Scotland’s National Nature Reserves

For more information about Ben Wyvis National Nature Reserve please contact:
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The Story of Ben Wyvis
National Nature Reserve
The Story of Ben Wyvis National Nature Reserve

Foreword

The solitary flat ridge of Ben Wyvis is unmistakeable against the Easter Ross skyline; it dominates the local landscape from every angle and provides a dramatic backdrop to the town of Dingwall. The tranquil mountain environment of Ben Wyvis National Nature Reserve (NNR) is far from the hustle and bustle of city life, and provides a natural haven for a variety of wildlife, including many rarities. The route across An Cabar to Glas Leathad Mòr, the highest summit of Ben Wyvis, takes you not only on a physical journey, but also one across time, as you traverse an ice-sculpted landscape dotted with relict landforms created more than 11,000 years ago.

The Reserve covers the upper slopes and plateau of Ben Wyvis. It contains a range of important habitats, but the distinctive summit cap of Ben Wyvis is probably one of its best-known features. The mountain plateau is swathed in a springy covering of woolly hair-moss, which provides ideal nesting territory for the dotterel that return to breed here each summer. The blanket bog on the lower slopes is mottled with abundant lichens, and supports many rare plants. The quiet seclusion attracts a range of upland wildlife.

Ben Wyvis is one of more than 50 NNRs in Scotland. All NNRs are managed primarily for nature, but they also provide the opportunity for visitors to experience and enjoy our rich natural heritage. More than 4,000 people visit Ben Wyvis NNR each year for walking, exploring the natural heritage or just for the ‘peace and quiet’.

This Reserve Story is one of a suite of documents produced by Scottish Natural Heritage (SNH) about the Reserve. It provides the background information on the Reserve and its history. It briefly describes the geology, the history of land use, and the management of wildlife, people and property on the Reserve.

The Reserve Proposals outline how it is proposed to manage the Reserve in future years; comments are invited on the Proposals and will be used to inform the Reserve Plan. This is the blueprint for management of the Reserve for a six-year period. At the end of the Plan period, a Reserve Review is used to report how well our plans have worked. These documents can be downloaded from the Scotland’s NNRs website (www.nnr-scotland.org.uk) or obtained from the address below.
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The Story of Ben Wyvis National Nature Reserve

1 Introduction to Ben Wyvis NNR

Ben Wyvis NNR lies 24 kilometres (km) northwest of Inverness, in the northern Highlands, and extends to just over 2,300 hectares (ha) on the western and southern slopes of the mountain massif from which it takes its name. There is a wide altitudinal range across the Reserve, from 350 metres (m) near the entrance to 1,046 m at the highest summit peak of Ben Wyvis on Glas Leathad Mòr. The Reserve encompasses a varied terrain with important bog, heath and alpine communities. The Reserve is largely undisturbed and provides seclusion for a variety of Highland fauna.

Ben Wyvis NNR also contains some of Scotland’s best examples of glacial and periglacial features, many formed towards the end of the last glaciation. The most significant of these are the periglacial landforms that were created beyond the edges of the ice-sheet.

The underlying bedrock is Moine schist, which is the predominant rock type across the northern Highlands between the Great Glen in the south, and the line of the Moine Thrust in the northwest. A hard water-resistant rock it weathers slowly to give generally poor, thin soils. It is mainly acidic, which greatly influences the plant species found on the Reserve.

Ben Wyvis stands isolated from other Highland mountain ranges. It has its own ecological identity, combining the ecological characteristics of both the northwestern and eastern Highlands. The climate is less oceanic than the hills to the northwest, with relatively lower rainfall and humidity, but is not as continental as the Cairngorm Mountains to the south. On the sheltered leeward slopes, in the east and north corries, snow used to lie late into the year, but has not done so in recent years.

The area covered by the Reserve forms a rough ‘L-shape’ encompassing the western and southern slopes of Ben Wyvis, and the summit plateau of Glas Leathad Mòr. It extends northwards across the summit of Tom á Chòinnich, as far as Carn Gorm on the northwestern slopes, and to Cnoc nan Each Mor in the south. The Reserve is largely surrounded by forestry plantation to the west and south, and the open ground of Wyvis Forest to the north and east.

The Reserve can be accessed from the A835, Inverness to Ullapool road, at Garbat, where there is a Forestry Commission Scotland (FCS) car park on the east side of the road. From here a path follows the north bank of the Allt a Bhealaich Mhòir to the Reserve entrance, where there is interpretation, and a surfaced path up to around 600 m.

The features of Ben Wyvis NNR that have been selected for protection under European and UK legislation are listed in Table 1.
Table 1: Designated and qualifying features for Ben Wyvis NNR

<table>
<thead>
<tr>
<th>Protection</th>
<th>Special Protection Area (SPA)</th>
<th>Special Area of Conservation (SAC)</th>
<th>Site of Special Scientific Interest (SSSI)</th>
<th>UK BAP¹</th>
</tr>
</thead>
<tbody>
<tr>
<td>Species</td>
<td>European</td>
<td>European</td>
<td>UK</td>
<td></td>
</tr>
<tr>
<td>Dotterel***</td>
<td>✓</td>
<td>✓</td>
<td>✓</td>
<td>✓</td>
</tr>
<tr>
<td>Habitats</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Acidic scree</td>
<td></td>
<td>✓</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Alpine and sub-alpine heaths</td>
<td></td>
<td>✓</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Blanket bog*</td>
<td>✓</td>
<td>✓</td>
<td>✓</td>
<td>✓</td>
</tr>
<tr>
<td>Dry heaths</td>
<td></td>
<td>✓</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Montane acid grasslands</td>
<td></td>
<td>✓</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Tall herb communities</td>
<td></td>
<td>✓</td>
<td>**</td>
<td></td>
</tr>
<tr>
<td>Plants in crevices on acid rocks</td>
<td></td>
<td>✓</td>
<td>**</td>
<td></td>
</tr>
<tr>
<td>Clear-water lakes or lochs with aquatic vegetation and poor to moderate nutrient levels</td>
<td></td>
<td>✓**</td>
<td>✓**</td>
<td></td>
</tr>
<tr>
<td>Upland assemblage</td>
<td></td>
<td></td>
<td></td>
<td>✓</td>
</tr>
<tr>
<td>Vascular plant assemblage</td>
<td></td>
<td></td>
<td></td>
<td>✓</td>
</tr>
<tr>
<td>Geology</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Quaternary of Scotland</td>
<td></td>
<td></td>
<td></td>
<td>✓</td>
</tr>
</tbody>
</table>

¹UK BAP – Biodiversity Action Plan Habitat or Species
*European priority habitat
**Found on the wider SAC or SSSI but not on the NNR.

Other designations

Ben Wyvis NNR is also a Geological Conservation Review (GCR) site. More information about the Reserve designations can be found in the appendices.
2 The Natural Heritage of Ben Wyvis NNR

Introduction

The unique geographical and geological situation of Ben Wyvis NNR gives rise to an unusual combination of natural heritage interests. The Reserve contains a range of important habitats with features characteristic of both oceanic and continental mountain ranges. Relict landforms, dating back more than 11,000 years to the last glaciation, reveal clues to the area’s climatic history. Ben Wyvis is one of a relatively small number of high-plateau sites in the UK, found mostly in the central and eastern Highlands of Scotland.

Looking from An Cabar towards Glas Leathad Mor

Geology and geomorphology

The bedrock of Ben Wyvis is Moine schist, the origins of which would have been laid down as shallow marine sediments, around 1,000 to 870 million years ago. As the sediments accumulated the lower layers became subject to increased temperature and pressure, and minerals in the rocks were altered. Much later, the colossal earth-moving events that resulted in the formation of the Caledonian mountain range buckled and compressed the rock formation, developing folds and waves in the schist. The resulting rock is hard and water-resistant, producing thin, fine-grained, and frost-
susceptible soils. This underlying geology was integral to the development of landforms on Ben Wyvis during the last ice sheet glaciation.

The Ice Age started about 2.6 million years ago. Since then Scotland has been inundated by ice sheets and smaller scale valley and corrie glaciers many times, with warm temperate conditions separating each glaciation. The last Scottish Ice Sheet reached its maximum thickness and extent about 22,000 years ago, when most (but perhaps not all) of Ben Wyvis was covered by glacier ice. A scattering of “erratic” boulders, carried in from outside the area, and dropped by the ice sheet, has been interpreted as marking the upper extent of ice coverage on the plateau. A good example of these erratic boulders lies along the main route to An Cabar.

From 22,000 years ago, the ice sheet started to thin and recede. At this time the upper slopes of Ben Wyvis were exposed to the harsh arctic climate, because they were higher than the thinning ice sheet. Average annual temperatures were so low that the ground would have been permanently frozen (permafrost). Only the upper part of this frozen ground thawed during the short summer, forming a damp mixture of mud and rock fragments. The combined effects of short cycles of overnight freezing and thawing, and the pattern of vegetation cover, led to the formation of unusual hummocks on the flatter ground, that lengthen into stripes of ridges and furrows on slopes. These hummocks and ridges are prone to erosion and, if damaged, will not reform under present climatic conditions.

The downhill creeping of the seasonally thawed and saturated upper parts of the permafrost resulted in the formation of step-like solifluction (movement or creep of water logged soil) lobes and boulder fronted lobes on some slopes. Frost and soil creep are important processes in the development of snow hollows, occupied by late lying snow patches. Ben Wyvis has several snow hollows, for example at Coire na Fèithe Riabhaich and Coire na Feòla. In the corries, rock falls and debris flows have continued to modify the steep rocky slopes since the glaciers finally melted.

Ben Wyvis is remarkable for the range of features to be seen on its slopes, although to the un-trained eye the hummocks and stripes are probably the easiest to determine on the ground. Most of the landforms are vegetated relicts of the last glaciation and no
The Story of Ben Wyvis National Nature Reserve

longer active, but there are small active features on the steepest sections of An Cabar, albeit moving at much reduced rates.

**Habitats of Ben Wyvis NNR**

The high slopes and summit plateau of Ben Wyvis are covered in a soft mantle of moss-heath that extends for almost a mile. It is one of the longest single tracts of this habitat, and represents one of the best areas in the UK. Moss-heath is one of a series of important upland habitat types which, within the UK, are found mainly in Scotland. The poor acid soil and exposed high-altitude setting are favoured by relatively few plant species. Stiff sedge and a luxuriant cover of woolly hair-moss dominate the moss-heath on Ben Wyvis. Little shaggy moss is also found along the edges of the grassland, where snow is more likely to drift. This fragile habitat is highly susceptible to trampling and to the activities of grazing animals.

The Reserve has other important habitats including expanses of blanket bog and alpine heath. The moorland covering the mountain slopes and lower ground is a natural mosaic of heath and bog vegetation, with characteristics of both the north and east Highlands.

Blanket bog is protected as a priority habitat because it is rare in Europe, with most of the resource found in the UK and Ireland. It occurs at a range of altitudes across Ben Wyvis, and supports an interesting variety of shrubs and lichens. There are extensive undisturbed areas of high altitude bog supporting rare northern species such as cloudberry and dwarf birch.

![Blanket bog](image)

Ben Wyvis has some of the best examples of alpine and sub-alpine heath in the UK. It contains uncommon species such as the mountain bearberry which, within the UK, is only found in the northern Highlands and Orkney. Abundant lichens, such as reindeer moss, grow among the heather and blaeberry, a feature more commonly seen in the eastern Highlands. On higher slopes northern species, such as dwarf cornel and cloudberry, add to the mosaic of low-growing plants.

Where the ground is steep and free draining, there are patches of dry heath, with bearberry and heather. On gentler, wetter slopes, mire communities prevail with deergrass and hare’s-tail cottongrass growing among the heather stands. Where scree has developed ferns have colonised the mountain slopes.
The species of Ben Wyvis NNR

Birds

During the summer months, the moss-heath of the plateau supports an important breeding population of dotterel. The female has a striking summer plumage, and unusually is the brighter coloured of the pair, providing a visual indication of their role-reversal when raising young, which is largely left to the male.

Dotterel are a mainly alpine species and inhabit wide, windswept plateaus with very low vegetation, making the high tops of Ben Wyvis ideal. In the spring Ben Wyvis acts as a staging area for dotterel that go on to breed elsewhere in Britain, and Scandinavia. The UK population of dotterel is internationally important, as it lies at the northwest extremity of its global breeding range; over 2% of the UK population breed on Ben Wyvis.

Ptarmigan is another species that breeds on the upland areas of the Reserve, preferring to nest high on the mountain among the boulders and scree. A typical selection of other upland birds may be seen or heard across the Reserve, such as the golden plover whose presence is often given away by its distinctive whistling call. Red grouse are common, and ravens are frequently seen foraging across the hillside or perched on the high crags. Birds of prey include peregrine falcon and golden eagle that patrol the Reserve in search of an easy meal.

Flora

Ben Wyvis supports over 170 plant species, including many important northern species and some rarities, such as the alpine foxtail that grows in the grasslands on the edge of the plateau.
Dwarf birch is nationally scarce, but it grows abundantly on the blanket bog of the Reserve, which provides the wet and acidic growing conditions that it favours. It has declined in many other areas due to activities such as over-grazing and burning, but within the Reserve it is flourishing. At other sites where dwarf birch occurs it is often cropped by grazing animals, but on the southern slopes of Ben Wyvis it exceeds the height of the heather in places, which is due to the lower grazing level in this part of the Reserve.

Some of the Reserve plants are particularly well adapted to the mountain environment, such as the alpine lady fern that grow amongst the mountain scree. It is typically found where snow lies late in the spring, snow cover offering protection from the extreme cold of its high altitude location.

The mosaic of dwarf shrubs, indistinguishable for most of the year, bear late-summer and autumn berries in a range of colours; from the shiny reds of the cowberry and bearberry, through the dusty blue-black of the blaeberry, to the glossy black fruits of the crowberry and mountain bearberry. Cloudberry, a member of the rose family, bears distinctive orange fruits resembling a squat blackberry.

The Reserve has a wide range of lower plants - mosses, liverworts and lichens. The bog and heath support many lichens, including the easily recognised reindeer moss that grows abundantly among the other shrubs. Exposed rocks are often covered in a patchwork of colour from crustose lichens. A variety of mosses are widely evident, from the hummock-forming sphagnum mosses of the blanket bog, to the alpine species of the high mountain environment, such as woolly hair-moss and little shaggy moss.

**Mammals**

Red deer are commonly seen around the Reserve, with occasional sightings of the smaller sika deer along the woodland edge. Roe deer are most likely to be seen at dawn or dusk, but they are much more timid and like to stay close to the cover of the tree line. Smaller upland mammals include the mountain hare, and you may see evidence of pine marten along the woodland edge.

**Invertebrates**

Several species of butterfly are found on the Reserve, including the large heath butterfly that breed in wet boggy habitats among the hare’s-tail cottongrass. A UK
Biodiversity Action Plan [BAP] species, the pearl-bordered fritillary, may be seen near the woodland in search of its main food plant, the dog violet.

The burns and bog pools attract several common species of dragonfly such as the large red damselfly and golden-ringed dragonfly.

**Summary**

The isolated setting of the Ben Wyvis massif gives rise to a unique upland mosaic with attributes of both the northern and eastern Highlands. The Reserve encompasses a range of internationally important habitats containing rare northern plant species, and abundant lichens. An interesting array of periglacial features is distributed across the landscape, providing an invaluable record of past climatic events.

*Large heath butterfly*
3 Management of Ben Wyvis before it became a NNR

Archaeology, history and culture

There are several Gaelic interpretations of Ben Wyvis, including ‘Noble Hill’, ‘Hill of the Spectre’, and ‘Hill of Terror’. Whichever you choose, there is little doubt that as Ben Wyvis dominates the local landscape, so it would have played a large part in the lives and legends of the local communities. It is said that the Clan Munro chiefs had to present the Crown with a snowball from Ben Wyvis in mid-summer, as payment for rent of the land; testament to the fact that snow lay in the northern corries for the best part of the year. Today Ben Wyvis is still used as something of a local weather vane, according to the degree of cloud or snow cover that shrouds its slopes.

Dingwall lay on the major cattle-droving route from northwest Scotland to the cattle markets of the south. The drovers often diverted from the road near Inchbae Lodge and took a short cut across what is now the southern edge of the Reserve. The cattle were driven along the bank of the Allt á Bhealaich Mhòir, and then across the saddle between Ben Wyvis and Little Wyvis, before rejoining the road at Auchterneed.

Cattle were being moved from the north-west as long ago as the sixteenth century, and there is evidence of ruined buildings, including iron workings, along the Allt á Bhealaich Mhòir dating from around that time. There are also ruins of a township at Garbat which, according to local information, was an occasional overnight holding point for the drovers and their cattle. The drove road was still in use up to the early part of the twentieth century.

Early references to Ben Wyvis are often related to its botanical interest, and in 1777 it was documented in ‘Flora Scotica’ that dwarf birch ‘grows in great abundance on Ben Wyvis’. The importance of the periglacial landforms was first recognised by R. W. Galloway, who studied them extensively during the late 1950s.

Land use history

For many years the area that is now Ben Wyvis NNR was part of the Cromartie Estate, and owned by the Clan Mackenzie, who have lived at Castle Leod, just north of Strathpeffer, for the last 500 years. Over the past centuries Ben Wyvis was managed primarily as a deer forest for sport stalking, with sheep and cattle grazing, and red grouse shoots. The northern plateau and slopes of Ben Wyvis running down to Loch Glass are part of Wyvis Estate, which is still run as a sporting estate.

The area has a long history of informal recreational use, not least because it is a very visible landmark, and is easily accessible from Inverness. A number of skiing and recreational developments on the south side of the mountain have been proposed over the years, but none has been developed.
4 Management of Ben Wyvis NNR

Introduction

Ben Wyvis NNR has undergone several boundary changes since it was first declared in 1982. The area encompassed within the original NNR included land owned by SNH and Wyvis Estate. At declaration the Reserve included the northern and eastern plateau and the slopes down to Loch Glass. The land within Wyvis Estate was managed through a Nature Reserve Agreement (NRA).

An important objective for all NNRs is that they are managed for ‘primacy of nature’, with nature conservation as the highest priority. During the NNR review carried out in the 1990s the part of the Reserve owned by Wyvis Estate no longer met these essential criteria, and the NNR will be redeclared to exclude Wyvis Estate land. This land continues to be managed under a different agreement with Wyvis Estate. Today the NNR is wholly owned by SNH.

Timeline for Ben Wyvis NNR

<table>
<thead>
<tr>
<th>Date</th>
<th>Key Event</th>
</tr>
</thead>
<tbody>
<tr>
<td>1982</td>
<td>Ben Wyvis is declared a NNR under a Nature Reserve Agreement (NRA) with Wyvis Estate.</td>
</tr>
<tr>
<td>1984-85</td>
<td>Three exclosures are erected on the south side of Loch Glass, in order to restore the birchwoods.</td>
</tr>
<tr>
<td>1985</td>
<td>The NNR boundary is extended to reflect SNH’s purchase of additional land on the south and west side of the plateau.</td>
</tr>
<tr>
<td>1993</td>
<td>Areas of important shrub-rich bog incorporated into management of the Reserve.</td>
</tr>
<tr>
<td>1996</td>
<td>NNR Review. It was agreed that the area of Ben Wyvis owned by Wyvis Estate would no longer be part of the Reserve, as the NNR objective regarding ‘primacy of nature’ was not being met.</td>
</tr>
<tr>
<td>1998</td>
<td>Ben Wyvis classified as a Special Protection Area (SPA), for breeding dotterel population.</td>
</tr>
<tr>
<td>2002</td>
<td>Footpath put in from Reserve entrance to approx. 600 m contour.</td>
</tr>
<tr>
<td>2005</td>
<td>Ben Wyvis is designated a Special Area of Conservation (SAC).</td>
</tr>
<tr>
<td>2006</td>
<td>Publication of Ben Wyvis NNR leaflet.</td>
</tr>
</tbody>
</table>

Management of the natural heritage

There has been little active management of the natural heritage, as we wish to conserve the Reserve with the minimum amount of interference in natural processes. However due to damage from trampling and grazing there has been a deer management programme on the Reserve for a number of years. Deer numbers are
controlled to allow a balance between the need for some grazing to maintain the habitats and an excess of grazing and trampling which would cause damage.

Three exclosures erected on the south side of Loch Glass are no longer within the NNR boundary, but are still maintained by Wyvis Estate under a conservation management agreement with SNH.

There are two grazing leases for the Reserve, which were inherited from previous landowners, and are renewed annually. The leases limit sheep numbers and the use of all-terrain vehicles (ATVs) on the Reserve. There is an inherited sporting agreement for red deer stalking.

On the western slopes of Ben Wyvis, north of An Cabar, there is an experimental block of fenced woodland put in by the FCS. The objective of the experiment was to see what the upper altitudinal limit for commercial woodland was and the experiment is now complete. In the summer of 2007 FCS removed the fence and felled the trees with the intention of restoring a more natural habitat and to remove the visual impact of a regular block of trees on the hillside.

On the south side of the Reserve, at Bhealaich Mhòir burn, a small privately owned hydroelectric scheme was established in 2000. It utilises a historic water supply for Castle Leod and converts it into sustainable energy. The small power station is at Glensgaich, to the south of the Reserve, and produces in the region of 2 million units per year for the national grid.

In 2002 we improved sections of the Reserve path in an attempt to control erosion of the adjacent habitat. This has proved very successful, with most visitors using the path and areas alongside the path damaged by erosion in the past are recovering.

**Research**

Ben Wyvis NNR provides important research opportunities for several projects including an Upland Scrub project, and research on montane heaths, in particular woolly hair moss heath. The habitats on Ben Wyvis are only part of this research, and information is being gathered from a range of sites within Scotland.

**Management for people**

There are approximately 4,000 visitors to Ben Wyvis each year. This probably reflects the ease of access from Inverness, and a relatively short walk from the car park to the Reserve boundary, and the mountain scenery. Visitor numbers are assessed through use of a pressure-pad on the FCS path to the Reserve entrance.
Visitors have a variety of interests, with walkers, especially ‘munro-baggers’, making the largest contribution to numbers. Easy walking to the Reserve boundary attracts family groups, especially as there are picnic tables along the route through the FCS woodland. The mountain environment also draws people training for special events.

The main access point for the Reserve is from the FCS car park adjacent to the A835 at Garbat. FCS paths lead through the woodland to the Reserve entrance, from here the footpath extends to an altitude of around 600 m. Reserve interpretation is discreetly placed close to the main entrance to avoid spoiling the natural landscape. There is also pedestrian access to the Reserve from the south, although it requires a 5 km walk through forestry trails to reach the Reserve boundary. The nearest car parks for this route are at Dingwall or Contin.

SNH produce a comprehensive Reserve leaflet, entitled ‘Awesome Mountain’, which was first published in 2006. It gives a brief outline of the Reserve’s key features, and details of access. The leaflet is available on the NNR website.

**Property management**

SNH own Ben Wyvis NNR and has responsibility for path maintenance, fencing signs, and interpretation within the Reserve. All visitor facilities are monitored under a quarterly ‘visitor facilities maintenance inspection’. A large proportion of the management of the property is shared with our neighbouring landowners FCS.

One of the most important aspects of property management is to ensure that any facilities or paths on the Reserve are sympathetic to both the landscape and natural heritage interest of the Reserve. When building paths we ensure that they are structured to fit the landscape and cause minimum impact both visually and in terms of damage to the habitats. Paths have only been constructed where they are necessary to prevent erosion.
The Story of Ben Wyvis National Nature Reserve

**Summary**

The nature of Ben Wyvis NNR means that little active management is undertaken for the habitats and species found on the Reserve. The majority of natural heritage management focuses on reducing impacts from grazing and trampling. By providing a high quality path to and across sections of the Reserve we have successfully reduced the impact of the increasing number of visitors to the NNR, thereby protecting the sensitive natural heritage of the site while providing good access for visitors.
The Story of Ben Wyvis National Nature Reserve

Photographs

Photography by Laurie Campbell, Peter Wortham, Lorne Gill/Scottish Natural Heritage.
Appendix 1 - National Nature Reserves

Scotland’s National Nature Reserves are special places for nature, where many of the best examples of Scotland’s natural heritage are protected. Nature comes first on our NNRs (referred to as primacy of nature). These Reserves also offer special opportunities for people to enjoy and find out about the richness of our natural heritage. NNRs are declared under the National Parks and Access to the Countryside Act 1949 or the Wildlife and Countryside Act 1981.

A new policy for NNRs in Scotland was developed in 1996. This policy requires NNRs in Scotland to have four attributes, and to be managed for one or more of the three purposes.

The attributes are:

- **Primacy of nature.** The needs of nature will be placed at the heart of decisions about land-use and management of our NNRs, and nature conservation will be the overriding land use, although it may not be the sole purpose of management.
- **National importance.** It must be of national importance that the NNR be managed as a nature reserve, for the protection of geological features, habitats or species found there.
- **Best practice management.** NNRs must be well managed, not only to safeguard the nature conservation interests, but also to provide for people’s enjoyment and understanding.
- **Continuity of management.** Both research and management on NNRs require us to take a long-term view, so it is important that management continuity is assured.

The purposes are:

- **National awareness of NNRs** – on these Reserves people can take pride in the natural heritage ‘on display’ and come to understand it better and enjoy it to the full.
- **Specialised management of NNRs** - the character of the interest requires specialised and pro-active management which is best delivered by a nature reserve.
- **Research-related NNRs** - These NNRs will offer opportunities for research into the natural heritage and its management which specifically require a nature reserve location and which are not available elsewhere.

Between 2000 - 2003 all of Scotland’s National Nature Reserves were reviewed against this policy. Because of the review there are now 56 National Nature Reserves in Scotland.

More information can be found at:
Appendix 2 - Special Area of Conservation

Special Areas of Conservation are areas designated under the European Community Council Directive on the Conservation of Natural Habitats and Wild Fauna and Flora (92/43/EEC), commonly known as the Habitats Directive. Together with Special Protection Areas, which are designated under the Wild Birds Directive for wild birds and their habitats, SACs form the Natura 2000 network of sites. The Natura 2000 network is designed to conserve natural habitats and species of animals and plants which are rare, endangered or vulnerable in the European Community. Annexes I and II to the Habitats Directive list the habitats and (non-bird) species respectively for which SACs are selected. In Great Britain the Directive was transposed into domestic legislation via the Conservation (Natural Habitats &c.) Regulations 1994, which are relevant to Special Protection Areas (SPAs) as well as SACs. Natura sites are generally underpinned by the SSSI mechanism in the terrestrial environment, although there are a few exceptions where other management measures are employed. The Scottish Executive Rural Affairs Department Circular No. 6/1995 (Revised June 2000) on the Habitats and Birds Directives gives further details of how the Regulations apply in Scotland.

SNH acts as the advisor to Government in proposing selected sites for ministerial approval as possible SACs. SNH then consults with key parties over the site proposals on behalf of Scottish Ministers. The consultees, who include owners and occupiers of land, local authorities and other interested parties, are sent details of the proposed site boundaries and the habitats and/or species for which they qualify. SNH also negotiates the longer-term management of these sites. Following consultation, SNH forwards all responses to Scottish Ministers who then make a decision about whether to submit the site to the European Commission as a candidate SAC. Once submission of all candidate sites is completed, the Commission, together with Member States, will consider the site series across Europe as a whole. At this stage sites which are adopted by the Commission become Sites of Community Importance (SCIs), after which they can be finally designated as Special Areas of Conservation by national governments.

The following website provides further information:

Special Areas of Conservation:
http://www.jncc.gov.uk/ProtectedSites/SACselection
Ben Wyvis SAC

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*This is the approximate central point of the SAC. In the case of large, linear or composite sites, this may not represent the location where a feature occurs within the SAC.

Annex I habitats that are a primary reason for selection of this site

Alpine and Boreal heaths

Ben Wyvis has extensive combinations of Alpine and Boreal heaths characteristic of both the eastern and northern Highlands. H13 *Calluna vulgaris* - *Cladonia*
The Story of Ben Wyvis National Nature Reserve

arbuscula heath and H19 Vaccinium myrtillus – Cladonia arbuscula heath are well-developed, with an abundance of lichens characteristic of the eastern Highlands. The abundance of lichens in these communities on this site is greater than on any other site in the northern and north-west Highlands, although the extent of the community is less than at Strathglass. The northern H17 Calluna – Arctostaphylos alpinus community is particularly finely developed on windswept lower summits and shoulders. Extensive H22 Vaccinium myrtillus – Rubus chamaemorus heaths dominated by heather are present on the higher slopes and have an unusual mix and abundance of northern species, including cloudberry Rubus chamaemorus, dwarf cornel Cornus suecica, mountain bearberry Arctostaphylos alpinus and dwarf birch Betula nana. On the highest slopes, where snow tends to accumulate, snow-bed H18 Vaccinium myrtillus – Deschampsia flexuosa heath is extensive. Transitions to 4030 European dry heath occur below, especially to H12 Calluna vulgaris – Vaccinium myrtillus heath, which is extensive on the lower slopes.

Siliceous alpine and boreal grasslands

Ben Wyvis is representative of the species-poor form of U10 Carex bigelowii – Racomitrium lanuginosum moss-heath of the north and west of Scotland. Although Siliceous alpine and boreal grasslands are not as extensive on Ben Wyvis as on some other hills, the site has the largest continuous single tract of this sub-type in the UK, covering almost the whole of the summit plateau. The habitat type is developed on base-poor schist. There is also a large extent of the associated Rhytidiadelphus loreus moss-rich grassland on the edges of the Carex – Racomitrium moss-heath, where snow tends to drift. The site is little-disturbed and shows a particularly luxuriant moss-cover. U7 Nardus stricta – Carex bigelowii grass-heath is also well-represented and U8 Carex bigelowii – Polytrichum alpinum sedge-heath is present locally. Late-lie moss- and dwarf-herb-dominated snow-bed communities (U11 Polytrichum sexangulare – Kiaeria starkei snow-bed, U12 Salix herbacea – Racomitrium heterostichum snow-bed and U14 Alchemilla alpina – Sibbaldia procumbens dwarf-herb community) are represented on Ben Wyvis but are small in extent.

Blanket bogs * Priority feature

Ben Wyvis lies between the high-altitude sites of the Grampian Mountains and the northern peatlands of Caithness and Sutherland, and supports species and features typical of both these areas. Blanket bog occurs across a wide altitudinal range but of particular note are the extensive areas of uneroded high-altitude bog
supporting cloudberry *Rubus chamaemorus*, alpine bearberry *Arctostaphylos alpinus* and dwarf birch *Betula nana*.

**Annex I habitats present as a qualifying feature, but not a primary reason for selection of this site**

Oligotrophic to mesotrophic standing waters with vegetation of the *Littorelletea uniflorae* and/or of the *Isóeto-Nanojuncetea*

European dry heaths

Hydrophilous tall herb fringe communities of plains and of the montane to alpine levels

Siliceous scree of the montane to snow levels (*Androsacetalia alpinae* and *Galeopsietalia ladani*)

Siliceous rocky slopes with chasmophytic vegetation
Conservation objectives: Ben Wyvis SAC

To avoid deterioration of the qualifying habitats (listed below) thus ensuring that the integrity of the site is maintained and the site makes an appropriate contribution to achieving favourable conservation status for each of the qualifying features; and

To ensure for the qualifying habitats that the following are maintained in the long term:

• Extent of the habitat on site
• Distribution of the habitat within site
• Structure and function of the habitat
• Processes supporting the habitat
• Distribution of typical species of the habitat
• Viability of typical species as components of the habitat
• No significant disturbance of typical species of the habitat

Qualifying Habitats:

• Acidic scree
• Alpine and subalpine heaths
• Blanket bog*
• Clear-water lakes or lochs with aquatic vegetation and poor to moderate nutrient levels
• Dry heaths
• Montane acid grasslands
• Plants in crevices on acid rocks
• Tall herb communities

* Indicates priority habitat

The site overlaps with Ben Wyvis Special Protection Area
Appendix 3 – Special Protection Area

Special Protection Areas are areas classified under Article 4 of the European Community Directive on the Conservation of Wild Birds 1979 (EC79/409), commonly known as the Birds Directive. SPAs are intended to safeguard the habitats of birds, which are rare or vulnerable in Europe, as well as all migratory birds which are regular visitors.

Together with Special Areas of Conservation (SACs), which are designated under the Habitats Directive for habitats and non-bird species, SPAs form the Natura 2000 network of sites. The Natura 2000 network is designed to conserve natural habitats and species of animals and plants which are rare, endangered or vulnerable in the European Community. Natura sites in Great Britain are protected via the Conservation (Natural Habitats &c.) Regulations 1994, which transpose the Habitats Directive into GB law and are relevant to both SACs and SPAs. Natura sites are also generally underpinned by the SSSI mechanism in the terrestrial environment. The Scottish Executive Rural Affairs Department Circular No. 6/1995 (Revised June 2000) on the Habitats and Birds Directives gives further details of how the Regulations apply in Scotland.

SNH acts as the advisor to Government in proposing selected sites for ministerial approval as proposed SPAs. SNH then consults with key parties over the site proposals on behalf of Scottish Ministers. The consultees, who include owners and occupiers of land, local authorities and other interested parties, are sent details of the proposed site boundaries and the species for which the site qualifies. SNH also negotiates the longer term management of these sites. Following consultation, SNH forwards all responses to Scottish Ministers who then make a decision about whether to classify the site as a Special Protection Area.

The following website provides further information:

Special Protection Areas

http://www.jncc.gov.uk/UKSPA/default.htm
Ben Wyvis Special Protection Area

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This site qualifies under Article 4.1 of the Directive (79/409/EEC) by supporting populations of European importance of the following species listed on Annex I of the Directive:

During the breeding season;

Dotterel *Charadrius morinellus*, 20 pairs representing at least 2.4% of the breeding population in Great Britain (7 year mean, 1987-1993)
Conservation objectives: Ben Wyvis SPA

To avoid deterioration of the habitats of the qualifying species (listed below) or significant disturbance to the qualifying species, thus ensuring that the integrity of the site is maintained; and

To ensure for the qualifying species that the following are maintained in the long term:

- Population of the species as a viable component of the site
- Distribution of the species within site
- Distribution and extent of habitats supporting the species
- Structure, function and supporting processes of habitats supporting the species
- No significant disturbance of the species

Qualifying Species:
- Dotterel (*Charadrius morinellus*)

The site overlaps with Ben Wyvis Special Area of Conservation.
Appendix 4 - Sites of Special Scientific Interest

The Site of Special Scientific Interest (SSSI) designation is the main nature conservation designation in Great Britain. The SSSI series has been developed over the last 50 years, and since 1981 as the national suite of sites providing statutory protection for the best examples of GB’s flora, fauna, or geological or physiographical features. Originally notified under the National Parks and Access to the Countryside Act 1949, many SSSIs were renotified and others newly notified under the Wildlife and Countryside Act 1981 or the Nature Conservation (Scotland) Act 2004. Further changes in the protective mechanisms were introduced by the 2004 Act.

These sites are also used to underpin other national and international nature conservation designations. Most SSSIs are privately owned or managed; others are owned or managed by public bodies or non-government organisations. There are more than 1400 SSSIs in Scotland.

Web Links:

'The Nature of Scotland – A Policy Statement'
http://www.scotland.gov.uk/library3/environment/nas-00.asp

'People and Nature: A New Approach to SSSI Designations in Scotland'
http://www.scotland.gov.uk/library/documents-w1/pandn-00.htm

Guidelines for selection of biological SSSIs
http://www.jncc.gov.uk/Publications/sssi/default.htm

Site of Special Scientific Interest (SSSI):
http://www.snh.org.uk/about/ab-pa01.asp
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Ben Wyvis SSSI

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SSSI Citation:

Biology

Ben Wyvis is the only major mountain massif in the North Eastern Highlands. Its size, altitude and location give it a unique ecological character midway between the continental Cairngorm massif to the south west and the oceanic mountains of the Western Highlands.

Upland

The massif contains a variety of habitats including summit heath, lochans, high level springs and flushes and bryophyte-rich snowbed areas. Montane and sub-montane dwarf-shrub heath are also well represented. A substantial upland birchwood occurs
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on the south side of Loch Glass. Nationally rare plants present include Alpine foxtail *Alopecurus alpinus* and Highland cudweed *Gnaphalium norvegicum*. The range of characteristic upland birds and animals includes national rarities.

**Peatland**

The southern slopes of the mountain support blanket bog which is rich in Dwarf birch *Betula nana* and Alpine Bearberry *Arctous alpinus*. This is one of the best examples of this type of peatland, which is rapidly decreasing throughout its range in Scotland.

**Physiography: Quaternary**

An outstanding locality for its periglacial landforms, including the best examples in Scotland of turf-banked and vegetated lobes and nonsorted circles and stripes. The turf-banked lobes are fossil feature showing strong evidence of frost sorting and probably moved downslope under perma-frost conditions. The vegetated lobes relate to solifluction and are actively moving downslope. The site is also noted for blockfields, relict vegetated boulder lobes and active turf-banked terraced. This diverse assemblage of both active and relict features makes Ben Wyvis a key area for periglacial studies in Scotland.
Appendix 5 - Species Information

There are a number of laws protecting species in the UK; this is only a brief synopsis.

The Wildlife and Countryside Act 1981
This is a key Act, which makes it an offence to intentionally or recklessly kill, injure, or take any wild bird or their eggs or nests (except for species listed in Schedule 2). There are additional offences of disturbing birds listed on Schedule 1 at their nests, or their dependent young. The Act also prohibits certain methods of killing, injuring, or taking birds, restricts the sale and possession of captive bred birds, and sets standards for keeping birds in captivity.

The Act makes it an offence (subject to exceptions) to intentionally or recklessly kill, injure, or take, possess, or trade in any wild animal listed in Schedule 5, and prohibits interference with places used for shelter or protection, or intentionally disturbing animals occupying such places. The Act also prohibits certain methods of killing, injuring, or taking wild animals.

The Act makes it an offence (subject to exceptions) to pick, uproot, trade in, or possess (for the purposes of trade) any wild plant listed in Schedule 8, and prohibits the unauthorised intentional or reckless uprooting of such plants.

Other Acts protect Wild Mammals, Badgers, Deer and Seals.

The Habitats Directive

Council Directive 92/43/EEC on the Conservation of Natural Habitats and of Wild Fauna and Flora requires Member States to take the requisite measures to establish a system of strict protection for the animal species listed in Appendix IV, ie animal and plant species of community interest in need of strict protection. There are 13 European Protected Species in Britain.

In summary, for any European Protected Species of animal, the legislation makes it an offence to deliberately or recklessly capture, kill, injure or, in certain circumstances, disturb any such animal. This includes taking or destroying eggs of such animals. It is also an offence to damage or destroy their ‘breeding sites’ or ‘resting places’ (this does not have to be deliberate or intentional for an offence to have been committed). For any European Protected Species of plant, the legislation makes it an offence to deliberately or recklessly pick, collect, cut, uproot or destroy any such plant. This applies to all stages of their biological cycle. European Protected Species of plants and animals are also protected from being transported, kept, sold, exchanged, advertised for sale etc.
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The Biodiversity Convention

The Convention on Biodiversity was adopted at the Earth Summit in Rio de Janeiro, Brazil in June 1992. In the UK the Government launched the UK Biodiversity Action Plan, a national strategy which identified broad activities for conservation work over the next 20 years, and established fundamental principles for future biodiversity conservation. A number of Biodiversity Action Plans (UKBAP) have been produced for selected habitats and species, and some areas have developed local biodiversity action plans (LBAP) too.

Red Data Book Species

Red Data Books list species that are threatened or endangered. In the past species in Britain were included as Red Data Book species if they occurred in fewer than 15 10km x 10km squares. Britain is moving towards the IUCN (The World Conservation Union) criteria which categorises species as Extinct, Extinct in the Wild, Critically Endangered, Endangered or Vulnerable.