



## Scotland's National Nature Reserves

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### The Story of Creag Meagaidh National Nature Reserve



Scotland's  
National Nature  
Reserves







## The Story of Creag Meagaidh National Nature Reserve

### Foreword

Creag Meagaidh National Nature Reserve (NNR), named after the great whalebacked ridge which dominates the Reserve, is one of the most diverse and important upland sites in Scotland. Creag Meagaidh is a complex massif, with numerous mountain tops and an extensive high summit plateau edged by a dramatic series of ice-carved corries and gullies. The Reserve extends from the highest of the mountain tops to the shores of Loch Laggan. The plateau is carpeted in moss-heath and is an important breeding ground for dotterel. The corries support unusual artic-alpine plants and the lower slopes have scattered patches of ancient woodland dominated by birch. Located 45 kilometres (km) northeast of Fort William and covering nearly 4,000 hectares (ha), the Reserve is owned and managed by Scottish Natural Heritage (SNH).

Creag Meagaidh has been a NNR since 1986 and during the last twenty years SNH has worked to restore natural habitats, particularly woodland, on the Reserve. Like much of the Highlands, the vegetation has been heavily grazed for centuries, so it was decided to reduce the number of grazing animals by removing sheep and culling red deer. The aim was not to eliminate grazing animals altogether, but to keep numbers at a level that allowed the habitats, especially the woodland, to recover. Among traditional Highland sporting estates, SNH's management of deer was regarded as controversial, and it stimulated much critical debate particularly in the early years of the Reserve. In contrast, conservationists saw the red deer management on Creag Meagaidh NNR as pioneering, and others have since followed a similar approach when restoring degraded habitats on their land.

Nowadays the woodland at Creag Meagaidh is spreading and every year the lower slopes become visibly greener. The expansion of the woodland is testament to the success of this novel approach to land management, which has become more widely accepted over the years. Nonetheless our work is not finished yet, for it will take many more years to restore fully the natural habitats from loch shore to the summit of Creag Meagaidh.

Creag Meagaidh is one of more than 50 NNRs in Scotland. These are special places for nature where people are welcome. Every NNR is carefully managed for the benefit of both wildlife and people; specialist management and demonstration at Creag Meagaidh are important purposes for the Reserve.

The following pages briefly describe the Story of Creag Meagaidh NNR including the Reserve's most important features and how they are managed. There is a sister publication, the 'Reserve Proposals', in which we outline our ideas for the future and seek public comments. After the consultation we turn our proposals into the Reserve Plan. In future, we will produce a Reserve Review too, to report how our plans have worked in practice.

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<http://www.nnr-scotland.org.uk/managing.asp>

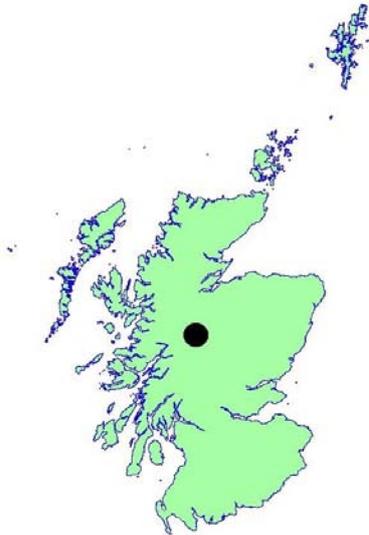
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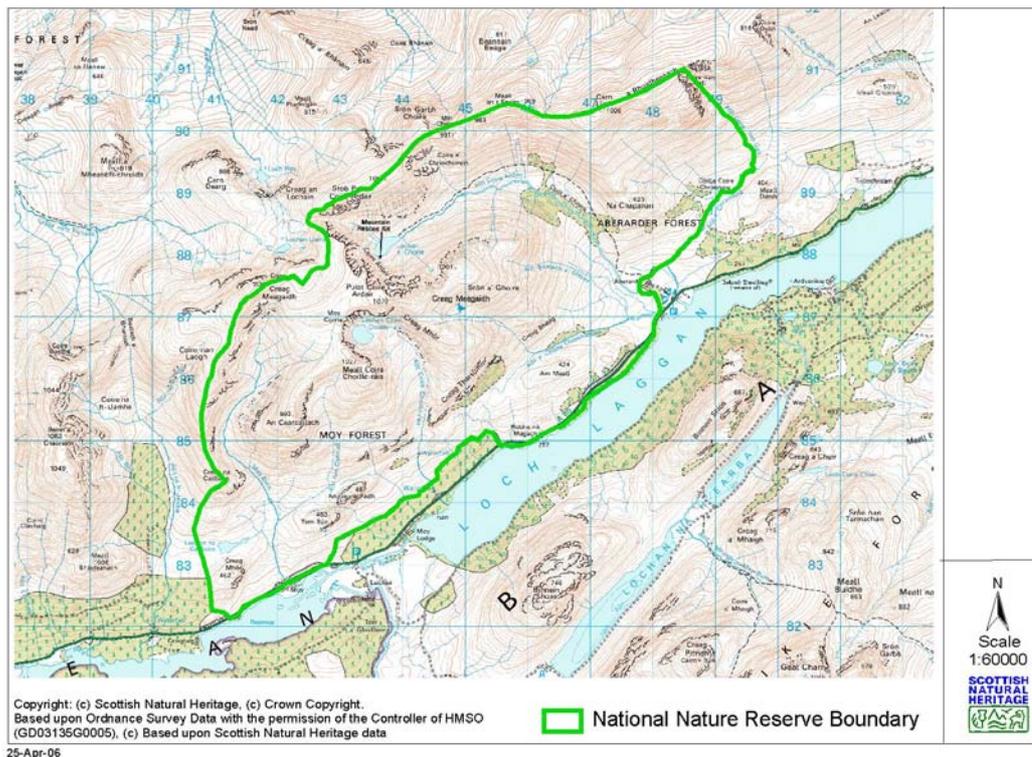
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## Maps of Creag Meagaidh NNR<sup>1</sup>

### Location Maps



### Boundary of Creag Meagaidh NNR



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## **1 Introduction to Creag Meagaidh NNR**

Creag Meagaidh NNR is an upland area lying north-west of Loch Laggan roughly midway between Laggan and Spean Bridge in the Central Highlands. Its location gives the site a climatic character intermediate between the extremely oceanic West Highlands and the drier, more continental Cairngorms to the east. The Reserve straddles the great east-west watershed of Scotland, 'Druim Alban', and is on the boundary between the districts of Lochaber and Badenoch and Strathspey.

The Reserve covers 3,940ha, extending from the shore of Loch Laggan (250 metres (m)) to the summit of Creag Meagaidh (1,130m). The Reserve has an exceptional range of vegetation reflecting this altitudinal range from loch shore to summit. The summit plateau has one of the largest areas of woolly-fringe moss heath in the Highlands. There are internationally important numbers of dotterel breeding on the plateau. Descending from the plateau, the cliffs and scree slopes support a variety of rare plant communities; most noteworthy is the montane willow scrub, which has survived here because grazing animals struggle to reach it. Below the montane habitats, on the lower ground there are remnants of ancient and long-established semi-natural woodland, the last survivors of woodland that once clothed the slopes of the mountain to a height where exposure prevents colonisation by woodland tree species.

Creag Meagaidh has several designations - National Nature Reserve (NNR), Site of Special Scientific Interest (SSSI), Special Protection Area (SPA) and Special Area of Conservation (SAC). Part of Creag Meagaidh was designated a SSSI in 1964 for geological features. Later a vegetation survey revealed the rich botanical interest of the area, so the SSSI was extended to cover almost 6,984 ha in 1983. The international importance of the site has been recognised since, and it has been included in the European Natura 2000 network, both as a SPA for dotterel and as a SAC for eleven upland habitats. The features for which the site was selected are summarised in Table 1 below. For more information about these designations see the appendices.

SNH own and manage Creag Meagaidh NNR; SNH's predecessor, the Nature Conservancy Council (NCC), bought the land to prevent it being planted with conifers. At the time this was a controversial decision because it was entangled with the tax breaks of the time for landowners to encourage planting of commercial timber species (usually non-native conifers).

**Table 1 Designated and qualifying features at Creag Meagaidh NNR**

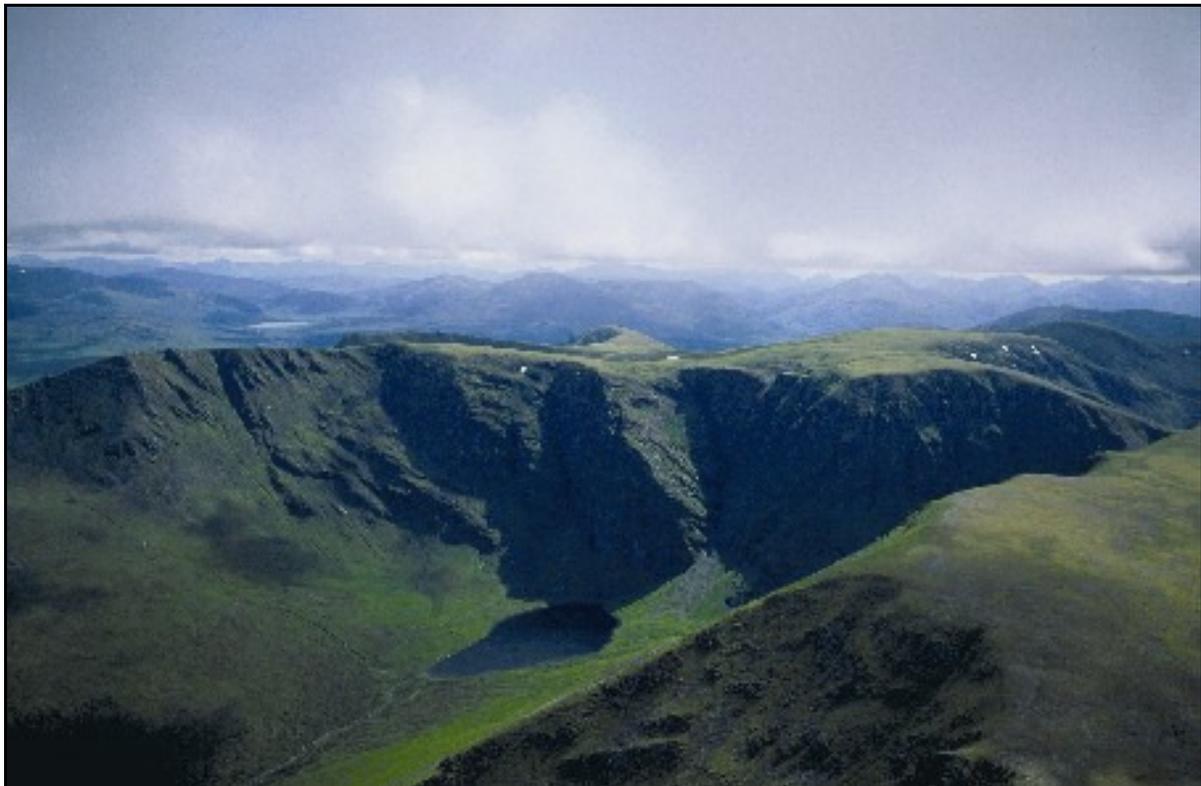
		DESIGNATION		
		Special Area of Conservation	Special Protection Area	Site of Special Scientific Interest
Feature	Natura 2000 description			
<b>Habitats</b>				
Montane acid grassland	Siliceous alpine and boreal grasslands	✓		
Acidic scree	Siliceous scree of the montane to snow levels ( <i>Androsacetalia alpinae</i> and <i>Galeopsietalia ladanii</i> )	✓		
Upland mosaic				✓
Mountain willow scrub	Sub-Arctic <i>Salix</i> spp. scrub	✓		
Plants in crevices of base rich rocks	Calcareous rocky slopes with chasmophytic vegetation	✓		
Plants in crevices on acid rocks	Siliceous rocky slopes with chasmophytic vegetation	✓		
Tall herb communities	Hydrophilous tall herb fringe communities of plains and of the montane to alpine levels	✓		
Rocky slopes (includes inland cliff, rocky outcrops, chasmophytic vegetation)				✓
Clear water lochs with aquatic vegetation and poor to moderate nutrient levels	Oligotrophic to mesotrophic standing waters with vegetation of the Littorelletea uniflorae and/or of the Isoëto-Nanojuncetea	✓		
Alpine and subalpine heaths	Alpine and Boreal heaths	✓		
Blanket bogs	Blanket bogs	✓		
Wet heathland with cross-leaved heath	Northern Atlantic wet heaths with <i>Erica tetralix</i>	✓		
Dry heaths	European dry heaths	✓		
<b>Species</b>				
Dotterel	<i>Charadrius morinellus</i>		✓	
Breeding bird assemblage				✓
Vascular plants				✓

## **2 The Natural Heritage of Creag Meagaidh NNR**

In good weather, looking out from the summit of Creag Meagaidh you are afforded spectacular views of the Central Highlands and beyond. To the east is the Cairngorm (*red moorland or mountain*), and to the west Ben Nevis and its associates. On the clearest of days you can see Ladhar Beinn far to the west in Knoydart. Closer to hand are the surrounding hills of the Monadhliath (*grey moorland or mountain*) and south across Loch Laggan is the forest of Ben Alder.

The great whale backed massif of Creag Meagaidh is a plateau of over one square kilometre. The highest point is the summit of Creag Meagaidh at 1130 metres, but there are 12 peaks over 900 metres within the Reserve, including three Munros (Creag Meagaidh, Stob Poite Coire Ardair and Carn Liath). Viewed from the highest point the plateau stretches gently west and north, but the southeast side of the plateau is edged by over 1.5 kilometres (km) of dramatic cliffs, gullies and buttresses, which carve the plateau into a series of radiating ridges. The crags of Coire Ardair and Coire Choille Rais are the richest areas for alpine plants.

From the base of the cliffs the land slopes gradually down to the shores of Loch Laggan. The mid-slopes are covered in extensive glacial moraine deposits creating a hummocky landscape carpeted in heath. On the lower slopes above Loch Laggan remnants of ancient woodland survive, which are regenerating and spreading across wider areas of the Reserve. Birch is the most widespread tree, with smaller numbers of rowan, alder, oak, hazel and willow.



*The Creag Meagaidh Massif*

## Geology

The underlying rocks of Creag Meagaidh are part of the Dalradian Supergroup, the main rock group found throughout the Grampian Highlands and Argyll. The Dalradian Supergroup is a sequence of marine sediments and volcanic rocks, deposited between approximately 800 and 500 million years ago. The Caledonian Orogeny, often referred to as Scotland's mountain building era, affected the group during the early to mid-Ordovician (approximately 450 million years ago). This continental collision deformed and folded the various sedimentary rocks and altered others through heat and pressure. There are also intrusions of granite magma at Creag Meagaidh, derived from the partial melting of rocks lower within the crust, where the heat and deformation caused by the continental collision was most intense.

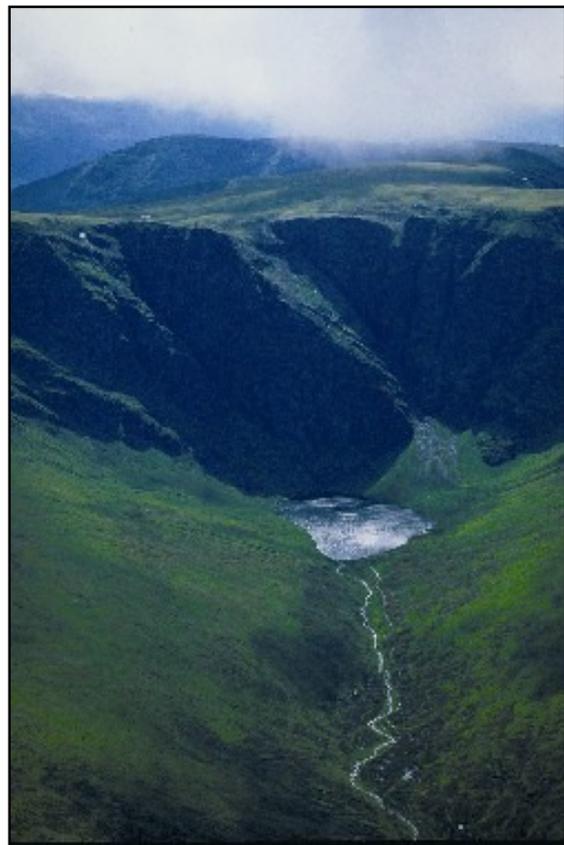
During the last two million years (Quaternary period) the major influence in Scotland has been the shaping of the existing rocks and landscape by ice. The last glaciation peaked 18,000 years ago, when ice up to 1 km thick flowed across the country, scraping rock, gouging u-shaped valleys and eroding mountains. During this time the landscape we see today was shaped.

## Geomorphology

Many of the landforms on the Reserve have been shaped by ice. The dramatic ridges and corries of Creag Meagaidh were formed by ice and rocks grinding away at the landscape during the last glaciation as repeated growth and decay of ice sheets tore at the land.

The main source of ice in this area was the basin of what is now Rannoch Moor, from where glaciers flowed outwards, smoothing hills, gouging deeper valleys, and scraping steep ridges from the hills. Entire mountains, including Creag Meagaidh, were buried beneath the ice sheets several times. At other times, glaciers were confined to the straths of Ardair where the actions of frost and glacial erosion combined to fashion the spectacular buttresses and head wall.

The last glaciation began to retreat about 15,000 years ago, finally disappearing around 10,000 years ago, and as the ice disappeared sea levels rose and the more



*Coire Ardair*

familiar landscapes we know today began to appear - crags, corries, remote lochans, wild rivers, boulder slopes and moraines. Retreating glaciers deposited the extensive hummocky moraines visible below Coire Ardair today.

The spectacular landscape created at Creag Meagaidh and in particular the claustrophobic atmosphere of Coire Ardair, provides a dramatic illustration of the power of ice to sculpt the land.

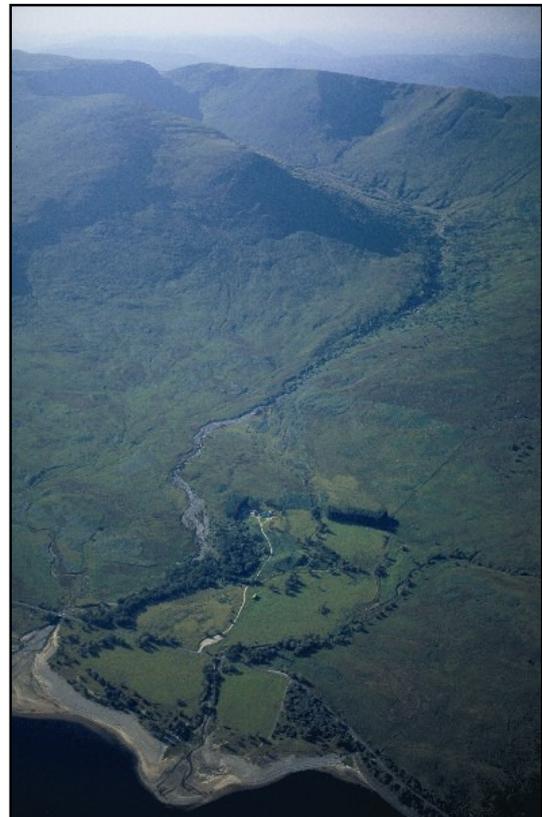
## **Climate and altitude**

The location of the Reserve in the Central Highlands gives it a climate midway between the oceanic climate of the West Highlands and the drier, more continental climate of the Cairngorms. Within the Reserve there is a wide range of local climatic conditions created in part by the difference in altitude of almost 900 m from the loch shore (250m) to the summit plateau (1130m). The local climate ranges from cool and wet on the lower ground to extremely cold and wet on the summits. The level of exposure on the summit plateau is extreme, with very severe winters. In east facing corries and sheltered areas of the Reserve, the winter holds for longer and the snow melts late into the spring.

## **Habitats**

Creag Meagaidh is an outstanding upland site with a wide variety of habitats. These range from patches of woodland on the lower slopes above Loch Laggan interspersed with open areas of heath, spreading out to completely open heath and patches of blanket bog. The cliffs and screes are home to communities of sub-arctic dwarf willow scrub, tall herbs and rare plants. On the summit plateau where extreme weather means that few species can survive, there are carpets of woolly-fringe moss heath and low-lying grassland. Much of the interest of Creag Meagaidh lies in the diversity of plant communities found in this wide range of habitats. In all 11 different, mainly upland habitats found on the Reserve have been identified as being of European importance.

The habitats at Creag Meagaidh may be divided into the relatively stable montane habitats, where human impacts have been



*Lochside to mountaintop*

least, and the dynamic habitats below the tree line, where the impacts of past land use have been greatest.

## **The Summit Plateau**

The vegetation found on the summit plateau has been described as tundra like - the high altitude, exposed conditions, and thin poorly developed soils combine to create difficult conditions. The ability of species to survive here is strongly influenced by the level of exposure and how late snow lies in the spring. Only flora and fauna which have specially adapted can survive in these extreme conditions. The plateau is covered with mosses and liverworts (bryophytes), low growing sedges, rushes and grasses, which can survive the harsh conditions.



*Moss heath on the summit plateau*

The summits and plateau of Creag Meagaidh are carpeted in grassland communities collectively known as siliceous alpine and boreal grasslands. These grasslands are the most extensive type of vegetation found in the high mountain zones of the UK, where they typically form over large areas, covering summit plateaus and mountaintops.

At Creag Meagaidh the tops of the summit ridges are covered mainly by a low growing dense carpet of moss heath with woolly-fringe moss and swards of stiff sedge, scattered with small patches of bare, loose rocks and scree. There are also extensive areas of mat grass with stiff sedge growing amongst it. The area of woolly-fringe moss heath at Creag Meagaidh is one of the largest in the UK. Interspersed with the main grasslands are smaller patches of less common plant communities with bryophytes (mosses, liverworts, and hornworts), sedges and rushes.

These are important montane habitats, whose overall distribution is limited as they only occur in the UK at high altitudes in extreme climatic conditions.

## **Cliffs, Corries and Lochans**

There are magnificent cliffs on the site; the Corries of Moy, Choille-rai and Ardair are particularly dramatic. The cliffs of Coire Ardair are the highest, rising almost 400m from the corrie floor to the plateau.

The crags of Coire Ardair and Coire Choille-rai are the richest in alpine plants, the plants having survived here as they are out of reach of most large grazing animals. Rarities such as alpine speedwell and Highland cudweed grow here, along with downy willow, alpine saxifrage and many different alpine hawkweeds.

The cliffs and boulder screes provide shelter for montane willow scrub. This is the UK's highest-altitude shrubby vegetation, only found in rocky situations on mountains. This is an important habitat existing in small amounts in a very limited number of places in the UK, Sweden and Finland. Its distribution is limited by the harsh climate at the high altitudes at which it is found and in many places by high levels of grazing.



*Montane willow scrub*

Creag Meagaidh is one of only 10 sites in the UK recognised as being of European importance for montane willow scrub. Although found in parts of Cumbria and the Southern Uplands the 10 sites of European significance are all confined to the higher mountains of the Scottish Highlands.

A number of willow species are found on the Reserve and they occur in an unusually wide range of places. There are clumps of willows widely scattered in the corries, on crags and rock ledges, along rocky or steep burn-sides, unusually in boulder fields, and in flushes amongst sedges and rushes or with mountain saxifrage. Downy willow is the commonest species, while mountain and dark-leaved willows are also found.

The ungrazed cliff ledges and boulder fields shelter a rich diversity of shrub vegetation and provide a refuge for rare, grazing-sensitive, montane plants. A number of specialist plant communities occur on the cliffs and boulder fields. Creag Meagaidh is of particular importance for tall herb communities, a species-rich habitat found on the cliffs which is characterised by an abundance of tall, broad-leaved herbs. Examples of this community are commonly found at high-altitude on mica schist, as seen on the Reserve, and have a particularly rich montane flora, including alpine woodsia, tufted saxifrage and many rare bryophytes and lichens. These species are rare in the uplands owing to their sensitivity to grazing. The total extent of tall herb habitat is difficult to estimate but is probably much less than 1,000 hectares in the UK and Creag Meagaidh is one of the most important sites in the UK for this habitat.

Joining the rare species on these ungrazed areas of cliff are more common species including roseroot, wild angelica, lady's mantle, globeflower, great wood-rush and

water avens. In wetter areas scurvy grass, marsh marigold and common valerian are more common. Unusually at Creag Meagaidh there are ledges with tall herbs at low altitude with species such as wood vetch and melancholy thistle.

The only standing water on the Reserve is found in the two small lochans at the base of the towering crags of Corries Choille-rais and Ardair and at Lochan na Cailliche at the western end of the Reserve. . The lochans can be frozen for 5 months of the year. The clear soft water of these lochans contains low levels of nutrients and, during the 1993 survey for Lochan a Choire in Coire Ardair, only 8 open water and 1 edge species of plant were found, due to the low nutrient levels. Lochan Coire Choille-rais is extremely unusual in that it contains no fish

## **Heath**

The slopes below the cliffs are covered in extensive hummocky moraine deposits, laid down by retreating glaciers. Here the ground is a mosaic of different heaths. Above the natural tree line<sup>2</sup> alpine heaths develop where as boreal heaths generally develop below it. Boreal heaths are usually found in either gaps among scrubby high-altitude woods or in areas where woods have been lost due to grazing and burning. At lower altitudes there are European dry heaths and in wetter areas where drainage is less free, North Atlantic wet heaths.

The main plants of the alpine and boreal heaths are dwarf shrubs of heather and blaeberry, with alpine plants such as mountain bearberry and trailing azalea. On more exposed ground or where the snow lies for longer lichens and mosses are more common,



*Heath*

Where the ground is more freely draining, the soils more acidic and low in nutrients dry heaths occur. Dry heaths are dominated by dwarf-shrubs but the most abundant species is heather. There are several types of dry heath within the Reserve, each supporting different proportions of plants such as bell heather, blaeberry, crowberry, bearberry and patches of gorse.

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<sup>2</sup> The natural treeline is the height at which the level of exposure and climatic conditions prevent trees regeneration.

In the wettest areas where the drainage is impeded, shallow peats form with wet heath as the main vegetation type. Cross-leaved heath is the dominant species, but sedges and sphagnum bog mosses are common. On the shallower slopes and flatter ground, limited areas of blanket bog occur with carpets of sphagnum bog mosses, cotton grasses and occasionally purple moor grass.

## Woodland



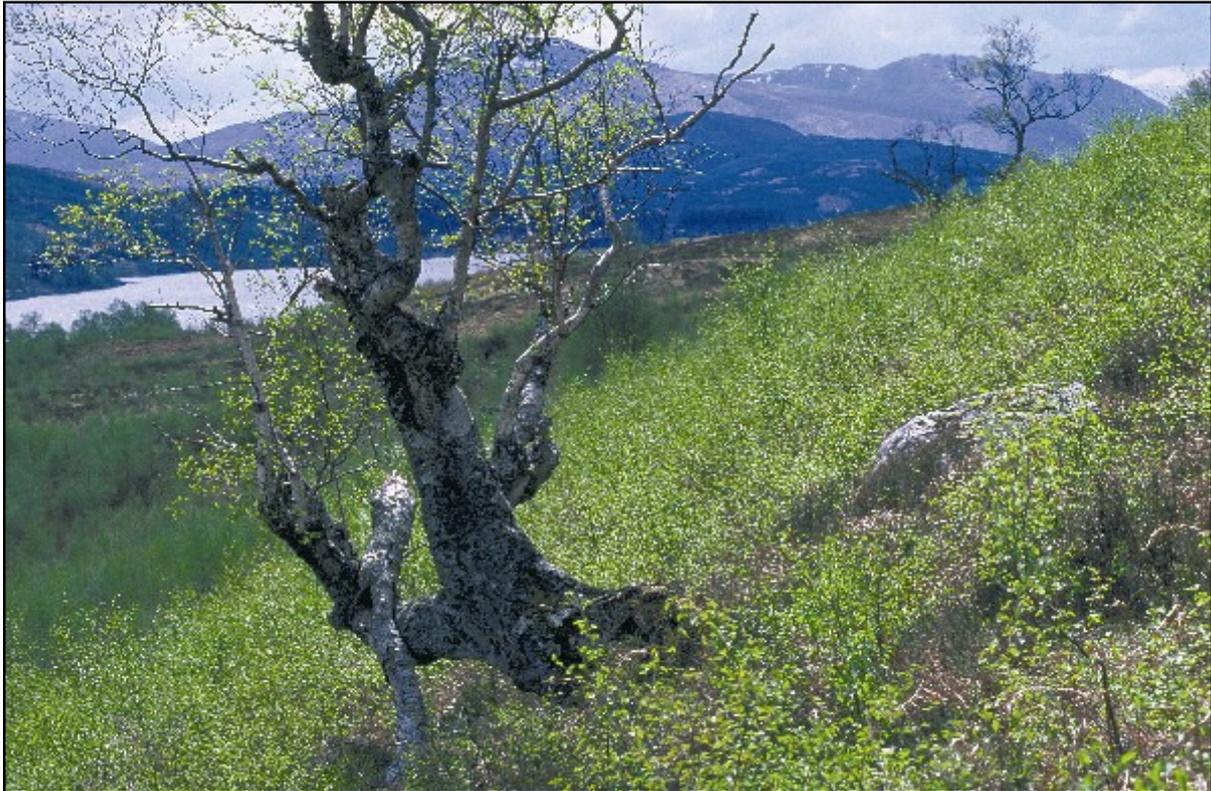
*Birch woodland at Creag Meagaidh*

The patches of woodland on the lower slopes of Creag Meagaidh are the remnants of an ancient woodland that is now highly fragmented. In the past the woodland would have extended further upslope, gradually petering out above 600-700m. At its greatest extent as much as 65% of the land above Loch Laggan, within the Reserve, would have been wooded.

A long history of heavy grazing by sheep and deer has prevented the natural regeneration of trees, resulting in the woodland slowly retreating as the trees aged and died, but were not replaced by young trees. However since the Reserve was established in 1986 the grazing pressure has significantly reduced with the removal of sheep grazing and the culling large numbers of deer. Trees have now started to grow again and the wood is being re-born.

By reducing the grazing pressure small seedlings, held in check for years, have been able to grow up into saplings. Birch, willow and rowan are the most abundantly regenerating trees on the Reserve, but other species such as aspen, oak and hazel are returning too, as well as alder along the burn sides. Natural regeneration from seed is also occurring further supplementing the woodland development.

As the grazing pressure has been reduced many woodland plant species are recovering and have become more visible. Among the birches close to the path heath spotted orchids, wood cranesbill, grass of Parnassus, common cow-wheat, primrose and globeflower grow. Some of these flowering plants like chickweed wintergreen and wood cranesbill, as well as some lichens and mosses normally found in woodland conditions, are growing out with the existing woodland, evidence perhaps of where woodland occurred in the past.



*Woodland regeneration*

## Species

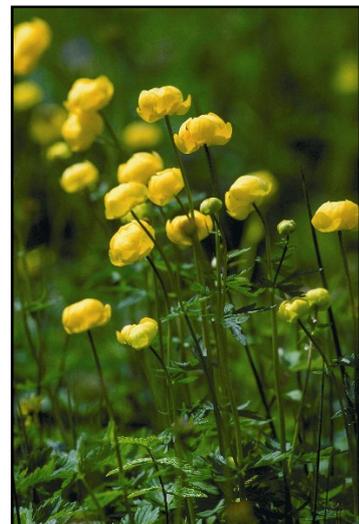
The diversity of habitats found on Creag Meagaidh from the woodland of the lower slopes to the upper reaches of the plateau produces a rich flora and fauna.

## Flora

### Vascular plants

Creag Meagaidh supports a rich assemblage of species many of which are associated with the upland and cliff areas. The number of nationally rare species on Creag Meagaidh is similar to that found in the Affric-Cannich Hills and on Ben More Assynt.

There are 34 nationally important vascular plants found on Creag Meagaidh of which three are Red Data Book (RDB) species, the rest Nationally Scarce (NS). The majority of these are found in the uplands and all three of the RDB species are montane species: woolly willow, wavy meadow grass and Highland saxifrage.



*Globeflower*

They all occur at high altitude in calcareous to acidic rocky habitats.

There are three NS species not restricted to the uplands. These are bog orchid, Scots pine and common wintergreen. Bog orchid is as the name suggests found on bogs (but those with some water movement) or along the edges of flushes and open water. This species has decreased in its lowland localities in the UK and is threatened in Europe as a whole. Scots pine is found in the woodland on the lower slopes and common wintergreen amongst the dwarf-shrub heath.

The hawkweed flora in Coire Ardair is rich and of particular note. Although notoriously difficult to identify, five nationally scarce hawkweeds have been identified here.

## Lower plants

Creag Meagaidh may be expected to be a rich site for mosses and liverworts, especially montane species, since a wide range of habitats are represented. However, only limited information is available. Uncommon *Sphagnum* species including Girgensohn's bog moss, Lindberg's moss and Russow's bog moss, have been recorded and a number of rare mosses and liverworts are associated with the late-lie snow-beds, these include the RDB mosses: snow feather moss, large-leaf thyme moss and snow fork moss and three RDB liverworts; compact rustwort, book flapwort and floppy earwort.

Over a 120 species of lichen have been recorded on the site, including seven old woodland indicators. However no further information is available, but the range of montane habitats suggests the site is likely to be of important for its lichen flora.



*Boulders carpeted in lower plants*

## Birds

In total 137 species of bird have now been recorded within the area covered by the Reserve. Of these, 53 breed regularly and a further 16 have bred at least once. Nine other species are thought to have bred, but have not yet been confirmed and the remaining 68 are non-breeding summer visitors, passage migrants, winter visitors or vagrants.

A notable community of upland bird species is present on Creag Meagaidh. Of particular note is the dotterel, one of Britain's rarest birds, which breeds on the little modified, moss heath carpets of the plateau. Around 27 pairs breed on the Reserve, representing at least 2.7% of the breeding population in the UK. Land above the 750m contour is classified as a SPA for breeding dotterel. The Reserve is also important as a staging post during migration for dotterel that breed elsewhere in Scotland or Scandinavia.



*Dotterel*

On the higher heaths and summit plateau ptarmigan, snow bunting and golden plover breed along with the dotterel, while on the lower slopes red grouse and greenshank occur. In the denser woodland chaffinch, willow warbler, tree pipit and wren are regularly seen. Black grouse have a well established lekking site in the lower section of the Reserve.

Birds listed as vulnerable in the RDB include dunlin, red grouse, black grouse, twite, ringed plover, curlew, and golden eagles, which have recently returned to breed. Merlin and peregrine both breed on the Reserve.

## **Mammals**

There are three species of deer on the Reserve – red, roe and sika. The high numbers of mainly red deer were preventing natural woodland regeneration, so this species, in particular, is managed to reduce numbers to a level where woodland could regenerate naturally. Red deer are a natural part of woodlands and their presence is beneficial in creating structurally varied woodland with different aged trees and open glades. However their numbers need to be kept in check to allow regeneration to occur.

Roe deer, on the other hand, are less of a problem and but are still managed by culling. Sika are a sub-species of red deer, originating in the Far East. Escapes from collections have allowed these deer to establish themselves in Britain and there is now a resident population surrounding the Reserve. They can interbreed with red deer and produce fertile hybrids. Sika deer are a non-native and are therefore seen as a problem and are controlled vigorously.

Sheep were taken off the land before it became a Reserve but strays from neighbouring estates are still found on the high ground. Liaison with neighbouring shepherds still occurs to allow their removal.

Mountain hares are common in the upland area, on steeper slopes and summit ridges. The elusive pine marten and otter exist on the Reserve but both are hard to find and are only seen occasionally. The almost mythical wildcat has only been glimpsed once in recent years.



*Mountain hare in summer*

Many smaller mammals are found at Creag Meagaidh including wood mouse, house mouse, bank vole, short tailed field vole, and recently a water vole population has been discovered. Moles are present within Coire Ardair and both the common and pygmy shrew occur on the Reserve.

## **Invertebrates**

Many studies of invertebrates have been carried out so this is one of the best-known upland sites for invertebrates outside of the Cairngorms. On the montane plateau alone we have records of over 150 species of invertebrates. There are 23 RDB invertebrates at Creag Meagaidh. Among the more significant is the large wolf spider, which is confined to only one or two of the highest summits in Scotland. Two beetles and two flies that are virtually unknown elsewhere and one fly, *Spilogona trigonata* that only occurs in Scandinavia and North America has also been identified. One or two other invertebrates recorded on the Reserve have not been found anywhere else in Britain.

Fifteen species of butterfly are found on the Reserve. These include the nationally scarce small mountain ringlet, which generally lives above the tree line among snowbed vegetation and alpine heath, and the larvae are dependant on moorland plants. The butterflies are monitored as part of the national butterfly-recording scheme. More common species include large heath, meadow brown and chequered skipper.

There are records of over 190 species of moths on the Reserve so far. They include the black mountain moth, a nationally rare species found in the upland area.

Dragonflies including golden-ringed dragonfly and large red damselfly can be found on streams and bog pools, and in 1995 the rare northern emerald dragonfly was recorded for the first time.

A number of hover flies have also been recorded including one listed in the Red Data book and two others rarely recorded in the UK.

## **Summary**

Creag Meagaidh is an important upland site with a wide altitudinal range that supports a broad range of habitats, from the successfully regenerating woodland on the lower slopes, to the rare alpine plants and willows of the cliffs and corries to the carpets of woolly moss heath on the summit plateau. This wide range of habitats supports a rich flora and fauna and the current management regime, whereby the grazing pressure is being regulated, should allow further natural development of habitats and a further improvement to the biodiversity of the Reserve.

### 3 History of Creag Meagaidh before it became a NNR

In common with much of the Highlands, the historical record of Creag Meagaidh is fragmented, anecdotal and until relatively modern times, not particularly accurate. To date there are no early records of human habitation at Creag Meagaidh.

The earliest records for Creag Meagaidh date from the seventeenth and first half of the eighteenth centuries. At this time life was dominated by the seasonal requirements of an agricultural way of life. The standard settlement layout was the ferm toun, a loose collection of dwellings and land, tenanted by discrete family groups. There are remains of four ferm toun sites on the Reserve. Each of these units consisted of inbye arable land, and outbye - communally managed, uncultivated, rough grazing on the higher ground. Native wood and peat were cut and used for fuel. Strips of land were drained and cultivated, and hunting and grazing on the open hillside were shared. For the people of Laggan, life was dominated through the seventeenth and first half of the eighteenth centuries by a pastoral lifestyle, interrupted by periods of famine, disease and major rebellion.

In the mid 1700's Cluny Macpherson owned the land at Aberarder as part of his territory in Brae Badnoch. However Macpherson defied the government by supporting the Jacobite cause at the battle of Culloden on 16 April 1746. After the battle he fled to France, forfeiting his estates which were then managed on behalf of the Crown by the Commissioners for Forfeited Estates. The Crown factor started legal proceedings that enabled the eviction of the tenants and organising of the individual ferm touns into a single holding in 1770. The family estates were restored to Colonel Macpherson, grandson of Cluny in 1784.



*Ruins of old farm buildings*

In 1790, the First Statistical Account recorded 20,000 sheep in the Parish of Laggan, which included Creag Meagaidh. By 1840, the New Statistical Account recorded the presence of 40,000 sheep in the Parish.

In 1929, Aberarder and Creag Meagaidh were joined to a number of neighbouring estates including Moy and Braeroy. These estates were managed for a variety of land-uses: deer stalking, sheep farming, fishing, grouse moors and woodland operations.

In 1934 the hydroelectric scheme at Roughburn on the River Spean was completed. Resultant flooding of the low ground around Loch Laggan and later planting and fencing along the southern slopes of Glen Spean and elsewhere greatly reduced winter grazing available to stags from the central and western Monadhliath. For Creag Meagaidh this caused an increase in deer numbers as stags from large tracts of the Monadhliath to the north were joining the few hinds that enjoyed the 'exceptionally good wintering ground' of the area.

From 1947 to 1957 Aberarder was leased for farming. Sheep and a few cattle were kept on the hill and considerable works of agricultural improvements undertaken.

During the 1970's sheep were removed in large numbers. And, by the time Laggan Estates sold to Fountain Forestry in 1983, stalking had replaced sheep farming as the prime land use.

Fountain Forestry proposed to plant a large area of the SSSI with Sitka spruce, but conservation and recreational interests opposed this. The case caused much controversy and was ultimately referred to the then Secretary of State, George Younger. His eventual decision was to allow Fountain Forestry to plant half the area they had originally intended. This was not considered a viable proposition and after further discussions Fountain Forestry agreed to sell the estate to the Nature Conservancy Council in 1985. In May 1986 the estate was officially declared the Creag Meagaidh National Nature Reserve - the beginning of a new era.

## **4 Management of Creag Meagaidh NNR**

SNH (and NCC beforehand) has managed Creag Meagaidh for nature since it became a NNR in 1986.

The first NNR Management Plan set out two main aims:

- To allow ecosystems to evolve with minimum of interference
- To encourage regeneration of native woodland and boreal scrub vegetation

The long-term objectives with these aims in mind were:

- To secure the conservation and enhancement of the natural heritage between the loch shore and the summit of Creag Meagaidh, and
- To promote public appreciation and enjoyment of the area consistent with the first aim and to promote the Reserve for demonstration purposes.

### **Management of the Natural Heritage**

#### **The woodland**

One of the objectives has been to re-establish native woodland on the lower slopes. When the Reserve was established, only a few hectares of native woodland remained but these unprepossessing patches of birch woodland represented the last remnants of an ancient wildwood that once cloaked the slopes of Glen Spean. At this time there was no tree regeneration, because although seedlings were present none were able to grow into saplings because sheep and deer devoured them. Without new growth the woods would disappear like the rest of the Glen Spean wildwood.

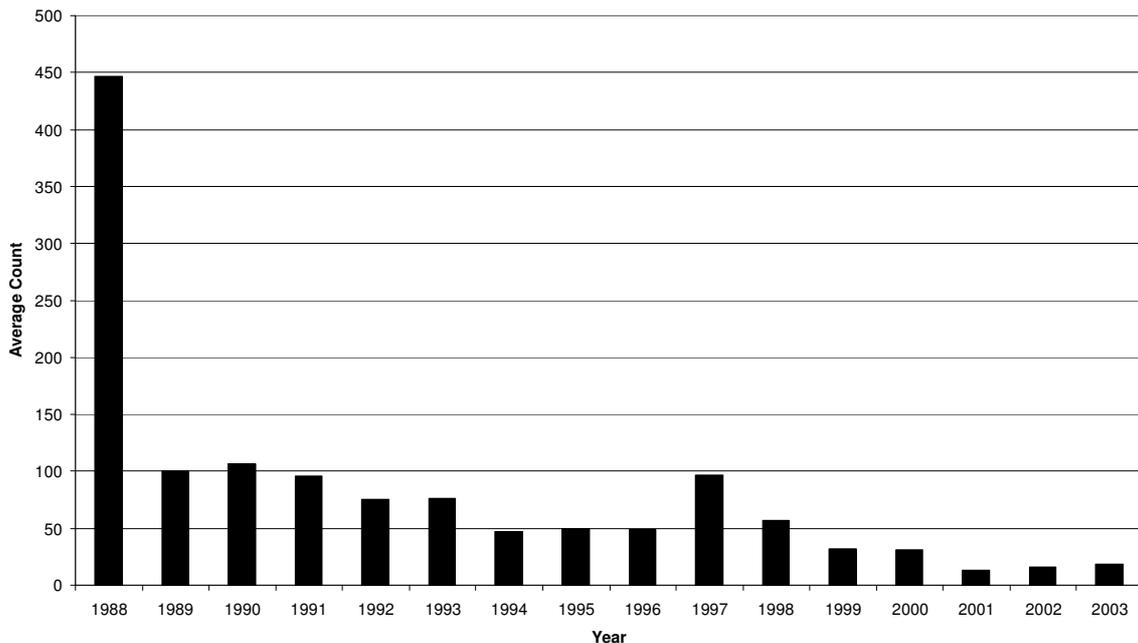
The NCC's assessment showed the main reason for the lack of regeneration was overgrazing by deer and sheep, with possibly some damage from past heather burning practices. By 1985, heather burning had stopped, and sheep had largely been removed, although at this time they still strayed onto the Reserve from adjacent estates. But there were still an estimated 1,000 red deer on Creag Meagaidh. So to encourage the woodland to regenerate, NCC agreed that the main task was to reduce the grazing pressure through removal of sheep and reducing number of deer using the Reserve throughout the year.

#### **Sheep management**

Creag Meagaidh was run as a sheep farm for many years although the last significant flock was sold in 1977. Sheep are a problem because they browse the tree seedlings, and they venture onto ledges, inaccessible to deer, to graze on the

leaves of the rare montane willows. High numbers on the plateau are also a problem, because research has shown they trample and destroy the nests and eggs of the rare breeding dotterel.

We have encouraged shepherds to gather their stray sheep and take them back to their own ground, but gathering-wandering sheep is a time consuming task. We found the solution with one neighbouring estate was to erect a new fence, through a management agreement and this both prevented sheep entering the Reserve and



### **Average sheep counts at Creag Meagaidh NNR 1988 – 2003**

reduced the grazing on the vegetation of the adjacent SSSI. Another neighbouring estate sold their sheep when the estate changed hands in 1998, further reducing the number of invaders straying onto the Reserve. Nowadays far fewer sheep stray onto the Reserve in the summer and they are less frequent visitors than they were in the past, so the sheep problem has been almost solved.

### **Deer management**

There are three species of deer on the Reserve, red, roe and sika, although red deer are by far the commonest. One of the main management challenges has been to reduce the number of deer on the Reserve to enable trees to regenerate naturally, and so we have tried various different management techniques including fencing, live-capture and stalking. Throughout we have informed the neighbouring estates about our approach to deer management, because from the start they have been concerned that our activities would have an adverse impact on their commercial stalking activities.

In the 1980's it was conventional to use fencing to ensure the growth of young trees, for both commercial forestry and native woodland, because fences prevented deer, sheep, hares and rabbits grazing the trees in the crucial early years. Fencing, properly sited and well managed, has proved an effective means of establishing trees in the Highlands. However there are problems with fences. Fences tend to result in a monoculture of uniformly aged trees, where the ground flora is suppressed by lack of light. Where snow lies for months on end, deer can easily cross the fences and they can be lethal to flying grouse. They can be unsightly and do not always sit well in a landscape. And fences can impede access for walkers and cyclists.

Deer are naturally a woodland creature and therefore woodland development can go hand in hand with grazing at the correct levels. At Creag Meagaidh our idea was to try a new approach, encouraging native trees to grow without erecting fences and to use the deer to manipulate the woodland development to create more natural woodland with trees of different species and age mixed with open areas and rides important for bird and insect species. The deer at Creag Meagaidh are therefore an essential ingredient of the natural woodland development.

Nevertheless, we agreed to fence a small area, and an area called Am Meall of approximately 350ha was enclosed in 1987 to guarantee some tree growth. However within a few years, the results of monitoring showed that trees were regenerating just as well outside the fence as inside, because other management techniques were reducing the grazing pressure successfully, so in 1995 the Am Meall fence was dismantled and sold to a local contractor.

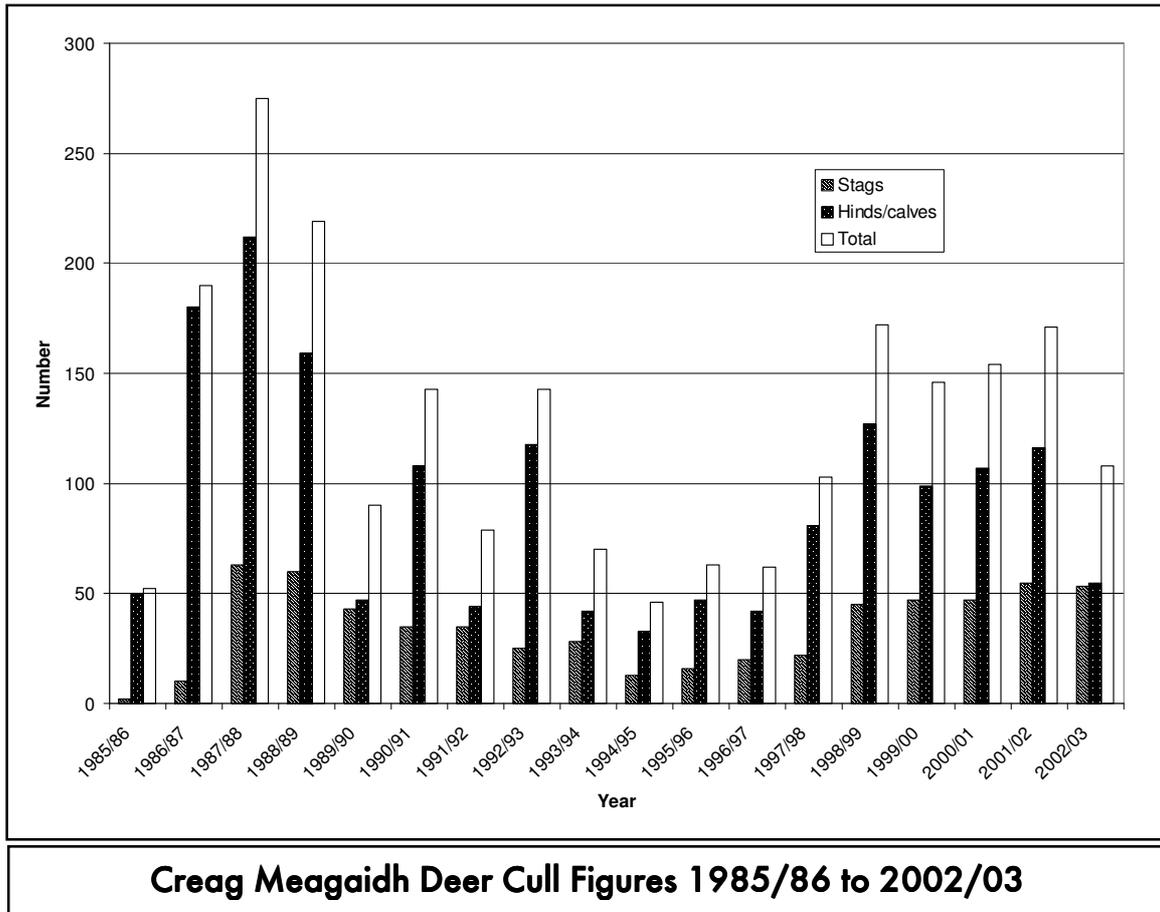
Deer were trapped alive at Creag Meagaidh between 1986 and 1994. Live-capture of deer was a widespread practice in mediaeval times and the remains of enclosure traps can still be seen in some places in Scotland. The deer were baited into the capture fields with turnips, and when sufficient deer had entered the enclosure the gate was closed. When a buyer was found the deer were directed into capture pens where they were then easier to transfer. In 9 years 456 red deer were captured, which included about one third of the hind/calf population at the time. The main reason live trapping was stopped was because the bottom fell out of the live deer market and it became impossible to sell the captured deer. The capture pens have since been dismantled.



*Red deer stag*

Stalking has been the main way of controlling deer numbers since live trapping was stopped; the aim is to use best practice in the way the

deer are managed. Each year we calculate the number of deer to be culled, basing the target number on the results of habitat monitoring programmes backed up by monthly deer counts and previous cull figures. The neighbouring estates, who voiced concerns about the 'vacuum effect' i.e. pulling deer off their ground onto ours are consulted over cull figures annually and part of the success of Creag Meagaidh has been the fact that none of the neighbouring estates have had to reduce their cull targets to date. In fact two of the neighbouring estates have increased their culls in the hope of achieving habitat benefits.



We employ stalkers, as part of our site management team, to carry out the deer cull on the Reserve. Over the years staff noticed that the behaviour of the deer has changed, with an increase in nocturnal invasions and more deer grazing on sensitive areas of the Reserve outside the legal stalking season. In 1996 we applied for a night shooting authorisation and an out of season authorisation to help reduce deer numbers in certain woodland areas of the Reserve. These authorisations have greatly assisted in achieving our habitat restoration goals. Analysis of our deer data has suggested that the Reserve is still inhabited by a transient population of deer which shares its home range with the neighbouring estates. No red deer have become fully residential yet and therefore improvements in the performance of the Creag

Meagaidh deer, as would be expected from living in a more woodland environment, have not occurred yet as they are still mainly an open hill animal.

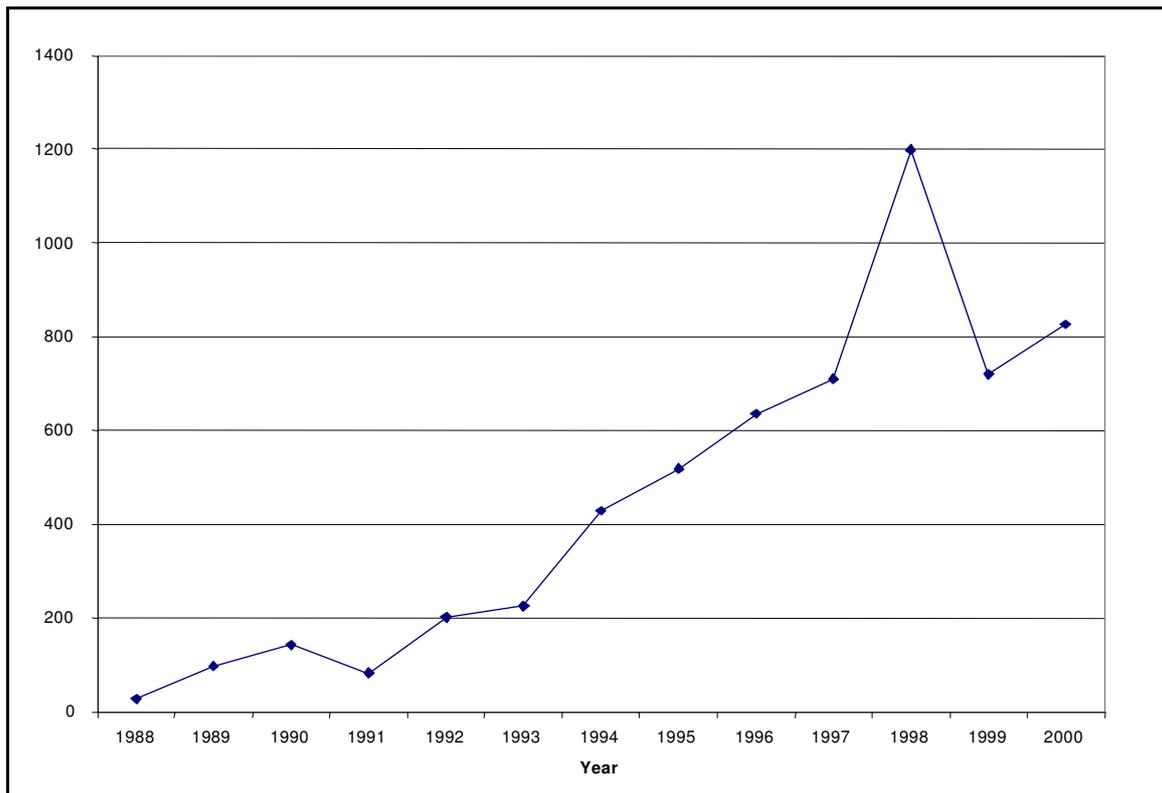
Initially we extracted carcasses using ATVs, but the ATVs caused unacceptable damage on fragile ground, so we have developed a policy whereby ATVs can only be used below 400m and where there is no risk of serious erosion or long lasting damage occurring. A helicopter was occasionally used to retrieve carcasses in the late 80s and early 90s when there was a very high cull and it was economical to do so but we have not used helicopters for this purpose since 1992. We have also used ponies to extract carcasses with limited success; one pony came across from another of our NNRs, the island of Rum. Nowadays, the commonest method is for the stalker to drag the carcass to a suitable ATV pick up point from where it is transported to the deer larder. We upgraded the deer larder in 2004 to meet new health and safety regulations.

Prior to 1985 it was estimated that there were around 1,000 hinds and calves on the Reserve. We have reduced this to a population of around 250 hinds; this has been achieved by culling over a 100 deer a year for 20 years. The deer on the Reserve are counted every month and we have kept other records such as carcass measurements, which have greatly increased our knowledge of the deer. Remarkably we have achieved the cull whilst maintaining an open access policy on the Reserve, a success attributable to the patience and perseverance of our stalkers.

Sika deer were introduced to the UK in the late 1890s and cause problems by interbreeding with red deer. Sika became a problem in the early nineties when the occasional stag was seen on the Reserve. Stags are shot throughout the year and hinds are shot using the Creag Meagaidh out of season code, which has been approved by the Deer Commission for Scotland (DCS) and is enabled by the appropriate authorisations. Roe deer have never been a particular problem but a cull of approximately 6 bucks and 12 does and kids are taken annually in season and the cull level is exceeded where possible.

## **Tree regeneration**

Because one of our main aims is to increase tree regeneration, we monitor the tree growth every year along 16 transects, each 1km long by 2m wide, recording the number of trees growing above vegetation height, the browsing damage on the leaders, deer droppings and the ground vegetation. The results confirm the overall impression that woodland is recovering, showing a steady increase in number of trees and tree height since we established the transects, however success has varied in different parts of the Reserve.



**Average numbers of trees per transect 1988 – 2000**

## Black Grouse

The management is causing changes to the vegetation, which appear to have benefited the black grouse. Their numbers have declined dramatically in Scotland, and now there are only 25% of their total numbers 25 years ago. In the first 10 years there were sporadic records of black grouse on the Reserve, but since 1995 when 5 leks were located with about 30 birds, we have monitored the leks systematically. The highest number, 68 males at 6 leks, was recorded in 1998, but since this high point numbers have fallen back and now average around 30 lekking males.

We also manage two areas under the Cairngorm Upland Grain Project, which aims to improve winter feeding areas for black grouse, finches and buntings. The first, a grassland area, is sown with oats, cut mechanically and then stooked by hand. The second is planted with assorted root crops, principally neeps. Results so far have been promising with mixed flocks sometimes exceeding a 1,000 bird including chaffinch, green finch, brambling and reed bunting, and recently black grouse have started to use the oat field.

## The uplands

We carry out very little direct management in the upland zone, but our efforts to reduce the number of sheep and deer grazing in the woodland zone also benefit the vegetation on the plateau. Increasing regeneration is slowly expanding the woodland uphill wherever natural conditions permit. Current monitoring of woodland indicator species, suggests that the trees could grow above 650m, but above 750m there is a relatively stable montane environment.

No recent surveys have been undertaken of dotterel but there are regular reports of breeding birds on the plateau during the summer. The assumption is that the numbers are stable.

## Management for People

### Visitors

We welcome and encourage visitors to the Reserve, and in some years we have as many as 10,000 visitors. We have installed automatic counters at key entrances to count the visitors and from time to time we interview our customers to find out more about them and their needs. Many visitors are walkers who come to climb the summits, while in winter ice climbers come to try some of the fifty or so routes on the crags above Lochan a'Choire at the head of Coire Ardair, and others visit the Reserve to enjoy and appreciate the wildlife.



*Path to Coire Ardair*

We have installed various facilities for visitors such as the car park and the path to Coire Ardair. In 1997 we commissioned an Interpretive Plan; this recommended ways to improve visitor enjoyment on the Reserve. As a result we improved the car park, installed new signage and maps and a feedback board, added information about local activities, and produced leaflets and other publications. We also installed four stones, engraved with poetry by Sorley Maclean at the start of the path, these have met with mixed responses but generally favourable.

The path to Coire Ardair proved very popular and is very well used, but it was constructed using old railway sleepers in some stretches but it is now very worn so we are now upgrading and re-surfacing the path to meet contemporary standards. The lower section of this path was upgraded to a mixed-ability standard in 2006. In 2007 we created a new all-abilities path through the alder woodland on the slopes below Aberarder Farmhouse to open access to a new area of the Reserve.

## **Schools**

We encourage school groups to visit the Reserve. One group of local schoolchildren have regularly helped us with the monitoring programme, and in so doing they have gained an understanding of the workings of Creag Meagaidh NNR. The Reserve staff and the local honorary warden are always pleased to respond to requests from special interests groups and escort them around the Reserve.



*Educational visit to Creag Meagaidh NNR*

## **Volunteers**

We also have volunteers assisting with the day-to-day running of the Reserve, because fortunately we can provide accommodation in the historic farmhouse at Aberarder. As well as people from the UK, we have also had many volunteers from Continental Europe. Many volunteers are students who carry out short research projects as part of their placements.

The research, survey and monitoring work on the Reserve has been carried out by a combination of staff, volunteers and student researchers, but increasingly we employ contractors to undertake specialist research.

## **Local community**

SNH has always considered it very important to maintain good contacts with the local community and we make considerable efforts to do so; after all it isn't so very long ago that sheep grazed the Reserve run by a local family who lived at Aberarder. Therefore Creag Meagaidh holds a particular historic place in the minds and actions of the people of the closest village of Laggan, so we put all significant plans, proposals and developments before the Community Council. The Reserve Manager also attends Community Council and other meetings. 'Splash', the Parish newsletter, features regular articles about the Reserve, its activities, staff and wildlife. There is also

an exhibit about the Reserve on display in the gallery in the village and most years we hold community days.

## **Neighbours and other landowners**

Neighbouring estates have been concerned from the start about how the management of the Reserve, especially the deer, might affect their own properties. Initially they feared heavy culling on the Reserve would create a vacuum that would suck in deer from their adjoining properties, with consequences for their businesses. Successive Reserve managers have therefore taken care to explain our plans to neighbouring landowners. In practice, the feared vacuum effect has not occurred, and the expanding woodland on the Reserve demonstrates that innovative land management can sit alongside more traditionally managed land.

SNH has held many demonstration and training days to show other land managers what we do at Creag Meagaidh and how we do it. In 1997 Paul Ramsay wrote a book about the management of the Reserve and we have since produced a variety of other publications explaining our work including a Reserve leaflet and the Reserve dossier. It is heartening to find others now following the approach to woodland restoration without fences that has been used at Creag Meagaidh.

## **Property Management**

The Creag Meagaidh NNR covers nearly 4,000 ha and includes numerous buildings at Aberarder, the former farmhouse. We have invested substantial capital sums to make this building habitable as a house and office. We use the former steadings as a workshop, garaging for the vehicles, a haystore, a fire fighting equipment store and a deer larder, the latter had a major re-furbishment to a very high standard in 2004 to meet new health and safety requirements. As with any property expenditure is needed for ongoing maintenance of the buildings. A task we have in mind for the future is to develop a way to harness renewable energy to provide a power supply for the buildings, and now a micro-hydro scheme appears to be the most promising option.

Moy farmhouse at the western end of the Reserve and has been identified as being surplus to requirements for the running of the Reserve. The building has, in previous years, been leased to a road construction company and, more



*Aberarder Farmhouse*

recently, to Monarch of the Glen for filming purposes. The likelihood is for the property to be sold on the open market.

The number of staff on the Reserve has varied over the years. At present there are two full time, two six-month contract posts, a part time cleaner and administrator. The local staff report to the Operational Manager based in Aviemore.

## **Summary**

Creag Meagaidh has changed considerably in the years since it became a NNR. The signs of woodland recovery are now very visible, and we hope one day the woodland that once clothed the slopes and corries of this mountain massif will return. The woodland restoration to date has been achieved largely without fencing by reducing the numbers of sheep and an intensive programme of deer culling. Contrary to some opinions, SNH is not trying to eliminate the deer but is regulating their number to allow the woodland to develop naturally with a range of tree species and ages and open glades.

By engaging people in this process and promoting all year round access we have generated interest and support among a wide audience.

It is the combination of all the management activities described that has enabled SNH to make such a good start towards restoring the natural habitats and species, particularly the woodland and associated flora and fauna, on Creag Meagaidh NNR.

## Appendix 1 - National Nature Reserves

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

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

The attributes are:

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

The purposes are:

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

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

More information can be found at:

Policy statement <http://www.snh.org.uk/pdfs/polstat/nnrpolicy.pdf>  
National Nature Reserves <http://www.nnr-scotland.org.uk>

## Appendix 2 - Special Area of Conservation

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

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

The following website provides further information:

Special Areas of Conservation:

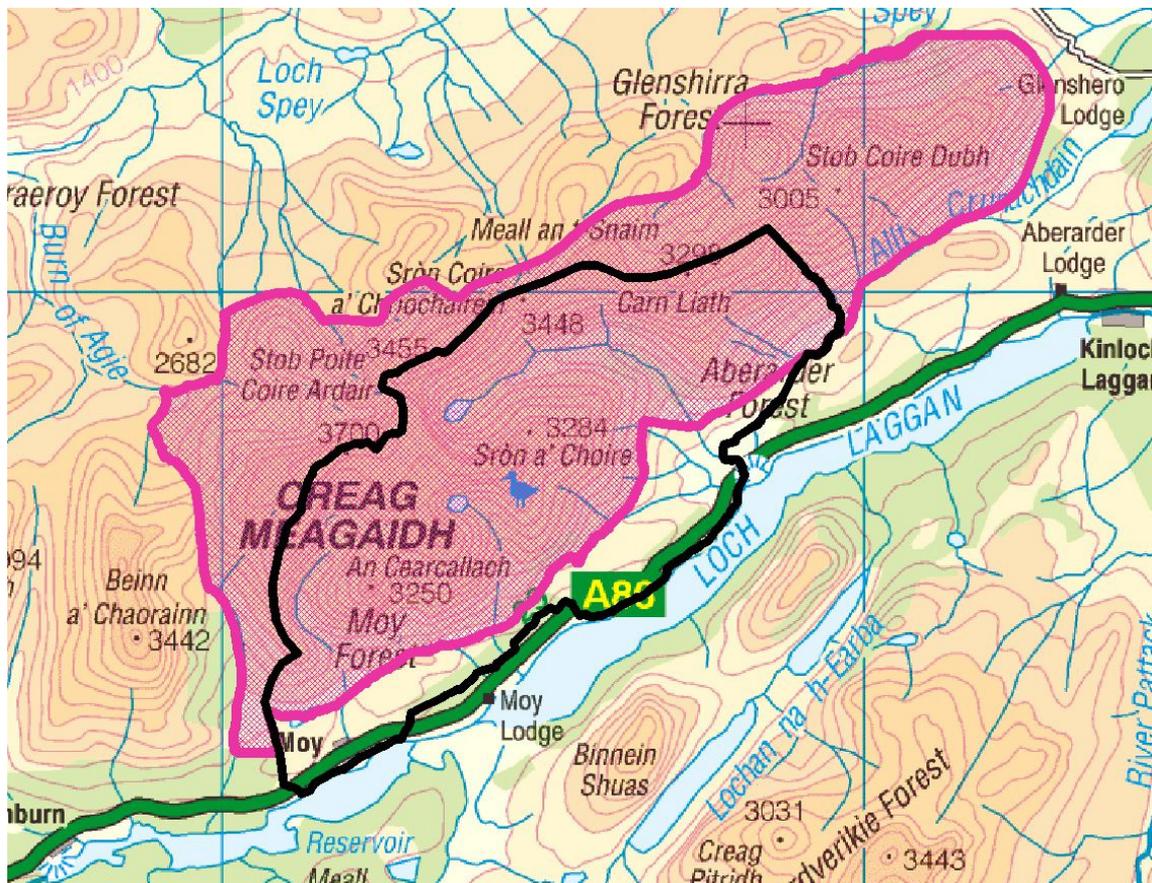
<http://www.jncc.gov.uk/ProtectedSites/SACselection>

## Creag Meagaidh SAC

Country	Scotland
Unitary Authority	Highland
Grid Reference	NN451886*
Latitude	56 57 45 N
Longitude	04 32 55 W
SAC EU Code	UK0012955
Area (ha)	6144.58
Weblink	<a href="#">Creag Meagaidh - Special Area of Conservation - SAC</a>

 SAC Area     
  NNR Boundary

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



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

### Sub-Arctic *Salix* spp. scrub

Creag Meagaidh is representative of W20 *Salix lapponum* - *Luzula sylvatica* Sub-Arctic *Salix* spp. scrub on less calcareous schist in the west-central Highlands at moderately high altitude (600–750 m). The site includes examples of scrub in an exceptionally wide range of different situations and associated vegetation types. Clumps of willows are widely scattered in corries on crags and rock ledges, along rocky or steep burn-sides, in boulder fields, in *Carex* - *Juncus* flushes, and in flushed ground in association with mountain saxifrage *Saxifraga aizoides*. Downy willow *Salix lapponum* is the most common species, while mountain willow *S. arbuscula* and dark-leaved willow *S. myrsinifolia* are also represented.

### Siliceous alpine and boreal grasslands

Creag Meagaidh has an extensive high plateau with schistose rocks similar to those on Drumochter Hills. The site contains a large area of Siliceous alpine and boreal grasslands with the full range of community types characteristic of the central Highlands. U10 *Carex bigelowii* - *Racomitrium lanuginosum* moss-heath is the dominant type on the high plateau, while the species-rich sub-type is also represented as small stands, mostly in association with solifluction terracing. There are large stands of U7 *Nardus stricta* - *Carex bigelowii* grass-heath and U8 *Carex bigelowii* - *Polytrichum alpinum* sedge-heath is extensive on the summit of Creag Meagaidh. U9 *Juncus trifidus* - *Racomitrium lanuginosum* rush-heath is developed locally on exposed ridges. Despite the similarity of rock type, the proportions of the communities present on Creag Meagaidh are different from those on Drumochter Hills. The dominance of *Carex* - *Racomitrium* moss-heath on Creag Meagaidh is probably due to a more oceanic climate, while the smaller extent of *Nardus* - *Carex* grass-heath and *Carex* - *Polytrichum* sedge-heath compared with Drumochter Hills is due to less prolonged snow cover on the high plateau. There are transitions to extensive late-lie moss-dominated snow-bed communities (U11 *Polytrichum sexangulare* - *Kiaeria starkei* snow-bed and U12 *Salix herbacea* - *Racomitrium heterostichum* snow-bed) and flushed U13 *Deschampsia cespitosa* - *Galium saxatile* grassland. U14 *Alchemilla alpina* - *Sibbaldia procumbens* dwarf-herb community is also represented.

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

Creag Meagaidh has examples of hydrophilous tall herb fringe communities representative of Moine schist rocks in the central Highlands. The habitat is moderately well-developed and largely confined to ungrazed cliff ledges but unusually occurs in at least one boulder field. The characteristic species of the community are well-represented, and include roseroot *Sedum rosea*, wild angelica *Angelica sylvestris*, lady's mantle *Alchemilla glabra*, globeflower *Trollius europaeus*,

great wood-rush *Luzula sylvatica* and water avens *Geum rivale*. Wet or moist ground supports scurvygrass *Cochlearia officinalis*, marsh-marigold *Caltha palustris* and common valerian *Valeriana officinalis*. Unusually there are tall herb ledges at low altitude with species such as wood vetch *Vicia sylvatica* and melancholy thistle *Cirsium heterophyllum*. The habitat grades into 4080 Sub-Arctic *Salix* spp. scrub, and downy willow *Salix lapponum* occurs among tall herbs on some ledges.

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

- Oligotrophic to mesotrophic standing waters with vegetation of the *Littorelletea uniflorae* and/or of the *Isoëto-Nanojuncetea*
- Northern Atlantic wet heaths with *Erica tetralix*
- European dry heaths
- Alpine and Boreal heaths
- Blanket bogs
- Siliceous scree of the montane to snow levels (*Androsacetalia alpinae* and *Galeopsietalia ladani*)
- Calcareous rocky slopes with chasmophytic vegetation
- Siliceous rocky slopes with chasmophytic vegetation

## Conservation objectives for Creag Meagaidh SAC

To avoid deterioration of the qualifying habitats:

- Blanket bogs
- Oligotrophic to mesotrophic standing waters with vegetation of the *Littorelletea uniflorae* and/or of the *Isoëto-Nanojuncetea*
- Northern Atlantic wet heaths with *Erica tetralix*
- European dry heaths
- Alpine and Boreal heaths
- Sub-Arctic *Salix* spp. scrub
- Siliceous alpine and boreal grasslands
- Hydrophilous tall herb fringe communities of plains and of the montane to alpine levels
- Siliceous scree of the montane to snow levels (*Androsacetalia alpinae* and *Galeopsietalia ladanii*)
- Calcareous rocky slopes with chasmophytic vegetation
- Siliceous rocky slopes with chasmophytic vegetation

thus ensuring that the integrity of the site is maintained and the site makes an appropriate contribution to achieving favourable conservation status for the qualifying features.

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

- Extent of the habitats on site
- Distribution of the habitats within site
- Structure and function of the habitats
- Processes supporting the habitats
- Distribution of typical species of the habitats
- Viability of typical species as components of the habitats

No significant disturbance of typical species of the habitats

## Appendix 3 - Special Protection Area

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

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

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

The following website provides further information:

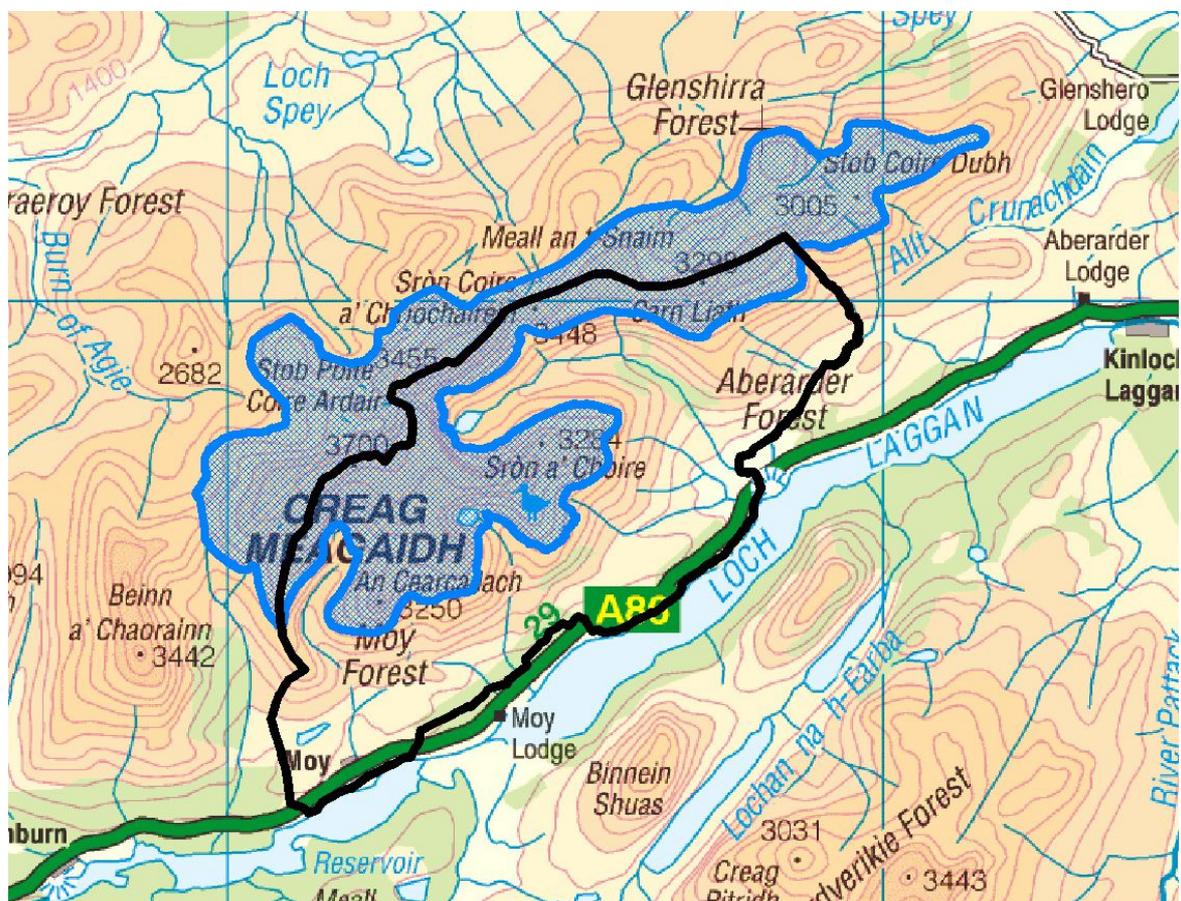
Special Protection Areas

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

## Creag Meagaidh SPA

Country	Scotland
Unitary Authority	Highland
Status	Classified 30/03/1998
Latitude	56 57 00 N
Longitude	04 35 00 W
EU Code	UK9002161
Area (ha)	2872.64
Weblink	<a href="#">UKSPA Review - Creag Meagaidh</a>

 SPA Boundary       NNR Boundary



### Site Description

Creag Meagaidh is a montane massif north of Loch Laggan in the Badenoch & Strathspey district of the Scottish Highlands. There is a wide range of habitats, including grassland, heath, cliff vegetation, snow-bed vegetation, woodland and, on the broad summit plateau, bryophyte heath. The uninterrupted transition of natural and semi-natural vegetation from the shores of Loch Laggan to the summit (at 1,130 m) is a particularly notable feature, as is the north-eastern corrie, Coire Ardair, with its 400 m

cliffs. The site is important for its assemblage of montane birds, in particular an important breeding population of Dotterel *Charadrius morinellus*.

#### Qualifying species

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 Appendix I of the Directive:

During the breeding season;

- Dotterel *Charadrius morinellus*, 23 pairs representing at least 2.7% of the breeding population in Great Britain (8 year mean, 1987-1994)

## **Conservation Objectives for Creag Meagaidh Special Protection Area**

To avoid deterioration of the habitats of the qualifying species:

- Dotterel

or significant disturbance to the qualifying species, thus ensuring that the integrity of the site is maintained.

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

## Appendix 4 - Sites of Special Scientific Interest

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 act in 2004.

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>

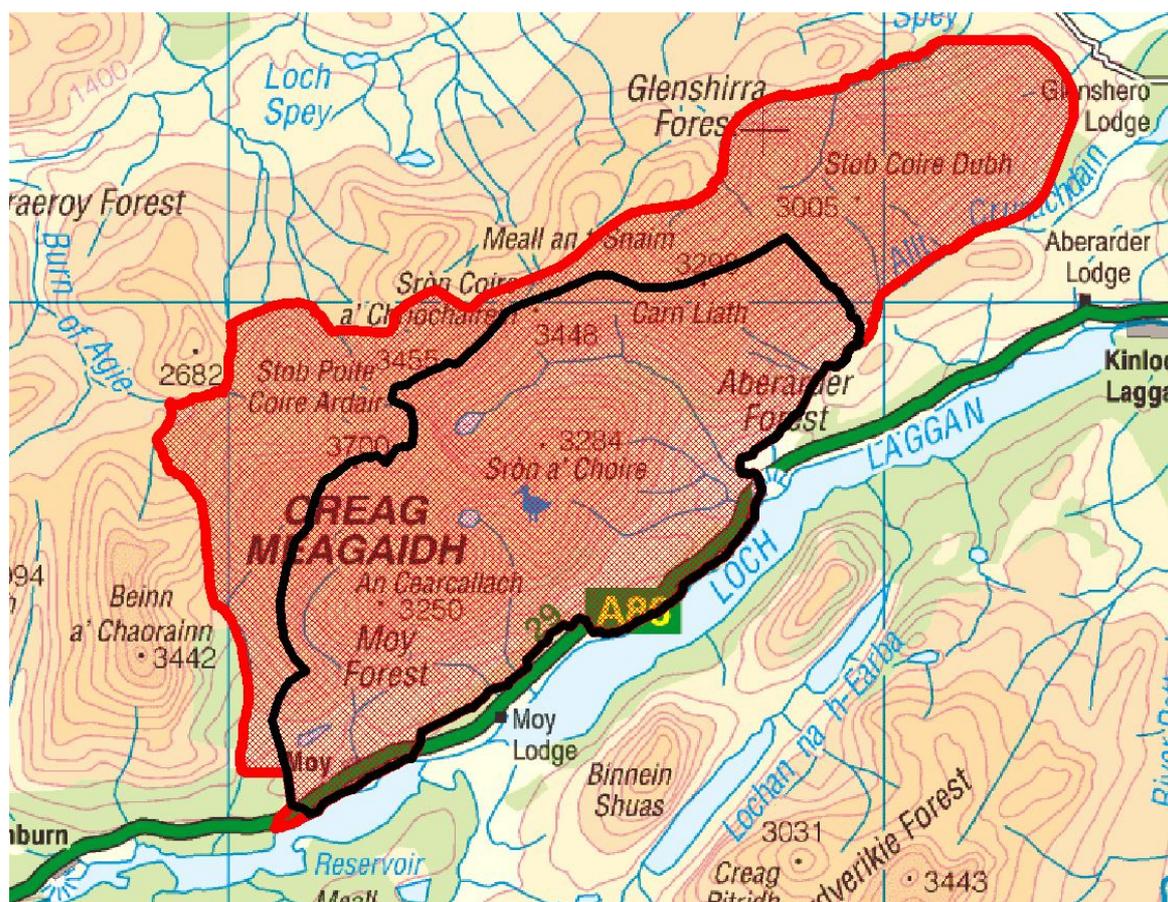
Site of Special Scientific Interest (SSSI):

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

## Creag Meagaidh SSSI

Country	Scotland
Unitary Authority	Highland Regional Council
Grid Ref*	NN 445880
Notified	1 January 1972
Re Notified	12 July 1983
Area (ha)	6,984 Ha

 SSSI Area       NNR Boundary



### <sup>3</sup>DESCRIPTION:

Biological

This is an outstanding upland site with a wide range of characteristic plant communities and some notable montane plants. A feature of the site is the uninterrupted transition of natural and semi-natural vegetation from the shores of Loch Laggan at 250 metres to the summit of Creag Meagaidh at 1130 metres.

<sup>3</sup> The text on this page is an exact replica of the SSSI citation document. This is a legal document and cannot be altered.

The lower slopes of the site support a range of grass, heath and flush plant communities interspersed with extensive birchwoods. Above these slopes there is a broad summit plateau with large areas of *Rhacomitrium* - heath, and swards of Staff sedge *Carex bigelowii*. In places, communities associated with late snow patches are well represented. There are magnificent cliffs on the site; especially notable are the massive 400 metre cliffs of Corrie Ardair and ungrazed cliff vegetation of both acid and basic rocks is fully developed with, for example Wood Vetch *Vicia sylvatica* at lower levels and Downy Willow *Salix lapponum* at higher altitudes.

The extensive altitudinal range, the diversity of habitats, and the broad montane plateau provide the right conditions for the notable community of upland bird species which is present on the site.

#### REMARKS

Nature Conservation Review Site.

## **Appendix 4 - Species Information**

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

### **The Wildlife and Countryside Act 1981**

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

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

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

### **The Habitats Directive**

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

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

### **The Biodiversity Convention**

The Convention on Biodiversity was adopted at the Earth Summit in Rio de Janeiro, Brazil in June 1992. In the UK the Government launched the UK Biodiversity Action

Plan, a national strategy which identified broad activities for conservation work over the next 20 years, and established fundamental principles for future biodiversity conservation. A number of Biodiversity Action Plans (UKBAP) have been produced for selected habitats and species, and some areas have developed local biodiversity action plans (LBAP) too.

## Red Data Book Species

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

Species	Latin	Wildlife & Countryside Act 1981	European Protected Species	Nationally Scarce	Red Data Book Species	National BAP	Local BAP
Alpine cat's tail	<i>Phleum alpinum</i>			✓			
Alpine cinquefoil	<i>Potentilla crantzii</i>			✓			
Alpine foxtail	<i>Alopecurus borealis</i>			✓			
Alpine lady fern	<i>Athyrium distentifolium</i>			✓			
Alpine lady's mantle	<i>Alchemilla glomerulans</i>			✓			
Alpine meadow grass	<i>Poa alpina</i>			✓			
Alpine mouse ear	<i>Cerastium alpinum</i>			✓			
Alpine saxifrage	<i>Saxifraga nivalis</i>			✓			
Alpine speedwell	<i>Veronica alpina</i>			✓			✓
Artic mouse ear	<i>Cerastium arcticum</i>			✓			
Black alpine sedge	<i>Carex atrata</i>			✓			
Bog orchid	<i>Hammarbya paludosa</i>			✓			
Book flapwort	<i>Nardia breidlerii</i>					✓	
Chestnut rush	<i>Juncus castaneus</i>			✓			
Cold eyebright	<i>Euphrasia frigida</i>			✓			
Compact rustworts	<i>Marsupella condensata</i>					✓	
Dandelion sp.	<i>Taraxacum xiphoideum</i>				✓	✓	
Downy willow	<i>Salix lapponum</i>			✓			
Dwarf birch	<i>Betula nana</i>			✓			
Glaucous meadow grass	<i>Poa glauca</i>			✓			

Species	Latin	Wildlife & Countryside Act 1981	European Protected Species	Nationally Scarce	Red Data Book Species	National BAP	Local BAP
Hair sedge	<i>Carex capillaris</i>			✓			
Highland cudweed	<i>Gnaphalium norvegicum</i>			✓		✓	
Highland saxifrage	<i>Saxifraga rivularis</i>				✓	✓	
Intermediate wintergreen	<i>Pyrola media</i>			✓			
Interrupted clubmoss	<i>Lycopodium annotinum</i>			✓			
Juniper	<i>Juniperus communis</i>					✓	✓
Large-leaf thyme moss	<i>Rhizomnium magnifolium</i>					✓	
Mountain avens	<i>Dryas octopetala</i>			✓			
Rock moss species	<i>Andraea blyttii</i>					✓	
Rock sedge	<i>Carex rupestris</i>			✓			
Russet sedge	<i>Carex saxatilis</i>			✓			
Scots pine	<i>Pinus sylvestris</i>			✓			
Scottish pearlwort	<i>Sagina x normaniana</i>				✓		
Shady horsetail	<i>Equisetum pratense</i>			✓			
Sheathed sedge	<i>Carex vaginata</i>			✓			
Sibbaldia	<i>Sibbaldia procumbens</i>			✓			
Small cranberry	<i>Vaccinium microcarpum</i>			✓		✓	
Snow feather moss	<i>Brachythecium glaciale</i>					✓	
Starwort mouse ear	<i>Cerastium cerastoides</i>			✓			
Wavy meadow grass	<i>Poa flexuosa</i>				✓		
Whortle leaved willow	<i>Salix myrsinites</i>			✓			
Woolly willow	<i>Salix lanata</i>				✓		
Mountain hare	<i>Lepus timidus</i>					✓	✓
Otter	<i>Lutra lutra</i>	✓	✓		✓		✓
Pine marten	<i>Martes martes</i>	✓					✓
Pipistrelle	<i>Pipistrelus pipistrelus</i>		✓			✓	
Red Deer	<i>Elaphus cervus</i>					✓	✓
Wildcat	<i>Felix sylvestris</i>	✓	✓				
Argent and sable	<i>Rheymaptera hastata</i>					✓	✓
Fly	<i>Spilogona trigonata</i>					✓	
Large heath	<i>Coenonympha tullia</i>					✓	✓
Mountain ringlet	<i>Erebia epiphron</i>				✓		✓
Rove beetle	<i>Stenus glacialis</i>					✓	
Spider species	<i>Rhaebothorax paetulus</i>				✓		✓

Species	Latin	Wildlife & Countryside Act 1981	European Protected Species	Nationally Scarce	Red Data Book Species	National BAP	Local BAP
	<i>Eccoptomera ornata</i>				✓		✓
	<i>Alloeostylus sundewalli</i>					✓	
Arctic char	<i>Salvelinus alpinus</i>					✓	✓
	<i>Dicranum glaciale</i>					✓	
	<i>Scapania paludosa</i>					✓	
Black grouse	<i>Tetrao tetrix</i>				✓	✓	
Bullfinch	<i>Pyrrhula pyrrhula</i>	✓					
Dotterel	<i>Charadrius morinellus</i>	✓				✓	
Golden eagle	<i>Aquila chrysaetos</i>	✓			✓	✓	
Golden plover	<i>Pluvialis apricaria</i>	✓				✓	✓
Green-shank	<i>Tringa nebularia</i>	✓				✓	
House martin	<i>Delichon urbica</i>				✓		
Merlin	<i>Falco columbarius</i>	✓			✓	✓	
Peregrine	<i>Falco peregrinus</i>	✓			✓	✓	
Redwing	<i>Turdus iliacus</i>	✓				✓	
Reed bunting	<i>Emberiza schoeniclus</i>	✓				✓	✓
Ring ouzel	<i>Turdus torquata</i>				✓	✓	✓
Short-eared owl	<i>Asio flameus</i>	✓			✓	✓	
Siskin	<i>Carduelis flammea</i>	✓					
Snow bunting	<i>Plectrophenax nivalis</i>	✓			✓	✓	
Song thrush	<i>Turdus philomelus</i>	✓			✓	✓	
Twite	<i>Carduelis flavirostris</i>	✓				✓	