Scotland’s National Nature Reserves

The Story of Invereshie and Inshriach National Nature Reserve
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Foreword

Invereshie and Inshriach National Nature Reserve (NNR) lies on the north-western edge of the Cairngorm mountains, close to the village of Kincraig. It is one of a suite of nine\(^1\) NNRs within the Cairngorms National Park. Extending over 3,600 hectares (ha), the Reserve includes both ancient Caledonian pinewood and younger Scots pine woodland. The dramatic ice-sculpted carved slopes are swathed with heaths and blanket bog culminating in the Arctic-alpine environment of the high mountain plateau and the summits of Sgor Gaoith and Carn Ban Mor to the east.

The woodlands of the Reserve form part of a continuous chain of Caledonian pinewood that stretches from Glen Feshie in the south-west to Abernethy Forest in the north-east, the largest area of Caledonian pinewood in Scotland.

The varying altitude gives rise to an incredible diversity of habitats across the Reserve, and an equally impressive mix of iconic Scottish wildlife. The pinewood provides refuge for rare species such as capercaillie, red squirrel, twinflower and the Scottish crossbill. The moorland is home to ptarmigan and golden eagle and on the mountain plateau, a soft mantle of moss heath provides habitat for breeding dotterel. Red deer roam these hillside and rare lichens, liverworts, mosses and fungi flourish in the sheltered woodlands and up to the highest peaks.

Invereshie and Inshriach is one of 58 NNRs in Scotland. Scotland’s NNRs are special places for nature, where some of the best examples of Scotland’s wildlife are managed. Every Reserve is carefully managed both for nature and for people, giving visitors the opportunity to experience our rich natural heritage.

The Story of Invereshie and Inshriach National Nature Reserve contains background information about the Reserve, describing the wildlife interest, its land use history and management since it became a Reserve. How we intend to manage the Reserve in future years is outlined in the Reserve Proposals. We invite your comments on these

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\(^1\) The nine Cairngorms NNRs include: Abernethy NNR, Corrie Fee NNR, Creag Meagaidh NNR (just outwith the Park), Craigellachie NNR, Glen Tanar NNR, Glenmore NNR, Insh Marshes NNR, Invereshie & Inshriach NNR and Muir of Dinnet NNR.
Proposals and your feedback informs the production of the final Reserve Plan, which is the blueprint for management of the Reserve for the next few years.

For further information about Invereshie and Inshriach National Nature Reserve please contact:

Scottish Natural Heritage, Achantoul, Aviemore, Inverness-shire, PH22 1QD.
Telephone: 01479 810477 Fax: 01479 811363

e-mail: Invereshie.Inshriach@snh.gov.uk

or

Forest District Manager, Forestry Commission Scotland, Tower Road, Smithton, Inverness, IV2 7NL
Telephone: 01463 791575 Fax: 01463 793872
email: irsfd@forestry.gsi.gov.uk
# Contents

Foreword

Maps of Invereshie and Inshriach NNR

1 Introduction

2 The Natural Heritage of Invereshie and Inshriach NNR

3 Management before the land became Invereshie and Inshriach NNR

4 Management of Invereshie and Inshriach NNR

5 Document properties

Appendix 1 - National Nature Reserves (NNR)

Appendix 2 - Special Area of Conservation (SAC)

Appendix 3 - Special Protection Area (SPA)

Appendix 4 - Sites of Special Scientific Interest (SSSI)

Appendix 5 - National Parks

Appendix 6 - National Scenic Area (NSA)
Maps of Invereshie and Inshriach NNR

Location maps

Boundary of Invereshie and Inshriach NNR

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The Story of Invereshie and Inshriach National Nature Reserve

Map showing key locations at Invereshie and Inshriach NNR
1 Introduction

Invereshie and Inshriach NNR lies on the western edge of the Cairngorm mountains, 10 kilometres (km) southwest of Aviemore, close to the village of Kincraig. The Munro summit of Sgor Gaoith (1,118 metres(m)) and tops of Carn Ban Mor, Sgoran Dubh Mor (1,111 m) and Creag Dhubh form the eastern boundary. Westwards the Reserve stretches downhill to the Auchlean road between Lagganlia and Creag Leathan.

The landscape is typical of the Cairngorms and bears witness to millions of years of geological history. Relict tors punctuate the rolling granite plateaux that overlook ice-carved glens and straths. Rocky debris litters the steep slopes, and sediments deposited from glacial rivers are still evident as terraces and ridges in the glens. Hummocks and ridges form undulations on the hillside, and patterns in the vegetation are testament to the harsh environment. This is a dynamic landscape that continues to be shaped today by snowfall, wind and torrential rain.

The Cairngorms are relatively shielded from the westerly maritime air flow by the western mountain ranges, and experience a more continental climate. This is characterised by more severe winters and relatively low rainfall. Average monthly temperatures (recorded since 1985) range from 0.6°C in February to 12°C in July (at 575 m), but temperatures vary significantly with changes in altitude. There can be frost on the summits for more than six months of the year, and snow or ice can occur in any season.
On the plateau, upland habitats include extensive areas of bare rock, alpine heath, scattered blanket bog, patches of montane grassland and scree on the slopes. Blanket bog grades down onto the middle slopes where it is interspersed with large swathes of dry and wet heath. Ancient Caledonian pinewood also survives high up onto the middle slopes, in places delineating the natural tree line and cloaking steep glens. The lower slopes are dominated by younger Scots pine woodland. Planted over 60 years ago, the Scots pine woodland is managed predominantly for conservation and is integral to the Reserve and the wildlife it supports.

The variety of habitats provides a home for a correspondingly diverse fauna and flora. Some of Scotland’s most precious rarer plants and animals are found here, including twinflower, red squirrel, golden eagle, dotterel, ptarmigan and capercaillie.

Invereshie was once part of the much larger Cairngorms NNR. In 2007, along with part of the adjacent Inshriach Forest, it was declared as the new Invereshie and Inshriach NNR. The Reserve is owned and managed in partnership by Scottish Natural Heritage (SNH) and Forestry Commission Scotland (FCS).

Invereshie and Inshriach NNR has been designated for its wildlife interest at UK and European level. It forms part of the larger Cairngorms Site of Special Scientific Interest (SSSI), Cairngorms Special Area of Conservation (SAC), River Spey SAC and Cairngorms Special Protection Area (SPA).

The recognition as a European site of international importance (SPA and SAC) means that Invereshie and Inshriach is part of a Europe-wide suite of areas referred to as Natura sites. This extremely important group of sites includes, for example, extensive areas in the unspoilt Western taiga forests of Finland and Sweden, and high-profile national parks such as those in the Tatras mountains of Poland. The inclusion of Invereshie and Inshriach in such impressive company reinforces the message that it can be considered as one of the best sites in Europe.

The Reserve is one of a suite of NNRs that lie within the Cairngorms National Park and it also falls within the Cairngorms National Scenic Area (NSA).

Further details of these designations are given in the Appendices.
### Table 1: Designations and qualifying features for Invereshie and Inshriach NNR

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* denotes priority habitats of the SAC.

1 feature[s] that occur within the Cairngorms SSSI but not within the NNR.

2 features that occur within the Cairngorms and/or River Spey SACs but not within the NNR.

3 otters are also an European Protected Species (EPS)
2 The Natural Heritage of Invereshie and Inshriach NNR

Geology and geomorphology

Nestling on the western edge of the Cairngorms massif, Invereshie and Inshriach NNR shares a similar geological heritage, and the exposed pink granite that is the trademark of the Cairngorm mountains.

Around 425 million years ago, Cairngorm granite rose as a molten mass from deep in the Earth’s crust, to rest within a few kilometres of the Earth’s surface. Over millions of years, erosion has stripped the upper layers of the crust, exposing the resilient granite and forming extensive plateau surfaces. Ancestral rivers exploited natural lines of weakness in the underlying granite forming the precursors to the present glens.

About 50 million years ago, intense weathering occurred when the climate was tropical, much warmer and wetter than it is today. Remnants of this pre-glacial landscape can be seen today, and include the shallow valleys of the plateau. Incredibly, these ancient gentle rolling plateau features have survived the severity of the Ice Age, which began about two and a half million years ago, when the world’s climate began to cool. Snow built up on the mountains forming glaciers and huge ice-sheets. The Ice Age consisted of many glacial periods, interspersed with warmer inter-glacial phases. It is likely that the mountains of Scotland were occupied by glaciers many times during the colder episodes.

The ice finally receded around 10 000 years ago when rapid warming initiated the present inter-glacial period. The emerging Cairngorm landscape was dramatically changed - carved, and crushed and smoothed by tons of moving ice. The survival of the plateau landforms, like tors, was only possible where the glacier ice was thinnest, hardly moving and probably frozen to its bed. Examples of landscape features that survived repeated glaciations in the Reserve include the rolling plateau between the high tops of Carn Ban Mor, Sgor Gaoith and Sgoran Dubh Mor; and tors at Clach Choutsaich and Clach Mhic Cailein (the Argyll Stone).
Deep, fast-moving glaciers scoured out the glens, whilst the poorly developed shallow corries at Invereshie and Inshriach were probably formed by smaller areas of glacier ice. Along the steep hillsides screes formed from rockfalls from the newly exposed crags, and these have subsequently been reworked on the Reserve by snow avalanches and debris flows.

Long after the glaciers retreated, rivers, frost and slope processes continued to modify the landscape to varying degrees. Up on the high plateau frost action formed distinct features; rocks fractured to form extensive boulder-fields, and soil movement created terraces and lobes on the hillsides. Good examples of boulder lobes can be seen at the head of the Allt Ruadh catchment on the Reserve. Even today the extreme mountain weather, especially high wind speeds and repeated cycles of frosts ensures that some of these processes are still active on higher slopes and the plateau.

The intensity of the weather is responsible for many present day active features, such as turf-banked terraces, ‘ploughing’ boulders and wind-patterned surfaces and vegetation. Debris flows, rock falls, avalanches, swept scree and late-lying snowbeds all leave their mark on the landscape.

The acid bedrock that underlies the Reserve erodes slowly into poor, acidic soils leached by rainfall and run-off. The soil type suits relatively few plant species and this, combined with the sometimes inhospitable climate, greatly influences the type of vegetation that can grow here.

**Habitats**

The Cairngorms are internationally important for the immense diversity of habitats and species they support, many of which are uncommon elsewhere in Britain. Invereshie and Inshriach NNR is almost the Cairngorm mountains in miniature itself - an integral part of this magnificent area containing the characteristic range of heaths, woodlands and montane habitats associated with the north-western Cairngorms.

**Caledonian pinewood**

Exposed to some of the harshest conditions in Scotland, the Caledonian pinewood at Invereshie and Inshriach reaches some of the highest altitudinal limits of natural woodland in the UK. Remnants of the ancient Caledonian
pinewood that would once have cloaked these hillsides stretch from about 250m above sea level up to 630m at Creag Fhiaclach, in the north-west of the Reserve.

On these upper exposed slopes, the weather conditions takes its toll and trees grow to nothing more than bushy and stunted growth forms of Scots pine and juniper. Although small and twisted, many of these trees are very old. Due to their unusual form they are known as ‘Krummholz’ (German for ‘twisted wood’) pines, and attract the interest of many botanists. Remarkably, pine and birch saplings also manage to survive these conditions – with some isolated saplings found at around 800m.

Reserve’s woodlands also manage to establish on terrain often inhospitable to trees. Pinewood is found on scree slopes at Creag Mhigeachaidh and in wetter parts of the woodland, the vegetation opens into scattered areas of internationally important bog woodland.

The woodland itself is dominated by Scots pine with scattered rowan, birch, aspen, alder, juniper and holly. All age classes are represented, with plenty of deadwood and semi-mature and mature trees including the occasional ‘granny pines’ that are aged around 430 years old. In places such as at Drake’s Bothy, natural regeneration of the pinewood has been prolific with pulses of even-aged growth. Elsewhere, there is scattered regeneration. Typically the understorey includes dwarf shrubs such as heather, blaeberry and cowberry, along with abundant mosses, lichens and fungi.

Below the ancient woodland, lies Inshriach Forest. Stretching way beyond the Reserve itself, Inshriach Forest forms part of an almost continuous woodland cover linking the pinewoods of Glen Feshie Forest in the west, to Rothiemurchus, Glenmore Forest and Abernethy Forest in the north-east. This part of the Reserve’s woodland is plantation in origin – now dominated by Scots pine with some planted native broadleaves. The woodland remains even-aged although, scattered amongst the younger trees are some older specimens up to 170 years old. Apart from some larch, most of the non-native trees have been removed and the woodland is now developing many of the characteristics of the older Caledonian pinewood on the Reserve.
The Caledonian pinewood on the Reserve is internationally important. Scots pine was an early coloniser of the Scottish Highlands after the Ice Age spreading over much of the northern Scotland. This area has diminished to around 180 km$^2$ today, spread over 84 sites throughout the central and north-eastern Grampians, and the eastern, northern and western Highlands. The pinewood at Invereshie and Inshriach is part of the Cairngorms complex of woodlands; this is the most extensive area of native pinewood in the UK and comprises almost half the remaining total area of ancient Caledonian forest in Scotland.
Map showing areas of ancient Caledonian pinewood and plantation Scots pine woodland
**Bog woodland**

Scattered throughout the Reserve’s pinewood are small areas of bog woodland. Typical bog plants such as, cross-leaved heath, cotton grass and sphagnum mosses flourish in these wet conditions. Scattered pine trees still manage to grow but it is a constant battle of survival for these trees and (in some cases) despite their considerable age, they remain stunted in growth.

Bog woodland is an internationally important habitat and the Reserve has some excellent examples close to Drake’s Bothy and in the Allt a’Mharcaidh catchment. As part of the LIFE Wet Woods Project, FCS have restored a large area of bog woodland in the north-west of the Reserve.

Small areas of bog woodland are abundant in the Cairngorms and together they form the largest example of bog woodland in Scotland. Invereshie and Inshriach supports a significant component of the Cairngorms bog woodland resource.

**Juniper**

Juniper also occurs at the woodland margins and as part of the understorey of the pinewood within the Reserve. Stunted forms of juniper grow amongst the ‘Krummholz’ pines on Creag Fhiaclach and at higher levels prostrate juniper forms a close mat across the exposed surface. The juniper on the Reserve is a significant component of the Cairngorm mountains resource, which supports the third-largest extent of juniper formations in the UK.

**Open habitats**

Extending beyond the woodland and up onto the high slopes of the mountain plateau of the Reserve are a mosaic of open habitats. Large expanses of dry heath and wet heath dominate the middle slopes. Here they are interspersed with blanket bog that in places stretches up the high slopes and onto the mountain plateau.

Dry heath is scattered and widespread across the Reserve, and is generally found on south-facing, well-drained slopes, above a broad belt of wet heath. It forms a red-brown sward of dwarf-shrubs dominated by heather with cross-leaved heath and large patches of cloudberry. Lichens adorn the understorey and are collectively
known as reindeer moss. On the exposed ridges of Creag Ghuithsachan, bearberry heath also forms an important component of the dry heath vegetation.

The dry heath of the Reserve is typical of upland heaths of the cool and less oceanic eastern Highlands. The Reserve supports a significant component of the Cairngorms dry heath resource; the largest extent of European dry heath in the UK.

Wet heath is also widespread on the Reserve and occurs where drainage is impeded, for example on shallow peat. The vegetation is typically dominated by mixtures of cross-leaved heath, heather, deer grass and purple moor-grass with, bog asphodel and butterwort also present. Occasional dwarf birch grows here too, and there is an abundant understorey of lichens.

The Reserve also supports extensive areas of blanket bog across a wide range of altitude from around 500m above sea level, up to nearly 1,000 m. High altitude blanket bog (927m) dominates the landscape of the Moine Mhor which stretches into the Reserve between Carn Ban Mor and Sgor Gaoith. Smaller areas of blanket bog cloak the slopes of Creag Dhubh and Coire Ruadh. This range in altitude allows for an equally varied mix of blanket bog communities across the Reserve. The blanket bogs of the lower slopes are typical of most blanket bog communities, dominated by sphagnum mosses with cross-leaved heath. Heather and cotton grass are more abundant on the bogs at higher altitude and on blanket bog above 850 m, heather diminishes and is replaced by mountain crowberry and northern blaeberry.

Montane habitats

The high plateau of the Reserve is home to outstanding examples of high altitude acidic habitats. The Cairngorms are the most important area for these habitats in the UK. In particular, the Reserve has extensive areas of alpine, boreal and moss heath interspersed with acid screes and snow beds.

The alpine and boreal heaths occupy much of the exposed ground above 650 m. Here crowberry, cowberry, northern blaeberry and lichen form a thin, tightly woven mat; creeping over the dry stony soil. On high slopes where, snow lies late in gullies and shaded corries there are small pale stands of mat grass and stiff sedge.

Moss heaths of the Reserve largely consist of a soft mantle of woolly fringe-moss, in which grow creeping and mat-forming plants such as stiff sedge and three-leaved rush. Hardy alpine plants, such as the trailing azalea and least willow are also found in these heaths and are well adapted to this harsh environment.

On the Reserve, snow bed communities occur all along the ridge between Carn Ban Mor and Sgoran Dubh Mor, where the snow lies late and deep creating an extreme habitat that is continually cold and moist, with a short growing season. The snow
cover provides insulation from the really low outside temperatures, creating a warmer micro-climate where plants such as Ludwig’s thread-moss can thrive.

The Reserve is also important for the extensive areas of acid scree that occur on granite at a range of altitudes. These scree communities are very diverse. At Invereshie and Inshriach ferns, such as parsley fern and alpine lady-fern, occur on the high altitude scree slopes along with the rare wavy meadow-grass. Rare mosses and liverworts found elsewhere in the Cairngorms may also exist on the Reserve.

**Freshwater lochs**

The only freshwater loch on the Reserve is Loch Ghiuthsachan. It is however characteristic of the clear-water lochs found elsewhere in the Cairngorms being low in nutrients with sparse vegetation. Shoreweed and bog pondweed are two of the few plants species to be found at Loch Ghiuthsachan.

**Fauna and Flora**

**Birds**

The diversity of habitats across the Reserve gives rise to a nationally important assemblage of birds. The woodland is home to a wide range of birds, many of which are rare or uncommon, such as Scottish crossbill, crested tit, capercaillie and black grouse. The Scottish crossbill is the UK’s only endemic bird species and thrives in the Scots pine woodland. It is also a UK Biodiversity Action Plan (UKBAP) species along with capercaillie and black grouse.

The Reserve has one of the most successful breeding populations of capercaillie in Strathspey. While breeding success at many sites failed in 2008, at Invereshie and Inshriach four broods were recorded. The Cairngorms are the Scottish stronghold of capercaillie and the Reserve’s population makes a critical contribution to the survival of this threatened species. Black grouse also thrive on the Reserve, lekking and feeding around the woodland edge.

The open habitats of the Reserve present further opportunities for many other bird species. The Reserve is an important feeding ground for golden eagle, which nest just off the Reserve and soar high above the vast expanse of heaths and bogs in search of
food. At least two pairs of merlin and one pair of peregrine breed on the Reserve and buzzard, osprey and raven are commonly seen and heard.

Ptarmigan

The lower altitude heaths are also home to a variety of characteristic birds such as red grouse, ring ouzel and golden plover. The higher ground is the domain of the ptarmigan and snow bunting and in summer, the Reserve provides the breeding grounds for dotterel. The female lays her eggs high on the alpine heaths in early May leaving the male to raise the young, whilst she flies north to breed again. The Cairngorms are an internationally important breeding stronghold for dotterel and hosts approximately 28% of the British breeding population.

Mammals

Invereshie and Inshriach NNR is important for a number of rare mammals. The Cairngorms is home to internationally important numbers of otter and the many watercourses on the Reserve provide perfect habitat for these elusive animals. Water voles also make a home along the Allt a’Mharcaidh.

In the pinewood, red squirrel and pine marten are widespread. Signs of both are easily located on tracks and paths.

Other mammals on the Reserve include red and roe deer, fox, badger, pipistrelle and brown long-eared bats. The UK’s only truly arctic-alpine mammal, the mountain hare, inhabits the higher ground of the Reserve.

Fish

Atlantic salmon can be found in the Allt a’Mharcaidh and Allt Ruadh, which form part of the tributary system for the River Spey. The River Spey is internationally important for Atlantic salmon and supports one of the largest populations in Scotland.

Invertebrates

The invertebrate assemblage of the Cairngorms is nationally important. Many common and rare invertebrate species have been recorded, and although there are few specific records for Invereshie and Inshriach, it is likely that many of invertebrates found in the Cairngorms will also be present on the Reserve.
The Story of Invereshie and Inshriach National Nature Reserve

The rare Red Data Book (RDB) species *Chamaesyrphus scaevoides* (a hoverfly) and *Hybomitra lurida* (a horsefly) have both been recorded at on the Reserve. In 2008, a new species of fly to Britain was also recorded on Creag Follais.

The woodland understorey is home to green hairstreak; rarely noticed this tiny, beautiful butterfly is probably one of the most abundant butterflies on the Reserve. Even the high mountain provides a home for the uncommon black mountain moth. Large heath butterfly, dingy skipper and pearl-bordered fritillary (UKBAP species) have also been recorded on the Reserve.

Areas of bog woodland on the Reserve attract numerous dragonflies, such as northern emerald and white-faced darter that are both RDB species. The northern damselfly, Scotland’s rarest damselfly and a Cairngorms Local Biodiversity Action Plan (LBAP) species, has been recorded at Inshriach.

Wood ant nests are found within the pinewood. They are an important part of the forest ecosystem and are also a Cairngorms LBAP species.

**Flora**

**Higher plants**

The Cairngorms is nationally important for its vascular plant assemblage. Many of the rare species associated with this assemblage are found on the Reserve.

The Reserve has one healthy clone of twinflower, which continues to thrive and grows larger each year. Twinflower is a boreal plant that is a relic of the Ice Age. In Scotland it rarely sets seed and propagation occurs mainly by sending out suckers, so its ability to spread is very limited. Twinflower is nationally scarce.
and a UKBAP and Cairngorm LBAP species.

The UKBAP species, one-flowered wintergreen has also been recorded on the Reserve as well as creeping lady’s tresses, a little white orchid that grows almost exclusively in Scotland, and is most commonly found in pinewoods.

In the woodland, the flora is dominated by heather and blaeberry interspersed with plants, such as wood anemone, wood sorrel and common cow-wheat. The open and montane habitats are home to many specialist plants, adapted to often harsh conditions such as cloudberry, bladderwort, yellow saxifrage, alpine lady’s mantle, trailing azalea and purple saxifrage.

Fungi and lower plants

The Reserve has an equally diverse mix of fungi and lower plants which contribute to the nationally important assemblages of fungi, bryophytes (mosses and liverworts) and lichens found in the Cairngorms.

Fungi can generally find a niche in most habitat types, including the harsh arctic environment on the Reserve plateau where nationally important arctic alpine fungi thrive amongst the alpine heath. The most rewarding place to find fungi on the Reserve is however, in the woodland. Here, there is an amazing range of size and colour, from the often dark and woody bracket fungi to the more delicate, golden-yellow ‘fingers’ of jelly antler fungus. The Reserve also supports an excellent array of tooth fungi (UKBAP species) which grow symbiotically with pine trees and have a very restricted distribution in the UK.

Lichens also swathe the trees in grey-green, and sprout tiny ‘pin-heads’ on dead pine stumps. The moorland too has a lichen-rich understorey of tangled reindeer moss lichens, and exposed rocks are dappled with multi-hued crustose lichens.

In 2008, the Arctic stags horn clubmoss was recorded at Geal Charn. This is one of only 3 Scottish sites known to support this rare clubmoss.

Summary

The landscape of the Reserve we see today has been developing for more than two and a half million years. Elements of the pre-glacial terrain are still evident in places,
whilst elsewhere the action of glaciers, frost and snow have moulded the characteristic Cairngorms features. The vegetation is a legacy of the poor acid soils eroded from the resistant granite, and the hostile environment of the higher slopes and tops.

Invereshie and Inshriach NNR is a special place with a mosaic of habitats that merge from one to another. This relatively small area supports some of Scotland’s most iconic species of plants and animals.
The Story of Invereshie and Inshriach National Nature Reserve

3 Management before the land became Invereshie and Inshriach NNR

History of Invereshie and Inshriach

<table>
<thead>
<tr>
<th>Date</th>
<th>Event</th>
</tr>
</thead>
<tbody>
<tr>
<td>Around 10 000 years ago</td>
<td>The end of the Ice Age.</td>
</tr>
<tr>
<td>Around 8 800 years ago</td>
<td>The first Scots pine start to colonise the Highlands.</td>
</tr>
<tr>
<td>Bronze Age</td>
<td>Record of Bronze Age hut circle on Allt nan Cuileach.</td>
</tr>
<tr>
<td>14th century</td>
<td>The land is owned by two branches of Clan Chattan: Macpherson of Invereshie and Mackintosh of Moy owning Inshriach.</td>
</tr>
<tr>
<td>1594</td>
<td>The tor Clach Mhic Cailein (the Argyll Stone) is named after the Earl of Argyll, who is said to have passed this way after the Battle of Glenlivet, where he was defeated by the Earl of Huntly.</td>
</tr>
<tr>
<td>Up to late 18th century</td>
<td>The land is managed for rough grazing and small-scale timber cutting for local use.</td>
</tr>
<tr>
<td>Early 1800s</td>
<td>The Napoleonic wars saw the demand for home-grown timber increase. A number of water-driven saw mills are erected along the Feshie and its tributaries.</td>
</tr>
<tr>
<td>1850</td>
<td>Invereshie is converted to ‘deer forest’ and leased to the Duke of Bedford.</td>
</tr>
<tr>
<td>1850s to 1970s</td>
<td>Various planting phases for the Inshriach Forest. Non-natives are planted as well as Scots pine.</td>
</tr>
<tr>
<td>1870</td>
<td>Much of the pine on the lower slopes of Creag Mhigeachaidh is felled after snow damage.</td>
</tr>
<tr>
<td>World War I</td>
<td>Timber is felled to provide warfare materials such as, for barracks, ships, housing and trenches (Creag Ghiuthsachan, Creag Follais and Creag Fhiaclach).</td>
</tr>
<tr>
<td>1927</td>
<td>FCS purchase part of Inshriach Forest.</td>
</tr>
<tr>
<td>1929</td>
<td>Inshriach Estate is sold to the Drake family.</td>
</tr>
<tr>
<td>1930s</td>
<td>A timber shooting bothy is erected on the lower slopes of Creag Follais by the Drake family – now known as Drake’s bothy.</td>
</tr>
<tr>
<td>1938</td>
<td>Scots pine is planted by FCS in the part of Inshriach Forest which is now the NNR.</td>
</tr>
<tr>
<td>World War II</td>
<td>Further timber felling for war effort - only the most inaccessible</td>
</tr>
<tr>
<td>Date</td>
<td>Event</td>
</tr>
<tr>
<td>------------</td>
<td>-------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------</td>
</tr>
<tr>
<td>1954</td>
<td>The Nature Conservancy (NC) buys Invereshie Estate from MacPherson-Grant.</td>
</tr>
<tr>
<td>1954</td>
<td>The Cairngorms NNR is declared. The Reserve covers about 16,060 ha. and is the largest in Britain. It includes Invereshie Estate and the hill ground of Inshriach Estate. The Reserve has multiple land-ownerships.</td>
</tr>
<tr>
<td>Mid-1950s onwards</td>
<td>Throughout the Cairngorms NNR protection and regeneration of the native pinewoods are viewed as ‘the most important conservation requirement’.</td>
</tr>
<tr>
<td>1955</td>
<td>NC acquire the stalking rights. The stag shooting is let as a sporting asset.</td>
</tr>
<tr>
<td>1955</td>
<td>The first Cairngorms NNR signs are installed at Invereshie.</td>
</tr>
<tr>
<td>1956</td>
<td>FCS purchase remainder of Inshriach Forest.</td>
</tr>
<tr>
<td>1958</td>
<td>Reserve staff start to collect seed for rearing in the Achnagoichan garden at Rothiemurchus and subsequent planting on the Reserve. Spot-sowing experiments begin at Invereshie.</td>
</tr>
<tr>
<td>1959</td>
<td>NC purchase Achantoul as a Field Station.</td>
</tr>
<tr>
<td>1959 - 1967</td>
<td>Significant planting of Scots pine plantations by FCS adjacent to the Caledonian remnants on Cairngorms NNR.</td>
</tr>
<tr>
<td>1959-1972</td>
<td>Four exclosures are erected and planted at Invereshie.</td>
</tr>
<tr>
<td>1960’s</td>
<td>Lodgepole pine and spruce are planted in the bog woodland areas of Inshriach.</td>
</tr>
<tr>
<td>1962 &amp; 1966</td>
<td>Cairngorms NNR is extended and covers 25,950 ha.</td>
</tr>
<tr>
<td>1966</td>
<td>NC acquire the stalking rights to Inshriach.</td>
</tr>
<tr>
<td>1967</td>
<td>The existing tracks at Invereshie were cleared and new roads up to 3 miles in length created to assist forestry work. Red Burn loop road created by joining two existing tracks.</td>
</tr>
<tr>
<td>1969</td>
<td>The Conservation Corps were employed to construct footbridges over the Allt Ruadh and the Red Burn, and 200 yards of path down to a burn near Loch Ghuiathschan.</td>
</tr>
<tr>
<td>1970</td>
<td>NC purchase Inshriach Estate and merge the hill ground with Invereshie for management. The arable land is sold.</td>
</tr>
<tr>
<td>1971-75</td>
<td>The stag shooting is let to Brigadier Curtis.</td>
</tr>
<tr>
<td>1975</td>
<td>Nature Conservancy Council (NCC) take over the stalking rights at Inshriach.</td>
</tr>
<tr>
<td>1985</td>
<td>A 7 km shield fence is erected at Invereshie, enclosing 603 ha.</td>
</tr>
</tbody>
</table>

2 The Nature Conservancy was the first government organisation for nature conservation, followed by the Nature Conservancy Council (1973-1990), the Nature Conservancy Council Scotland (1990-1991) and Scottish Natural Heritage (1992-present).
The Story of Invereshie and Inshriach National Nature Reserve

<table>
<thead>
<tr>
<th>Date</th>
<th>Event</th>
</tr>
</thead>
<tbody>
<tr>
<td>early 1980’s</td>
<td>West Grampian Deer Management Group is formed.</td>
</tr>
<tr>
<td>1991-1993</td>
<td>The shield fence is removed by volunteers from Creag Meagaidh.</td>
</tr>
<tr>
<td>1997</td>
<td>Cairngorms Speyside Deer Management Group (CSDMG) is formed.</td>
</tr>
<tr>
<td>1999</td>
<td>Deer fence between SNH land and FCS land is removed.</td>
</tr>
<tr>
<td>2003</td>
<td>Cairngorms National Park is established.</td>
</tr>
<tr>
<td>2005</td>
<td>CSDMG publish their 5 year Deer Management Plan.</td>
</tr>
<tr>
<td>2006</td>
<td>SNH carry out a review of the Cairngorms NNR. The Cairngorms NNR no longer meets NNR policy and it is decided that the Reserve should be broken up into separate, smaller reserves more akin to land management units.</td>
</tr>
<tr>
<td>2006</td>
<td>Collaborative deer management programme between SNH/FCS is established.</td>
</tr>
</tbody>
</table>

Land use history

Many of the remnant Scots pine of today’s landscape are direct descendents of the first trees that colonised the area after the last glaciation. The earliest evidence of human occupation in the area was the long-disappeared ruin of a Bronze Age hut circle along the Allt nan Cuileach. Up until around the mid-18th century the land management was largely localised small-scale rough grazing and cutting of timber for domestic use.

A rapidly growing population in the latter half of the 18th century brought an expansion of human settlement in the Cairngorm glens. Permanent and summer shielings began to appear, along with small-scale cultivation and in some places summer grazing of cattle. There are remains of post-medieval buildings and enclosures on the Reserve (recorded in the first edition ordnance survey maps of 1873), alongside the road to the south of the landing strip, and shieling huts at Allt a’Mharcaidh.

During the Napoleonic wars of the early 19th century there was an increased demand for home-grown timber, and a number of water-driven sawmills were erected along the River Feshie and its tributaries. A section of the Allt a’Mharcaidh, just north-east of Lagganlia, is clearly canalised for the transport of timber, and dates from this time. Maps dating from 1903 also show the location of a loch (Lochan Gorm) not far from Drake’s Bothy which was created by floating log dams and sluices – the remains of these are still visible although the loch is now gone. Demand continued through the 19th century with the expansion of the railways when timber was required for railway sleepers, buildings and bridges.
During this time, areas of bog woodland were probably also lost in the area. The commercial timber extraction saw drainage implemented in many parts of the forest to provide more suitable growing conditions for the pine plantations, and to allow for the extraction of timber down the major watercourses.

By the mid-19th century, deer stalking and grouse shooting became popular. There are a couple of lines of grouse butts still visible on the Reserve including a series of stone butts at high altitude in the Allt a’Mharcaidh catchment. In 1850 Invereshie became a ‘deer forest’ and is described in the ‘Sportsman’s Guide for 1883’ as being 6,115 acres in extent and ‘one of the finest sporting grounds in the Highlands’.

Management practices associated with the sporting interests, such as heather burning (muirburn), winter feeding of deer and the subsequent increase in deer numbers and browsing led to a reduction in natural regeneration of the native woodland.

Sporting kills recorded on the estate in the early 20th century reflect the population densities of deer and game. Game records for Invereshie and Inshriach (all of the forest) in 1922 state that 9 stag, 2,880 grouse, 58 black game and 7 capercaillie were taken. The capercaillie count seems incredible considering that it had already been hunted to extinction once, and had only been re-introduced in the later part of the 19th century.

Timber felling increased during the two World Wars, and by the mid-1940s only the most inaccessible woods were left untouched. An artificial tree-line, created by felling, is still visible today below the remnant ancient pinewood.

In 1954, The Nature Conservancy (NC) purchased Invereshie Estate from MacPherson-Grants, and in recognition of the Cairngorms being considering the most important mountain system in the UK, the Cairngorms NNR was declared. The Cairngorm NNR includes Invereshie and the hill-ground of Inshriach Estate. In the early years, the conservation management effort was focused on the eastern part of the Cairngorms NNR. At Invereshie there was limited intervention; muirburn and grazing by domestic stock was stopped.

In 1955 when NC acquired the stalking rights to Invereshie, they took over the hind cull but let the stag shooting to Major Drake as a sporting asset. In the 1950s, an estate with a good deer population was considered a healthy estate and consequently, the cull effort remained low. On average 18 stags, 19 hinds and 3 calves were culled each year between 1955 and 1975.

Early woodland restoration

The NC published their first management plan for the Cairngorms NNR in 1958. It recognised that the legacy of sporting estates and high deer numbers meant that there was virtually no successful tree regeneration in any of the Cairngorms woods including Invereshie. The main objective for managing the Cairngorms NNR set about reversing this problem and aimed ‘to restore native woodland, scrub and tall herb communities’. With deer numbers still high, one of the initial actions by NC in the late 1950s/early 1960s was to erect and plant with native trees, a number of fenced exclosures. A programme of exclosures and planting then followed and this included four exclosures at Invereshie and 9 at neighbouring Glen Feshie. The total area of enclosed ground at Invereshie came to around 68 ha. The exclosures were planted with Scots pine but also areas were left unplanted to allow for natural regeneration. The resulting protection from browsing created a surge of pine and birch natural regeneration especially on the lower slopes, with some patches of rowan and clumps of willow also recovering.

By the beginning of the 1970’s peoples attitudes towards deer were changing and land uses and aims other than sporting management were becoming more widespread.

In 1976, the emphasis for deer control at Invereshie changed. The Nature Conservancy Council (NCC) was determined to reduce deer numbers to
The Story of Invereshie and Inshriach National Nature Reserve

population levels that would allow natural regeneration of the forest throughout the Reserve. NCC ended the stalking tenancy and took the whole cull into their own hands. They used Red Deer Commission (RDC) data for establishing deer numbers and on the basis of direct observations and data that linked with Rothiemurchus and Glen Feshie, the number of deer shot annually increased to 25 stags, 22 hinds and 5 calves. Four permanent 1 km transects were initiated specifically to record changes in tree regeneration and browsing damage as a result of the increased cull. The annual survey results between 1983 and 1991 show that damage to trees by browsing had dropped from all trees in 1983 to 36 % of trees in 1991. Interestingly, we attempted to re-survey the transects in 2007 but found that the saplings were too dense to walk through and get any meaningful data!

Recognising changes in land use throughout the Cairngorms and the requirements to manage deer differently, the ‘West Grampian Deer Management Group’ was established in the early 1980’s. The group provided a forum for discussion between land managers and as a result, the Cairngorms continued to support some world class sporting estates but with increased culls on neighbouring estates where deer were less welcome. Measures were taken to ensure that deer numbers on the sporting estates remained high. Glen Feshie started to feed deer in the main glen drawing stags away from their traditional wintering grounds at Invereshie.

Despite the reduction in deer at Invereshie, the area still suffered from seasonal heavy browsing. Surrounding estates still held large numbers of deer and stags (up to 400) coming over the hill from other estates during hard winters would hit the regeneration hard. So, in 1985 NCC erected a 7km shield fence to restrict access to wintering stags.

By end of the 1990s deer numbers both within and beyond the shield fence had reduced significantly. The impact was clear, resulting in high levels of birch and pine regeneration. A cull of only 16-20 stags per annum was required. This success in controlling the deer population to a level where natural regeneration could establish plus, concerns over fence strikes by capercaillie and red and black grouse, led to the removal of all deer fencing at Invereshie. In 1999, the march fence between the FCS owned Inshriach Forest and the Reserve was also removed. With this final removal, Inshriach Forest and Invereshie became the first areas in the Highlands to adopt the management practice of a regenerating pinewood in the presence of red deer without the use of fencing.

Inshriach Forest

The remaining part of the Inshriach Estate, not included in the Cairngorms NNR but later to become part of Invereshie and Inshriach NNR, was part of the Inshriach Forest. FCS owned and managed the plantation woodland. The woodland was largely composed of Scots pine with smaller areas of lodgepole pine, a few remnant older Scots pine trees and significant remnants of bog woodland. In the 1960s and
70s the emphasis for management in the Inshriach Forest was commercial forestry. Scots pine was planted, as well as non-native trees such as sitka and Norway spruce, lodgepole pine, larch and Douglas fir.

By the end of the 1990s, the emphasis for management at Inshriach Forest started to change. FCS now turned their focus to restoring a semi-natural continuous forest. Many of the non-native species were removed and natural regeneration of native species encouraged to take their place. The remaining pine woodlands have been thinned to improve conditions for ground flora. In 1999-2000 under the EU LIFE Wet Woods Project, FCS set about restoring 52 ha of wet woodland in the Inshriach Forest adjacent to the Allt a’ Mharcaidh. The restoration project included the removal of non-native trees, heavy thinning of planted Scots pine, and the blocking of key drains. The majority of the brash was raked into heaps and burned, but some heaps were left to encourage invertebrates and to act as cover for birds and animals. The restoration project has been a huge success, the ground is considerably wetter and the area now attracts a variety of damselfly and dragonfly. Two interpretive panels were also installed and FCS continues to use the site for demonstration purposes. A further 15 ha were restored in 2002.

**Working together**

As deer management has changed over the past 40 years throughout the Cairngorms, so to have deer management groups evolved. In 1997, the Cairngorms, Speyside Deer Management Group (CSDMG) was formed. The management area covered by the group is smaller than the old West Grampian group but includes 17 estates on the west of the Cairngorms. Not only a forum for discussion the CSDMG now carries out its own deer counts and members including FCS and SNH, worked together to draw up the first deer management plan for the area. Our deer management supports the main objective of the plan by maintaining a native deer population at levels that allow sustainable delivery of nature conservation, traditional deer stalking, farming, forestry and tourism.

With both FCS and SNH sharing the same objectives for deer management it seemed sensible to take a collaborative approach. SNH staff would cull deer in Inshriach Forest if they passed them on their way to cull deer in Cairngorms NNR and likewise, FCS staff would cull deer on the Reserve if they came across them whilst stalking the...
March boundary. From 2007, as part of the Government’s ‘On the Ground’ initiative to encourage Government organisations to share resources we took this step even further. The deer within Invereshie and Inshriach Forest are controlled by FCS and in return, SNH staff from Creag Meaghidh NNR control deer numbers on FCS ground closer to Laggan.

Research

Since 1954 the Cairngorms NNR has been used extensively for research purposes. The Allt a’ Mharcaidh catchment has been particularly important for long-term research on environmental change. An extensive survey of the upland vegetation was carried out on behalf of NCC during the 1950’s. This survey was repeated by the University of Aberdeen 50 years later and the data compared with the original survey.

The Department for Environment, Food and Rural Affairs (DEFRA) have also used the Allt a’ Mharcaidh catchment for their Freshwater Umbrella Project. This long-term project is on-going and data is used to determine the effects of acid rain on surface waters.

The Allt a’Mharcaidh is also an Environmental Change Network (ECN) site. The site was established in 1999 and is part of is a UK-wide integrated network established to monitor environmental change. There are 57 ECN sites throughout the UK representing a wide range of habitats. There is a range of technical equipment used at the ECN site including cameras, an automatic weather station, pit-fall traps for insect recording and additional recording of bats, deer, hare and butterflies.

Information from ECN research also contributes to other important project networks investigating the long-term effects of environmental change on alpine and Arctic habitats; these include Global Observation Research Initiative Alpine Environments (GLORIA), and SCANNET, which looks at environmental impact issues relating to landscapes of the Arctic.

Inshriach Forest has played an important part of the capercaillie LIFE project. Throughout the Cairngorms the project has looked at a number of measures designed to create or enhance brood areas by manipulating tree canopy or shrub/ground layer. At Inshriach, Forest Research have been monitoring the impact of variable thinning measures.
The Story of Invereshie and Inshriach National Nature Reserve

Visitors to Cairngorms NNR (Invereshie only) and the Inshriach Forest

The focus for visitors to the Cairngorms NNR centred around Loch an Eilein. Most visitors to Invereshie came to access the Munro of Sgor Gaoith and tops of Sgoran Dubh and Carn Ban Mor using the old pony path at Allt Ruadh. The Allt a’Mharcaidh also attracted ski tourers during the winter months. SNH marked the entrance to the Cairngorms NNR (boundary between SNH and FCS land – 2km from the road) with a rock etched with ‘Cairngorms National Nature Reserve’ and maintained Drake’s Bothy as an open shelter for recreational users and a facility for distributing interpretive material. In 1993, Reserve staff upgraded the hill path at Allt Ruadh to form the ‘Loop Road’. This included re-routing a significant length of it to avoid blanket bog - the path was taken further up the hill through dry heath where the ground was more stable and less susceptible to erosion. Other than that, specific provisions for visitors to this part of the Cairngorms NNR remained low key.

As the emphasis of management at Inshriach Forest has changed FCS has progressively opened up forest to recreational activities such as walking, mountain biking and cross-country skiing on the existing forestry tracks.

Summary

Invereshie and Inshriach NNR is a new reserve but one with a history of conservation management both as part of the Cairngorms NNR and Inshriach Forest. Past management has secured a naturally regenerating pinewood without the use of fences and a significant area of restored bog woodland. The addition of Inshriach Forest is seen as integral to the Reserve. The forest offers a much larger area of continuous pinewood cover and one which will continue to improve in structure and composition. It also provides crucial visitor access opportunities which will allow us to provide a range of facilities and interpretation appropriate to the Reserve.
4 Management of Invereshie and Inshriach NNR

<table>
<thead>
<tr>
<th>Invereshie and Inshriach NNR</th>
<th>Declared in September 2007. Part of Inshriach Forest is combined with adjacent Invereshie to form the new Invereshie and Inshriach NNR. The Reserve is jointly owned and managed by SNH and FCS.</th>
</tr>
</thead>
<tbody>
<tr>
<td>2007</td>
<td>'A Strategic Framework for management and interpretation’ of the Cairngorms NNRs is completed.</td>
</tr>
<tr>
<td>2007</td>
<td>An interpretation plan for the Reserve is completed and new Reserve signs are installed at the main access points.</td>
</tr>
<tr>
<td>2008</td>
<td>FCS publish their Forest Design Plan for Inshriach Forest</td>
</tr>
<tr>
<td>2008</td>
<td>The Feshiebruach car park is designed and constructed near Allt a’Mharcaidh entrance.</td>
</tr>
</tbody>
</table>

Management of the Natural Heritage

The natural heritage management of Invereshie and Inshriach has remained the same since it became a Reserve. FCS continue to control deer over the whole Reserve, and in 2008 published their Forest Design Plan. The Forest Design Plan lays out their direction for management of the whole Inshriach Forest for the next ten years. Within the Reserve it concentrates on improving the nature conservation interest of the planted pinewood.

FCS carry out annual capercaillie monitoring for management purposes. The Reserve is also part of a UK network of sites looking at the results of different types of continuous cover forestry systems on ground vegetation and associated species.

Reserve staff, from SNH, continue to monitor the tree regeneration transects on the Reserve, and during 2008 carried out site condition monitoring of some of the designated features. Our focus for the first year has been to consider what additional (if any) management is required on the Reserve and to produce the Reserve’s first Reserve Plan.

Management for People

Visitors

Invereshie and Inshriach NNR is already a popular attraction for visitors to the area. People counters on the Allt Ruadh path show that approximately 3,500 people walked this route each year (counts from 2006 & 2007). We know that other areas within the Reserve are also popular especially with local people.
Most of the visitors using the Allt Ruadh path will be hill walkers accessing Sgor Gaoith and the other Munros beyond the Reserve. Ski touring and mountain biking are also popular on the forest tracks and on some of the higher ground.

**Map showing current visitor facilities at Invereshie and Inshriach NNR**
The Story of Invereshie and Inshriach National Nature Reserve

The infancy of the Reserve means that visitor facilities are currently low key. There is limited interpretation, no reserve leaflet and access opportunities use the old pony paths and forestry tracks. The new boundary has given us a fresh opportunity to provide more in the way of visitor facilities for the Reserve.

We have started to promote 4 car parks (Feshiebridge, Feshiebruach, Auchlean and at the start of the Allt Rhuadh) for accessing the Reserve and have flagged the Feshiebridge car park as a ‘gateway’ to the Reserve. FCS already provide bike racks and a picnic area at this car park and established paths lead from the Feshiebruach car park direct to the Reserve. FCS have also erected Reserve entrance signs at Auchlean and Lagganlia.

Drake’s Bothy is still well used by visitors – the visitors’ book indicates that at least 200 people use the shelter each year.

These are exciting times at Invereshie and Inshriach NNR and over the next few years we will be investing considerable time and effort into bringing this new Reserve into the limelight. The Reserve is one of nine other NNRs within the Cairngorms National Park. Our approach together with the other Cairngorms NNRs managers is to work collaboratively to ensure that the suite of Cairngorms NNRs provide a complimentary and wide range of visitor experiences. To help direct us, an overarching strategic framework for management and interpretation of the NNRs within the Cairngorms National Park was produced in 2007 (Scott). Following this framework we already have plans underway for new facilities, including interpretation, waymarked paths and a Reserve leaflet.

Property Management

Invereshie and Inshriach NNR is owned and managed by SNH and FCS.

The only property on the Reserve is Drake’s bothy, which is owned and maintained by SNH. We both maintain the paths, tracks and bridges within our respective land ownership on the Reserve.

Macaulay Institute and the Centre for Ecology and Hydrology (CEH) have responsibility for a storage shed and research equipment sited on the Reserve.

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3 The Cairngorms NNRs includes Creag Meagaidh NNR which lies just outwith the Park boundary.
Map showing the land ownership at Invereshie and Inshriach NNR
The Story of Invereshie and Inshriach National Nature Reserve

Summary

Invereshie and Inshriach NNR has a long legacy of nature conservation as part of the much larger Cairngorms NNR, established in 1954. One of the earliest objectives was to re-establish a natural landscape and range of habitats across the site, with much emphasis on enhancing the natural regeneration of the Caledonian pinewood. Management over the years has focused on deer control, removal of non-native trees, planting and wet woodland restoration.

The natural mosaic of habitats across the Reserve supports a wide range of wildlife, and the wider landscape draws large numbers of visitors. Invereshie and Inshriach NNR will provide new opportunities for visitors to explore and get to know this special place.
5 Document properties

References


Acknowledgements

The Story of Invereshie and Inshriach National Nature Reserve has been written by Jane Cox (Freelance contractor) and Emma Philip (SNH Managed Sites Unit), and approved by George Hogg (SNH Area Manager - East Highland) and David Jardine (FCS, Forest District Manager).

We would like to thank the following SNH and FCS staff for their contribution and comments on earlier drafts: Peter Duncan (SNH Reserves Manager - East Highland), Colin Leslie (FCS Biodiversity Manager), Jack MacKay (FCS Planning and Environment Manager), Jim Gillies (FCS Recreation Manager), Keith Duncan (SNH Area Officer - East Highland), David Carstairs (SNH Area Officer - East Highland), John MacKenzie (SNH Operations Manager - East Highland), Andy Rockall (SNH Cairngorms Co-ordination Officer), Jeanette Hall (SNH Policy & Advice Officer - Woodlands), Rachel Haines (SNH Policy & Advice Officer - Natura) and Susi Hodgson (SNH Geographic Information Officer).

Photographs

Photography by Colin Leslie, Ian Green (Botantical Society of the British Isles (Moray)), Keith Duncan, Emma Philip, Andy Rockall and David Carstairs.

Links

Scottish Natural Heritage  www.snh.org.uk
SNH Sitelink  www.snh.org.uk/snhi/
Joint Nature Conservation Committee  www.incc.gov.uk
Cairngorm Speyside Deer Management Group  www.csdmg.co.uk
Cairngorms National Park  www.cairngorms.co.uk
Forestry Commission Scotland  www.forestry.gov.uk/scotland
Macauley Land Use Institute  www.macauley.ac.uk/amc/index.php
Centre of Ecology and Hydrology  www.ceh.ac.uk
Appendix 1 - National Nature Reserves (NNR)

Scotland’s National Nature Reserves are special places for nature, where many of the best examples of Scotland’s natural heritage are protected. Whilst nature always comes first on our NNR’s, they 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 & Countryside Act 1981.

A policy for NNRs in Scotland was developed in 1996. This policy requires NNRs in Scotland to have four attributes and 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** - The NNR must be managed for the features of interest, which are of national importance on the NNR i.e. 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** - The NNR is managed so that 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 one or all of the features of interest on the Reserve 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. The research specifically requires a Nature Reserve location.

From 2000 - 2003 all of Scotland’s NNRs were reviewed against this policy. Because of the review there are now (2009) 58 NNRs in Scotland. There are currently a number of NNRs identified during the review which have still to be taken through the de-declaration process. As a result of this a search on many SNH systems will show more than 58 NNRs until this work is complete.

**More information can be found at:**

Scotland’s National Nature Reserves: A policy statement:  

National Nature Reserves - General Information:  
[http://www.nnr-scotland.org.uk](http://www.nnr-scotland.org.uk)
Appendix 2 - Special Area of Conservation (SAC)

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 (SPA), 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. The Regulations cover both SPAs and SACs. Natura sites are generally underpinned by a Site of Special Scientific Interest (SSSI) 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.

Scottish Natural Heritage (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 that 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 websites provide further information:

Special Areas of Conservation:
http://www.jncc.gov.uk/ProtectedSites/SACselection
Cairngorms 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.

Site details

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

Oligotrophic to mesotrophic standing waters with vegetation of the Littorelletea uniflorae and/or of the Isoëto-Nanojuncetea
The Cairngorm mountains contain the highest oligotrophic waterbodies in the UK. This complex of lochs has a range of high altitude conditions. The very highest waters (corrie and plateau lochs at >900 m) have rocky substrates and very low nutrient status, and suffer the harshest climate. In combination, these factors lead to low species diversity and the absence of aquatic macrophytes. This is an extreme variation of the habitat type. Lochs in the valley floors enjoy more sheltered conditions and the occurrence of finer sediments allows limited establishment of higher plants, although these are still extremely oligotrophic systems. Key species for this habitat type are present in Loch Einich (altitude 500 m), which supports quillwort Isoetes lacustris and shoreweed Littorella uniflora. The rare six-stamened waterwort Elatine hexandra has also been recorded here. The lochs in this area are classified as Type 3 or in some cases Type 2.

**Northern Atlantic wet heaths with Erica tetralix**

The Cairngorms is representative of Northern Atlantic wet heaths with Erica tetralix in north-east Scotland and has the largest extent of this habitat in this part of the UK. M16 Erica tetralix – Sphagnum compactum wet heath is the most extensive community. The site is notable for the occurrence, at high elevation, of this eastern vegetation type, more typically associated with southern lowland heaths. The more oceanic M15 Scirpus cespitosus – Erica tetralix wet heath is also present, occupying the more strongly-flushed soils. It is the presence of undisturbed lichen-rich wet heath occupying wet hollows within high-altitude, windswept Alpine and Boreal heaths that is of particular importance. Wet heath is also developed in hollows within the upper parts of Caledonian forest, within blanket mire and dry heath, giving a variety of ecological transitions. The rare montane ground-beetle Amara alpina is associated with wet heath in the Cairngorms, feeding on seed-heads of deergrass Trichophorum cespitosum.

**European dry heaths**

The Cairngorms has the largest extent of European dry heaths in the UK and is representative of the upland heaths of the cool and less oceanic north-east of Scotland. The site contains extensive examples of all the heath types characteristic of the eastern Highlands and is representative of the heathland in this area. The principal NVC types present are H12 Calluna vulgaris – Vaccinium myrtillus heath, H18 Vaccinium myrtillus – Deschampsia flexuosa heath and H16 Calluna vulgaris – Arctostaphylos uva-ursi heath. These communities mainly occur on acid soils and are species-poor. The main exceptions to this are areas of species-rich H10 Calluna vulgaris – Erica cinerea heath, developed on base and/or lime-rich soils at Inchrory. The Cairngorms holds the most extensive well-developed snow-bed forms of Vaccinium – Deschampsia heath in the SAC series. There are widespread transitions to wet heath, woodland, juniper scrub and Alpine and Boreal heaths.
Alpine and Boreal heaths

The Cairngorms is the superlative example of the relatively continental hills of the eastern Scottish Highlands. It has the full range of heath types characteristic of the area and the most extensive tracts of Alpine and Boreal heaths in the UK. There is the best development of eastern lichen-rich heaths, coupled with a range of snow-bed heaths that are better developed than on any other site. H13 Calluna vulgaris – Cladonia arbuscula heath includes a large area in which there is a co-dominance of heather Calluna vulgaris and bearberry Arctostaphylos uva-ursi, an unusual kind of heath which occurs most extensively on the Cairngorms. H19 Vaccinium myrtillus – Cladonia arbuscula heath is dominated by mixtures of mountain crowberry Empetrum nigrum ssp. hermaphroditum, bilberry Vaccinium myrtillus, cowberry V. vitis-idaea and, unusually, trailing azalea Loiseleuria procumbens. H20 Vaccinium myrtillus – Racomitrium lanuginosum heath is also extensive, taking the habitat type up to its highest altitude in the UK. Calluna-rich and Vaccinium-rich forms of H22 Vaccinium myrtillus – Rubus chamaemorus heath are more extensive than on any other site, and snow-bed forms of H18 Vaccinium myrtillus – Deschampsia flexuosa heath are also well-developed. There is extensive development of heath on solifluction terracing. These alpine heaths give way below to alpine forms of H12 Calluna vulgaris – Vaccinium myrtillus heath and H16 Calluna vulgaris – Arctostaphylos uva-ursi heath; the latter community being largely restricted to north-east Scotland. There are also transitions to European dry heaths at lower altitude, Juniperus communis formations, Northern Atlantic wet heaths and Siliceous alpine and boreal grasslands and late snow-bed vegetation. This is the single most outstanding site for high-altitude acidic habitats in the UK.

Juniperus communis formations on heaths or calcareous grasslands

The Cairngorms has the third-largest extent of juniper Juniperus communis formations in the UK and is one of several sites representing the habitat type in north-east Scotland. The site is exceptional for the wide range of ecological situations in which juniper occurs. Creag Fhiaclach is unique in having the most natural altitudinal tree-line in the UK. At around 640 m there is mixed tree-line woodland with stunted Scots pine Pinus sylvestris and juniper, giving way at higher altitude to alpine juniper scrub. The alpine juniper scrub is developed extensively and often occurs in a stunted form transitional between ssp. communis and ssp. nana. On most of the site juniper occurs on acidic granite, while at Inchrory juniper occurs on both neutral and calcareous soils. Juniper also occurs at the margins and as part of the understorey of Caledonian forest within the site.

Siliceous alpine and boreal grasslands

The Cairngorms complex (Cairngorms, eastern Cairngorms, Northern Corries and Inchrory) has the largest tracts of Siliceous alpine and boreal grasslands in the UK, developed on granite and, more locally, base-poor schist up to very high altitudes.
The Story of Invereshie and Inshriach National Nature Reserve

(above 1000 m). The total extent is more than twice that on any other site in the UK. The full range of sub-types on acidic soils is well developed and they are widespread. Both U10 Carex bigelowii – Racemitrium lanuginosum moss-heath and U7 Nardus stricta – Carex bigelowii grass-heath are extensive. The U9 Juncus trifidus – Racemitrium lanuginosum rush-heath community is particularly well-developed, becoming predominant on the higher plateau, and its extent far exceeds that on any other site in the UK. The stands of U8 Carex bigelowii – Polytrichum alpinum sedge-heath are among the most extensive in the UK. The late-lie moss snow-beds (U11 Polytrichum norvegicum – Kiaeria starkei snow-bed and U12 Salix herbacea – Racemitrium heterostichum snow-bed) are the most extensive and well-developed in Britain. The U14 Alchemilla alpina – Sibbaldia procumbens dwarf-herb community is also well-represented.

Species-rich *Nardus* grassland, on siliceous substrates in mountain areas (and submountain areas in continental Europe) * Priority feature

The Cairngorms is representative of the most eastern forms of species-rich *Nardus* grasslands in the UK. Both CG10 Festuca ovina – Agrostis capillaris – Thymus praecox grassland and CG11 Festuca ovina – Agrostis capillaris – Alchemilla alpina grassland are well-represented through an altitudinal range of 300–750 m, associated with calcareous and basic schists. There are particularly extensive examples at Inchrory on calcareous schist, but the community occurs elsewhere, notably at Craig an Dail Beag and in Glen Feshie. Swards also occur on alluvial soils in the bottoms of many of the main glens. At Inchrory both northern and southern species are well represented, including species characteristic of both species-rich *Nardus* and Semi-natural dry grasslands and scrubland facies on calcareous substrates (*Festuco-Brometalia*). The most abundant of the southern species is common rockrose *Helianthemum nummularium*, others include burnet saxifrage *Pimpinella saxifraga* and blue fleabane *Erigeron acer*. Green-winged orchid *Orchis morio* has also been recorded. Northern species include yellow saxifrage *Saxifraga aizoides* and hair sedge *Carex capillaris*, both of which are locally abundant in flushed grasslands at Inchrory. Mountain everlasting *Antennaria dioica*, alpine meadow-rue *Thalictrum alpinum*, alpine saw-wort *Saussurea alpina* and the rare alpine milk-vetch *Astragalus alpinus* and alpine cinquefoil *Potentilla crantzii*, are also present.

**Blanket bogs** * Priority feature

The Cairngorms support extensive areas of blanket bog both on the lower slopes, where it gives way to Northern Atlantic wet heath and European dry heaths as the gradient increases, and at high altitude. This contrasts with most other sites, which tend to be dominated by bogs of more limited altitudinal range. At low altitude bogs occur along valleysides and in depressions amongst the undulating glacial deposits and there are good examples of M18 *Erica tetralix – Sphagnum papillosum* blanket mire. Where bogs occur within or adjacent to Caledonian forest, Scots pine *Pinus sylvestris* is often present, forming stands of Bog woodland. These bogs are generally rich in the
bog-mosses *Sphagnum capillifolium* and *S. papillosum*. On the Cairngorms blanket bog probably extends to a higher altitude than on any other SAC in the UK, around 1000 m. The bogs at higher altitude are M19 *Calluna vulgaris - Eriophorum vaginatum* blanket mire and some of these are moderately extensive on the gently sloping plateaux below the mountain tops. Above about 850 m, heather *Calluna vulgaris* disappears from the blanket bog and is replaced by mountain crowberry *Empetrum nigrum* ssp. *hermaphroditum* and bog bilberry *Vaccinium uliginosum*. Dwarf birch *Betula nana* occurs locally in this higher-altitude bog. Lichens of the reindeer group (*Cladonia arbuscula* and *C. rangiferina*) are abundant, and the Cairngorms have some of the best examples of lichen-rich bogs.

**Petrifying springs with tufa formation (Cratoneurion)  *Priority feature***

The Cairngorms is one of three sites representing upland petrifying springs with tufa formation in north-east Scotland. The springs occur particularly at Inchrory, where there is an extensive series of springs associated with metamorphosed limestones and calc-schists. There are transitions to Alkaline fens, Species-rich *Nardus* grasslands and more acidic grassland and heath communities.

**Alpine pioneer formations of the Caricion bicoloris-atrofuscæ  *Priority feature***

The Cairngorms is one of two sites in the eastern Scottish Highlands representing alpine pioneer formations of lime and/or base-rich mires at moderately high altitude. Due to the predominance of acidic rocks within the Cairngorms complex this habitat is very restricted in extent, occurring mainly in the Inchrory area, associated with calcareous rocks and occurring alongside petrifying springs and alkaline fen. A small representation is also present in Glen Feshie. Despite this restricted distribution, these flushes are well-developed. They contain a range of characteristic species, including yellow saxifrage *Saxifraga aizoides*, Scottish asphodel *Tofieldia pusilla*, three-flowered rush *Juncus triglumis* and alpine rush *J. alpinoarticulatus*. Sheathed sedge *Carex vaginata* is also present. The main NVC type present is M11 *Carex demissa - Saxifraga aizoides* mire.

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

The Cairngorms complex contains representative examples of high altitude siliceous scree communities characteristic of the eastern Scottish Highlands. Extensive areas of scree occur on granite at a range of altitudes in the Cairngorms. The scree communities in this site are very diverse. Of particular interest is the flora of high-altitude scree in the snowy corries, with parsley fern *Cryptogramma crispa*, alpine lady-fern *Athyrium distentifolium* and rare wavy meadow-grass *Poa flexuosa* (U18). The flora is rich in rare moss species, for example *Dicranum glaciare*, and rare liverworts, such as *Tetralophozia setiformis* and *Marsupella adusta*. These occur on rocks in and about the snow-beds. There are also several northern Atlantic bryophytes.
such as *Scapania nimbosa*, *Scapania ornithopodioides* and *Anastrophyllum donnianum*, which are restricted to areas of late snow-ice where they are protected from winter frosts.

**Siliceous rocky slopes with chasmophytic vegetation**

The Cairngorms represent high-altitude Siliceous rocky slopes with chasmophytic vegetation in the eastern Scottish Highlands. Crevice communities occur widely on acidic granite rocks and support an abundance of characteristic species. Rare species include Highland cudweed *Gnaphalium norvegicum*, alpine speedwell *Veronica alpina*, spiked wood-rush *Luzula spicata* and hare’s-foot sedge *Carex lachenalii*.

**Caledonian forest** *Priority feature*

The Cairngorms complex, consisting of six individually large Caledonian forest areas, including Abernethy and North Rothiemurchus, represents the more ‘continental’ East Central biochemical region, typically with W18b *Pinus sylvestris* – *Hylocomium splendens* woodland, *Vaccinium* spp. sub-community. This complex of woodlands is the most extensive area of native pinewood in the UK and comprises almost half the total area of ancient Caledonian forest in Scotland. In common with the rest of Scotland, the upper limits of the pine woodland are mostly artificially depressed by grazing, but a more natural tree-line occurs at 640 m on Creag Fhiachlach. This is the highest altitudinal limit of woodland in the UK, and consists of bushy stunted growth of Scots pine *Pinus sylvestris* admixed with juniper *Juniperus communis* of a similar stature. The pine woodland shows transitions to a wide range of other vegetation, including Bog woodland on the forest mires. There are areas of unusual herb-rich pine woodland at Mar Lodge, similar to those described at Ballochbuie. This type of forest is of very restricted distribution in Scotland. The forest contains nationally important populations of capercaillie *Tetrao urogallus*, Scottish crossbill *Loxia scotica* and the osprey *Pandion haliaetus*.

**Bog woodland** *Priority feature*

This site contains one of the largest areas of native Caledonian forest in the UK, lying on gently-undulating glacial deposits in the foothills of the Cairngorms. Scots pine *Pinus sylvestris* Bog woodland has developed within the forest because the irregular glacial topography has led to marked variations in geomorphology and drainage pattern. The drier slopes and knolls support mature pine woodland and in the hollows between, wet mires with abundant bog woodland have developed. These stands are composed of mire vegetation, either M18 *Erica tetralix* – *Sphagnum papillosum* mire or M19 *Calluna vulgaris* – *Eriophorum vaginatum* mire, with a scattering of stunted pine trees and saplings. A good intact example of this community occurs at Mineral Well within Rothiemurchus forest. Recent peat stratigraphy shows evidence of a history of wooded bog on this site. The bog woodland appears to be stable, and the trees, although stunted, continue to grow. Other areas, including Inshriach, have been
influenced by past management for commercial forestry, and recent restoration work has created the conditions required for wet woodland restoration. In total the hollows form an extensive area representing the largest example of Bog woodland in Scotland.

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

- Natural dystrophic lakes and ponds
- Sub-Arctic Salix spp. scrub
- Semi-natural dry grasslands and scrubland facies: on calcareous substrates (Festuco-Brometalia)
- Hydrophilous tall herb fringe communities of plains and of the montane to alpine levels
- Transition mires and quaking bogs
- Calcareous rocky slopes with chasmophytic vegetation
Annex II species that are a primary reason for selection of this site:

Green shield-moss *Buxbaumia viridis*

Green shield-moss *Buxbaumia viridis* B. viridis at Rothiemurchus had sporophytes, four in total and much fewer than in 2002. However, three new stands, close together, were found at Abernethy with a total of eight sporophytes. Areas of woodland with apparently suitable habitat were found to be very patchy, but a number of areas with good potential habitat were identified. It is thought possible that further survey may result in more new records for the species. Although sporophyte production is small, it is broadly comparable with that at the site at Moniack Gorge, Highland, and greater than that at Kindrogan, Perthshire. Given the extant records and the potential for discovery of further stands, the Cairngorms area is probably the most important locus for the species in the UK.

Annex II species present as a qualifying feature, but not a primary reason for site selection:

Otter *Lutra lutra*
The Story of Invereshie and Inshriach National Nature Reserve

River Spey 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.

River Spey SAC boundary map
The Story of Invereshie and Inshriach National Nature Reserve

River Spey SAC overlap with Invereshie & Inshriach NNR

Site details

Annex I habitats that are a primary reason for selection of this site: Not applicable

Annex I habitats present as a qualifying feature, but not a primary reason for selection of this site: Not applicable.

Annex II species that are a primary reason for selection of this site:

Freshwater pearl mussel *Margaritifera margaritifera*

The River Spey is a large Scottish east coast river that drains an extensive upland catchment and supports an outstanding freshwater pearl mussel population in its middle to lower reaches. In parts of the River Spey, extremely dense mussel colonies have been recorded (225 m²) and the total population is estimated at several million. As the population also shows evidence of recent recruitment and a high proportion of juveniles, the River Spey is considered to support a pearl mussel population of great international significance.
Sea lamprey *Petromyzon marinus*

The River Spey represents the sea lamprey *Petromyzon marinus* in the northern part of its range in the UK. It is absent from rivers north of the Great Glen, and the River Spey is virtually at the northern limit for this species. Recent surveys show that sea lamprey larvae are widely distributed throughout the middle and lower reaches of the river, where the particularly fast-flowing waters of the River Spey provide ideal spawning conditions for this species. In addition, as an unpolluted and relatively little modified system, the River Spey matches the other key habitat requirements of the sea lamprey in terms of good water quality, clean gravels and marginal silts and an unhindered migration route to the sea.

Atlantic salmon *Salmo salar*

The Spey supports one of the largest Atlantic salmon *Salmo salar* populations in Scotland, with little evidence of modification by non-native stocks. Adults spawn throughout virtually the whole length of the river, and good quality nursery habitat is found in abundance in the main river and numerous tributaries. Salmon in the Spey system are little affected by artificial barriers to migration, and the waters in the catchment are largely unpolluted (the river is oligotrophic throughout its length). For a system of its size, the Spey is also relatively free from flow modifications such as abstractions, diversions and impoundments. The salmon population includes fish of all ages including migrating smolts and returning adults, possibly reflecting genetic differences within the Spey stock.

Otter *Lutra lutra*

The Spey represents an important otter *Lutra lutra* site in Scotland, with good quality freshwater habitat. Surveys have identified high levels of otter presence throughout the Spey catchment. Riverine habitat features which are known to be important to otters are present, such as reedbeds and islands, and populations of important prey species are relatively healthy. The persistence of a strong population of otter on this river indicates that habitat conditions are particularly favourable for the survival of the species.

Annex II species present as a qualifying feature, but not a primary reason for site selection:

Not applicable.
Conservation Objectives for the Cairngorms and the River Spey Special Areas of Conservation

Habitats (Cairngorms only):

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:

• Acid peat-stained lakes and ponds
• Acidic scree
• Alpine and subalpine heaths
• Blanket bog*
• Bog woodland*
• Caledonian forest*
• Clear-water lakes or lochs with aquatic vegetation and poor to moderate nutrient levels
• Dry grasslands and scrublands on chalk or limestone
• Dry heaths
• Hard-water springs depositing lime*
• High-altitude plant communities associated with areas of water seepage*
• Juniper on heaths or calcareous grasslands
• Montane acid grasslands
• Mountain willow scrub
• Plants in crevices on acid rocks
• Plants in crevices on base-rich rocks
• Species-rich grassland with mat-grass in upland areas*
• Tall herb communities
• Very wet mires often identified by an unstable `quaking` surface
• Wet heathland with cross-leaved heath
Species:

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 the site makes an appropriate contribution to achieving favourable conservation status for each of the qualifying features; 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:

- Sea Lamprey (River Spey only)
- Freshwater pear mussel (River Spey only)
- Atlantic salmon (River Spey only)
- Otter
Appendix 3 - Special Protection Area (SPA)

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 (SAC), 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 websites provide further information:

Special Protection Areas: [http://www.jncc.gov.uk/UKSPA/default.htm](http://www.jncc.gov.uk/UKSPA/default.htm)
**Cairngorms SPA**

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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.*

**Site details**

The Cairngorms SPA is a large upland site in north-east Scotland that is of outstanding importance for its Caledonian pine forest, moorland and montane plateaux. The altitudinal gradation over a relatively short distance between these habitats is of exceptional interest and results in the site supporting a unique range of flora and fauna, including a unique assemblage of Annex I and other rare migratory species.
The Cairngorms SPA was classified on 25 September 1997, extended to include Glenmore Forest and Fiacaill a’ Choire Chais on 31 May 2000 and further extended to include Inverey Woodlands on 7 March 2005.

**Qualifying bird interest**

The Cairngorms SPA qualifies under Article 4.1 by supporting internationally important populations of Scottish crossbill *Loxia scotica* (an estimated 60 individuals, representing in the order of 10% of the total world population of this species); and nationally important populations of:

- golden eagle *Aquila chrysaetos* (12 pairs, 3% of GB),
- peregrine *Falco peregrinus* (12 pairs, 1% of GB),
- merlin *F. columbarius* (14 pairs, 1% of GB),
- osprey *Pandion haliaetus* (2 pairs, 2% of GB),
- capercaillie *Tetrao urogallus* (at least 130 individuals, 12% of GB),
- and dotterel *Charadrius morinellus* (240 pairs, 28% GB). The SPA is also important for dotterel as a gathering ground during the spring and autumn passage periods for individuals that breed elsewhere in Scotland and Europe.

**Conservation Objectives for Cairngorms Special Protection Area**

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:**

- Capercaillie (*Tetrao urogallus*)
- Dotterel (*Charadrius morinellus*)
- Golden eagle (*Aquila chrysaetos*)
- Merlin (*Falco columbarius*)
- Osprey (*Pandion haliaetus*)
- Peregrine (*Falco peregrinus*)
- Scottish crossbill (*Loxia scotica*)
Appendix 4 - Sites of Special Scientific Interest (SSSI)

Scottish Natural Heritage is the key statutory agency in Scotland for advising Government and for acting as the Government’s agent in the delivery of conservation designations in Scotland. Site of Special Scientific Interest (SSSI) is the main nature conservation designation in Great Britain (GB). These sites are special for their plants or animals or habitats, their rocks or landforms or a combination of these.

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. SSSI continue under the Nature Conservation Act (Scotland) 2004, which further strengthens their protection and makes the system more user friendly.

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-ra01.asp

List of Scottish SSSI:
http://www.snh.org.uk/pdfs/protect/SSSI_02.pdf
Cairngorms SSSI

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

Description

The Cairngorms massif, of which the SSSI covers a large part, is the most important mountain area in Britain for nature conservation. The Cairngorms include the greatest area of high land in Britain, much of it unique both geologically and biologically for its extensive arctic character. A wide range of animal and plant species and plant communities, many which are scarce nationally, occur here. As such the whole area is of considerable international importance.
Geology

The Cairngorms mountains is one of the most outstanding geomorphological sites in Britain, demonstrating the finest assemblage of glacial, and periglacial landforms, tors and erosion surfaces in the country. It is a key locality, internationally recognised, for scientific research and education on the form and process of glacial and periglacial activity. Many of the individual features are classic examples of their type. It is however, the scale and total assemblage of features, developed in a relatively compact area, which makes the site so remarkable. In addition, there are some excellent examples of river system dynamics within small upland alluvial basins.

Biology

Ranging from 200-1309m in altitude the Cairngorms contain a representative range of montane and submontane plant communities from native Scots pine woodland through a variety of mires, grasslands, heathlands, lochs and streams. Acidic granite bedrock is found over most of the Cairngorm range although many of the lower hillsides are covered in glacial drift supporting mainly acid tolerant plant species. Calcareous schists outcrop out on the eastern and western flanks of the range and support base-loving plants in some cliffs, screes and grasslands. The massive summit plateaux and broad watersheds give rise to a considerable land mass above 1100m. This in turn allows prolonged snow cover in a variety of situations and there is a greater range and extent of late snow-influenced vegetation than in any other mountain system in Britain.

Lochs

Among the Cairngorm lochs are the highest standing waters in Britain. Fringed with ice polished boulders, those over 600m are arctic/alpine in character, with a very impoverished fauna and flora and have continuous ice cover from December to May in most winters. Winter populations of phyto- and zoo-plankton develop below the ice and diatom outbreak occurs only after the ice has melted. The lower altitude lochs and forest pools can be nutrient rich and all add to the diversity of natural habitats within the site.

Plant Communities

Examples of probably the most natural plant communities in Britain occur on the site. Large areas of the mountain summits support plants which occur only in relatively small scattered patches elsewhere in Britain, eg. three-leaved rush Juncus trifidus heath. No other massif in Britain has such a wide range of J. trifidus communities varying from types that are co-dominant with woolly fringe moss Rhacomitrium lanuginosum to open tussocky lichen rich areas. Heather Calluna vulgaris dominated heathland extends to a higher elevation here (1000m) than anywhere else in Britain, hanging with altitude to a montane form rich in bearberry Arctostaphylos uva-ursi and trailing azalea.
Loiselura procumbens. In addition to the snow-bed communities, mixed moss Dicranum and Gymno mitrion varians - least willow Salix herbacea heaths and associated bryophyte spring communities of the late snow patches are finely developed.

**Woodland**

Native pinewood is the most local of all major forest types in Britain. Those on the lower slopes of the Cairngorms are part of a once-continuous tract of Caledonian pine woodland over much of central Scotland. On Speyside the woodlands are a part of one of the most extensive areas of native British woodlands still existing and so are of considerable national importance.

While the upper limits of pinewood are mostly artificially depressed the highest natural altitudinal limit still occurs at 640m on Creag Fhiachlach with bushy stunted growth of pine admixed with juniper of a similar stature.

**Plant Species**

By a narrow margin the Cairngorms are the second richest area in Britain for montane vascular plants, supporting 77 out of a possible 118 species. It is the richest area for acid tolerant montane plants in Britain and 61 species out of the 290 that occur are rare.

Rare plant species include alpine speedwell Veronica alpina, arctic saxifrage Saxifraga nivalis and alpine foxtail Alopecurus alpinus. 111 species of mosses, lichens and liverworts have been recorded 14 of which are very rare in Britain, two species of which are unknown elsewhere in Britain. Common and rare species of fungi occur with several species that are new records in Britain, for instance Cortinarius rufostriatus.

**Birds**

The Cairngorms is famous for its montane northern birds; it has the best example of a sub-arctic bird community in Britain. Many typical and rare birds occur including important populations of snow bunting, dotterel and ptarmigan.

The nucleus of the British breeding population of snow bunting is here, with at least 50% of the breeding pairs, plus at least 20% of the British breeding population of dotterel. It is one of the best known haunts of the golden eagle.

**Invertebrates**

Many common and rare invertebrate species occur in the Cairngorms with several species known only from these mountains and others that are restricted to areas of
high ground such as *Philolutra impudica* and *Rhaphomiza albesegmentata*. The area has the second highest number of Red Data Book species for any Scottish site including rare species of beetle, fly, spider and moth.

**Mammals**

Many species of mammal breed in or use the area. More notable species include wildcat, otter, badger and red deer.
Appendix 5 - National Parks

National Parks in Scotland are designated by Scottish Ministers under the National Parks (Scotland) Act 2000. They are designated to deliver more integrated management of large areas of outstanding natural and cultural heritage. To this end, the aims of National Parks are: to conserve and enhance the natural and cultural heritage;

- to promote the sustainable use of the natural resources of the area;
- to promote understanding and enjoyment of the special qualities of the area by the public;
- and to promote sustainable social and economic development of the communities of the area.

A new body called the National Park Authority will be established for each National Park. This body will have the responsibility for drawing up the National Park Plan and ensuring its implementation. The Park Authority will be funded by Government and will report directly to Scottish Ministers. SNH has had a close involvement in the preparation of the proposals for National Parks in Scotland. In 1999 we developed the advice, which led to the National Parks (Scotland) Act 2000. In 2001, we were asked to act as the statutory reporter to Scottish Ministers on the National Park proposals for Loch Lomond & the Trossachs and for the Cairngorms. SNH also has wider role in respect of National Parks based on its statutory responsibilities under the Natural Heritage (Scotland) Act 1991. These include specific functions for the notification and management of international and national designations, and the promotion of measures to implement the new legislation on access. We also have a general advisory function to Scottish Ministers, local authorities and other bodies including the National Park Authorities.
The Cairngorms National Park is Britain’s largest and newest national park. It contains within it a unique range of landscapes, wildlife, habitats, and people.

**Landscapes**

- The Park is 3800 sq kilometres in area, 40% larger than the Lake District and twice the size of Loch Lomond and the Trossachs.
- 4 of Scotland’s 5 highest mountains are within the Park, there are 52 summits over 900 metres (m). 10% of the land area is over 800m and 68% is over 400m above sea level.
- The land above 600m – known as the ‘montane zone’ – is the largest area of arctic mountain landscape in the British Isles.
- The Cairngorms contain the finest collection of different landforms outside arctic Canada – from granite tors to heavings and leavings from Ice Age glaciers.
- The Spey, Dee and Don valleys are major features of the lower ground.
Habitats

- 39% of the park area is designated as important for nature heritage; 25% is of European importance.
- The central mountain area provides a harsh habitat for a unique assemblage of vegetation, insects and animals.
- The forests of the Cairngorms contain remnants of the original Caledonian pine forest and includes a rare kind of pinewood found only in Scotland and Norway.
- Heather moorland covers much of the national park. A product of centuries of interaction between man and nature, it fosters enormous ecological diversity.
- The rivers, loch and marshes are among the cleanest in Scotland.

Wildlife

- The national park is home to 25% of the UK’s threatened bird, animal and plant species.
- The Cairngorms is the best place for the Scottish crossbill, the only bird unique to Britain. Golden eagle, osprey, dotterel, capercaillie and crested tit are just a few of the bird species found here.
- The national park is home to a wide variety of animals – including pine martens, red squirrels, badgers, wildcat, water vole and otters.
- The rivers are home to a rising population of the globally endangered freshwater pearl mussel, as well as salmon, trout and rare lampreys.

People

- The national park is home to 16,000 people, living in substantial towns, villages, hamlets, and houses in the countryside. At 4.2 people per square kilometre, the population density is very low.
- Major centres of population are Aviemore, Ballater, Braemar, Grantown-on-Spey, Kingussie, Newtonmore and Tomintoul.
- Tourism related businesses account for about 80% of the economy, including activities such as, skiing, walking, fishing, shooting and stalking.
- It is thought that at least 500,000 people visited the Cairngorms in 2001 – 350,000 to Badenoch and Strathspey alone.
Appendix 6 - National Scenic Area (NSA)

National Scenic Areas are Scotland’s only national landscape designation. They are those areas of land considered of national significance on the basis of their outstanding scenic interest, which must be conserved as part of the country’s natural heritage. They have been selected for their characteristic features of scenery comprising a mixture of richly diverse landscapes including prominent landforms, coastline, sea and freshwater lochs, rivers, woodlands and moorlands.

There are currently 40 NSAs in Scotland, covering a total area of 1,001,800 ha.

Cairngorms NSA

Extent of Area

This area extends from Glen Feshie in the west to Glen Builg in the east and from Pityoulish and Ryvoan in the north to the Gleldie Burn in the south, and covers the principal summits of the Cairngorm Plateau.
The granite plateau of the Cairngorm Mountains forms the most extensive area of land above 1,000 metres anywhere in Britain. Its height is less immediately apparent than its bulk, but there are four summits over 1,200 metres (Cairngorm, Ben Macdhui, Cairn Tool and Braeriach) while three others, Cairn Lochan, Beinn a’Bhuird and Ben Avon are nearly so. The high plateau is bleak and bare and it is the immensity of scale, once realised, which impresses. Its edges are glacially sculptured into huge corries which excel in grandeur anything to be found elsewhere in Scotland, with the exception of Coire Leis of Ben Nevis. This scale...’ with the vast corries, the massive slopes, the long passes, the wide skies, and the very bareness of the ground, where the elements work with a power not known at lower altitudes gives to these plateaux their distinctive quality.’ (Murray, 1962).

The edge of the plateau, where not etched by corries, is well defined by long smooth steep slopes which, seen from Spey side or Dee side, rise in tiers. Snow lies for a long time at the top of these slopes. Lower down, deer forest, sheep grazing and forestry assume a greater importance in the appearance of the landscape. It is the forests around the plateau foot which for many people characterise the Cairngorm Mountains; three extensive and differing remnants of the native Caledonian Pine Forest occur at Rothiemurchus and Abernethy, Glen Feshie, and Mar.

In Rothiemurchus the pines on the upper forest slopes give way to a mixture of pine and birch, and then to the rich policy woodlands of Strathspey. The forests are deeply carpeted with heather, blaeberry and other flora, and the woods are interspersed with lochans of varying character, and views culminating in the peaty waters of the Spey itself.

Glen Feshie is wilder and sterner, the pines mature and solitary, interspersed with juniper. The river dominates in this forest, a great, braided, mountain stream with shingle beds cast over an uneven flood plain, almost continental in scale. Mar Forest is different yet again. Higher, and therefore less rich than Rothiemurchus in its flora, it graduates from birch, pine, and fir to massive pines alone, again with a ground cover of heather and blaeberry. Like Glen Feshie the rivers are important here but not for their scale and grandeur. They are noisy burns dashing over granite boulders washed brightly pink by their clear waters, a lively element in the landscape. These wooded flanks of the Cairngorm plateau form a setting of rare beauty for the mountain massif, and are in turn enhanced by the mountain backdrop.