



Scotland's National Nature Reserves

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The Story of Abernethy- Dell Woods National Nature Reserve



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Foreword

Abernethy National Nature Reserve (NNR) lies on the southern fringes of the village of Nethybridge, in the Cairngorms National Park. It covers most of Abernethy Forest, a remnant of an ancient Scots pine forest that once covered much of the Scottish Highlands and extends high into the Cairngorm Mountains. The pines we see here today are the descendants of the first pines to arrive in the area 8,800 years ago, after the last ice age. These forests are ideal habitat for a vast number of plant and animal species, some of which only live within Scotland and rely upon the Caledonian forests for their survival.

The forest of Abernethy NNR is home to some of the most charismatic mammals and birds of Scotland including pine marten, red squirrel, capercaillie, osprey, Scottish crossbill and crested tit. It is also host to an array of flowers characteristic of native pinewoods, including twinflower, intermediate wintergreen and creeping lady's tresses.

Scotland's NNRs are special places for nature, where many of the best examples of Scotland's wildlife are protected. Whilst nature always comes first on NNRs, they also offer special opportunities for people to enjoy and find out about the richness of our natural heritage. Abernethy NNR is one of 56 NNRs across Scotland and one of eight within the Cairngorms National Park.

In 2006 we consulted on the future of the group of NNRs within the Cairngorms. As a result of this consultation we greatly extended Abernethy NNR. This document focuses on the Dell Woods section of Abernethy NNR, owned and managed by Scottish Natural Heritage (SNH). The wider Abernethy NNR is managed by the Royal Society for the Protection of Birds (RSPB).

This document, the Reserve Story, is one of a suite of documents about the NNR. It gives background information about the Reserve and briefly describes the wildlife found, and the history of land use before the Reserve was established. It provides a summary of management for wildlife, people and property.

The Reserve Proposals outline how it is proposed to manage the Reserve in future years; comments are invited on the Proposals and will be used to inform the Reserve Plan. This is the blueprint for management of the Reserve for a six-year period. At the

end of the Plan period, a Reserve Review is used to report how well our plans have worked.

All the documents can be downloaded from the Abernethy page of the [NNR website](#) or obtained from the address below.

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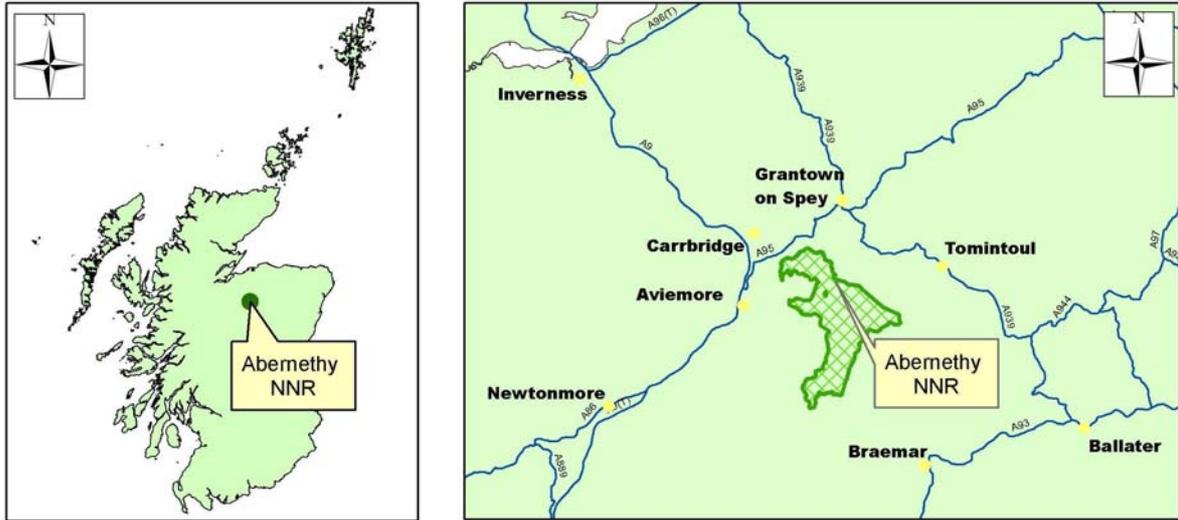
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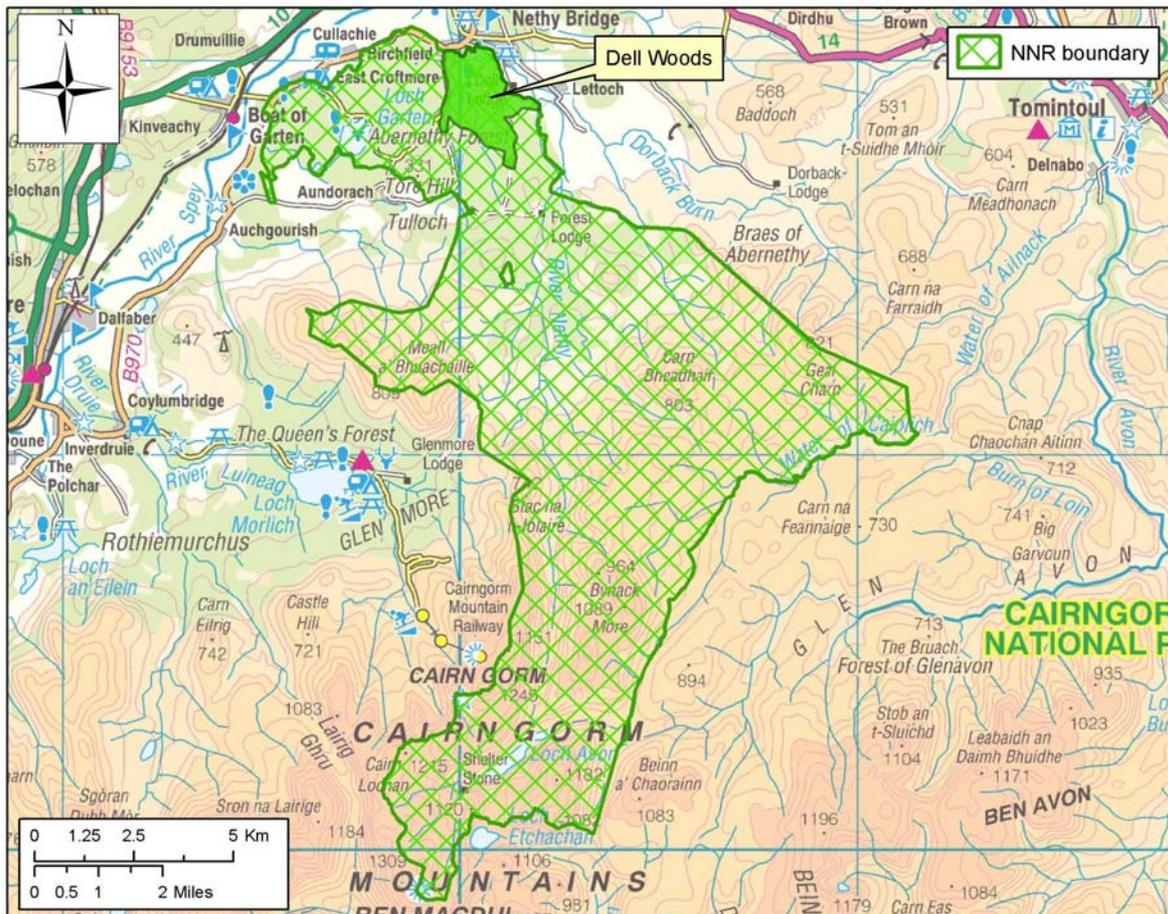
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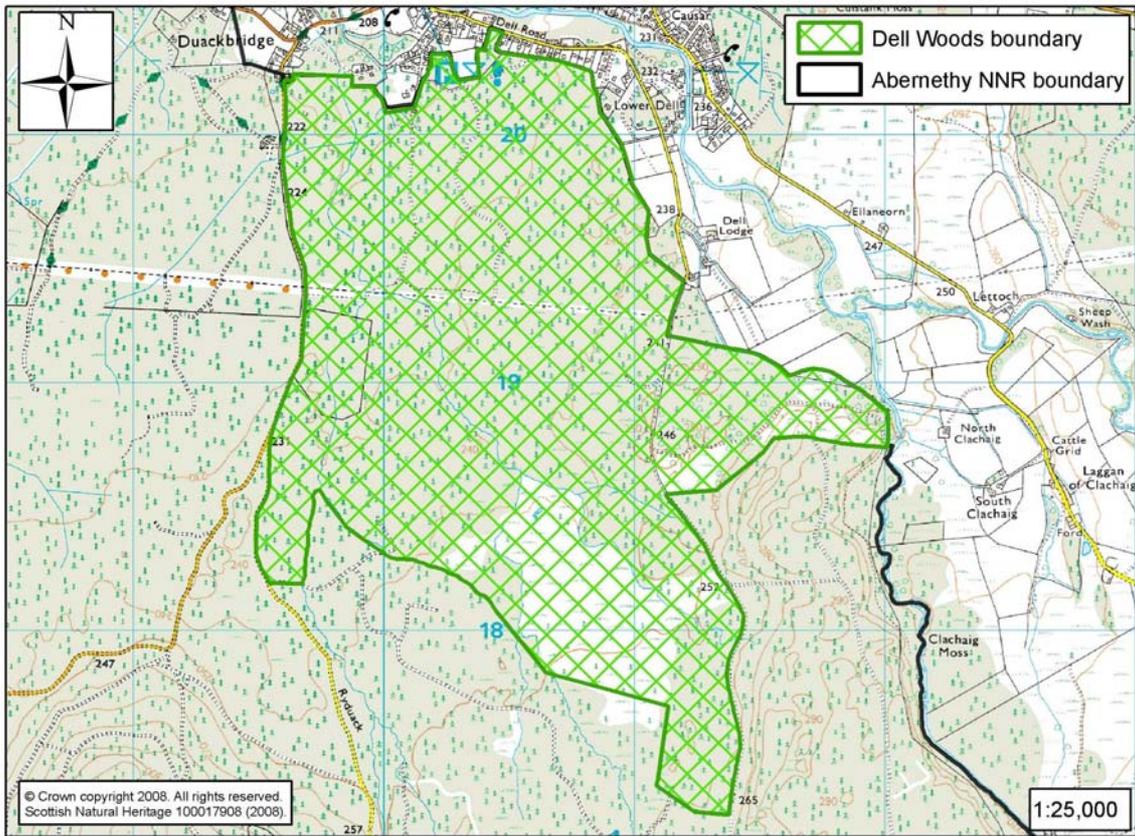


Boundary map - Abernethy NNR



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Boundary map - Abernethy - Dell Woods NNR



1 Introduction to Abernethy - Dell Woods NNR

Dell Woods covers 375 hectares (ha) of native pinewood on the outskirts of the village of Nethy Bridge, 18 kilometres (km) north-east of Aviemore in Badenoch and Strathspey. The Reserve is part of Abernethy Forest, the largest remnant of the ancient native pinewoods that once covered the foothills of the Cairngorms.

The climate at these northern latitudes is cool and wet, being under the influence of mountain weather systems and prevailing south to south-westerly winds. It can be a challenging environment with temperatures varying as much as 45°C between winter lows and summer highs.

Dell Woods is typical of a Caledonian pine forest; it is open mosaic woodland where Scots pine is the dominant species. As glaciers retreated at the end of the last ice age, they deposited a layer of debris across this area. This created a landscape of free draining dry hummocks and wet poorly drained hollows. It is this drainage pattern which creates the rich and diverse woodland found at Dell. The Scots pine and other trees favour the drier hummocky conditions and in the wet hollows bog woodland and bog develop.

Within the hollows heather, cross-leaved heath, cotton grasses and bog (sphagnum) mosses dominate. The occasional gnarled bog pine manages to survive in spite of the water logged conditions. In the wettest areas the combination of poor drainage and low temperatures has created ideal conditions for peat to build up, forming blanket bogs. Peaty dubh lochans (black pools) within these bogs provide excellent habitat for dragonflies.

Many of the species seen here are restricted to Caledonian pinewoods and have declined in other places due to habitat loss and changes in forest management. For hundreds of years Dell was a working forest with timber production as its primary purpose. Traditional forestry practices have largely shaped the landscape and have provided optimum conditions for some of Britain's rarest wildlife. Stump lichen, for example, grows on untreated pine stumps in the Reserve, and is found at just a few sites in the Highlands.

Designations

We declared Dell Woods NNR as an extension to Abernethy Forest NNR in 1988. Of its 375 ha, Scottish Natural Heritage (SNH) owns 267 ha and leases 108 ha from the Royal Society for the Protection of Birds (RSPB), who own much of the adjoining forest. In 2007 we declared a new Abernethy NNR, replacing Abernethy Forest NNR and increasing its size considerably. Dell Woods is part of this greatly extended NNR.

The Reserve's national importance has been recognised by its inclusion within the much larger Abernethy Forest SSSI, which includes the original Abernethy Forest NNR. It is also included within three sites designated under European legislation known as Natura 2000, reflecting the site's international importance. These three sites are Abernethy Forest Special Protection Area (SPA), Cairngorm Special Area for Conservation (SAC), and the River Spey SAC. Table 1 summarises each of these designations and their qualifying features; the appendices give further details and maps of the designations themselves. The table refers to the whole of Abernethy NNR and the wider geographical areas covered by both the UK and European designations. Where a feature is known not to occur within Dell Woods, this has been noted.

Table 1: Designated and qualifying features for Abernethy NNR

Designation	Natura 2000			Site Of Special Scientific Interest
	Abernethy Forest SPA	Cairngorms SAC	River Spey SAC	
Site name	Abernethy Forest SPA	Cairngorms SAC	River Spey SAC	Abernethy Forest SSSI
Habitats				
Alpine and Boreal heaths		✓*		
Alpine pioneer formations of the <i>Caricion bicoloris-atrofuscae</i>		✓*		
Blanket bog		✓*		
Bog woodland		✓		
Caledonian forest/ Native pinewood		✓		✓
European dry heath		✓		
Plants in crevices on base-rich rocks		✓*		
Tall herb communities		✓*		
Juniper on heaths or calcareous grasslands		✓		
Acid peat-stained lakes and ponds		✓*		
Clear-water lakes or lochs with aquatic vegetation and poor to moderate nutrient levels		✓*		
Hard-water springs depositing lime		✓*		

Designation	Natura 2000			Site Of Special Scientific Interest
	Abernethy Forest SPA	Cairngorms SAC	River Spey SAC	
Site name	Abernethy Forest SPA	Cairngorms SAC	River Spey SAC	Abernethy Forest SSSI
Dry grasslands and scrublands on chalk or limestone		✓*		
Montane acid grasslands		✓*		
Plants in crevices on acid rocks		✓*		
Acidic scree		✓*		
Species-rich grassland with mat-grass in upland areas		✓*		
Mountain willow scrub		✓*		
Very wet mires often identified by an unstable `quaking` surface		✓*		
Wet heath with cross-leaved heath		✓		
Species				
Atlantic salmon			✓	
Beetles				✓
Breeding bird assemblage				✓
Capercaillie	✓			
Crested tit				✓
Dragonfly assemblage				✓
Fungi assemblage				✓
Green shield-moss		✓		
Lichen assemblage				✓
Osprey	✓			
Otter		✓	✓	
Scottish crossbill	✓			✓
Vascular plant assemblage				✓

* These species are found on the wider Abernethy NNR but not within Dell Woods.

2 The Natural Heritage of Dell Woods NNR

Introduction

Large areas of the great forests that once covered Scotland have now disappeared, and with the loss of this vital refuge we are seeing the decline of some of Scotland's most fascinating wildlife. Dell Woods is important for the fragment of native Caledonian pinewood that it protects, but also for the rich mosaic of bog woodland, blanket bog and dry heath. This diversity of habitat, together with the animal and plant communities and important populations of specialist Caledonian pine forest species, contributes to the international status of the site.

Geology, geomorphology and soils

The rocks underlying Dell Woods NNR are Moine schist. Originally sedimentary; these rocks were laid down between 1,000 million and 870 million years ago. They began life as sand and mud laid down in an ocean environment. Over time they formed sandstone and mudstone. They have been metamorphosed twice, firstly about 1000 million years ago and secondly about 420 million years ago when the Iapetus Ocean finally closed. When the rocks were metamorphosed, sandstone became quartzite and mudstone became schist.

The rocks are overlain by soils deposited by melt water from retreating glaciers at the end of the last ice age about 10,000 years ago. Their deposition gave rise to the undulating landscape of mounds, ridges and hollows found on the Reserve. This also explains why much of the sand and gravel found in these skeletal soils is derived from distant granite rocks, having been carried there by glaciers. The soils in Dell Woods are very acidic and poor in nutrients because they have been leached by rainwater.

Habitats

Dell Woods NNR has an undulating topography, created by the glacial deposits described above. The altitude of the Reserve varies between 210 m and 260 m above sea level. Although predominantly pinewood, the Reserve has a surprising range of other habitats, including open areas of heath, bog woodland, rough grasslands and species-rich grassland where stock grazing has occurred.

The scars of past timber exploitation are still evident, but across the Reserve natural regeneration is occurring, and the largely undisturbed woodland supports an important range of pinewood species.

The pinewood

Native pine woodlands are relict forests dominated by self-sown Scots pine. After the last ice age, these pinewoods covered thousands of square kilometres (km²) of the Scottish Highlands. Today, native Caledonian pinewoods are found at only 84 sites in Scotland, covering around 180 km². They occur throughout the central and north-eastern Grampians, and in the northern and western Highlands of Scotland. There is a strong concentration of remnant pinewoods in the Strathspey area and Abernethy Forest is the largest of the remaining remnants, covering an area of 5,796 hectares. Of this, 375 hectares fall within Dell Woods NNR.

Native pinewoods occur on infertile, strongly leached, podsollic soils. They do not support a large diversity of plants and animals compared with some more fertile habitats. However, there is a characteristic plant and animal community which includes many rare and uncommon species.

The dominant species of the Caledonian pine forest is the Scots pine. The majority of those in Dell Woods are between 100 and 140 years old; the even age of these trees reflects a long history of

woodland management for timber. Scattered amongst the even aged trees are ancient 'granny pines', some over 200 years old. These provide an important seed source for the regeneration of the pine woodland. Scots pine is successfully spreading in the forest and there are dense thickets of regeneration. These are concentrated on areas of heath that have been cleared of non-native trees, for example adjacent to the Tulloch road and under the power line wayleave.



Scots pine forest along Hamack's Road

Although Scots pine dominates, the forest at Dell has a healthy shrub layer with juniper (an indicator of ancient forest), aspen, birch, rowan, bird cherry and alder. The woodland tends to be very open with a luxuriant ground layer of heather, blaeberry and cowberry.

Broad-leaved trees are far rarer here at Dell than in more natural forests. In the past, broad-leaved trees were selectively cut for firewood and charcoal, or removed as "weeds" from the commercially managed pinewoods. Browsing by deer is also likely

to have had a serious impact on the regeneration of broad-leaved species. Broad-leaved trees are no longer removed from Dell Woods and the control of deer is likely to encourage their regeneration.

Bog woodland

In Scotland, bog woodland usually forms part of a mosaic of natural forest types within the wider Caledonian forest habitat, as found in Dell. Although there are good examples of bog woodland in the west of Scotland the majority is found in the east with Abernethy being particularly important. Dell Woods contains extensive areas of bog woodland, a rare habitat in the UK with less than a 1,000 hectares left (it was once much more widespread). Bog woodland usually forms in areas where the topography is quite varied, often a product of irregular glacial deposits resulting in diverse drainage patterns, as found within Dell Woods. Bog woodland is a distinct habitat with its own ecological relationships, where there is a fine balance between tree growth and bog development. Tree growth is slow so trees don't take over the bog, and other bog species are able to survive.



A stunted Scots pine in bog woodland

Within Dell Woods the bog woodlands have formed on areas of peaty ground where the high water table and shortage of nutrients has restricted tree growth. The unique character of this open habitat is defined by the scattered trees which are gnarled and stunted, with twisted branches. Some of the Scots pines can be up to 350 years old, but are deceptively small in size.

An important group of plants found in bog woodland are the *Sphagnum* mosses, forming lush waterlogged carpets of bright green and rich red. Able to hold large amounts of water these mosses have a key role in peat formation. In the wettest parts of the woodland there are luxuriant plumes of purple moor-grass; hare's-tail cotton grass is also common. In drier areas there are the more usual woodland plants, ling heather, blaeberry and *Hylocomium* moss. Bog woodlands are typically very low in nutrients and certain species are specially adapted to this. Butterworts and sundews are two insectivorous plants found at Dell Woods.



Sundew

Where the conditions are most waterlogged bog woodland is replaced by small areas of blanket bog. These areas are dominated by the sphagnum mosses and no trees survive. The sphagnum mosses have built up over time into a deep layer of peat. Across the surface of the bog are small scattered bog pools which are rich in invertebrates.

The Species of Dell Woods NNR

Vascular plants

Over 200 species of vascular plant have been recorded on the Reserve. Abundant dwarf shrubs such as heather, blaeberry, cowberry and crowberry are intermingled with common cow-wheat, wood-sorrel and chickweed wintergreen. Aromatic bog myrtle grows in the peat bogs alongside yellow-flowered bog asphodel and insectivorous plants, such as round-leaved sundew and



Twinflower

butterwort. Juniper bushes grow abundantly along the woodland trails.

Rarer species on the Reserve include the diminutive twinflower, with two pink bell-like flowers on a slender stem; its lower stem creeps along the ground forming small mats or colonies of the same plant. Twinflower is an Arctic-alpine plant that is a relic of the ice age. It is nationally scarce, growing mainly in the pine woods of Scotland, and particularly in the Cairngorms. The disappearance of twinflower colonies is thought to be due to the clearance of native woodland and the decline in traditional forest management. There is a single colony of twinflower within the Reserve, with all its flowers belonging to the same plant.

Creeping lady's tresses is an attractive orchid with small white flowers twisting up the stem, and a rosette of roundish leaves at its base. Several hundred spikes occur on the Reserve, distributed across several localities. This is one of the few British orchids that is almost exclusive to Scotland, and is found mainly in remnants of Caledonian forest. This nationally scarce species declined considerably during the last century as a result of felling and replanting of forests, and due to smothering by brambles and other coarse plants.

Although perhaps not as photogenic as some of the other plant species on the Reserve, heath cudweed is probably the most threatened, and has been classified as endangered. This species declined dramatically throughout Britain and Ireland during the latter part of the last century. Other less-common plant species found on the Reserve include intermediate wintergreen, serrated-leaved wintergreen and narrow buckler fern.

Fungi and Lower Plants

Dell Woods NNR has a rich understorey of mosses and lichens. Many species are typical of Caledonian pinewoods, such as the yellow-green fern-like fronds of the glittering wood-moss (*Hylocomium splendens*), while others such as common tamarisk moss (*Thuidium tamariscinum*) are found in woodlands throughout Britain.

Fungi can be seen for most of the year in a variety of forms, from the woody bracket fungi to the bright red caps of the fly agaric, to the



Stump lichen

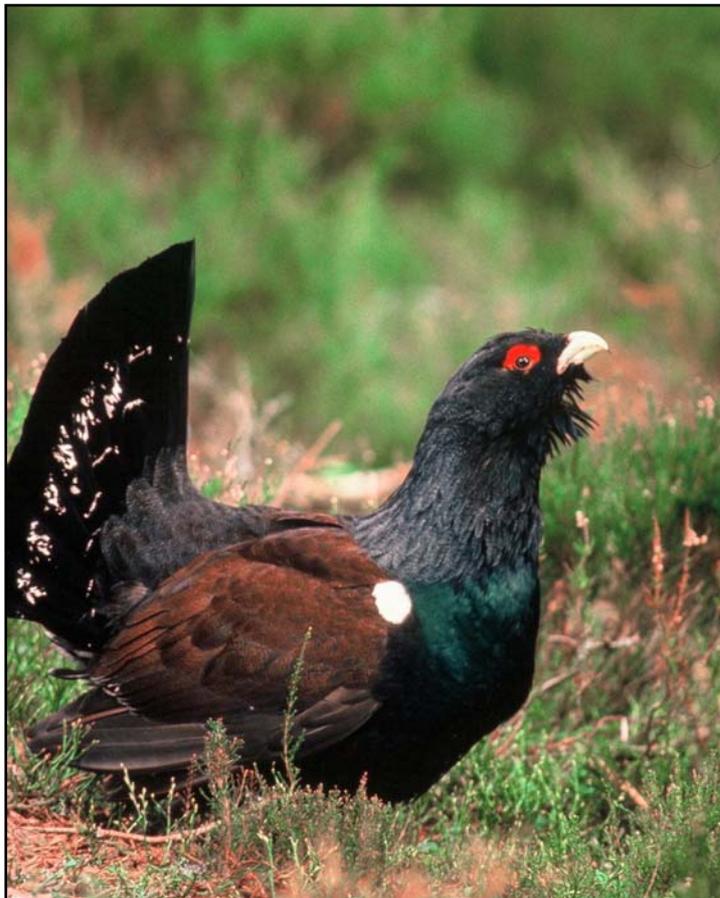
delicate fingers of yellow stagshorn fungus.

The pinewoods are swathed in lichens that form delicate green filigree over the trunks, and hang like wispy beards from the higher branches. Reindeer moss nestles amongst the undergrowth.

The critically endangered stump lichen (*Cladonia botrytis*) also grows within the Reserve. This small 'twig-like' lichen typically grows on the cut stumps of conifers, usually Scots pine, and is known only from seven areas within the Scottish Highlands. In 1998 it was found at several locations on the Reserve. This species probably benefited from traditional forest management, and recent changes including a reduction in tree felling, cutting trees lower to the ground and chemical treatment of stumps may have contributed to its rarity.

Birds

Over 70 species of birds have been recorded in Dell Woods, including at least 37 breeding species. The Scottish crossbill, capercaillie and crested tit are all relatively rare species in Britain, and are strongly associated with native pinewoods. The most likely to be seen are crested tits, which are common on the Reserve and excavate their



Capercaillie

nest within soft, dead tree stumps. The Scottish crossbill, recently confirmed as Britain's only endemic bird species, also breeds here. Its diet consists almost entirely of conifer seeds, particularly pine, which it extracts with its specialised bill.

Capercaillie are present on the Reserve all year round, but these shy and elusive birds are rarely seen. Surveys carried out in the 1990s confirmed that there had been an alarming decline in capercaillie numbers in recent decades, and raised fears of a second extinction of this species which was reintroduced into Scotland in 1837. As part of the conservation effort deer fencing in Dell Woods has been removed, where practicable, in an attempt to reduce bird collisions.

Ospreys may be seen overflying the Reserve between late March and the end of summer, when they are usually resident at nearby Loch Garten. Ospreys are one of the success stories of bird conservation in Scotland. They were driven to extinction in Britain in the Victorian era but in 1954 came back to nest at Loch Garten. Since that date the Scottish population of ospreys has increased to 160 breeding pairs, and nearly 2 million people have been to Loch Garten to see successive pairs of ospreys and their young at the nest.

There are many resident bird species on the Reserve that are less elusive. Buzzards are commonly seen, hunting over the open ground or perched among the forest. Tawny owl and great spotted woodpecker are also present, and the abundance of tit species attracts the sparrowhawk. Wrens hop nervously around in the undergrowth, and treecreepers scour the tree trunks for insects.

Cuckoos herald the start of summer and the arrival of other seasonal visitors such as tree pipit, redstart, spotted flycatcher and willow warbler. Woodcock are plentiful and are particularly conspicuous on evenings from April to early June, when they can be seen and heard "roding" over the Reserve.

Mammals

Both red and roe deer may be seen on the Reserve. The density of red deer in Dell Woods is generally fairly low, although numbers can build up particularly in late winter when damage to neighbouring arable crops and young trees can occur. Roe deer are principally creatures of the woodland, and are frequently seen or heard (roe deer bark) on the Reserve.

Although grazing from deer can kill young trees, the areas of short vegetation and bare ground created by their browsing and trampling provide niches in which tree seeds can become established. Both red and roe deer are culled on the NNR to maintain the optimum balance for natural regeneration of the woodland.

Red squirrels, or the gnawed cones they leave behind, are often seen on the Reserve. The red squirrel is one of the most threatened species of mammal in the UK, and



Red squirrel

today is found mainly in Scotland. A major factor contributing to their decline has been an increase in grey squirrels, which displace them from their territories. The Caledonian pinewoods of Speyside provide an important stronghold for red squirrels in Scotland.

Otter spraints (droppings) are regularly recorded on Duack burn and its tributaries, and there are also occasional sightings. Otters declined dramatically during the period 1950-1980 at most inland sites in the UK, with the possible exception of northern Scotland. The species now occurs over the whole of Scotland, with the Cairngorms area supporting a widespread and important population.

Another protected species to be recorded on the Reserve is the pine marten. Their numbers declined in Scotland at the beginning of the 20th Century as a result of habitat destruction and persecution. More recently its range in Scotland has increased due to the expansion of woodland habitat through planting of commercial forestry, and the regeneration of native woodlands. The sight of a pine marten at Dell Woods is a rare treat as they are active mainly at night.

Scottish wild cats are one of Britain's rarest mammals, now restricted to northern Scotland. They may be in serious danger of extinction as a result of interbreeding with feral domestic cats, persecution, loss of habitat and fragmentation of populations. A reduction in persecution in the 20th century has allowed some expansion in their range, and it is reported that although they became extinct at Abernethy at the end of the 19th Century, they probably returned to the area in the mid-20th Century. An image of what appears to be a Scottish wildcat was captured by the RSPB on their neighbouring Reserve in 2000.

Other mammals recorded on the Reserve include the common pipistrelle bat, mole, common shrew, rabbit, brown hare, short tailed field vole, fox, stoat, weasel and badger.

Invertebrates

The dome-shaped piles of pine needles forming wood ant nests are a common sight in some parts of the Reserve. Wood ants are important species within the Caledonian pine forest ecosystem, with up to 100 000 individuals living in a single nest. They eat significant numbers of leaf-eating insects, potentially increasing tree growth, and



Wood ants

are eaten by species including capercaillie, red squirrels and woodpeckers. Wood ants disperse the seeds of many woodland plants, including common cow-wheat, violets and wood anemone. The three species of wood ant that occur within the Reserve are all nationally rare, with two of them being Priority Species within the UK Biodiversity Action Plan.

Nine species of dragonfly and damselfly have been recorded on the Reserve. A particularly important species is the northern damselfly, Scotland's rarest and most endangered species of damselfly. In the British Isles it is known from just 26 sites in Speyside, Aberdeenshire and Perthshire.

In 1991 a species of water beetle was discovered on the Reserve, which in Britain is only known from the Abernethy Forest. Its formal name is *Ilybius wasastjernae* and it lives in the water filled holes left when trees are blown over.

Fourteen species of butterfly have been recorded on the Reserve, including the pearl-bordered fritillary, a UK BAP Priority species. Green hairstreak and small pearl-bordered fritillary also occur. The commonest species on the Reserve is the Scotch argus. Over 100 species of moth have been recorded at Dell Woods, including two UK BAP Priority Species, square-spotted clay, and the day-flying argent and sable.

Reptiles, amphibians and fish

Palmate newts, frogs and toads may all be seen in and around the many bog pools on the Reserve. On sunny spring and summer days, common lizards bask on the warm rocks. All of these species breed on the Reserve.

Salmon spawn in gravel beds in the burns that pass through the Reserve, and care is taken not to create barriers to their migration to the River Spey, or to disrupt their spawning grounds.

Summary

Dell Woods was once an integral part of the great Abernethy forest that covered much of the Scottish Highlands. The trees present today are the direct descendants of the Scots pines that first arrived in the area after the last ice age. The hummocks and hollows carved out by the retreating ice, form an intimate mosaic of woodland and bog habitat that is of outstanding importance for its fauna and flora. The woodland supports many species characteristic of native, ancient pinewoods that are rare elsewhere in Britain. The nature of the present day woodland reflects not only the thread of continuity linking it to the ancient forest, but also the influence of the people who have made a living here for over 4 000 years.

3 Management of Dell Woods before it became a NNR

History and Culture

It is thought there has been human habitation around Nethy Bridge, or Abernethy as it used to be called, for around 4 000 years. Standing stones, which date from around this time, can be seen just north-east of Nethy Bridge, at Ballintomb on the north bank of the River Spey. In these early days the timber clearance associated with small-scale agriculture would have had little impact on the great forest, and regeneration would have occurred naturally. Over the centuries the intensity of human activity increased, and became the principal driver of changes in the forest.

The following timeline gives a brief summary of some of the key dates in the Reserve's history:

Date	Event
Approx. 8 800 years ago	The first pine trees became established in the area (from pollen analysis).
Approx. 4 000 years ago	The first people settled around Abernethy.
13 th Century	The King's Road (the main route through the Reserve from Culvardie) was built following a royal decree that communications be improved between Abernethy (Nethy Bridge) and Tulloch.
15 th Century	Large-scale felling of timber began across all of Abernethy Forest.
16 th Century	Local timber sent to London for naval ship-building, or made into charcoal to smelt iron-ore (mined at the Lecht) for weapons manufacture.
1728	Contract between Sir James Grant and the York Buildings Company for large-scale timber cutting, south of the Spey, over a period of 15 years. Coulnakyle (between Nethy Bridge and the River Spey) became the main base for the operations.
18 th Century	Dams and sluices were constructed by the Company on the upper reaches of local rivers to flush timber 'rafts' downstream. The site of the Funalt Dam lies within Dell Woods NNR.
1737	Departure of the York Buildings Company.
1760s	The lairds of Grant and their woodland managers began to display concern for the long-term management of the forest.
1766	A pipe-boring mill was constructed at the Dell of Abernethy (just outside the eastern Reserve boundary) to supply wooden water pipes to the New River Company in London, but this venture was short-lived.
Early 19 th	During the Industrial Revolution, from 1840 onwards, Abernethy

Date	Event
Century	timber was in demand for railway sleepers and carriages, and pit-props for coal mines.
1855 - 1984?	A tree nursery was established at Lower Dell, which lies just beyond the north-eastern boundary of the Reserve. Its purpose was to rear young pine seedlings from seeds collected in the forest for subsequent re-planting.
1863	Railway station established at Abernethy. The village name was subsequently changed to Nethy Bridge to avoid confusion with an existing station of the same name further south.
Late 19 th Century	Timber 'floating' declined as the road and rail network was upgraded.
1860 - 1890	The Duack Mill, at the Reserve's north-western corner was in operation cutting timbers.
First World War	A light railway (Puggy Line) was constructed by the Canadian Forestry Corps to transport timber from the forest to the main railway line for export. The route of the railway followed the western boundary of the Reserve from Ryduack to Mondhuie. This railway was closed by the Board of Trade at the end of the First World War.
Second World War	Around 30 foresters from Newfoundland (Newfies) stayed on land that is now tenanted by Dell Farm, clear felling pines to make their camp and levelling the ground. This levelled ground is still visible within the 'Kennedy Triangle'.
1921	A large fire started on the west side of Dell Road and came down through the Reserve to Culvardie Road. Charred bark from this fire is still visible on some trees within the Reserve. A burst of tree regeneration occurred after the fire.
1940s	Native conifers were planted alongside Hamack's Road to gap-fill previously cleared areas.
1950s	The pylon line was built across Dell Woods.
1984	Clear felling of a large area of native pinewood straddling the King's Road.
1986	"Protective purchase" of the Reserve by SNH's predecessor body the Nature Conservancy Council (NCC) was triggered by the above event.

Land use history

The tranquil atmosphere of Dell Woods NNR today belies its busy past. It was very much a working woodland and for many centuries provided shelter, food and employment for its inhabitants.

Although there is little recorded early history for Dell Woods, as part of the greater Abernethy Forest we may assume it shared its fate. The lack of older trees within the Reserve is testament to the large-scale felling that must have occurred. Over the centuries the emphasis was on exploitation of the timber for a variety of uses including ship-building, charcoal production for iron smelting, railway sleepers and carriages, wooden pipes, and pit-props for mines. Hundreds of people were employed in the forest for timber production.

Imagine as you walk through the Reserve the very different experience this would have been 300 years ago. The woodland would have been ringing with the sounds of a vibrant and industrious community; men shouting and laughing as they cut the timber, the rasp of saws, children's voices, dogs barking, the rattling chains of the great horses dragging the fallen trees, and the rumbling of cart wheels along the King's Road heading south to Tulloch.

In these early days timber was transported from the forest to the nearest riverbank by horse. It was then floated downstream to a collecting point or sawmill. Sluices in specially constructed dams in the upper reaches of these rivers were opened to flush the logs downstream, guided by men with poles. There were at least six of these specially constructed dams in the upper parts of the forest that fed into the River Nethy. The Funalt Dam, which lies within the Reserve, was one of two dams that controlled the flow of water into the Duack Burn. The practice of 'floating' timber down the rivers persisted until the latter half of the 19th Century when the road network was upgraded, and the railway arrived providing cheaper and more efficient routes to transport timber to the south.

The legacy of the timber companies can be seen across the local landscape. They were largely responsible for the network of roads that became established in the forest, the erection of proper sawmills, and rock cutting in the rivers to enable the timber to pass.

During the 19th and 20th centuries many people in the area continued to work in the sawmills. The Duack Mill, at the Reserve's north-western corner, was in operation between 1860 and 1890. The dam, sluice and lade (channel) that provided the water to power this sawmill lie within the Reserve, near the Culvardie entrance. They were restored by Explore Abernethy in 2006.

Twentieth Century

During both World Wars there was an increased demand for local timber. As part of the war effort the Canadian Forestry Corps, and foresters from Newfoundland (Newfies), came to work in the forest. The Canadians ran a light railway (the Puggy Line) to transport timber from the forest, which ran down what is now the western boundary of the Reserve. Nothing remains of the railway, but a keen eye can still see part of the embankment along which the track ran.

At the Culvardie Road entrance to the Reserve stands a metal hut, known as Willie Steele's sawmill. This was constructed in the early 1930s by a retired gamekeeper, William Steele, who started a business with his two sons producing kindling. Possibly not a good business proposition in an area like Nethy surrounded by woodland! The hut is built out of corrugated iron that came from a First World War German Prisoner of War Camp at Lettoch. Subsequently the hut was used for storage.

The only croft within the Reserve dates from around the 1730s, and was at Racoig (known locally as 'Reoak') to the west of the Duack Burn. It was cultivated and grazed until the 1950s, although there is no evidence of any buildings. From 1926 until after the war, cattle from a dairy on Culvardie Road were driven daily along the King's Road to graze on the croft.

Historically, local people collected firewood from the Reserve, and there was some local poaching of roe and red deer for the pot. Peats were dug for personal use from three main locations in the Reserve known as 'Marshall Moss', 'Kennedy's Moss' and 'Hamack's Moss'. 'Hamack's (pronounced Hay-mack's) Moss' was named for James Hamish Mackenzie, a shoemaker by trade, who stayed in Culvardie. He cut peats there until around the 1950s, wheeling them back along 'Hamack's Road' on a peat barrow.

Sustainable management

From the mid-1700s successive Lairds of Grant, and their woodland managers, began to display concern for the sustainable, efficient, and profitable long-term management of the forest. Many other forests were either completely cleared to make way for sheep-walks and deer forest, or shelter for animals, providing little opportunity for natural regeneration.

The underlying forestry management at Abernethy was based upon sustainable exploitation of the forest. This included selective thinning of mature trees and the felling of small coups. Natural regeneration was supplemented by the replanting of felled areas with native pine seedlings grown in local tree nurseries.

Tree nurseries were established at Castle Grant, and later at Lower Dell. The walls of the Lower Dell nursery can still be seen at the north-eastern corner of the Reserve. The cone-kiln from this nursery, used to dry the cones and extract the seed, has been preserved and may be seen in the Landmark Centre at Carrbridge. Many of the seedlings from these nurseries were grown from seed collected locally from native Scots pine trees. Seedlings were also raised from exotic species, such as larch and lodgepole pine, and some of these were planted in Dell Woods.

The establishment of the Reserve

The forestry management practises evolved over time, but largely remained sympathetic to maintaining the continuity of the native woodland. However, the financial pressures on estates during the mid-20th century resulted in these practises being abandoned in favour of intensive, industrial scale forestry. Large blocks of native forest were clear-felled and drained. Exotic conifers such as Norway and sitka spruce and lodgepole pine were planted in preference to Scots pine.

It was the clear felling of a large area of native pinewood straddling the King's Road in 1984 that triggered the "protective purchase" of the Reserve in 1986 by SNH's predecessor body, the Nature Conservancy Council (NCC). The NNR was formally declared in March 1988.

Summary

Despite a long history of timber exploitation in Dell Woods, the early sustainable management policies of the Lairds of Grant helped preserve the forest for future generations. It is largely to their credit that the pinewoods of Abernethy have persisted to the current day, with much of the wildlife of the original native forest still intact.

4 Management of Dell Woods NNR

Key dates

A few of the key dates in the history of Dell Woods NNR are:

DATE	EVENT
1986	Protective purchase of Dell Woods by the Nature Conservancy Council (NCC).
1988	Abernethy Dell Woods NNR is declared as an extension to the Abernethy Forest NNR.
Late 1980s	Mr A. McCook is appointed as Honorary Warden for the Reserve.
1990	Abernethy Forest is classified as a Special Protection Area (SPA).
Early 1990s	Small-scale felling of exotic conifers carried out on the Reserve.
1991	A rare species of water beetle, <i>Ilybius wasastjerna</i> , was discovered on the Reserve.
1991-1994	Seasonal wardens employed at Dell Woods NNR.
1995-2004	The felling of exotic conifers on a much larger scale by external contractors.
1996	First Management Plan for Dell Woods NNR.
1998	The rare stump lichen was found at several locations within the Reserve.
Late 1990s	Formalisation of the Reserve paths network, with way-marked routes.
1999-2001	Wet Woods Restoration Project funded by European Union Life-Nature programme to restore areas of forest bog.
2005	Cairngorms Special Area of Conservation (SAC) designated.
2005	River Spey SAC designated.
2006	Restoration of the Duack Dam and lade by Explore Abernethy.
2007	Red squirrel feeding station installed on the Reserve, by the King's Road.

Management of the Natural Heritage

The emphasis, in managing the natural heritage of Dell Woods, is largely that of non-intervention and 'primacy of nature'. Large areas of the Reserve are regenerating naturally, and the woodland structure is improving without our intervention.

Other areas of the Reserve have suffered past damage through drainage, planting of exotic species, and excessive grazing by deer. In these areas we are attempting to restore the woodland and associated areas of bog woodland to a more natural state.

Some restoration of bog woodland has been achieved through the Wet Woods Restoration Project. In 1999 timber from felled exotics (lodgepole pine) was used to infill drains on the Reserve, and this along with tree removal resulted in the 5 ha site becoming re-wetted. In 2001 further work was carried out to block drainage over a 14 ha area of the Reserve, through the installation of 30 hand-made dams. This created a network of pools and saturated ground that will allow the recovery of the original habitats. A reflection of how quickly times change is that the contractor carrying out this damming work had also dug the original drains.



Dam blocking to restore bog woodland

In the 20th century, many areas of the Reserve were planted with exotic conifers including Norway spruce, lodgepole pine and noble fir. Starting on a small scale in the early 1990s, some of these trees were felled to provide areas where native Scots pine could regenerate naturally. In one project horses were used to extract the timber, which proved popular locally. Between 1995 and 2004 felling took place on a much larger scale, with large areas of exotics being felled by external contractors, so that today only small areas of exotics remain.

In the past, red and roe deer numbers had increased to a level that prevented the natural regeneration of both pines and broad-leaved trees on the Reserve. A programme of deer culling commenced, and although the area is difficult to stalk, satisfactory levels of regeneration have now been achieved. The target number of deer to be culled in a year is not fixed, but is varied according to the results of natural regeneration monitoring.

Much of the deer fence on the Reserve has now been removed. Although fences can enhance woodland regeneration through the exclusion of grazing deer, they present a collision hazard for capercaillie. Removal of the fences has also enabled better access, and will allow the woodland to develop a more natural boundary.

Management for People

Dell Woods NNR offers opportunities for visitors to experience and enjoy wildlife throughout the year. Exact visitor numbers are unknown, but it is estimated that approximately 5 000 people visit the Reserve each year. Local people and visitors use the Reserve for quiet recreation, whether watching wildlife, walking the dog, jogging, or simply enjoying the peaceful atmosphere. Local wildlife holiday

organisations bring their customers to the Reserve, as it is an excellent place to see the area's distinctive wildlife.

Many walkers detour into the Reserve, as a number of long-distance paths pass through the area. The Speyside Way passes close to the Reserve, following the north-western boundary for a short distance. The track leading into the Reserve from Dell Road is a right of way, leading into the RSPB Reserve and on to Forest Lodge. It links to the network of old drove roads across to Deeside, such as the Lairig an Laoigh and Larig Ghru. It is a popular route with mountain bikers and walkers. The King's Road, passing southwards through the Reserve from Culvardie Road is also a right of way. It was formerly the main route to Tulloch.

The northern half of the Reserve is well served by a network of formal and informal footpaths. SNH and Explore Abernethy have maintained and enhanced this network of paths, with the aid of local business sponsorship.

Although the Reserve is well-used, the difficult terrain encourages visitors to stay on the footpaths. This enables species sensitive to intrusion to flourish, particularly in the less disturbed southern half of the Reserve. A section of footpath linking Culvardie Road and Dell Road has been upgraded for all-ability use.

Explore Abernethy is a community initiative that is grant-aided by SNH. It was established in 1997 to record and interpret the cultural heritage of the Nethy Bridge area and its unique association with the surrounding forest of native Scots pine. Explore Abernethy have established a way-marked network of footpaths within the Reserve and beyond, and produced an accompanying leaflet. The award winning Explore Abernethy Room in the Nethybridge Community Centre interprets and records the cultural heritage of the surrounding area, including the Reserve.

It is an easy walk to the Reserve from the nearby village of Nethy Bridge, where car parking is available at the Community Centre. There is also a small informal car-parking area at the end of Culvardie Road, by Steele's Mill. Dell Woods NNR signs mark the entrances at Culvardie Road and Dell Road. There is currently no interpretation on the Reserve. A new Reserve leaflet is in preparation and should be available in 2009.



Sign marking an entrance to the NNR

SNH enjoys good relations with the local community. The Explore Abernethy Ranger provides another useful link with the community, and in conjunction with the Highland Council Ranger Service, provides a summer programme of guided walks in and around the Reserve and the local area.

Property Management

Dell Woods NNR covers 375 ha, of which 267 ha is owned by SNH, and a further 108 ha is leased from the RSPB.

Mr Ian Kennedy of Dell Farm farms 36 ha of land from SNH under an agricultural tenancy.

Hydro Electric have right of access for maintenance and repair to a wayleave running east-west across the Reserve. This includes the right to fell all scrub birch and naturally regenerating trees under the power line.

The track running south from Dell Lodge to Forest Lodge is regarded as being a vehicular right of way. Highland Council have indicated that this is an old drove road and should be open to stock and horses.

The only building on the Reserve is a metal hut at the Culvardie Road entrance known as Willie Steele's sawmill.

SNH is responsible for the condition and maintenance of Reserve infrastructure. A fire plan is in place and is routinely checked.

Summary

Dell Woods NNR is a very important place for wildlife, particularly native pinewood species. Our natural heritage management largely follows a policy of non-intervention to allow the woodland to develop naturally. We have intervened to reverse the damaging effects of some past management practises, including felling exotic conifers, restoring water tables, and managing deer populations.

Our visitor facilities are low-key so as not to detract from the natural setting of the Reserve. A network of waymarked paths enable visitors to experience and enjoy the Reserve, whilst other areas remain undisturbed, providing a haven for sensitive species.

We maintain good links with the community through 'Explore Abernethy' and the Honorary Warden. The Explore Abernethy Ranger conducts guided walks through the Reserve in the summer.

5 Document properties

Photographs

Photography by Lorne Gill, David Genney and David Carstairs.

Links

Scottish Natural Heritage

www.snh.org.uk

SNH Sitelink

www.snh.org.uk/snh/

Explore Abernethy

<http://www.exploreabernethy.co.uk/>

RSPB - Loch Garten/Abernethy Reserve

<http://www.rspb.org.uk/reserves/guide/1/lochgarten/index.asp>

Acknowledgments

The Story of Abernethy - Dell Woods NNR has been written by Peter Duncan (Reserve Manager), Jane Cox (Contractor), Nigel Harding (Contractor - Craigton Ecological Services) and Susan Luurtsema (Managed Sites Officer) and approved by George Hogg (Area Manager - East Highland).

We would like to thank the following SNH staff for their contribution and comments: John Mackenzie (Operations Manager - East Highland), David Carstairs (Area Officer - East Highland), Alison Matheson (Recreation and Access Group) and Susi Hodgson (Geographic Information Officer).

Appendix 1 - National Nature Reserve (NNR)

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

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

The attributes are

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

The purposes are

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

From 2000 - 2003 all of Scotland's NNRs were reviewed against this policy. Because of the review there are now 55 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 56 NNRs until this work is completed.

More information can be found at:

Scotland's National Nature Reserves: A policy statement

<http://www.snh.org.uk/pdfs/polstat/nnrpolcy.pdf>

National Nature Reserves - General Information

<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, 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. Appendixes I and II of the Habitats Directive list the habitats and (non-bird) species respectively for which SACs are selected. In Great Britain the Directive was transposed into domestic legislation via the Conservation (Natural Habitats &c.) Regulations 1994, which are relevant to Special Protection Areas (SPAs) as well as SACs. Natura sites are generally underpinned by the SSSI mechanism in the terrestrial environment, although there are a few exceptions where other management measures are employed. The Scottish Executive Rural Affairs Department Circular No. 6/1995 (Revised June 2000) on the Habitats and Birds Directives gives further details of how the Regulations apply in Scotland.

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

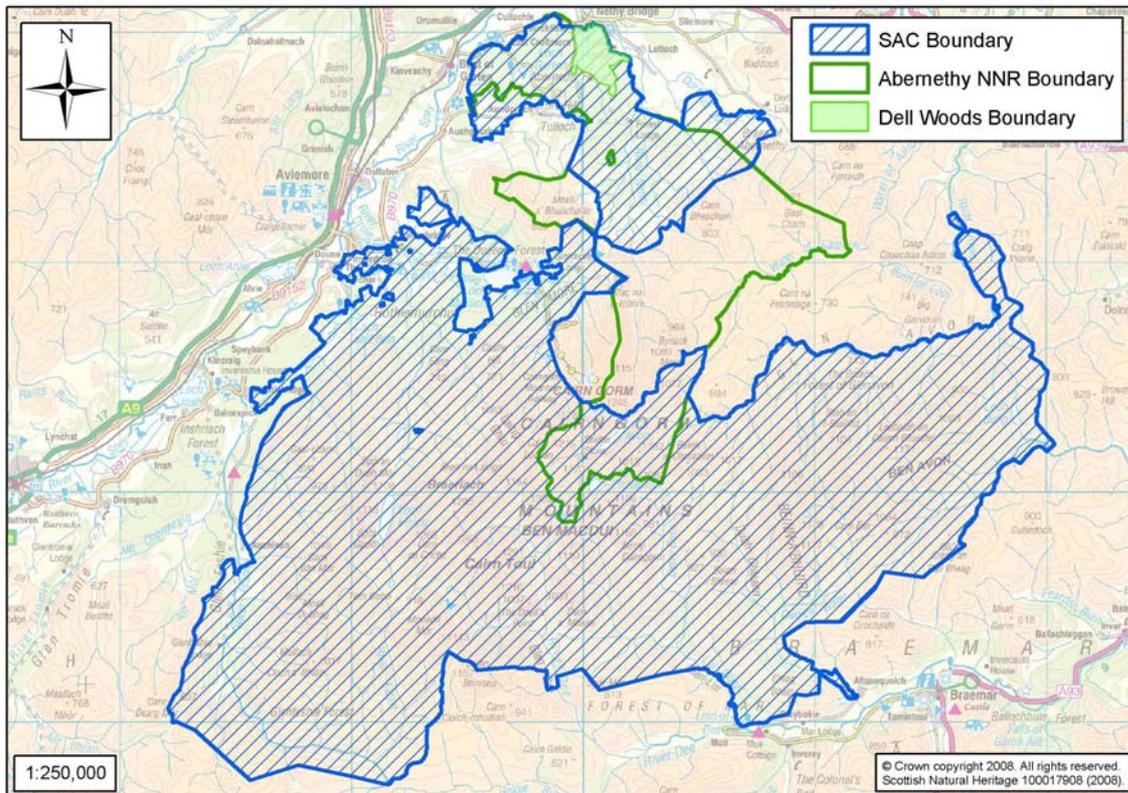
The following websites provide further information:

Special Areas of Conservation:

<http://www.jncc.gov.uk/ProtectedSites/SACselection>

Cairngorms SAC

Country	Scotland
Unitary Authority	Aberdeenshire; Highland; Moray
Central grid reference	NN995993
Latitude	57 04 36 N
Longitude	03 39 15 W
SPA EU CODE	UK0016412
Weblink	Status Designated Special Area of Conservation (SAC)
Area (ha)	57685.02



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 4060 Alpine and Boreal heaths that is of particular importance. Wet heath is also developed in hollows within the upper parts of 91C0 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 91C0 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 (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* - *Racomitrium lanuginosum* moss-heath and U7 *Nardus stricta* - *Carex bigelowii* grass-heath are extensive. The U9 *Juncus trifidus* - *Racomitrium 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* -

Racomitrium 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 6210 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 4010 Northern Atlantic wet heath and 4030 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 91C0 Caledonian forest, Scots pine *Pinus sylvestris* is often present, forming stands of 91D0 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 Inchroy, where there is an extensive series of springs associated with metamorphosed limestones and calc-schists. There are transitions to 7230 Alkaline fens, 6230 Species-rich Nardus grasslands and more acidic grassland and heath communities.

Alpine pioneer formations of the Caricion bicoloris-atrofuscae * 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 Inchroy area, associated with calcareous rocks and occurring alongside 7220 petrifying springs and 7230 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 ladanii*)

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 screes 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 glaciale*, 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 nimbosea*, *Scapania ornithopodioides* and *Anastrophyllum donnianum*, which are restricted to areas of late snow-lie 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 91D0 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 91C0 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* *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*

Conservation objectives for Cairngorms Special Area of Conservation

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 in upland areas*
- Plants in crevices on base-rich rocks
- Species-rich grassland with mat-grass
- Tall herb communities
- Very wet mires often identified by an unstable `quaking` surface
- Wet heathland with cross-leaved heath

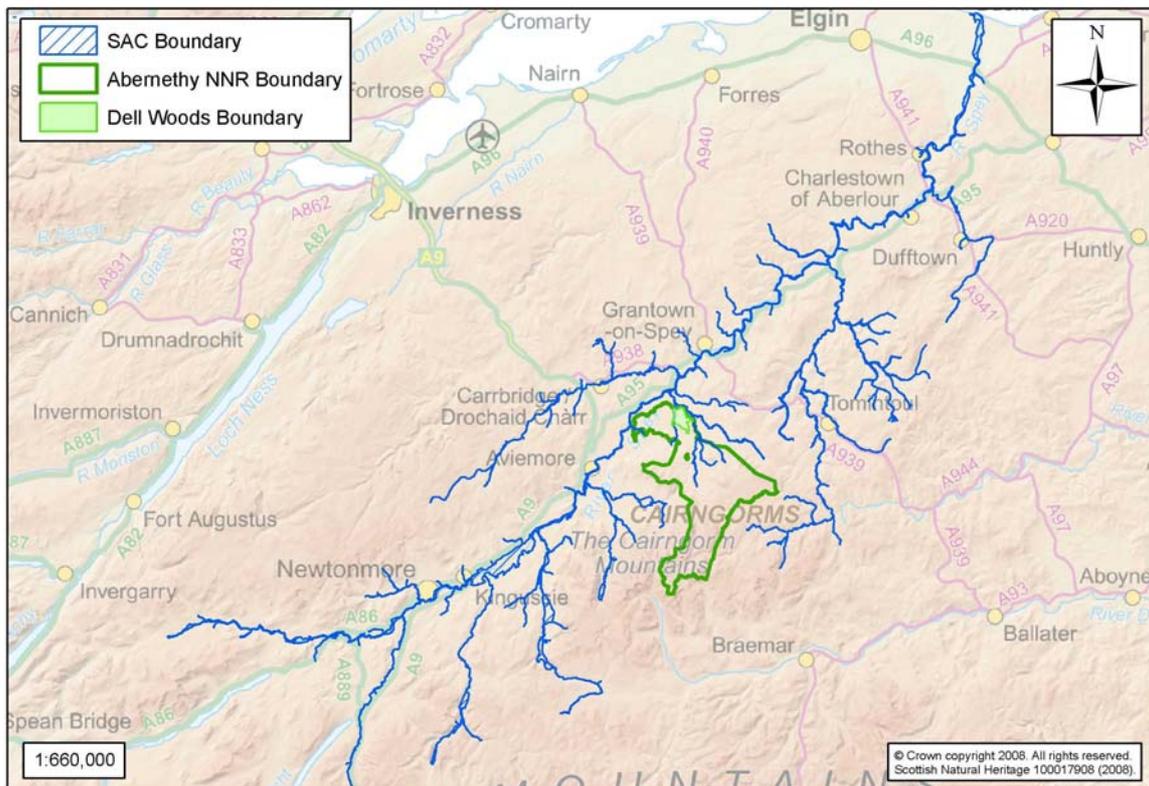
* Indicates priority habitat

Conservation Objectives for Cairngorms Special Area of Conservation

- 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:
- Green shield-moss
 - Otter

River Spey SAC

Country	Scotland
Unitary Authority	Highland; Moray; Perthshire
Grid Ref*	NJ095319
Latitude	57 22 15 N
Longitude	03 30 00 W
SPA EU CODE	UK0019811
Weblink	Status Designated Special Area of Conservation (SAC)
Area (ha)	5729.48



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.

Conservation objectives for River Spey Special Area of Conservation

- 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, including range of genetic types for salmon, 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
 - Distribution and viability of freshwater pearl mussel host species
 - Structure, function and supporting processes of habitats supporting freshwater pearl mussel host species

Qualifying Species:

- Atlantic salmon
- Freshwater pearl mussel
- Otter
- Sea lamprey

The site overlaps with Abernethy Forest, Cairngorms, Craigmore Wood, Drumochter Hills, Kinveachy Forest, Moray and Nairn Coast, and River Spey – Insh Marshes Special Protection Areas

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.

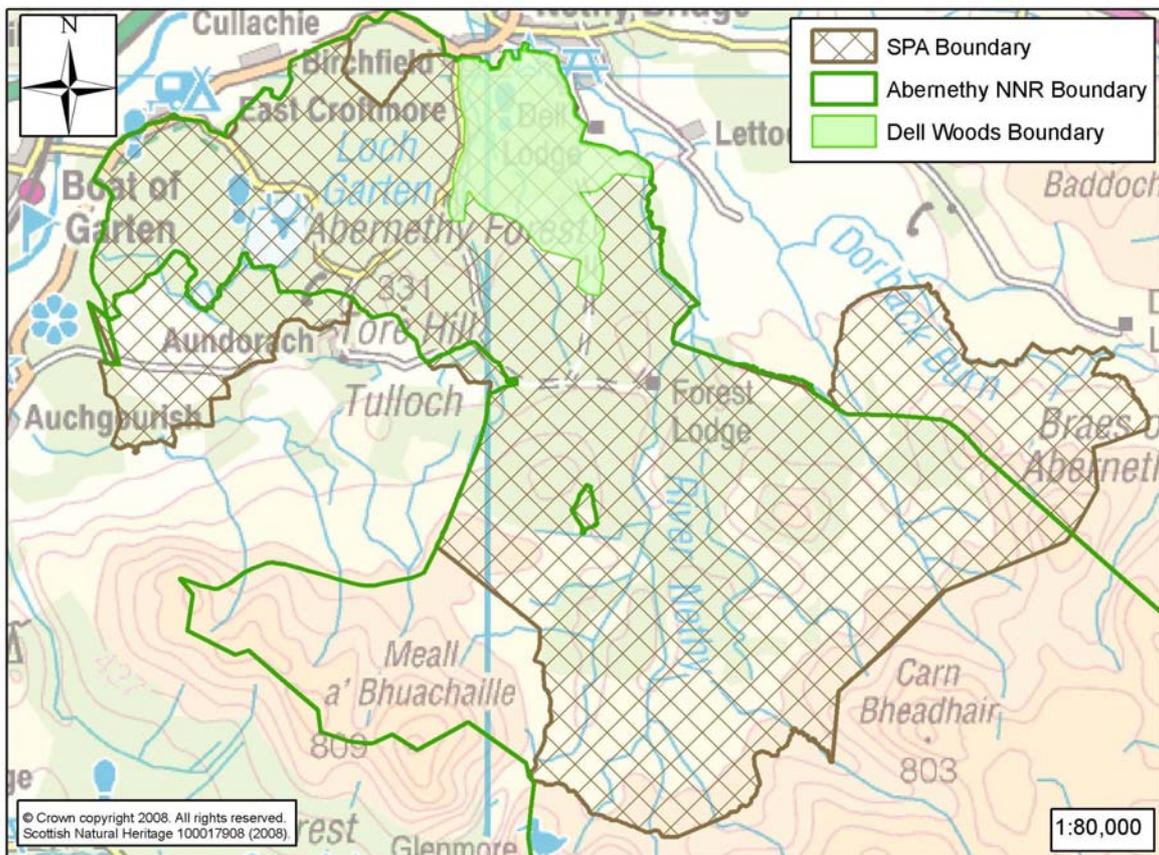
The following websites provide further information:

Special Protection Areas:

<http://www.jncc.gov.uk/UKSPA/default.htm>

Abernethy Forest SPA

Country	Scotland
Unitary Authority	Highland
Classified	25/04/1990
Latitude	57 13 22 N
Longitude	03 18 10 W
SPA EU CODE	UK9002561
Area (ha)	5793.46
Component SSSI/ASSIs	Abernethy



Abernethy Forest is located on the southern fringe of the Spey Valley to the north of the Cairngorm massif in the eastern Highlands of Scotland. It is the largest remaining tract of native pinewood in Britain and is characterised by its great variety of topography and habitats. The River Nethy flows northwards through the eastern margin of the forest, creating an additional variety of conditions through the processes of erosion and deposition along its channel. The forest has developed on undulating glacial deposits, with Loch Garten and many pools (and their surrounding valley mires) found within the lowest areas. In contrast, the higher ground opens out in places to Heather *Calluna vulgaris*-Bearberry *Arctostaphylos uva-ursi* heaths and there is an extensive shrub layer of Juniper *Juniperus communis* in many places. Although some undisturbed high forest remains, much of the woodland has been managed, although

the presence of old pines and glades creates a semi-natural structure and vegetation composition in many areas. There are many plants and animals present that are characteristic of native pinewoods, as well as rich assemblages associated with wetlands and species typical of northern heaths. The forest is being extended southwards by pine regeneration on higher ground, encouraged by sympathetic conservation management. Abernethy Forest supports large populations of breeding woodland birds associated with northern pinewoods and their glades, including Capercaillie *Tetrao urogallus* and Scottish Crossbill *Loxia scotica* (Britain's only endemic bird species). The large and varied area of semi-natural vegetation at Abernethy supports several species of raptors, including nesting Osprey (*Pandion haliaetus*).

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

During the breeding season;

Capercaillie *Tetrao urogallus*, 45 individuals representing at least 2.0% of the breeding population in Great Britain

Osprey *Pandion haliaetus*, 2 pairs representing at least 2.0% of the breeding population in Great Britain (Count as at early 1990's)

Scottish Crossbill *Loxia scotica*, 175 pairs representing at least 58.3% of the breeding population in Great Britain

Conservation objectives for Abernethy Forest 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*)
- Osprey (*Pandion haliaetus*)
- Scottish crossbill (*Loxia scotica*)

The site overlaps with Cairngorms Special Area of Conservation and River Spey Special Area of Conservation

Appendix 4 - Site 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. 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 or the Nature Conservation (Scotland) Act 2004. Further changes in the protective mechanisms were introduced by the 2004 Act.

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

Web Links:

'The Nature of Scotland - A Policy Statement'

<http://www.scotland.gov.uk/library3/environment/nas-00.asp>

'People and Nature: A New Approach to SSSI Designations in Scotland'

<http://www.scotland.gov.uk/library/documents-w1/pandn-00.htm>

Guidelines for selection of biological SSSIs

<http://www.jncc.gov.uk/Publications/sssi/default.htm>

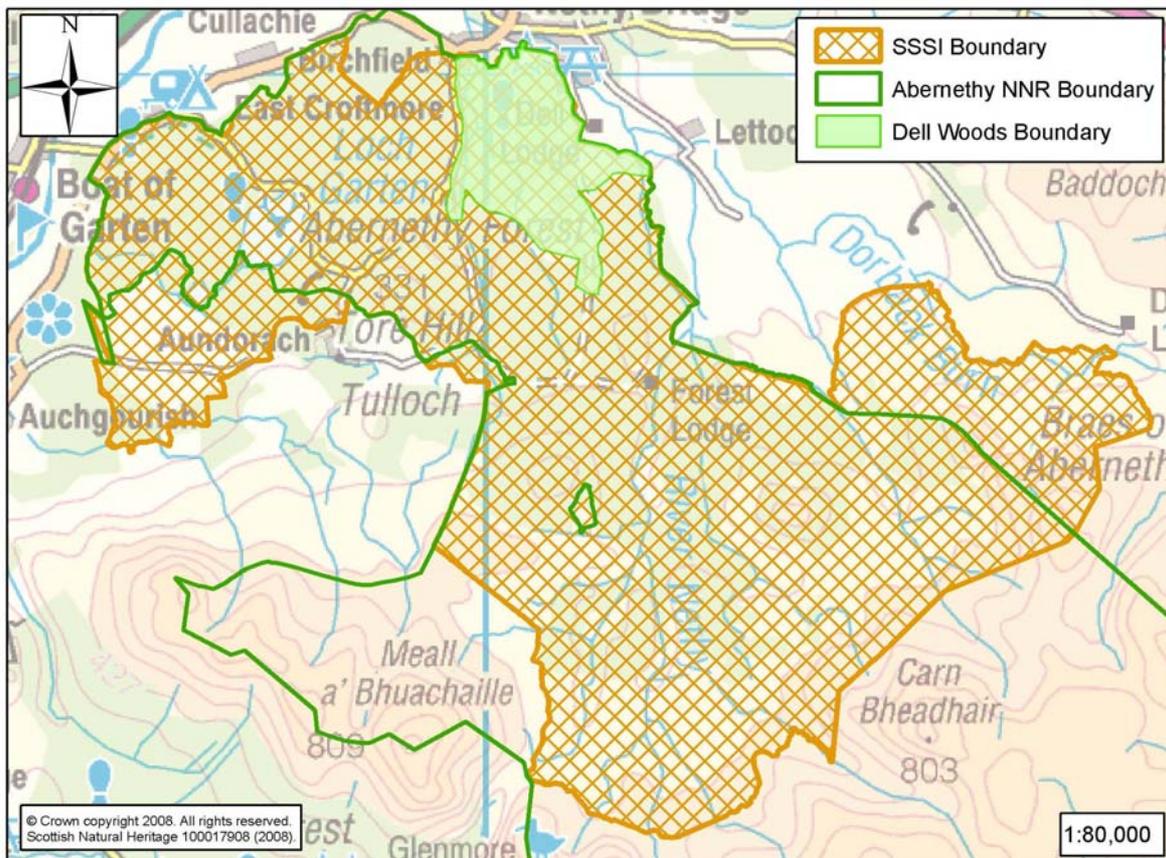
Site of Special Scientific Interest (SSSI):

<http://www.snh.org.uk/about/ab-pa01.asp>

Abernethy Forest SSSI

Country	Scotland
Unitary Authority	Badenoch & Strathspey District, Highland Region
Grid Ref*	NJ 010165
Notified	17 December 1986
Area	5,796 ha.

*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.



One of the largest areas of native pinewood in Britain, Abernethy Forest represents part of a once continuous tract of woodland around the lower slopes of the Cairngorms. It is part of the eastern group of pinewood types which includes Glen Tanar, Rothiemurchus and Ballochbuie. Many plants and animals that are found only in the native pinewoods occur here and as such the site is of considerable national importance. Part of the site is also of geological importance.

Geology

A part of the SSSI extending from Loch Garten to Tulloch Moor is a key area for studying the vegetation history of the Cairngorms – Spey Valley area since the last

glacial retreat. It is notable for the length and completeness of its vegetation record which has been worked out from the identification of pollen and plant remains and this in conjunction with radio-carbon dating, gives an accurate assessment of the timescale involved. The site is particularly significant in helping to understand the establishment, development and history of native Scots pine forest.

A small part of the Dorback Burn affords a typical example of a wandering gravel river within an upland Scottish environment. The site has been monitored since 1978 and allows a valuable insight into river activity, especially in response to floods.

Biology

Lying on gently undulating glacial deposits between 200 and 500m above sea level, the forest represents a continuation of the range of montane and sub-montane habitats in the Cairngorms complex. The irregular glacial topography allows marked variations in drainage and a consequent variety of different plant communities ranging through fine examples of acid bog moss *Sphagnum sp* dominated raised valley and basin mires of NCR status to the dry heather-bearberry *Calluna-Arctostaphylos* heath, which has a limited distribution in Britain. The River Nethy bisects the forest and this together with lochs and small lochans interspersed within it adds to the diversity of habitats within the site.

Woodland

Native pinewood is the most local of all the major forest types in Britain. Parts of Abernethy consist of almost completely undisturbed high forest but much of the northern area is semi-natural, some having been planted since the mid-eighteenth century. Although much of the forest is managed it retains a high degree of naturalness, also a good structural diversity in terms of varying age, height and form of trees and in the presence of a shrub layer of juniper. Certain sections of the wood are partly or completely dominated by native broadleaf tree species, especially birch.

Bog

Within the forest area there is a series of oligotrophic to mesotrophic valley mires which in places have systems of long aligned pools filled with aquatic *Sphagnum* spp. A raised bog adjacent to the Dorback Burn has an exceptional development of surface pools together with the uncommon occurrence of a lagg fen at its margins.

Plants

Many species of national and regional importance occur under both the open and closed woodland canopy. These include intermediate wintergreen *Pyrola media*, serrated winter-green *Orthilia secunda* and twinflower *Linnaea borealis*. Abernethy is the only known British locality for 9 species of microfungi including *Coccomyces juniperi* and *Glonium graphicum*, and many species of fungi which are rare and often

confined to ancient pine forest. 28 very rare species of lichen have been recorded from the old Scots pine and juniper.

Birds

Abernethy pinewood is famous for its northern bird species. Up to 4% of the total British breeding population of crested tits occur here and the forest is one of the most important areas for Britain's only endemic bird species, the Scottish crossbill. It is the only part of Scotland where the greenshank breeds in its characteristic European habitat of heathy clearings and forest mires. Other important species include a number of raptors, notably the osprey, as well as capercaillie, siskin and black game.

Insects

Abernethy is rich in scarce or rare insects characteristic of the native pinewoods. It supports rare species of beetle, fly, spider, ant, dragonfly and moth. Abernethy has the 3rd highest number of Red Data Book species for any Scottish site and over 400 species of beetle have been listed for the area, at least 15 of which are grade 1 indicators of ancient woodland. Scotch argus *Erebia aethiops* and dark green fritillary *Mesoacidalia aglaja* butterflies are among the more widespread species that occur here while rare dragonflies like the northern damselfly *Coenagrion hastulatum* breed in the forest mires and lochans.

Mammals

Many species of mammal breed in or use the site. More notable species include wildcat, badger and red squirrel.

Remarks

This is a Nature Conservation Review Site.

A part of the site includes Abernethy Forest National Nature Reserve which was declared under Section 19 of the National Parks and Access to the Countryside Act 1949 as a National Nature Reserve on 27 May 1982.

This site has been identified for designation as a Special Protection Area under the terms of the European Community Directive 79/409/EEC on the conservation of wild birds.

Part of the site is a Royal Society for the Protection of Birds reserve.

Appendix 5 - National Parks (NP)

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

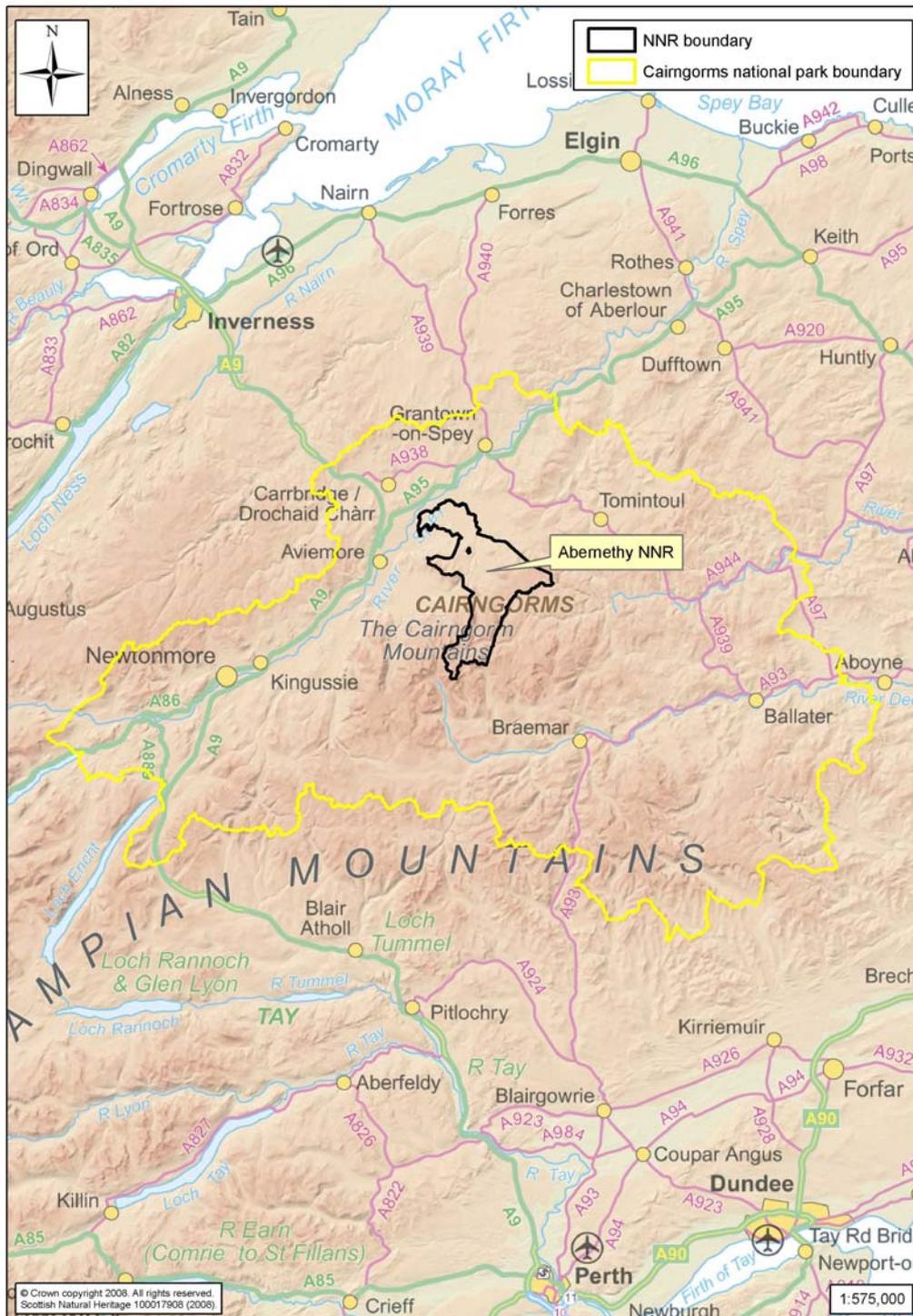
- to conserve and enhance the natural and cultural heritage;
- to promote the sustainable use of the natural resources of the area;
- to promote understanding and enjoyment of the special qualities of the area by the public;
- and to promote sustainable social and economic development of the communities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

A National Park Authority is in place for the two National Parks in Scotland. Park authorities have the responsibility for drawing up the National Park Plan and ensuring its implementation. The Park Authorities are funded by Government and report directly to Scottish Ministers.

SNH 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.

Cairngorms National Park

Country	Scotland
Unitary Authorities	Aberdeenshire, Highland Council, Moray & Angus
Established	7 January 2003
Area (ha.)	381,653.98



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 include 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.
- Approximately 1.4 million people visited the Cairngorms National Park in 2006 - approximately 1 million of those people visited Badenoch and Strathspey.