913,510	29.65%
Opportunity/indirect costs				4,400,000	16.48%
Total				26,693,088	
Benefit/cost ratios					
Use values				0.06	
Non-use values				7.90	
Total				7.96	

* Non-use value is differentiated from use values using survey responses

As with the estimated benefits of tourism and recreation, it is likely that the benefits and benefit-cost ratios above will overstate the situation for strictly defined landscapes of wild character. Although, by definition, Natura 2000 sites are not heavily managed, there are still human activities taking place on most, if not all, sites. For example, the Ness and Barvas SPA on the Isle of Lewis is actively managed crofting land that was designated due to its importance as a breeding area for corncrakes (Jacobs, 2004). Other sites follow the course of rivers through agricultural land, for example the River Bladnoch SAC in Dumfries. This illustrates that it is incorrect to assume that all protected areas can be considered to be of wild character in a broader landscape context. In addition, ascribing the benefits of such sites to their 'wildness' is also incorrect as other attributes, particularly specific habitats or species, may be of equal or greater importance.

Key points:

- *Net benefits of Natura 2000 sites in Scotland are £185.9 million, although not all sites coincide with landscapes of wild character*
- *The great majority, 99%, of these benefits are non-use values*

4.5.2 Site-specific conservation values

The following sites have been identified as being within areas of wild landscape character, and are included here as specific estimates have been made of the benefits they provide. The estimated benefits are site- and context-specific and should not be considered transferable to similar wild landscape areas.

4.5.2.1 The Flow Country – Sutherland

Hanley and Craig (1991) used contingent valuation to estimate WTP to prevent further afforestation of the Flow Country with non-native species. The mean WTP per person was £11.69, £17.11 and £8.46 (£2004) per annum for the full sample, users, and non-users respectively. This indicates an annual aggregate value of £47.6m or £119/ha, based on a Scottish population over 16 years old of 4.075m and an area of 400,000ha.

4.5.2.2 Mar Lodge Estate – Cairngorms

Cobbing and Slee (1994) estimated the value of purchasing 20% of the Cairngorms (Mar Lodge Estate: 7080ha – see also section 5) to preserve this area for landscape and wildlife using contingent valuation. The mean WTP per person for a one-off payment was £19.66 and £11.17 (£2004) for purchase with access and without access respectively. Since this study was undertaken there has been an extension of access rights in Scotland, indicating that the ‘with access’ WTP figure is more appropriate, although the ‘without access’ figure can be taken as indicative of non-use value.

The aggregated values for the Scottish population are £80.1m and £45.5m, or £11,316 and £6429 per hectare. Applying the current Green Book¹⁵ discount rate of 3.5%, these convert to annual values of £396/ha and £225/ha with access and without access. In contrast to the results for the Natura 2000 study (Jacobs, 2004), non-use values (without access) account for 57% of the total value.

4.5.2.3 Native woodland restoration – Strathspey and Glen Affric

Macmillan and Duff (1998) found that mean household WTP for native woodland restoration on heather moorland was £44.73 (£2004) in Strathspey and £29.54 in Glen Affric. However, when compensation required for households that preferred heather moorland was considered, the mean WTP fell to £20.26 for Strathspey, but was unchanged in Glen Affric.

Aggregating these figures over the 2.2m Scottish households gives values of £44.6m and £65m for Strathspey and Glen Affric, respectively. The necessary adjustment to the Strathspey estimate illustrates the importance of personal preferences in the values that people place on different landscape types.

Key points:

- **Site-specific conservation values for wild landscapes can be substantial, ranging from £120/ha (Flow Country) to £11.3k/ha (Mar Lodge)**
- **Large non-use values can be demonstrated (57% of total value for Mar Lodge)**
- **Individual preferences for landscape type (native woodland versus moorland) will effect valuation**

¹⁵ www.hm-treasury.gov.uk/economic_data_and_tools/greenbook/data_greenbook_index.cfm

4.5.3 Species-specific conservation values

Individual species associated with wild land have the potential to develop both non-use and direct use values. While the golden eagle has been identified as the key species defining wild land areas in Scotland (eg, Balharry, 2004), no research has been done on the value of this iconic species. However, research on other raptors in the UK in the mid-1990s showed that they can bring considerable economic benefits. For instance, visitors coming to mid-Wales to see red kites were estimated to spend £2.9 million and support 114 FTE jobs; and visitors coming to see ospreys at Loch Garten spent £1.7 million, supporting 69 FTE jobs (Rayment and Dickie, 2001). Given that the value of the bird watching industry has been estimated to exceed £200 million per annum (Murray and Simcox, 2003), the availability of such key species in wild land areas can be assumed to be of economic benefit to local communities. Nevertheless, given the large range of such species, such benefits could not be attributed only to wild land.

Key point:

- ***Large raptors living in, or migrating through, wild land areas could be expected to have significant non-use values and contribute to local economies through the spending of birdwatchers.***

4.5.4 Management costs of conservation

Specific costs for the management of areas of wild landscape are provided by the John Muir Trust (2005) which has published costs for its seven estates, presented in Table 9. The area of these estates varies from 935ha for Schiehallion to 6500ha for Strathaird on Skye.

Per hectare management costs are also variable: from £3/ha for Sconser to £33/ha for Schiehallion. Similar variations can be found over the different elements, precluding the estimation of a standard per hectare cost figure for these estates that could be transferred across similar sites. However, comparisons with the per hectare benefits of wild landscape conservation, for example £119/ha for the Flow Country and £11.3k/ha for Mar Lodge, suggest large potential net benefits.

Key points:

- ***Management costs are site-specific and therefore difficult to generalise***
- ***Per hectare management costs of between £3/ha to £33/ha for JMT properties compare to benefits of £119/ha (Flow Country) to £11.3k/ha (Mar Lodge), suggesting large potential net benefits***

4.6 Comparison of economic impacts of wild landscapes with alternative land uses

The primary land use alternatives to wild landscapes are agriculture and forestry. Although wild landscapes can be found throughout Scotland, this section will use the HIE area as an example. HIE publishes economic updates on different sectors of the economy within their area. In 2001, agriculture in the HIE area employed 24,200 people (12,423 FTEs) or 35% of Scottish total on 23,300 holdings (47% of Scottish holdings), with an output of £258 million (£2001) (HIE, 2004a).

Forestry was responsible for 4,300 FTEs in 2004, with 0.5 million hectares or 40% of Scottish woodland in the HIE area (HIE, 2004b). Total output for forestry in Scotland in 2001 was £206 million (£2001) and, assuming output is evenly spread across Scotland, the 40% share for the HIE area would be £82.4 million.

Table 9 John Muir Trust estate management costs 2004. Source: John Muir Trust (2005)

	Sandwood	Ben Nevis	Skye				Schiehallion	Knoydart	Total
			Torrin Estate	Strathaird Estate	Sconser Estate	Estate wide			
Access work (path work and provision of gates/stiles)	-	-	-	8,000	-	-	1,300	9,300	
Biological & Archaeological surveys and monitoring	2,600	4,000	2,000	6,500	-	6,000	1,500	22,600	
Contribution towards community projects	-	-	1,800	2,700	3,000	-	-	7,500	
Crofter forestry project contribution	-	-	1,000	-	-	-	-	1,000	
Crofting administration	-	-	1,000	1,000	1,000	-	-	3,000	
Deer management	-	-	-	500	-	-	450	950	
Dry-stane dyking	350	-	-	-	-	-	-	350	
Educational property, including study equipment	-	-	-	2,000	-	-	-	2,000	
Fencing (repairs)	-	-	-	-	-	-	500	500	
Footpath work	-	3,000	-	-	-	3,000	-	6,000	
General maintenance operations	-	-	-	6,000	775	1,000	-	7,775	
Health & Safety, fire prevention works	-	-	-	1,000	-	-	-	1,000	
Interpretation building/public toilet	5,000	-	-	-	-	-	-	5,000	
Invasive species control	-	-	400	-	2,000	-	-	2,400	
Local committee expenses	450	-	-	500	500	300	200	1,950	
Memorial site (cost shared with other organisations)	-	200	-	-	-	-	-	200	
Montane flora guide	-	3,000	-	-	-	-	-	3,000	
Native woodland planting and management	-	4,900	-	17,800	-	1,300	5,000	29,000	
On-site interpretation	-	5,000	-	3,000	4,000	-	-	12,000	
Shepherding costs	-	-	-	-	-	1,500	-	1,500	
Skye buildings (Bla Bheinn & Clach Glas)	-	-	-	-	-	-	-	4,500	

Table 9 (continued)

	Sandwood	Ben Nevis	Skye				Schiehallion	Knoydart	Total
			Torrin Estate	Strathaird Estate	Sconser Estate	Estate wide			
Staff and management costs	23,174	13,485	-	-	-	76,028	13,208	139,191	
Summit management	-	2,000	-	-	-	-	-	2,000	
Survey equipment	350	250	-	-	-	-	400	1,000	
Tools and equipment	400	400	700	-	300	-	1,000	3,800	
Vegetation report preparation	-	1,000	-	-	-	-	-	1,000	
Vehicle costs	2,352	2,352	-	-	-	8,462	2,352	17,870	
Village footpath contribution	-	-	3,000	-	-	-	-	3,000	
Woodland management operations	-	-	-	-	-	-	800	800	
Work party costs	350	350	-	-	-	1,050	350	2,450	
Total	35,026	39,937	9,900	49,000	11,575	90,040	31,298	25,860	
Total (Skye)				160,515				292,636	

Because wild landscapes are not directly productive in an economic sense, it is necessary to consider the economic impacts of industries that are linked to wild landscapes. One such industry is tourism, in which wild landscapes form a major part of the marketing strategy. HIE (2004c) reports tourism data that is based on the Annual Business Inquiry and includes only hotels and restaurants and excludes the self-employed; as a consequence the full scale of the tourism industry is under-represented. Therefore comparison can only be made with the economic values and impacts derived from the visitor data above. In total, wild landscape-related visitors were estimated to spend £688.8 million and support 20,664 FTEs.

Consequently, in strict economic terms of output and employment, it can be concluded that wild landscapes provide greater benefit than agriculture and forestry combined. The data for agriculture includes a range of land qualities and farm types. Looking at the most marginal type of agriculture – hill breeding ewes – typical gross margins before subsidies in the North West and West Highlands for Blackface sheep are -£681 per 100 ewes (SAC, 2005). This compares to a positive gross margin before subsidies for Blackface sheep in the Grampian hills and Southern Uplands of £762 per 100 ewes. These data suggest that, in the areas most associated with wild landscapes in the HIE area, the benefits provided by such landscapes exceed alternative land uses by a greater extent than the aggregated regional data indicates.

However, traditional land uses have shaped the Scottish landscape and have strong cultural associations. Several studies have demonstrated large aggregate benefits for agricultural landscapes in terms of willingness to pay for policy changes, such as agri-environment schemes, notably environmentally sensitive areas (ESAs):

- Stewartry ESA: £1.2 million (Gourlay, 1995)
- Loch Lomond ESA: £2.4 million (Gourlay, 1995)
- Breadalbane ESA: £36.7 million (Hanley *et al.*, 1996)
- Machair ESA: £21.9 million (Hanley *et al.*, 1996)

Agricultural land and forests are also important for recreation. For example, Moran *et al.* (2006) estimated a value of £9.6 million for mountain biking in the Glentress Forest.

It is likely, therefore, that there are trade-offs to be made between current land uses and the protection or expansion of wild landscapes, with the most marginal areas with respect to current land uses offering the greatest potential for expansion of wild landscape areas. It is important that these trade-offs are understood in order to ensure optimal combinations of land use.

Key points:

- ***The economic benefits and impacts associated with wild landscapes can exceed those of alternative land uses***
- ***Alternative land uses such as agriculture and forestry also have benefits beyond their productive uses***
- ***Trade-offs between land uses therefore need to be more fully understood***

4.7 Summary and recommendations

Table 10 presents a summary of the quantifiable benefits of wild landscapes in either monetary or employment terms. The resolution of the values with respect to wild landscapes and the principal beneficiaries are also identified. Whilst the assessment of the benefits has endeavoured to find studies and data of specific relevance to wild landscapes, there are inevitably problems arising from the use of secondary data that have been collected for a variety of other purposes. Consequently, the estimates presented can only be considered as a maximum value for the benefits of wild landscapes. Notwithstanding these caveats, it is clear that the potential benefits of wild landscapes are significant and that they encompass the spectrum of TEV and accrue to people at both local and national level. There is less evidence available with respect to the costs of wild landscapes, which tends to be site-specific management costs. This has precluded a formal cost-benefit analysis of wild landscapes.

Further research is required to determine what the public understands by the term 'landscapes of wild character' in terms of landscape types and scales, and how this can be reconciled with a more scientific or technical definition. This should be combined with a more complete understanding of what elements within a landscape are important when people express values for wild landscapes either as revealed preferences for tourism and recreation or as stated preferences for conservation. In other words: to what extent is it the 'wildness' of the landscape that is providing the value?

Information on the costs of wild landscapes is also incomplete, and should go beyond simple management costs or the opportunity costs of alternative land uses. This is hinted at by the results of Macmillan and Duff (1998), who demonstrated differing public preferences for alternative landscape types, both of which may be considered as of wild character. In other words, when considering the options for providing wild landscapes, policy should be cognisant of a range of preferences.

For some of the benefits ascribed to wild landscapes with respect to health, education, and social benefits, research is required to quantify these benefits in a UK context, as the few existing studies reflect 'wilderness', typically in a North American context, rather than wild landscapes. The cost effectiveness of delivering these benefits through wild landscapes rather than by other means (eg, urban parks and wildlife areas) should be explored.

These research gaps and recommendations are returned to in section 6 of this report.

Table 10 Summary table of quantified benefits of landscapes of wild character

Benefit source	Benefit area/unit	Economic Value/ Benefit (£2004)	Economic impact	Wild landscape resolution	Main beneficiaries
Outdoor visits TNS (2005)	Scotland 2003/4	£411.4m – £751m	12,342 – 22,530 FTEs	Low	Local community
Hillwalking and mountaineering Jones Economics (1996)	Highlands 1995 HIE area 1995	£157.9m £104.1m	4737 – 6100 FTEs* 3123 – 3950 FTEs*	Medium Medium	Local community Local community
Hillwalking Derived from George Street Research (2003)	HIE area 2003	£196.8m	5904 FTEs	Medium	Local community
Other wild landscape activities Derived from George Street Research (2003)	HIE area 2003	£492m	14,760 FTEs	Medium	Local community
Grouse shooting FAI (2001)	Scotland 2000	–	Direct effects: £9.3m; 630 FTEs Indirect effects: £14.8m; 940 FTEs	High	Landowner Local community
Wild deer management Hunt (2003)	Scotland 1999	–	850 FTEs	High	Landowner Local community
Carbon sequestration by peatlands SQW (2004)	Scotland	£2.09 – £8.41 per ha/year £41.8m – £168.2m / year	–	Medium	Wider society
Natura 2000 sites Jacobs (2004)	Scotland	£212.6m benefits £26.7m costs £185.9m net benefits	–	Medium	Local community Wider society
Preservation of peatlands Hanley and Craig (1991)	Flow Country	£11.69 / person/year £119 /ha/year £47.6m aggregate/year	–	High	Wider society
Preservation of landscape (Mar Lodge) Cobbing and Slee (1994)	Cairngorms (20%)	With access: £19.66 / person; £11,316 /ha (£396 /ha/year); £80.1m aggregate Without access: £1.17 / person; £6429 /ha (£225 /ha/year); £45.5m aggregate	–	High	Wider society
Native woodland restoration Macmillan and Duff (1998)	Straithpey Glen Affric	£20.26 /household; £44.6m aggregate £29.54 /household; £65m aggregate	– –	High High	Wider society Wider society

* Jones Economics (1996) assume an employment multiplier of 0.038 FTEs per £1000 expenditure, the George Street Research and Jones Economics (2004) assumed multiplier of 0.03 is reported here for comparative purposes.

5 WILD LANDSCAPES MANAGEMENT REVIEW

This section presents the findings from a review of wild landscape management initiatives. The primary objective of this section is to provide a broad overview of existing, emerging, and potential projects/initiatives for the safeguarding, enhancement and management of Scotland's wilder landscapes. All projects included in this section represent currently existing initiatives; however, a number of the results and conclusions have implications for any potential future projects, both in Scotland and further afield. A number of other projects/initiatives, some outwith Scotland, were considered for inclusion (see Annex 6). However, these were not reviewed in detail because of a lack of usable information, time constraints or general unsuitability ie projects exhibited a poor fit with the wild landscapes criteria shown in Tables 3 and 4 in section 2.

5.1 Management review methodology

The first component of the management review involved the identification of projects relating to the management of wild landscapes, both in Scotland and across the UK as a whole. This involved discussion with the project steering group, internet searches, and the reading of relevant literature, such as SNH documentation relating to wild land and the journal ECOS (Journal of the British Association of Nature Conservationists). The preliminary list included over 35 projects across the UK. However, following further discussion and giving due consideration to the timeframe of the project, the list was reduced prior to beginning the management survey. The selection of projects for the final list was based on a number of factors, including the following.

- The relevance of the project in a Scottish context: a number of projects on the initial list were in England and Wales. Due to time constraints as well as distinct differences in land management emphasis for these projects, all except the Wild Ennerdale initiative were removed.
- The scale of the project: a number of smaller-scale projects were removed from the list. This does not imply that such areas have no wild character, but rather that they were outwith the primary focus of this review, which was concerned with large-scale landscape level initiatives.
- The degree of both remoteness and human artefacts (a subjective judgement based on discussion by phone with site managers) also led to the elimination of certain sites from the final list. This in itself does not imply that these sites are not wild landscapes, but rather that they were not considered as directly relevant within the context of the definition of wild landscapes for this review.
- Availability of land manager/project staff: for a small number of projects (less than 10%) in Scotland, project managers or staff were unavailable to complete the questionnaire.

A term used in connection with a number of projects, usually management projects aimed at restoration of habitats and 'natural processes', is 're-wilding'. As one management questionnaire respondent noted, the term is often connected more to habitat restoration, with criteria such as remoteness often relatively low. Certain UK 're-wilding' projects, for example, are being carried out at a relatively small scale (less than 10ha). This management review recognised the importance of the concept of habitat restoration or 're-wilding' to many of the reviewed projects (see Table 11); however, the occurrence of pre-existing landscapes of wild character (as defined in section 2) was the prime criterion for final project selection, which also led to the exclusion of certain re-wilding projects from the project survey list.

The final list of projects (see Table 11) represents a cross-section of management initiatives in areas of wild landscape, which in many respects are concerned with management of the land for its wild values. This

does not imply that management for wildness is necessarily the prime objective of all projects, but rather that their objectives generally relate strongly to the criteria and values of wild landscapes as discussed in section 2 of this review.

Following the development of a final list of projects, a questionnaire was developed (see Annex 4) in order to survey the land managers of selected sites on a range of issues. Four areas were explored in the questionnaire:

- *key project characteristics* – age, size, ownership and scope for expansion;
- *project resource description and wild character* – degree of remoteness and human artefacts, key habitats, land uses, grazing levels;
- *objectives and management* – main objectives, affect of designations, degree of public involvement, visitor management measures and primary obstacles in achieving objectives; and
- *project costs and benefits* – main project expenses, main income streams, degree of volunteer input, key benefits.

To ensure that the questionnaire was relevant to its application and was structured to suit both respondents and review objectives, two management initiatives were contacted initially to pilot the questionnaire (the results for these sites, both in Wales, are not included here; in both cases, the results showed that the sites were not appropriate for detailed review). This process led to a refinement of certain areas of the questionnaire, as well as the removal of repetitive or irrelevant questions.

Two approaches were taken to contacting managers and completing questionnaires. First, all land managers were contacted by email and informed of the nature of the project. They were then given the choice of either filling in the questionnaire and returning it by email, or alternatively (due to the subjective nature of certain questions) answering the questions in a phone interview. This approach ensured a relatively rapid response to questionnaires; in practice almost all projects targeted for this review are included in this section. Further analysis of questionnaire data involved both quantitative and qualitative elements and involved the development of excel spreadsheets of respondent data to simplify the approach taken to the investigation of questionnaire responses.

For almost all sites, questionnaires were dealt with by the site manager. In a small number of cases, other member(s) of staff responded to questionnaires. Annex 5 provides a full list of the names and positions of questionnaire respondents for each site included in this section. In total, 23 sites (including 3 contiguous properties on Skye) are included, representing a relatively broad geographic spread of initiatives from across Scotland and one site in Northern England.

5.2 Results

5.2.1 Project characteristics

Table 11 shows the complete list of projects included in the final survey and analysis components of this review. As can be seen from this table, the projects represent a broad range of variation in ownership, size, and age (ie, period of ownership). In terms of geographic spread, there are projects in the Southern Uplands; the Southern, Central, and North West Highlands; the west coast; the islands; the Cairngorms; and Cumbria. General characteristics and specific significance of all surveyed projects are also shown in Annex 3.

Table 11 Wild landscapes management initiatives which contributed to the management review

Title/Area	Location	Year of acquisition	Landowner/Manager	Size (Ha)
Glen Affric	Western Highlands	1961	FCS	14,736
Loch Katrine	Loch Lomond/Trossachs	2005	FCS	9,600
Cashel Forest	Loch Lomond/Trossachs	1998	Royal Scottish Forestry Society	1,238
Carrifran Wildwood	Southern Uplands – Dumfries and Galloway	2000	Borders Forest Trust Local environmental group	660
Glencoe and Dalness	Central Highlands	1935	NTS	5,800
Goatfell	Isle of Arran	1958	NTS	2,283
Ben Lawers NNR	Southern Highlands	1950	NTS	4,442
Kintail and Morvich	Western Highlands	1944	NTS	7,413
Torridon Estate	North West Highlands	1968	NTS	6,500
Mar Lodge	Central Cairngorms	1995	NTS	29,430
Ben Nevis Estate	Southern Highlands	2000	JMT	1700
Strathaird, Sconser and Torrin – 3 contiguous estates	Isle of Skye	1994 1997 1991	JMT	12,125 (6,500, 3,400, 2,225)
Sandwood Estate	Sutherland, North West Highlands	1993	JMT	4,600
Li and Coire Dhorrcail	Knoydart Peninsula, Western Highlands	1987	JMT	1,255
Assynt (Glencanisp/ Drumrunie)	North West Highlands	2005	Assynt Community Trust	18,000
Knoydart Estate	Knoydart peninsula	1999	Knoydart Foundation (partnership)	16,000
Abernethy Reserve	Cairngorms	1975	RSPB	13,714
Forsinard reserve	Flow Country, Sutherland	1995	RSPB	15,800
Creag Meagaidh NNR	Cairngorms	1985	SNH	3,940
Ennerdale	Ennerdale Fell, Cumbria, England	2003	NT, FC and United Utilities	4,300
Glentinar Estate NNR	Deeside, Cairngorms	NNR est. 1979	Private –Michael Bruce	4,186
Atholl Estate (wilder area)	Highland Perthshire	Long term (300yrs+)	Private – Atholl Estate Trustees	50,000
Alladale Estate	Sutherland	2003	Private – Paul Lister	11,000

5.2.1.1 Period of ownership

The period of ownership does not necessarily relate to consistency in management objectives for any given area. However, as the majority of older sites are owned by the NTS, it is likely that conservation will have featured in their management since NTS involvement in the area began. For other sites, however (eg, Glen Affric), it was pointed out by current site managers that, while nature conservation is likely to always have been important, the emphasis on certain management objectives (such as habitat restoration) may have

changed considerably over time, even though ownership has not changed. The Atholl estate is not included in Table 12, as ownership has remained with the same family for over 300 years, and so inclusion would have necessitated a fifth category. Glentinar Estate is included, according to the length of time the NNR has been designated (26 years), instead of the period in current ownership of the entire estate.

The average length of ownership across the 22 sites was 24.7 years, with a relatively high standard deviation of 23 years. Table 13 shows the breakdown in terms of period of ownership across four age categories. As can be seen from this Table, ten projects were less than 10 years old and 16 less than 25 years old. Four of the surveyed projects were less than 2 years old while the oldest (apart from Atholl and Glentinar estates), was represented by the NTS Glencoe and Dalness site (70 years).

Table 12 Period of time in current ownership of initiatives

Period of ownership	1–10 Years	10–25 Years	25–50 Years	50–75 Years
No. of projects	10	6	5	3

5.2.1.2 Type and extent of ownership

Figures 4 and 5 show the breakdown in ownership area across the key owners and key ownership groups. Figure 4 highlights the high degree of NGO (RSPB, JMT, NTS, RSFS) ownership within the sample group, with private owners (Atholl, Glentinar, Alladale), community organisations (Assynt and Knoydart community trusts) and government bodies (FCS, SNH) accounting for 27, 14 and 12% respectively. The average area across the 23 initiatives was 10,375ha with a standard deviation of 10,864ha, with the three smallest initiatives being Carrifran (660ha), Cashel Forest (1,238ha) and Sandwood (1,255ha) and the three largest being Atholl Estate wild area (50,000ha), Mar Lodge (29,340ha), and Assynt (18,000ha). These proportions and areas are not representative of the Scottish situation as a whole: NGO-owned initiatives are over-represented, and private initiatives are under-represented. This is primarily due to constraints in the time available for this project, and the comparative ease of obtaining information from NGO-owned initiatives.

Figure 4 Extent of ownership among ownership categories of management initiatives

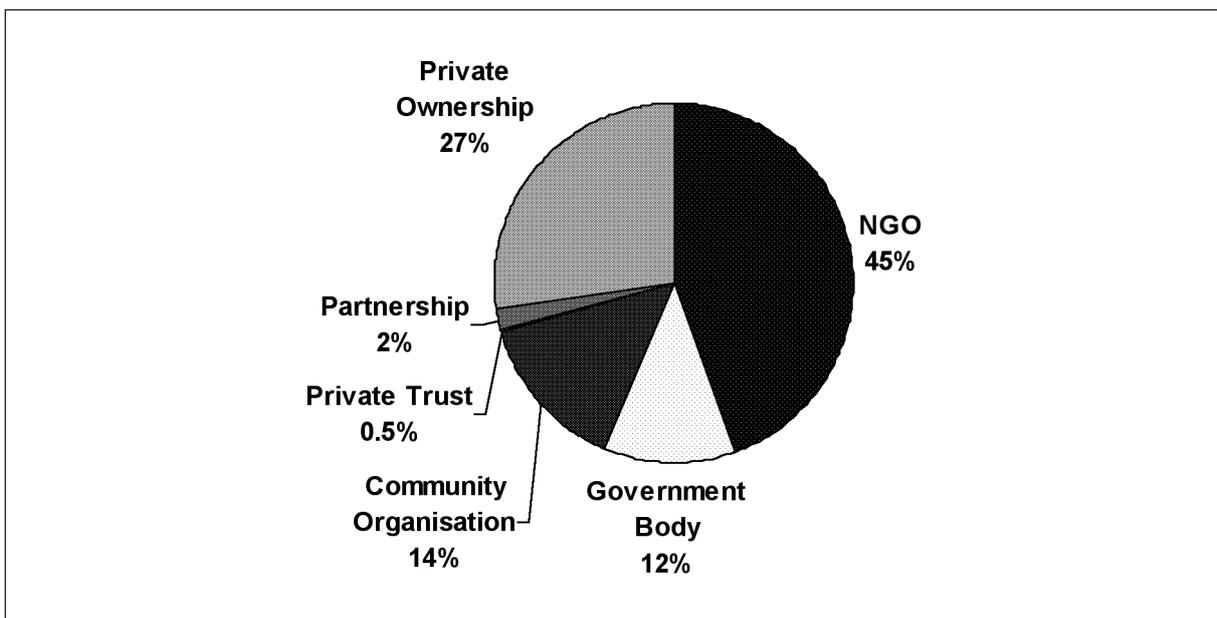
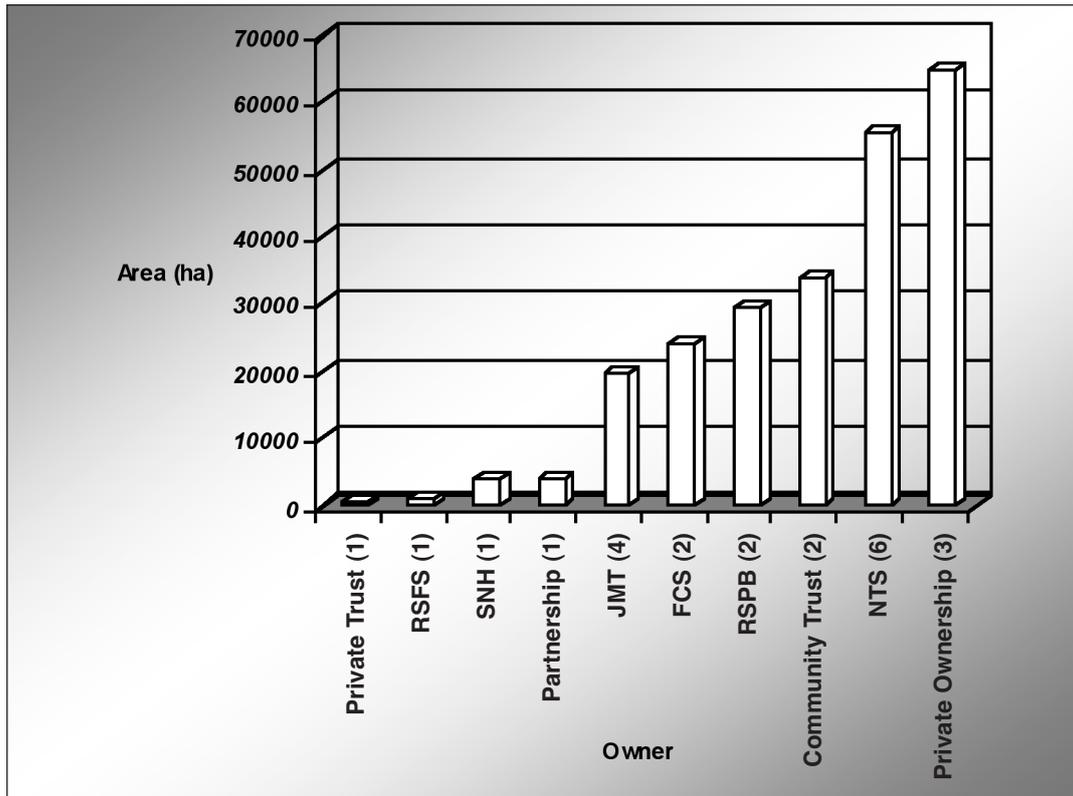


Figure 5 Area of land owned by main owners in management initiatives



5.2.1.3 The initial drivers for acquisition of the site by current owners

Various reasons were presented for site acquisition, with many respondents listing two or three drivers for the original acquisition of their property. These included:

- the high habitat quality of the area, with distinctive vegetation and the presence of rare species in particular being highlighted repeatedly as a key reason for acquisition;
- the restoration potential of the site – usually associated with the presence of small areas of relatively undamaged habitats of high conservation value or larger areas of valuable (from a nature conservation perspective) habitats in a more damaged (ecologically) state;
- concerns over previous management being detrimental to the area’s habitat quality and wild character;
- concerns that proposals by previous owners for the future management of the site would be detrimental to its habitat quality and wild character;
- concerns over repeated rapid ownership changes of a site and the associated inconsistency in management objectives and lack of a long-term approach to land management;
- the poor economic performance of other land uses (such as agriculture and forestry) on the site, particularly in relation to local community benefits, and the potential for eco-tourism related activities;
- the creation of a vision by one person and associated recognition of the potential for restoration and management change in a particular area; and
- the site being gifted to the current owner to ensure long-term management for conservation and wild land value.

5.2.1.4 Project expansion potential

This section of the questionnaire was concerned with the potential for expansion of the area and its management in accordance with current owner/manager objectives, through the development of partnership agreements with neighbouring land owners/managers. The majority of respondents (16) agreed that there was definite potential for the development of objectives on neighbouring land which would be sympathetic with those of their own site. Six respondents stated, however, that this would be 'very unlikely' or 'impossible' without further acquisition of land. Respondents noted three key factors, in particular, which supported the potential for transference of objectives to bordering sites.

- The presence of conservation NGO owners adjacent to the site.
- The presence of adjacent private owners with considerable interest in nature conservation.
- The development of Deer Management Groups (DMGs), which were seen as providing an existing forum for discussions with neighbours, providing a base for further discussions through the development of contacts and the breaking down of social barriers between different owner groups (eg the private and NGO land-owning sectors).

A number of key obstacles were also noted by respondents as constraining the opportunities for development of partnership agreements and expansion of objectives to other areas of land. These included, in particular:

- the lack of funding available to landowners, in general, to support land management relating to wild land values;
- the lack of adjacent land which would be suited to management for wild character or nature conservation;
- the lack of interest in general on the part of adjacent private landowners to engage in management for the preservation of wild character or nature conservation;
- the poor degree of communication and liaison with surrounding landowners in general; some respondents noted that direct communication with the landowner (as opposed to a land agent or manager) could improve opportunities for the development of partnership agreements; and
- the loss of current project land through purchases by the crofting community.

5.2.2 Project resource description and wild character

This section of the questionnaire was concerned with developing a general overview of the wild character of the sites, as well as attempting to recognise the key habitats and main land uses occurring on the sites.

5.2.2.1 The degree of remoteness and human artefacts

The vast majority of respondents agreed that their sites represented wild landscapes, with only one respondent stating that his site did not constitute a wild landscape, due mainly to the degree of impact from past land uses and the impacts from current restoration procedures. However, a number of respondents also pointed out that the degree of wildness varied greatly within their ownership boundaries, with certain areas within the same site constituting wild land from most perspectives and others being severely compromised. This suggests that it is more appropriate to assess wildness at the scale of landscapes, rather than individual land ownership units (eg, estates).

The degree of remoteness for all sites was assessed by asking respondents if there were areas within their ownership boundaries further than 3, 5 or 8km from the nearest public road. A number of respondents were knowledgeable in this regard, due to previous assessments of wild character for their site, while some respondents used a map to determine an approximate response. All surveyed sites had areas at least 3km from the nearest public road (see Table 13). A number of respondents noted that, if private roads were taken into account, such distances would decrease considerably.

Table 13 Distance of sites from the nearest public road

Distance from nearest public road	3km+	5km+	8km+
Number of sites	4	7	12

The level of human habitation within the ownership boundaries of sites varied somewhat across the sample group. Many respondents pointed out that, while people lived on site, they also included large areas which were uninhabited. A total of 8 sites were completely uninhabited, with the remaining sites having some degree of human habitation. In the majority of cases, the respective population is low (less than 30 people), and respondents did not necessarily regard houses, particularly crofts, as degrading wild character.

All sites showed some evidence of previous human habitation; these historical or archaeological sites were seen by some respondents as contributing to the wild character of the area. The majority of respondents generally felt that the degree of presence of present-day human artefacts on their sites was minimal; many artefacts which were present (such as scattered crofts, lodges, and bothies) were often seen as only having a very limited impact on wild character. However, a number of respondents noted that certain human artefacts present on their sites did have the capacity to seriously affect wild character, highlighting in particular the impacts of HEP developments and the associated water pipelines, water treatment works, severely overgrazed areas, bulldozed roads, deer fencing, and footpath erosion. Respondents from a small number of sites (3) also expressed concerns relating to growing visitor numbers and the associated loss of solitude.

5.2.2.2 Key habitats and perceptions of habitat quality

This section of the questionnaire was concerned with determining, in a very broad sense, the main habitat types on surveyed sites. Respondents were also questioned on their views on habitat quality and their perception of whether or not it was currently increasing or decreasing in quality. It should be noted that assessment of habitat type was based on asking respondents what the primary generalised habitats present on their sites were. This assessment is therefore in no sense quantitative or objective, but rather broadly descriptive, with respondents generally listing the three or four main habitat types present on site, in approximate order of area of occurrence. The views on habitat quality should also be seen as the personal views of respondents, rather than being quantitative or objective. Nevertheless, many respondents are experienced land managers with considerable knowledge of habitat quality assessment techniques.

The primary habitats occurring on surveyed sites included (in very approximate order of occurrence across all sites): wet and dry heath habitats, grassland, broadleaved and pine native woodlands, arctic and alpine habitats (high-level montane habitats), blanket bog and mire habitats, lochs and rivers, and scrub habitats (including among others: willow, juniper and birch scrub). A number of other habitat types were also listed as occurring on a much smaller number of sites, including: wetland habitats, coastal habitats (including sand dunes, beaches and cliffs), high-level flushes, and bog woodlands.

In terms of habitat quality, views were generally mixed and, due to the subjective and extremely general nature of questioning, few consistent conclusions can be drawn. Across the survey group, 13 respondents felt that habitat quality in general across the site was increasing due primarily to two key management measures:

- the reduction of grazing pressure across sites, or within specific areas of sites, resulting from sheep removal, deer culling, and the use of fencing to exclude deer from certain areas; and
- direct habitat restoration measures, in particular the planting of certain areas with tree species native to the site, the removal of alien species, the reduced use of ATVs in sensitive areas, and the reduction of recreational pressures in certain areas through visitor zoning.

A number of respondents conceded, however, that certain habitat restoration techniques, such as the use of fencing and tree planting, could be seen to reduce the area's wild character through visual impacts. Six respondents felt that habitat quality was actually decreasing over their site as a whole, despite the efforts of management, mainly because of continued high levels of overgrazing. On three sites, this was related to the high proportion of the site in crofting tenure which, in practice, implied that little could be done to reduce the level of sheep grazing due to grazing rights lying with tenants rather than the landowner. Six respondents did not comment on habitat quality, stating that there was insufficient information to make any form of judgement in this regard.

5.2.2.3 Main land uses on site

This area of questioning was concerned with determining both the main land uses on site and respondents' views in relation to perceptions of the compatibility or incompatibility of specific land uses on their site with their general management objectives. The majority of respondents listed the primary land uses on their sites as being nature conservation and recreation; within these, the restoration of habitats was in progress on most sites through measures discussed previously. Sporting uses of the land occur on 10 sites, and respondents rarely felt that these uses were detrimental to the area's wild character *per se*. However, most respondents agreed that the intensity of sporting uses was key to their potential impact, noting that muirburn in particular could often be carried out in ways more sensitive to landscape character.

Extensive grazing by domestic stock was present on eight sites, in four cases related to crofting tenure. As with sporting land uses, the presence of domestic stock was not commented upon as potentially reducing an area's wild character although, in most cases, the overall intensity of grazing was regarded as being the primary reason for losses in habitat quality. Plantation forestry occurs on seven of the surveyed sites and, in most cases, respondents felt this was a land use detrimental to the wild character of their site. On certain sites, procedures were in place to remove areas of plantations of non-native species. On five sites, trees were also being, or had been, planted as part of ecological restoration programmes. Respondents generally agreed that such planting was sometimes perceived as potentially detrimental in the short term to an area's potential wild character, a view endorsed by a number of respondents from other sites. However, respondents from these sites, while noting the apparent paradox, generally felt that, if a long-term view was taken, planting could be perceived as having a potentially positive affect on an area's wild character. Thus, there was some disagreement between respondents in relation to the merits of tree planting from a wild land perspective.

5.2.2.4 Perceived degree of naturalness

This section of the questionnaire was concerned with the respondent’s view of the degree of perceived naturalness on site, particularly in relation to the vegetation cover. Respondents were asked, in particular, if they felt the degree of perceived naturalness for their site was low, moderate, or high. As with perceptions relating to habitat cover, comments on this topic must be regarded as subjective. However, a high degree of consistency was apparent in relation to what respondents saw as enhancing and detracting from perceived naturalness of vegetation cover. Overall, 15 respondents stated that, in their opinion, the degree of perceived naturalness of vegetation on their sites was high, although many stated that the actual degree of naturalness of vegetation was, at best, low (4) or moderate (7). The primary reason for respondents stating that perceived naturalness was low or moderate was the presence of plantation forestry, with key secondary reasons being visual impacts related to severe overgrazing or habitat restoration procedures (such as extensive tree planting or areas of clear-felling).

Respondents were also questioned on the presence or absence of three key criteria: ‘significant’ areas of natural woodland regeneration outside fenced areas; significant areas of ‘ecotonal’ habitats; and large raptors. It was left to respondents to determine the meaning of ‘significant’ in relation to both areas of natural regeneration and ecotonal habitats, increasing the subjectivity in responses. The term large raptors implied the existence of the opportunity to see eagles, or other rare raptors such as peregrine falcons, within the site on a semi-regular or regular basis. The results are presented in Table 14.

Table 14 Responses to the presence or absence of criteria relating to ‘perceived naturalness’

Criteria	Number of respondents
Significant areas of natural regeneration outside fenced in areas	11
Significant areas of ecotonal habitats	13
Presence of large raptors	18

5.2.2.5 Grazing levels and deer control

This group of questions attempted to determine the key grazers on site, as well as respondents’ opinions on how close grazing levels were to those aimed for within their objectives. Respondents were also questioned on their deer control methods. The primary grazer of relevance across the majority of sites was red deer, with sheep being relevant on 6 sites and other species such as sika, fallow and roe deer being seen as important (in terms of impact on the vegetation) on 3 sites. Five respondents felt that deer numbers and grazing pressure were relatively close to levels aimed for within their management objectives and could be seen to equate to grazing levels close to ‘natural’, although it was recognised that any attempt to define what ‘natural’ actually meant in deer density terms would be an extremely subjective judgement. In terms of deer control, 15 sites culled deer ‘in house’, while 5 sites controlled deer by lease agreement with neighbouring estates or by hiring contract stalkers. Six respondents advocated the use of deer fencing in the short term to promote natural regeneration. While a number of respondents did not comment on the use of deer fencing one way or the other, it was generally perceived to be a contentious issue. The primary constraint in terms of deer control was seen to be one of the uncontrollable movement of deer between estates.

5.2.2.6 Categorisation of management initiatives

Table 15 shows the results of categorising the management initiatives against the wild landscape criteria presented in section 2.2. Each site has been given a grading of low, moderate or high, or an in-between grading of low-to-moderate or moderate-to-high, for each of the four wild character criteria (see Table 3). Following the grading on each criterion, each site has been classified using the wild landscapes typology presented in Table 4. The categorisation was carried out following discussions with site managers on the relevant site characteristics, as outlined above.

Table 15 Grading of wild character criteria for wild landscape sites and site categorisation utilising wild landscapes typology (see section 2.2)

Project Name	Remoteness	Scale	Perceived Naturalness	Lack of Human Artefacts	Wild Landscape Category
Mar lodge	HIGH	HIGH	HIGH	HIGH	1A
Abernethy	HIGH	HIGH	HIGH	HIGH	1A
Glen Affric	HIGH	HIGH	MOD-HIGH	MOD-HIGH	1B
Kintail	HIGH	HIGH	MOD-HIGH	MOD-HIGH	1B
Creag Meagaidh	MOD-HIGH	MOD-HIGH	HIGH	HIGH	1B
Knoydart	HIGH	HIGH	MOD-HIGH	MOD-HIGH	1B
Torridon	HIGH	MOD-HIGH	MOD-HIGH	MOD-HIGH	1B
Glentinar NNR	HIGH	MOD-HIGH	MOD-HIGH	MOD-HIGH	1B
Atholl Estate (wild land area)	HIGH	MOD-HIGH	MOD-HIGH	MOD-HIGH	1B
Alladale Estate	HIGH	MOD-HIGH	MOD-HIGH	MOD-HIGH	1B
Assynt	MOD	HIGH	MOD-HIGH	MOD-HIGH	1B
Skye	HIGH	HIGH	MOD	MOD	1B
Ben Nevis	MOD	MOD-HIGH	MOD-HIGH	MOD-HIGH	1B/2A
Goatfell	MOD	MOD-HIGH	MOD-HIGH	MOD-HIGH	1B/2A
Wild Ennerdale	MOD-HIGH	MOD-HIGH	MOD	MOD-HIGH	2A
Forsinard Reserve	HIGH	MOD	MOD	MOD-HIGH	2A
Sandwood	MOD	MOD	MOD-HIGH	MOD-HIGH	2A
Glencoe	LOW-MOD	MOD-HIGH	MOD-HIGH	MOD-HIGH	2A
Li and Coire Dhorrcail	MOD	MOD	MOD-HIGH	MOD-HIGH	2A
Loch Katrine	MOD	MOD-HIGH	MOD	MOD	2A
Ben Lawers NNR	MOD	MOD-HIGH	MOD	LOW-MOD	2B
Cashel Forest	MOD	MOD	MOD	MOD	2B
Carrifran	MOD	LOW-MOD	LOW-MOD	MOD	2B

The process involved the application of the specific wild character parameters shown in Table 3. This was relatively straightforward for remoteness (based on the 3, 5 and 8km categories), while the grading of perceived naturalness and degree of human artefacts was a subjective judgement based on both the application of parameters and discussions with site managers (in most cases, respondents were asked to consider their site relative to others on the list and respond accordingly). The grading for scale was based

on both the overall area of the site and the relative ruggedness and diversity of topography. The use of a site's area alone was not seen as sufficient to account for differences between sites relating to scale, as this was dependent on the extent of ownership of the site and ignored the character of its wider setting.

The results presented in Table 15 represent estimates of the relative wild character of the 23 sites. These results are subjective, being dependent on the application of wild character criteria as presented in this report and the opinions of site managers.

5.2.3 Project objectives and management

This area of questioning was concerned with determining the overarching objectives of management across the surveyed sites. Data analysis led to the identification of a number of differing 'themes of management' across the management initiatives. As well as an analysis of objectives, this section also presents information relating to respondents' opinion on designations on their sites, the degree and techniques of public involvement in site management, key visitor management techniques employed on sites (if any), and the key obstacles faced in the delivery of project objectives.

5.2.3.1 Themes of management

Following the review of key objectives for all sites identified by respondents – particularly in relation to emphasis placed on habitat restoration (and the methodologies employed for this), recreation and access, the importance of 'natural processes', and the relevance of sustainable land management or rural development – a number of key 'themes of management' are suggested here as occurring across wild landscapes management initiatives. These themes represent four slightly differing types of management across the initiatives addressed in this survey. Each of the 23 sites has also been assigned to one of the four management themes. However, in practice, many initiatives appear to conform to a number of themes to some extent; the sustainable land management theme, in particular, could potentially be applied to a larger number of sites. However, sites are assigned to the most appropriate category in order to assist in describing and further exploring the subtle differences in management emphasis across the projects. The four key themes of management are:

- 1 Large-scale woodland/habitat mosaic restoration. Management initiatives following this theme place an emphasis on large-scale restoration of habitats, particularly woodland, and often employ both the encouragement of natural regeneration and the planting of trees native to the site across large areas. The interpretation of wildness revolves around the restoration of habitats as well as often including (in the long term) the re-introduction of extinct keystone species. This restoration can be based on expansion of existing semi-natural habitats (eg Caledonian Pinewoods), or in the attempted creation of habitat mosaics and woodlands without the presence of existing core semi-natural habitat areas. The sites which best represent this theme are: **Glen Affric (FCS)**, **Loch Katrine (FCS)**, **Cashel Forest (RSFS)** and **Carrifran (private trust)**. From a non-woodland restoration perspective, **Forsinard (RSPB)** reserve in the Flow Country is also seen as representing a large-scale habitat restoration project, with emphasis on the removal of plantation forestry to allow for the re-establishment of blanket bog habitats.
- 2 Conservation and access. Management initiatives following this theme are generally less concerned with large-scale habitat restoration or species re-introductions, with management based on the conservation or improvement of in-situ habitats (often through a reduction in grazing pressure by fencing or culling). This theme usually also involves emphasis on the promotion of recreational access and enjoyment of the

area and, often, involves path restoration and the development of interpretative facilities. Wildness is important in this theme from a recreational perspective (ie, perceptions of wildness) rather than an ecological one. The sites best representing this theme are: **Glencoe (NTS), Arran (NTS), Kintail (NTS), Ben Lawers NNR (NTS), Ben Nevis (JMT)** and **Skye (JMT)**.

- 3 Natural processes/non-interference. This theme is similar in many respects to the second theme. However, in practice, these projects have a stronger emphasis on non-interference. In this regard, they are less likely to advocate the use of deer fencing or tree planting and are concerned with the large-scale restoration of natural processes in areas of existing high habitat quality. Projects within this theme are often put forward as exemplars of conservation or wild land management and generally have less development of interpretative facilities and/or promotion of access, although exceptions do occur in this respect. Wildness is important in this theme from both the recreational and ecological perspectives, in that emphasis is placed on both natural processes and limiting visual impacts. The sites best representing this theme are: **Mar Lodge (NTS), Creag Meagaidh (SNH), Abernethy (RSPB), Torridon (NTS), Li and Coire Dhorrcail (JMT)**. It is also suggested that the management objectives for **Glen Affric (FCS)** (listed in theme 1) could also be represented by this theme.
- 4 Sustainable land management. This theme appears to exist across a variety of projects; elements of 'sustainable management' are apparent in most of the projects reviewed. Certain projects, however, place a strong emphasis on management for 'local community benefit' (sometimes involving benefits relating to eco-tourism) or the maintenance of traditional land uses in wild landscapes at low intensities (such as sporting land use or low-intensity agriculture). In this regard, the cultural components of wild land – as well as the ecological and recreational themes – are brought to the fore. The sites representing this theme are predominantly those in private or community ownership: **Assynt (Community/partnership), Knoydart (Community/partnership), Ennerdale (Partnership), Atholl Estate (Private), Glentarn NNR (Private), Alladale (Private)** and **Sandwood (JMT)**.

5.2.3.2 The effect of conservation designations on management

Respondents were questioned about their opinions on conservation designations within their sites. The results showed a relatively mixed view of these designations, despite most initiatives being concerned with conservation *per se*. Nine respondents stated that designations were a positive influence on management, while eight stated that they had so far little affected their management. Five respondents stated that designations had both negative and positive effects; one respondent stated that they had been a negative influence on management. The key positive aspects of designations for land managers were seen as:

- improved funding availability associated with designations for all or part of the site;
- improved status of the site, leading to greater awareness and recognition of the importance of particular aspects of the site; and
- a key way to determine the significance of certain parts of a site and accordingly altering management objectives for these.

In addition, reductions in development and obvious protective measures associated with designation were usually seen as supporting owner objectives. However, despite these widely recognised benefits of designations, two key areas of criticism were also levelled at the designation system from the perspective of wild landscapes management.

- The increased management costs resulting from the degree of bureaucracy associated with land management in areas with multiple designations.
- The requirement (dependent on interpretation) of certain designations to preserve habitat quality of certain key habitats 'in stasis'. This was sometimes seen as conflicting with objectives related to management which places an emphasis on natural processes, which in practice could lead to the loss in area of the original protected habitat through succession.

5.2.4 Project constraints and benefits

5.2.4.1 Key project expenses

Staffing costs are the key expense for most projects. In relation to more specific areas of expense, a number of areas were mentioned. These included, in order of frequency of occurrence (ie, most often mentioned area of expense first): footpath maintenance; deer control measures; restoration work, particularly tree planting in remoter areas; buildings and interpretative facilities development; vegetation assessments or baseline surveys; and public relations.

Most respondents did not list any 'unpredicted areas of expense', however, those that did highlighted two key areas of unpredicted expense: the high cost of planting trees in remote areas and storm damage to path restoration works.

For most projects, future expenses were predicted to remain similar to current expenditure. However, increased spending relating to interpretation was predicted in the near future for a small number of projects.

5.2.4.2 Project income and funding

A range of project funding bodies were listed by respondents, with most initiatives being funded by at least three organisations. Key funding sources or bodies which were mentioned repeatedly included: the European Commission's LIFE programme; Scottish Forestry Alliance; FCS planting grants; Heritage Lottery Fund (HLF); Millennium Forest for Scotland Trust (MFST); SNH; and the Scottish Land Fund (SLF). Initiatives at certain sites were, to some degree, funded by the landowners themselves.

As well as grant aid, a number of initiatives also had income streams related to on-site activities. These included: income from visitor centre sales; income from both stalking and venison sales; returns from rental accommodation; agricultural tenant agreements; and return from the sales of removed conifers. NGO- and government-owned initiatives also had a high degree of internal funding, which covered staffing costs in particular, while community and private trust initiatives were more dependent on external sources. In terms of future funding and income streams, most respondents predicted little change, although a small number felt it was possible that both European Commission and HLF funding would be more limited in the near future. A small number of respondents stated that it was likely that SNH would become a more significant funding source for initiatives directly related to conservation of wild character.

5.2.4.3 Key points relating to the sourcing of funding

Respondents were questioned on their approaches to the sourcing of funds for their initiatives. This resulted in the recognition of a number of key approaches and techniques with potential for application by future wild land management initiative projects in their search for funding support.

- The development of a clear approved business plan. This was seen as potentially demonstrating both long-term commitment to objectives and a professional approach overall.
- The release of a fundraising brochure, emphasising the potential for a positive 'green' image for potential sponsors.
- The use of flagship species or habitats to act as a key focus for fundraising and gain media attention and a higher public profile.
- The support of a clear organisational policy (eg, the NTS policy on wild land), which evidences long-term commitment to objectives. While this may be impractical for a new independent initiative, respondents highlighted the potential for partnership with more established organisations which could raise the public profile and attractiveness of an initiative to potential funding bodies.
- The careful adjustment of objectives to fit with funding applications without compromising the overall objectives for any given initiative.

5.2.4.4 Volunteer input to projects

This area of questioning was concerned with volunteer input and the use of this resource across the survey group. Tables 16 and 17 illustrate the differences in terms of importance of volunteer input across the sample group.

Table 16 Level of volunteer input

Percentage of total project workload done by volunteers	1–25%	25–50%	50–75%	75–100%
Number of wild landscape management initiatives	13	5	1	3

Table 17 Emphasis placed on the importance of volunteer input

Emphasis placed on the importance of volunteer input	Number of projects
Not used	1
Moderately important	5
Very valuable	7
Vital	7

The range of different types of work carried out by volunteers was extensive, with volunteers active across the entire spectrum of project activities, from project management, through to basic maintenance. The listed volunteer activities included:

- tree planting;
- vegetation survey and monitoring;
- public engagement;
- renovation and maintenance;
- education and events;
- a GIS-based research project;

- footpath restoration work;
- deer cull and assistance with deer cull;
- fence repairs;
- alien species and scrub removal;
- litter clearance;
- sand dune stabilisation;
- seed collection;
- stalking; and
- visitor surveys.

Across all groups, it was strongly apparent that NGOs and Community-based owners utilised volunteers as a resource to a considerably greater degree than government bodies. However, even within NGOs and community organisations, there were differences in the degree of use of volunteers. Only one privately-owned site did not use volunteers.

5.2.4.5 Project benefits

Respondents were questioned on their perceptions of the key benefits that their project ownership and management provide. A key direct benefit was seen as job creation, with the average number of full time equivalent (FTE) jobs directly related to wild landscape site management being 7.8, with the highest being 14 FTEs and the lowest being 1–2 FTEs.

Table 18 Number of full time equivalent jobs directly related to site management across all 23 sites

FTE Jobs resulting from management of site	1–3	4–5	6–10	11–14
No. of sites	10	6	3	4

A number of respondents noted that project management also led to the creation of indirect employment, eg, through the requirement for supporting roles such as contract deer stalkers on some sites, and employment in tree nurseries to supply demands from large-scale forest restoration projects. Other social, economic and environmental benefits noted as occurring on specific sites are shown below in Table 19. The respondents who mentioned particular benefits as occurring on their sites now or in the near future as a result of their management are shown by number (see Table 11 for site number identifiers) after each specific benefit. This does not necessarily imply that sites which are not linked to a specific benefit do not provide this benefit, but rather that it was not emphasized as occurring as a result of management by the respective respondent(s). It should also be pointed out that, while flood mitigation and carbon sequestration were only mentioned by a small number of respondents, this does not mean these benefits do not derive from other sites, but rather that there is no explicit management for these benefits on these sites and/or they are not listed in site objectives. It is likely that the ‘environmental services’ benefits of these wild landscapes were generally under-recognised due to the difficulty in measuring such benefits.

The development of exemplars of management was considered as a key benefit on certain high-quality sites, with the potential to influence land management in other areas of Scotland.

The main key beneficiaries of site ownership and management identified were: local communities, the general public, local schools, colleges and national universities, local businesses, local youth groups, forest contractors, the recreational users of the site, visitors to the area, and nature itself.

Table 19 Benefits listed as occurring on their sites by questionnaire respondents

Listed Benefits	Respondent Sites ¹⁶
Habitat improvement and further habitat creation through restoration work and reductions in grazing pressure	1,2,3,4,5,7,8,9,10,11,12,13,14,15,16,17,18,19,20,21,22,23
Landscape protection and enhancement	1,2,3,4,5,6,7,8,9,10,11,12,13,14,15,16,17,18,19,20,21,22
Proactive visitor management and the development of and visitor facilities, in some cases associated with interpretative a direct increase in visitor numbers to the surrounding area	1,2,3,4,5,6,7,8,9,10,11,12,13,14,15,17,18,19,20,21,22,23
An increase in the number of events and outdoor activities on site	1,2,3,5,6,8,9,10,12,13,14,15,16,17,18,19,21,23
Educational benefits, including ranger-led school site visits, the creation of opportunities for research and, in some cases, the establishment of a ecological field centre	1,2,3,4,5,6,8,10,12,13,14,15,16,17,18,19,20,21,22,23
Increased wild land quality	1,2,4,8,9,10,11,12,13,14,15,16,17,18,19,20,21,22
Increased levels of biodiversity	1,2,3,4,5,7,9,10,12,17,18,19,21,23
Improvements to path networks and restoration of degraded areas	1,2,3,5,6,7,8,10,11,15,16,17,18,19
Flood mitigation measures resulting from management	4,11,19
Carbon sequestration (woodland establishment)	1,2,3,4,17,18,19

5.2.4.6 Project originality

This question was concerned with whether or not management initiatives had pioneered or demonstrated anything specific. Respondents highlighted a number of areas relating to project management which could be seen as relatively pioneering in nature, including:

- large-scale landscape level habitat restoration (FCS Glen Affric);
- the development of an in-house permanent footpath repair team (NTS Arran);
- the first willow scrub treeline restoration project in the UK (NTS Ben Lawers);
- potentially sustainable management of a Highland estate (NTS Mar Lodge);
- large-scale deer reduction and the associated restoration of vegetation communities (SNH Creag Meagaidh);
- holistic management through multiple NGO partnership agreements (Wild Ennerdale); and
- re-establishment of a 'complete' native ecosystem in the Scottish Highlands through an extensive re-introduction program (planned though not implemented to date) (Alladale Estate).

5.3 Summary and conclusions

The projects reviewed above are primarily Scottish examples, chosen for their scale and degree of remoteness and human impact, within the time and staffing constraints of the review process. In particular,

¹⁶ See Table 11 in this section to identify sites by their number identifiers

the number of initiatives on privately-owned land is relatively low in comparison to the total area of landscapes of wild character in private ownership, being due primarily to time constraints on the part of both the researcher and potential respondents. It is acknowledged that such an approach may have limited the recognition of opportunities for future approaches to land management for wildness values in Scotland. It is suggested, therefore, that any future research of 'wild landscape management initiatives' should i) include a more appropriate proportion of initiatives on privately-owned land and ii) take due account of examples outside Scotland, both within the UK and further afield.

The management review questionnaire was based primarily on a qualitative approach which aimed to capture the broad views of managers in relation to the benefits, opportunities, and constraints of initiatives/projects. The establishment of wild character, in particular, was based on a purely qualitative approach and is recognised as being highly subjective – although there was a high degree of consistency among respondents in terms of what actually constituted wild character and the primary threats leading to the loss of this landscape attribute. Future management reviews may wish to consider incorporating a stronger quantitative element relating to i) the quantification of project costs and benefits, and ii) the establishment of wild character in a more objective manner, perhaps utilising a refined version of the wild character grid presented in section 2.

A range of different approaches to land management were apparent across the 23 initiatives, and the 'themes of management' described in section 5.2.3 attempt to clarify the main themes. It is suggested here that these themes, in conjunction with the typology of wild landscapes proposed in section 2, could be further developed to assist in developing a greater understanding of the different approaches taken to the management of landscapes of wild character and the resulting types of landscapes. The development of management themes highlighted the fact that community-based sites, as well as sites owned in partnership and privately, most often strongly emphasised the 'sustainable land management theme'. NGO site owners generally fell within either the 'conservation and access' or 'natural processes' theme; although it is conceded that many site managers felt that their management was directed at sustainable land use, regardless of specific objectives. A key point in this regard may be that the collaborative approaches to management apparent in partnership and community-based initiatives tend to favour a sustainable approach which, in some respects, could be seen as potentially benefiting a broader range of stakeholder interests.

The majority of respondents emphasised that their sites were cultural landscapes rather than 'natural' landscapes, as evidenced by the large number of sites with archaeological evidence of past settlement. Most respondents did not automatically equate sporting land uses or low-intensity agricultural land use (usually in the form of crofts) with a loss of wild character. As well as this, human habitation and other small facilities, such as bothies, were also not generally necessarily seen as a significant detractor if sensitively located and designed sympathetically. The key point here is that cultural or 'traditional' land uses were not generally considered as incompatible with the conservation of wild landscapes. However, it was generally emphasised that all land uses should be carried out in a fashion sensitive to an area's wild character.

A number of **opportunities associated with wild landscape management initiatives** can be recognised from this review.

- The strong existing base of projects managing land for its wild character and the associated availability of experience and exemplary practice to newer projects.

- The opportunities presented by community ownership and partnership management approaches involving collaboration with neighbouring landowners, which could lead to a general increase in the scale of wilder areas managed with consistent objectives. A key opportunity in this regard would appear to be the further encouragement of collaborative partnership-based approaches to ensure an overall increase in the size of areas being managed to consistent objectives. This could occur through further development of existing forums such as DMGs and the setting up of new fora for landowner collaboration, as well as through increased NGO landownership.
- The recognition on the part of a large number of respondents that low-intensity agriculture and sporting land use were not significant detractors of wild character. This would appear to support the cause for further incorporation of cultural or management components into the concept of wild landscapes and wild land which, in turn, could lead to the concept being viewed more favourably by the agricultural and private landowning communities, potentially providing greater opportunities for collaborative management and an increase in the number of private estates involved in management for wild landscapes values. A key point in this regard is the recognition that management for such values can involve different approaches and include 'productive' land uses such as sporting and agriculture and even sustainable forestry, such as at Glentamar NNR, a site given a category 1B wild landscapes rating in this review.
- The diversity evident in approaches to fundraising and development of income streams (eg, visitor centre income, wildlife tourism, sporting returns). This point is perhaps of particular importance to private landowners, as it highlights the existence of alternative avenues to sporting or agricultural returns for wild landscapes.
- The use of volunteers was of high importance on a number of sites, particularly NGO sites. An opportunity would appear to exist for private landowners, as well as certain government body owners (such as FCS) to further develop the use of volunteers, capitalising on an existing resource to assist in activities relating to management for conservation and improvement of wild landscapes.

A number of **key benefits associated with site management** can also be recognised.

- The degree of habitat improvement evident across the projects evidences the high value of such initiatives from a wild character and nature conservation perspective. Direct benefits of site management were seen to include enhancement of biodiversity on site, increasing the area of semi-natural woodland and other semi-natural habitats.
- The reduction of grazing pressure was a key benefit associated with the management of the majority of sites reviewed. The costs of deer damage have been previously noted in section 4; the damage to habitats associated with high deer densities on a number of private estates across Scotland is evidence in itself of the benefits of reduction in deer numbers in areas of high wild quality.
- There were educational benefits and opportunities at the majority of reviewed sites, with interpretative facilities and rangers often being provided as a free resource to the general public and the full range of educational establishments.
- Certain sites were identified as providing increased ecosystem services on- or off-site as a result of management, such as flood mitigation measures, peat bog restoration, re-establishment of hydrological function, and increased carbon sequestration.

- The management of all reviewed sites resulted in the creation of jobs, with the average being more than 7 FTEs.
- On-site facilities for visitors had been developed or improved at most reviewed sites, particularly in relation to interpretation and maintenance of the area's wild character to ensure that the site remains a visitor attraction in the future. As well as this, a large number of sites were engaged in footpath improvement, which was seen as beneficial in terms of access improvements. Interpretive facilities were also seen as beneficial in attracting more visitors and also acting as a zoning tool, drawing visitors away from the more sensitive areas. A small number of sites also catered specifically for different types of visitors with a range of (usually free) interpretative resources available, dependant on visitor preferences.
- A number of respondents stated that site acquisition was a response to concerns over proposals for developments on the site which could have potentially severely degraded its wild character. In this regard, a key benefit of ownership and management was seen as the halting of insensitive developments and poor site management (from a wild landscapes perspective).

As well as these benefits and opportunities, a number of **costs and constraints** for project management were also evident from this review.

- The general lack of specific funding to support land management relating to wild character values of landscapes.
- The continued high levels of grazing on certain sites, associated usually with the movement of deer across ownership boundaries and, to a lesser extent, agricultural tenancy agreements. The use of fencing was seen as a detractor to wild character by a number of respondents; however, high neighbouring deer densities necessitated fencing on certain sites where woodland regeneration was as an important objective.
- The lack of available support to site managers for deer control measures.
- The presence of plantation forestry on a large number of sites, and the associated impacts on perceived naturalness and the high cost and lack of available support for the removal of plantations of non-native conifers.

To a lesser extent, apparent conflicts between project management objectives and certain objectives of conservation designations were seen as a constraint, relating primarily to interpretations of habitat condition in designation management objectives.

6 CONCLUSIONS AND RECOMMENDATIONS

6.1 Synthesis of conclusions

Current recognition of wild landscapes in Scottish government policy is generally rather limited. In this regard, a number of key recommendations for further policy development and recognition of the concept are outlined in the following section.

As shown by the data in section 4, in particular, a range of benefits directly accrue from wild landscapes, with the primary beneficiary groups being the general public, local communities and, to a lesser extent, the landowning community. Almost no work has been done which allows identification of the economic value of the benefits accruing specifically from wild land. The best available data refer to recreation and tourism; and these data demonstrate that large numbers of people visit places with a high degree of wildness in comparison to where they live (see section 4.2). Thus, wildness is valued and sought after. In particular, activities associated with wild landscape areas accounted for up to 19.9 million day visits in the HIE area in 2003, with an associated expenditure of between £411–£751 million, which in turn supported up to 20,600 FTE jobs. The assessment of project management costs (section 4.5.3) suggests high net benefits of management. In addition, in relation to strict economic outputs (with tourism being the main present quantifiable use for wild landscapes), section 4.6 recognises that wild landscapes apparently provide greater benefits than agriculture and forestry combined; although these land uses have considerable benefits beyond productive output. However, the range of benefits from wild landscapes extends beyond tourism. They include, in particular, biodiversity conservation, habitat improvement, and ecosystem services. **In general, it may be concluded that wild landscapes represent a competitive land use relative to 'traditional land uses'.**

Economic assessment of the social, health and educational benefits of wild landscapes is difficult due to the lack of available data. However, responses during the management review (section 5) repeatedly recognised (in a qualitative sense) that **site management improves opportunities for educational benefits from wild landscapes through increased interpretation facilities, ranger-led school visits, and scientific research.** Likewise, economic quantification of the direct benefits attributable to conservation of natural habitats and habitat restoration was difficult, due to the broad nature of available datasets (eg, Natura 2000 cost-benefit data). However, **estimates of site-specific conservation values are as high as £120/ha for conservation in the Flow Country** (section 4.5.2). The management review showed that habitat conservation and restoration were prime objectives at many reviewed sites, with native woodland restoration, in particular, being at the scale of hundreds of hectares on a number of sites.

Further specific benefits which also appear to result directly from wild landscape project management initiatives include: public promotion of wild land; enhanced protection for wild landscapes; and establishment of exemplary sites for the promotion of high-quality management of wild landscapes. In some respects, the key areas of constraint and cost recognized in relation to wild landscapes were similar across the management and cost-benefits analysis sections. Footpath repair and native woodland restoration were recognised as key expenses (staffing costs were always the largest expense) on a large number of sites, and ranked high in Table 9 (section 4) which shows the management costs for JMT estates.

In general, a wide range of opportunities and benefits can be attributed to wild landscapes (see sections 2.4.4 and 5). A key conclusion is that the **inclusion of traditional land uses within the concept of wild landscapes could have considerable benefits for the overall conservation and promotion of the resource**. Such recognition of benefits relating to wild landscapes could, for example, include sporting interests, low-intensity agricultural grazing, and even sustainable forestry practices.

Table 20 Wild landscape sites categorised for wild landscape type and theme of management

Project Name/Ownership	Wild Landscapes category	Management Theme
Mar Lodge (NTS)	1A Prime wild landscape	Natural processes
Abernethy (RSPB)	1A Prime wild landscape	Natural processes
Glen Affric (FCS)	1B Compromised wild landscape	Natural processes/ large-scale habitat restoration
Kintail (NTS)	1B Compromised wild landscape	Conservation and access
Creag Meagaidh (SNH)	1B Compromised wild landscape	Natural processes
Knoydart (community)	1B Compromised wild landscape	Sustainable land management
Torridon (NTS)	1B Compromised wild landscape	Natural processes
Glentannar NNR	1B Compromised wild landscape	Sustainable land management
Atholl Estate (wild land area) (private)	1B Compromised wild landscape	Sustainable land management
Alladale Estate (private)	1B Compromised wild landscape	Sustainable land management
Assynt (community)	1B Compromised wild landscape	Sustainable land management
Skye (JMT)	1B Compromised wild landscape	Conservation and access
Ben Nevis (JMT)	1B/2A Compromised wild landscape	Conservation and access
Goatfell (NTS)	1B/2A Compromised wild landscape	Conservation and access
Wild Ennerdale (Partnership)	2A Landscape with wild character	Sustainable land management
Forsinard Reserve (RSPB)	2A Landscape with wild character	Large-scale habitat restoration
Sandwood (JMT)	2A Landscape with wild character	Sustainable land management
Glencoe (NTS)	2A Landscape with wild character	Conservation and access
Li and Coire Dhorrcail (JMT)	2A Landscape with wild character	Natural processes
Loch Katrine (FCS)	2A Landscape with wild character	Large-scale habitat restoration
Ben Lawers NNR (NTS)	2B Landscape with wild character	Conservation and access
Cashel Forest (RSFS)	2B Landscape with wild character	Large-scale habitat restoration/ sustainable land management themes
Carrifran (private trust)	2B Landscape with wild character	Large-scale habitat restoration

Table 20 presents a synthesis of the management themes, suggested for the 23 sites reviewed for section 5 of this review, with the wild landscape types fitted to each site based on the typology presented in section 2.2. It is immediately evident that the top three wild landscapes as categorised by this review – Mar Lodge, Abernethy, and Glen Affric – fit best with the natural processes theme. In addition, Mar Lodge places considerable emphasis on sustainable land management, as it promotes the sustainable use of a Highland sporting estate while conserving and improving the area’s wild character and semi-natural habitats.

As noted earlier it is interesting to note that all other sites emphasising sustainable land management (with the exception of Sandwood, a site with crofting tenure), are either privately-owned (Atholl, Alladale, Glentanar), partnership-owned (Wild Ennerdale) or managed by community-partnership-based organisations (Assynt, Knoydart). With regard to the small number of private estates considered, the emphasis on sustainable management can perhaps be best explained by necessity, given that management focuses on delivering landowner objectives which generally include attempting to create a financial return from land-use activities such as sporting and agriculture. At the same time, private estates are not under a requirement to satisfy the aims and members of the respective charity, as is the case with the RSPB, NTS, and JMT.

6.2 Key recommendations

Drawing on the conclusions in the preceding sections relating to the recognition of benefits, opportunities, costs, and constraints relating to wild landscapes and their management, a series of recommendations is outlined below.

6.2.1 Enhancing the policy framework

The following recommendations are directed specifically to future policy development for wild landscapes in Scotland by the Scottish Executive and government agencies, including SNH.

- 1 **To develop specific widely-agreed criteria for wild landscapes.** This is a fundamental recommendation, as agreement on the characteristics and location of wild landscapes is an essential starting point for the development of future policy. **The typology developed in this review should be further developed** through future research based on enhancing the typology criteria and deciding upon specific measurement systems for each axis of the proposed wild character grid. This work should be **trans-disciplinary**, ie, including consultative processes involving all relevant stakeholders within local and national government and agencies and groups from appropriate sectors including biodiversity conservation, land management, recreation and tourism, etc.
- 2 **To develop a Scottish wild landscapes strategy.** The first stage of this would be the extensive consultation to ensure broad agreement on wild landscapes criteria, outlined above. It could incorporate the use of maps developed using geographic information systems (GIS) to identify the location of wild landscapes and their relative sensitivity to development. This process could follow the approach taken to the development of Indicative Forestry Strategies (identification of low, moderate and highly sensitive areas), although in a non-statutory planning guidance sense.
- 3 **To consider the formal inclusion of wild landscapes as a principle within a range of Scottish national policies.** This would encourage the recognition and promotion of wild landscapes and their values within all land-use, health, education, recreation, renewable energy, flood management, and other policies. Scottish policy related to tourism should be particularly conscious of considering and referring to wild landscapes, but other opportunities include the following.
 - a) **Revisions to the National Planning Framework, NPPG14, and assessment of the potential for removal of GPDOs in areas of high wild character.** Such revisions should ensure that the flexibility of landowners/farmers to respond to land use policy changes is maintained.
 - b) **Development of changes in agricultural and forestry policy that foster cultural elements and land management practices which contribute to wild landscapes.** Incentives should be

targeted both at specific geographic areas and to specific objectives relating to the maintenance and improvement of wild landscape quality and habitat restoration, taking advantage of the removal of CAP farm subsidies and the subsequent availability of CAP and RDR funds for more environmentally-oriented activities. Incentives should be targeted at the scale of entire landholdings (potentially through Single Farm Payments and Land Management Contracts) or even at larger scales through co-ordination of objectives across landowners, eg, by local or regional planning authorities.

- c) **Revision of the NSA framework.** A new designation for wild landscapes is not recommended due to the complexity of the existing system of designations and the potential for protection of wild landscapes through other means. However, more explicit recognition of the wild landscape qualities within NSAs is vital.
- d) **Evolution of the biodiversity agenda** (eg, Scottish Biodiversity Strategy Implementation plans beyond 2007), recognising the roles of wild landscapes in contributing to this agenda and encouraging further recognition of the importance of landscape level/ecosystem management approaches and ecological restoration to biodiversity conservation.
- e) **Promotion of wild landscapes through the Scottish health and education agendas**, including national-level promotion of the health benefits of recreation in wild landscapes and their further utilisation in the educational curriculum.

6.2.2 Enhancing management

This section presents a number of key recommendations to enhance the management of sites comprising or including wild landscapes. They should be implemented by the managers of wild landscapes in consultation with appropriate agencies – particularly SNH – and other stakeholders. The second recommendation is directed particularly at National Park authorities.

- 4 **To establish a set of key management criteria for wild landscapes management and to use these to identify exemplar sites of wild landscapes management.** Such sites could be selected to represent a diversity of approaches to wild landscapes management. However, sustainable land management should be a fundamental criterion of the management objectives of such sites. In particular, the demonstration of economic benefits through site management for wild values should be encouraged (eg through interpretative centre returns and eco-tourism developments). High standards of land management could be encouraged through setting up a national award scheme for exemplary management of wild landscapes.
- 5 **To encourage the development of exemplary practice in relation to large-scale management of wild landscapes spanning multiple ownerships within National Parks.** National Parks have the opportunity to lead the way in relation to management and planning for extensive areas of wild landscapes. This could involve the zoning of wild landscapes for reasons of planning guidance, and the development within parks of one or more wild landscapes zones where all forms of intrusive development are minimised.
- 6 **To develop a 'duty of care',** linked to specific planning guidance criteria and management guidelines. This would place further responsibility on landowners to ensure that the wild character of their landholdings is not overtly degraded through poor management or insensitive development.

- 7 **To develop a detailed site management plan for all wild landscape initiatives**, to ensure that
 - a) objectives are long-term and clearly accessible to all concerned stakeholders and
 - b) site management is viewed as professional and committed in the long-term by funding bodies, thus assisting in the raising of funds.
- 8 **To increase public involvement in the management process for wild landscapes management** – across all landowner groupings. SNH and the NTS could follow the example of the JMT in this regard, and become landowning and management partners in partnership- or community-based wild landscapes management initiatives.
- 9 **To remove or minimise the effects of obtrusive activities and human artefacts that detract from wild landscapes.**
- 10 **To continue to encourage the continued restoration of habitats through site management, and to develop management guidelines relating to restoration practice** which aim for approaches which are sensitive (in both the short and long term) to wild landscape character.

6.2.3 Fostering partnerships and collaboration

This section includes recommendations to foster partnership and collaborative approaches to the management of wild landscapes. The lead here should be taken by the appropriate government agencies, particularly SNH and the DCS.

- 11 **To encourage the development of forums which facilitate discussion between both different landownership groups (eg, private and NGO) and key wild landscape stakeholder groups.** This could include consideration of the development of regional wild landscapes stakeholder forums to provide a basis for development of collaborative cross-border approaches to the management of such areas.
- 12 **To consider expansion of the remit of Deer Management Groups (DMGs)** to include a more diverse agenda relating to general management of wilder landscapes. This recommendation recognises that DMGs represent existing structures for collaboration and already cover most, if not all, areas which would be identified as wild landscapes.

6.2.4 Promoting responsible recreational and tourism benefits

This section presents recommendations to enhance the uses of wild landscapes for recreation and tourism. They should be implemented both by businesses using these sites and by other users, in consultation with appropriate agencies (particularly VisitScotland and SNH), land managers, and other stakeholders including NGOs (eg, the Mountaineering Council of Scotland and Ramblers Association Scotland).

- 13 **To further involve the tourism sector within the wild landscapes debate, in order to encourage the delivery of a broader range of products** – particularly those which relate to wild landscapes.
- 14 **To encourage and promote high-quality eco-tourism and outdoor recreation-based tourism across Scotland and promote this resource abroad.** These are key measures to ensure consistent market development. In this regard, the setting of standards for eco-tourism, in particular, is important to ensure delivery of a consistent product with minimal negative environmental impacts.

- 15 **To explore systems which encourage companies utilising wild areas for economic gain to compensate landowners for such uses.** This should be linked to the duty of care on landowners to ensure that wild landscape characteristics are maintained.
- 16 **To encourage responsible recreational practice in wild landscapes areas.** This should build on the 'responsible access' provisions of the Scottish Outdoor Access Code, Mountain Leadership training, etc. In particular, recreational activities which are potentially considered as inappropriate to such areas (eg quad biking, mechanised airborne activities) should be discouraged. The development of training courses (or elements within general outdoor courses) and interpretation formats which outline the key elements of responsible recreation in wild landscapes – following the example set by the 'Leave No Trace' outdoor ethics program in the USA.

6.2.5 Recognising and publicising the benefits

The following recommendations relate to future research and dissemination activities with regard to wild landscapes in Scotland.

- 17 **A key recommendation of this review is the development of research projects on the part of SNH, but also the wider encouragement of on-site research which aims to evaluate the social, economic, and environmental benefits attributable to wild landscapes.** A key starting point would be the definition of wild landscapes areas using an agreed typology and GIS-based maps, as discussed above.
- 18 **To explore the relative value of 'wildness' amongst the other attributes of the relevant sites.** Existing valuations rely on revealed preferences or estimates from contingent valuation studies, neither of which offer sufficient resolution. More recent methodological developments include choice experiments that explicitly recognise and value the multi-attribute nature of environmental resources. These attributes can either be activity-related (eg, wildness, hillwalking, mountaineering, wildlife watching); or related to the wildness of the sites (solitude, openness, naturalness, etc.). These approaches would determine how important wildness is to the activities being undertaken and what elements of wildness are most important.
- 19 **To undertake benefits assessment research, including research on public understanding of the term 'landscapes of wild character' in relation to landscape type and scales** and how this relates to more technical definitions of the concept. This approach should then be combined with **assessments relating to which elements of these landscapes are preferentially valued by the general public**, either through examination of preferences for tourism or recreation or stated preferences for conservation. This could highlight which elements of wild landscapes actually provide the most value and the extent to which scale is important.
- 20 **To explore the potential for wild landscapes to provide some of the benefits that have not been quantified – including health, education, social and ecosystem services (eg, flood alleviation) – using a cost-effectiveness framework.** This would allow comparison with other means of providing these benefits or meeting policy objectives, for example the Scottish Executive's National Physical Activity Strategy, and the development of markets for the delivery of these benefits from wild landscapes.
- 21 **To implement a more detailed management review of wild landscapes initiatives**, to contribute to the implantation of and/or assess the success of the Scottish wild landscapes strategy. This could treat the current study as a pilot study, and:

- i) **incorporate more quantitative approaches both with respect to identification of the costs and benefits** associated with sites (through discussion with site managers as well as the review of basic site accounts if possible) **and in relation to the assessment of a site's wild character**;
 - ii) **analyse the causal factors behind approaches to management**, particularly given that management themes are not always consistent even within one landowner;
 - iii) assess delivery of actions relating to the **key management criteria** mentioned in section 6.2.2.
- 22 **To implement a web-based facility focussing on wild land in Scotland.** This would serve as a means not only for disseminating the results of research, but would also facilitate the implementation of, and foster synergy between, most of the other recommendations presented above (see also Rogers and Taylor, 2003). It should have links to other relevant websites.

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ANNEX 1 – POLICY INTERVIEWEES LIST

Government body

Bill Taylor, Natural Heritage Manager, Highlands and Islands Enterprise

Fiona Newcombe, Head of Natural Resources, Cairngorms National Park Authority

Robbie Kernahan Deer Officer for the North West SDC, Scottish Deer Commission

Jane Dalglish, Head of Wildlife and Habitats Unit, Scottish Executive

Sheila Scobie, Head of Rural Policy Branch, Land Use and Rural Policy Division, Scottish Executive

Sally Thomas, Head of Countryside and Management Division, Scottish Executive

NGO and lobby group

Helen McDade, Policy Manager, John Muir Trust

John Mayhew – Head of Policy and Planning and Paul Johnson. Head of Countryside Management, National Trust for Scotland

Vance Martin, Leader, IUCN World Wilderness Task Force

Mike Dales, Access and Conservation Officer, Mountaineering Council of Scotland

Alistair Cant, Co-ordinator, Scottish Wild Land Group

Sandy Dear, Scottish Tourism & Environment Forum

Kenny Steel, Project Manager, Paths to Health initiative

Jonathan Hall, Head of Rural Policy, Scottish Rural property and Business Association

Davie Black, Ramblers Association Scotland, Wild Land Campaign Officer

Contacts approached for input at the report review stage (not interviewed)

Peter Pitkin, National Strategy Manager, Scottish Natural Heritage

Richard Robinson, National Strategy Officer, Scottish Natural Heritage

Duncan Orr-Ewing, Head of Land use Policy, RSPB

Gordon Patterson, Native Woodlands, Forestry Commission Scotland

James Hepburn-Scott, Chair, Forestry and Timber Association

ANNEX 2 – KEY INTERVIEW THEMES FOR POLICY LEVEL INTERVIEWS

Key main themes/questions for interviews

In your mind do you think wild land is even a defined concept in Scotland – is this a fundamental root problem?

What do you feel are the key critical issues which wild land (conservation, management and development) faces in Scotland – particularly focusing upon those which are a result of current (or future) policies (or lack thereof)?

Are there any current/future policies in your area/department which are seen as having the potential to negatively impact upon the environment – particularly large semi-natural/remote landscapes? How have environmental/conservation considerations (in relation to wild land in particular) been incorporated into your area of policy?

Is the concept of wild landscapes/conservation of semi-natural landscapes in Scotland to be a *consideration* in future policy development in your area of policy? (do you consider ‘wild landscapes’ when setting policy)?

Is the wild land agenda perceived as being in direct conflict with the current Rural development and Sustainable Development agendas of the Scottish Executive?

What are the likely changes to funding streams in your area of policy? Are these a result of UK/Scottish/EU agendas/market pressures (as with agricultural funding changes) – why are these changes occurring and what does the future hold?

With increased awareness and funding availability (and decreased farm funding availability) are private landowners likely to seriously engage in wild land preservation/development (like they did prior to 1988 with respect to forestry plantations)? What will be the main obstacles in this regard?

Would the delivery of biodiversity objectives through a wild lands approach involve a major shift from the current approach to delivery of biodiversity objectives (which is often delivered through agriculture).

How are the current wild land and re-wilding initiatives perceived? Also issue of conflict over what re-wilding means – current emphasis on tree planting in some areas has been criticized – is this a major issue?

Is the move away from private landownership towards encouragement of community and NGO (or combined) ownerships likely to be advantageous for the wild lands agenda?

How do you think wild land values are currently perceived in comparison to values relating to other land uses (forestry/sporting/agriculture/urban development etc.)? How important is valuation to policy setting (how will it influence it)?

What does the future hold for planning laws in relation to wild land – greater planning control over agriculture/forestry and built developments?

More specific (to certain areas of policy) questions

Are visitor numbers to Scotland – and particularly to its remoter, wilder, more ecologically valuable areas likely to increase in the future (as a result of policies)? How can we balance the desire for wild land creation/preservation with:

- a) increased visitor numbers;
- b) the need for thriving rural economies (as dictated by policies).

Is there scope for further incorporation of wild areas in future education policies (outdoor education etc. – like in Australia/Scandinavia)?

The future for wildlife tourism – and encouragement of wilderness experiences and training (wilderness survival courses etc)?

Will future forestry initiatives in remote area (e.g the Cairngorms) continue to incorporate exotic species (Spruce etc.)?

Where are future windfarms likely to be sited? Is the renewables agenda likely to impact on these areas like the HEP agenda has done? Transmission lines/pylons etc. (pylons – a current Cairngorms issue)?

What are the key impacts of CAP reform likely to be for the wild landscapes agenda?

Are red deer numbers likely to be reduced across Scotland as a whole in the future (greater control over landowners etc)? Will culling rights be used by the Deer Commission more often?

Specific wild land policy questions

In terms of actual policy development for wild land areas management which areas hold greatest potential?

National Parks/a national wild land network/NSA measures/broader land use planning measures?

Or a broader approach through the 'greening' of agriculture, the shifting of CAP funds to the RDR/Pillar Two?

General questions

Any knowledge of Cost Benefit Assessments/Valuation case studies for wild land areas (at any scale)?

ANNEX 3 – GENERAL DESCRIPTION AND SIGNIFICANCE OF PROJECTS SURVEYED IN THE MANAGEMENT REVIEW SHOWN IN SECTION 5

Title/Area	General Description and Significance
1 Glen Affric	Flagship FCS site. Predominant habitats are pinewood and wet heath. Management is aimed at restoration and extension of native pinewood habitats. A highly designated remote area, which boasts the largest semi-natural pinewood in the UK least affected by man, managed using a ‘primacy of nature’ approach based on restoration of a forest ecosystem at a large scale. Restoration work has been done by FCS in partnership with the charity, Trees for Life. The approach to management has led to the successful establishment of an innovative “partnership model” involving government agencies, NGOs and private landowners.
2 Loch Katrine	FCS site on 150-year lease from Scottish Water in Loch Lomond and the Trossachs National Park consisting of a mix of heathland, grassland, woodland and some commercial forestry. Management is focused on forest landscape restoration at a large scale through developing a forest habitat network with a mosaic of habitats. Management also aiming at continuing small-scale traditional forestry practices on the site while enhancing the site’s overall wild character and biodiversity. The site is also part of a much larger area of forested landscape, and cross-border management between adjacent landowners for a more extensive approach to landscape restoration is now being developed. See also section on health benefits.
3 Cashel Forest	RSFS-owned site also in Loch Lomond and the Trossachs National Park with a mix of heath (dry and wet), woodland, grassland and newly planted native trees. A more actively managed site than Glen Affric. Management focused on restoration and regeneration of Scotland’s native woodlands with 360ha of new planting having been carried out over last 9 years. Management taking a multi-functional approach to forest management combining the enhancement of landscape, creation of access, community involvement and more traditional forest functions. Site essentially being developed as a model of good forestry practice by the RSFS.
4 Carrifran Wildwood	660ha site purchased by the Borders Forest Trust (a local environmental group) in 2000, mainly dry and wet heath and degraded grassland. Management in the process of planting c. 300ha with native trees, with the aim of re-creating a natural ecosystem looking back 4–5,000 years. Pioneering fundraising approach which involved over 80% of the funds being raised by private individuals ‘adopting’ nominal hectares of the site.
5 Glencoe and Dalness	NTS-owned mountainous site of extremely high recreational and scenic value in a Scottish context. Habitats mainly acid bog, arctic alpine and grassland. Management focused on both conservation of habitats and recreation/

access development with high-quality interpretation. An iconic site in long-term NGO ownership managed particularly for visitors and recreational/educational benefits.

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| 6 | Goatfell | NTS-owned site on Isle of Arran consisting mainly of mountainous upland habitats (heathland/blanket bog). High scenic and recreational value. Management has developed an in-house footpath repair team (rare in the UK) and pioneered footpath repair techniques, building up local skills in this area. |
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| 7 | Ben Lawers NNR | NTS-owned site, mainly consisting of grassland (heavily grazed in some areas) and dwarf and tall herb communities. Management focused on visitor access and biodiversity conservation (compromised by grazing pressure from tenancy agreements). Management has pioneered restoration of willow scrub and developing treeline woodlands and montane scrub. |
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| 8 | Kintail and Morvich | NTS-owned mountainous site. Main habitat types are grassland and blanket bog. Limited crofting and sporting land uses. Management focused on access and conservation. Essentially a large-scale conservation project with some direct habitat restoration and indirect habitat benefits through deer culling. |
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| 9 | Torridon Estate | NTS-owned site. Large-scale remote mountainous site, consisting mainly of wet and dry heath, montane and coastal habitats. Extensive agriculture (very low impact), including 40 crofts in coastal area. Management focused on maintaining natural processes on site as well as improving access through footpath maintenance. |
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| 10 | Mar Lodge | NTS-owned (11 years) site in central Cairngorms. Mountainous area, extremely high value scenically, ecologically and recreationally. Mainly montane, wet and dry heath, pine, birch and upland scrub habitats. Management focused on sustainable land management, involving habitat restoration and access facilitation. The overarching (and pioneering) aim is to utilise the site to demonstrate that the demands of conservation and of a Highland sporting estate can be met on one property. |
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| 11 | Ben Nevis Estate | JMT site, 1700ha, incorporating the summit of Ben Nevis and the area to the south and east. Site of massive recreational and scenic value. Habitats represent full altitudinal sequence of vegetation in British uplands – woodland, montane moss heath and snowbed. Management focused on facilitating access in an environmentally sound manner. JMT works with the Nevis partnership which brings together local community organisations and landowners. |
|----|------------------|---|
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| 12 | Strathaird, Sconser and Torrin – 3 estates | Three contiguous JMT estates with heath, alpine, native woodland and alpine meadow habitats. Mixture of land uses across site (crofting/sporting/fishing/some commercial forestry) and particularly recreation. Key aims of management are allowing natural processes to determine future landscape, acting as an exemplar of wild land, and ensuring open access. |
|----|--|--|

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- 13 Sandwood JMT coastal site with a range of relatively rare coastal habitats including sand dunes and machair, coastal cliffs and some blanket bog and upland wet heath. Whole estate under crofting tenure – extensive agriculture. Management focused on maintaining the area’s wild character and traditional land uses.
-
- 14 Li and Coire Dhorrcail JMT site on remote Knoydart peninsula. Management focused on recreation and conservation. Site has long-term potential to have a natural treeline and with restoration (ongoing) a near-natural vegetation graduation from summit to shoreline.
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- 15 Assynt (Glencanisp/ Drumrunie) Community/NGO partnership buyout of a large-scale site. Primarily upland wet heath, blanket bog and some upland oakwoods and wetland areas. Management focused on creating local employment while safeguarding the area’s natural and cultural heritage for the benefit of local communities and the general public. The site purchase has demonstrated the power of partnership between NGOs and community groups – the management situation is unusual as it is one of the largest community-owned sites in Scotland.
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- 16 Knoydart Estate Remote large-scale estate with predominantly heathland habitats, montane, mountain moraine and some Sitka spruce plantations. Community buyout (Knoydart Foundation) in response to lack of investment in the area. Management focused on improving habitat condition and developing more sustainable forms of land management. Like Assynt, a very large community-owned site.
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- 17 Abernethy Reserve RSPB site of extremely high recreational and habitat value. Habitats include large area of Caledonian pinewood, bog woodlands (rare), juniper scrub, dry and wet heath, blanket bog and montane habitats. Management focused on conservation of native pinewoods and ecotonal habitats, expansion of pinewoods and targeted conservation of specific bird species – capercallie and black grouse. Site has been relatively pioneering in its large-scale removal of deer fencing and sustained culling operations.
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- 18 Forsinard reserve RSPB site with predominantly blanket bog habitats and some oligotrophic lochs and scattered forestry plantations. The only site on this list which has no mountainous areas. Management focused primarily on conservation and specifically the restoration of blanket bog and the hydrological cycle.
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- 19 Creag Meagaidh NNR SNH-owned reserve with primarily upland heath and montane habitats and some semi-natural woodlands. Management focused on conservation and restoration of natural processes through grazing level reductions through deer culling. Promotion and enhancement of public enjoyment also a key management objective. Site is managed as a demonstration of how deer culling can reduce impacts on vegetation, with significant conservation benefits.

- 20 Wild Ennerdale Partnership-owned valley in the Lake District. Habitats include a mix of conifer forest, native woodland, upland grassland, heath and mire. Management primary focus is the delivery of benefits from site management to the general public through an emphasis on natural processes. Plantation forestry in particular being removed and boundaries between habitats being softened. Ownership and management format is unusual, involving the NT, the FC and a private company (United Utilities).
-
- 21 Glentinar Estate NNR NNR section of the privately-owned Glentinar Estate. Habitats include extensive native pinewoods of considerable conservation importance and heather moorland. The management of the NNR is focused on biodiversity enhancement, as well as some traditional forestry practices. The site demonstrates the potential for integration of conservation and low-impact forestry, and is considered an exemplar in terms of native woodland regeneration.
-
- 22 Atholl Estate (wilder area) A section of the privately-owned Atholl Estate. Estate has been owned by the same family for nearly 400 years. Habitats in the wild landscapes section of the estate consist predominantly of heather moorland and some native woodland. Management is focused on biodiversity enhancement and fence removal, as well as maintaining low deer densities.
-
- 23 Alladale Estate Privately owned (recent purchase) site, predominantly moorland habitats with some birch woodland and grasslands. Primary aim of management is to attempt to develop a reserve which incorporates a range of extinct species once native to Scotland as well as restoring on-site habitats. Current management is working in conjunction with Oxford University's WildCRU, in setting up a research science program.
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ANNEX 4 – WILD LAND MANAGEMENT INITIATIVES QUESTIONNAIRE

Project Title and Location:

A. Project Characteristics

1. How long has this project existed and how and why was it initiated (initial drivers)?
.....
.....
2. Who owns the area you manage – Private/public/community/NGO/Other (specify)?
.....
.....
3. What size is the area you manage (ha/sq km)?
.....
4. Is there scope for your initiative to expand through partnership agreements with your neighbours?
.....
i) What would be needed to make this happen?

B. Resource Description (Typology fitters/indicators of wildness)

5. Would you describe your site as a wild landscape?
6. Would you describe your site as a remote area/how accessible is it?
- i) Are any areas more than 3 or 5km from the nearest public road?
- Any areas more than 8km from public roads?
- ii) Does anyone live in the area?
- iii) Are there any/many built developments or modern artifacts (pylons etc) on your site?
(low/mod/high degree of intrusion)
.....
.....

iv) Is there any evidence of past human settlement?.....
.....

7. What are the main habitat types present (heath/wetland/Caledonian pine forest)?
.....
.....
.....

i) Are there any of these habitats where quality is significantly increasing/decreasing. Why?
.....
.....
.....

8. What are the main land-uses (forestry/sporting/grazing/nature conservation/recreation)? Which is the most important? Any muirburn/footpath erosion?
.....
.....
.....

9. How would you describe the degree of perceived naturalness on your site (low/moderate/high)?
.....
.....

In particular do any of the following occur in significant measure on site?

Natural Regeneration of woodland

Ecotonal areas (natural treelines?)

Large raptors

Please elaborate and give examples

.....
.....

10. Do any herbivores occur on your site?.....
Which ones/population size or density?
.....
.....

i) How close are the grazing levels to what you would like for your site or to what you see as 'natural'?

.....

ii) How do you control herbivore populations?

.....

.....

C. Objectives and management

11. What is the main focus of your management (re-wilding?/project vision)?

.....

.....

i) What are your key management objectives?
Is the concept of wildness/wildland important within them?

.....

.....

.....

12. Would you say the area is/is becoming more wild? Why?

.....

.....

13. How have conservation designations affected your management – would you say they have been:

a) A hindrance to achieving your objectives b) Have not affected management c) Have been an important aid to management?

Why?.....

.....

i) What designations occur on your site?

.....

.....

14. Do you involve the public in your management (decision making) process?

How?.....
.....

i) Are there any particular groups you targeted in any awareness programs or consultations?

.....
.....

ii) How have you informed policy makers, local people and the media (websites/leaflets/meetings)?

.....
.....

15. Is visitor management an important component of your management? (what does it involve?)

.....
.....
.....

16. What would you say are the main obstacles you face in achieving your management objectives?

.....
.....
.....

D. Benefits and costs/markets and stakeholders (benefits opportunities costs constraints)

17. What have been the main areas of expense for your initiative so far?

.....
.....

i) Most unpredicted area of expense?

.....
.....

ii) Main expenses in the future?

.....
.....

18. What is/are your main source/s of funding/income?

i) Please can you outline their relative contributions?.....

ii) What do you think are likely to be your main sources of income and funding in the future?

iii) Do you think your ownership format has made it easier to convince stakeholders and raise funds?

iv) How do you justify expenditure on your site to key stakeholders and grant providers?

19. How important has volunteer input been to your project?

Not used/moderately important/very valuable component/vital (not possible without)

i) What have the volunteers mainly done?

ii) What proportion of overall labour input is by volunteers

0

1-25%

25-50%

50-75%

75-100%

iii) Has this proportion changed?.....

iv) Why?

20. How many people does your initiative employ and in what areas of employment?

.....

21. What have been the key environmental social and economic benefits of your management and your site in general?

Nature conservation/wildland conservation (improved since management)?

.....

.....

Tourism:

Has there been an increase/decrease in visitor numbers/associated impacts?

What management measures lead to these changes?

.....

.....

Recreational opportunities/Health benefits (increased with management)?

.....

.....

Education (any particular groups)?

.....

.....

Ecosystem services (flood mitigation/carbon sequestration etc.) – (please elaborate)

.....

.....

Any other benefits?

.....

.....

i) Who in particular has benefited from your site and your management?

.....

.....

Any other groups?

.....

.....

22. Are there any obvious alternative land uses for your site that might provide different public benefits?

.....

.....

.....

(such as wind power and HEP/grazing/forestry/alternative recreation and tourism/other please specify)

23. What do you think your project has pioneered and demonstrated (if anything)?

.....

.....

ANNEX 5 – RESPONDENTS TO MANAGEMENT QUESTIONNAIRES

This annex lists the names of the respondents to management questionnaires. These respondents are a mix of both those who responded by filling in the questionnaire and those who agreed to a phone interview.

Mar Lodge (NTS) – Peter Holden Head ranger

Abernethy (RSPB) – Jeremy Roberts site manager

Glen Affric (FCS) – Malcolm Wield, site manager

NTS Kintail (NTS) – Willy Fraser, site manager

SNH Creag Meagaidh (SNH) – Peter Duncan, site manager

Knoydart Estate (Knoydart Foundation) – Angela Williams, development manager

Torridon Estate (NTS) – Seamus MacNally, site manager

Glentinar Estate (private) – Irvine Ross, forestry manager

Atholl Estate (private) – Andrew Barber, forest manager

Alladale Estate (private) – Hugh Fullerton-Smith, management staff

Assynt (Assynt Foundation) – Mick Blunt, site manager

Skye (JMT) – Douglas Halliday, site manager

Ben Nevis (JMT) – Kirsty Leitch, site manager

Goatfell (NTS) – Kate Sampson, management staff

Wild Ennerdale (Partnership) – Rachel Yanik, site manager

Forsinard reserve (RSPB) – Norrie Russell, site manager

Sandwood (JMT) – Cathel Morrison, site manager

Glencoe (NTS) – site management staff

Li and Coire Dhorrcail (JMT) – Douglas Halliday, site manager

Loch Katrine (FCS) – Russell Lamont, site manager

NTS Ben Lawers (NTS) – David Murdon, site manager

RSFS Cashel Forest (RSFS) – Netty Horn, site management staff

Carrifran wildwood (private trust) – Philip Ashmole, volunteer co-ordinator

ANNEX 6 – MANAGEMENT PROJECTS NOT INCLUDED IN SECTION 5

The project list below represents management initiatives considered for inclusion in section 5 of this review. The majority of projects listed here were excluded due to time constraints and their limited degree of relevance, with the decision to exclude projects usually being made following discussions with project managers. A small number listed here are highly relevant but were not included as they were unavailable during the time period of work for this review (eg Beinn Eighe and the North Harris Trust). It should be emphasised that all projects listed here are relevant in a wild landscapes context and most exhibit considerable wild character. Their exclusion was often more related to time constraints and the strong relevance of other (predominantly Scottish) projects to the selection criteria shown in section 5.

Title/Wild land Area	Location	Landowner/Manager
Elan Valley Valley trust	Wales – near Worcester	Welsh water managed through Elan
Plynlimon	Wales	Mixed ownership
Moor Trees	Dartmoor	Mixed ownership
Geltsdale Reserve	Northern Pennines	RSPB
North Pennines AONB	Northern Pennines	Mixed ownership
Alport Valley	Peak District	National Trust and Forestry Commission
West Weald Woods Project	Butcherland, Sussex	Sussex Wildlife Trust
Wicken Fen	Cambridgeshire	National Trust
Needingworth Fen/Ouse Washes	Cambridgeshire	RSPB
Wallasea Island, Essex	Essex coast	DEFRA, EA, EN, Wallasea Farms Ltd.
Great Fen Project	Cambridgeshire	EA, EN, Wildlife Trusts and others.
Knepp Project	West Sussex	Private project
North Harris Trust	North Harris	North Harris Trust – Community/ Partnership organisation
Insh Marshes	Speyside, Cairngorms Region	RSPB
Beinn Eighe	North West Highlands	SNH
Kielder Forest	Northumberland/Southern Scotland	FC and others

ANNEX 7 – GLOSSARY OF ECONOMIC TERMS

The precise definition of these terms can vary between sources so the definitions used here are consistent within the current context.

Consumers' surplus:	The satisfaction that consumers obtain from a good over and above the price paid. This is the difference between the maximum demand price that you would be willing to pay and the price that you actually pay. For most consumers, under most circumstances, the demand price is greater than the price paid.
Contingent valuation method (CVM):	A survey based method of determining the value of a non-market or environmental good or policy. A hypothetical market is established in which respondents state their maximum willingness to pay to ensure provision of the good or service. Can be used to estimate both use value and non-use value .
Cost:	The financial cost of providing a resource, such as through purchase or management costs. Can also include the value of any negative impacts.
Deflators:	Deflators are produced by the Treasury and allow the effects of inflation to be removed from estimates of costs and benefits from different years, and allow direct comparisons to be made.
Discount rate:	Economists assume that consumption or income is preferred now rather than in the future. The degree to which the present is preferred over the future is known as the marginal rate of time preference and is represented by the discount rate. Discounting allows future costs or benefits, which may occur at different times, to be compared in terms of current values.
Economic impact:	This is the income and employment effects of expenditure. Impacts can either be a direct effect in terms of the immediate effect of expenditure, or indirect as money flows further through the economy. The size of an economic impact will depend on the degree of leakage .
Economic value/benefit:	The total expenditure by visitors or the estimated willingness to pay .
Gross margin:	Gross margins are a measure of output (sales) less variable costs. These are not profit figures as fixed costs, or overheads, are not included. Although fixed costs may not be constant, they may not be affected by small changes in business size or activity.
Leakage:	Leakage occurs due to local economies being unable to supply a full range of goods and services. Some part of the expenditure by residents and visitors is used to purchase goods and services from outwith the local area. The more remote an area, the higher the level of leakage, this will result in lower multipliers . Money that is used for savings or paid in tax is also considered a leakage.

- Multiplier:** Multipliers measure the **economic impact** of expenditure in terms of either income or employment. Typically these will represent the increase in income or employment in the economy per £1000 of expenditure once **leakages** have been taken into account.
- Non-use value:** Economic value of a resource derived through non-consumption of the resource either directly or of the services it provides. Non-use value includes the value arising from knowledge of the existence of a resource, its potential future use and the bequest of the resource to future generations. Also referred to as passive use value.
- Total economic value (TEV):** A concept that recognises that goods and services can provide value in a range of ways, such as **use values** and **non-use values**. TEV allows the full value of a resource to be stated.
- Use value:** Economic value of a resource through either **direct use** such as consumption or experience, or **indirect use** such as the services that resource can provide, for example carbon sequestration or storage.
- Willingness to pay (WTP):** Maximum amount of money (income) one is willing to pay (forgo) to purchase a good or service. Used in non-market or environmental valuation, for example **contingent valuation**, to measure the value of an environmental resource or policy. Difference between WTP and market price is also a measure of **consumers' surplus**.