# NPPP 2022 Factsheet: LAND MANAGEMENT



## Woodland

The woodlands of the Park are a distinctive feature of the landscape, ecology, economy and cultural heritage. Part of the reason for their importance and distinctiveness stems from the unusually high proportion of native tree species they contain (even commercial woodlands are predominantly Scots pine).

It is also one of the most widely recognised special qualities of the Cairngorms National Park. By providing this network and supporting many of the priority species identified in the CNAP, forests and woodlands make an important contribution to the wider biodiversity in the Park.

The Native Woodland Survey of Scotland indicates that while the average proportion of native woodland across all Scottish local authority areas is 22.5%, the Cairngorms National Park boasts at least 69%, making it the only area in Scotland where native woodland forms the majority of the woodland resource.

Of the native woodland resource, 67% consists of native pinewoods, which are a mixture of ancient forest and woods of plantation origin. 63% of native woodland is in good health for biodiversity, based on analysis of four key condition measures.

## Provisional estimates of forest cover (area, volume and carbon storage) in the Cairngorms National Park (National Forest Inventory, 2015

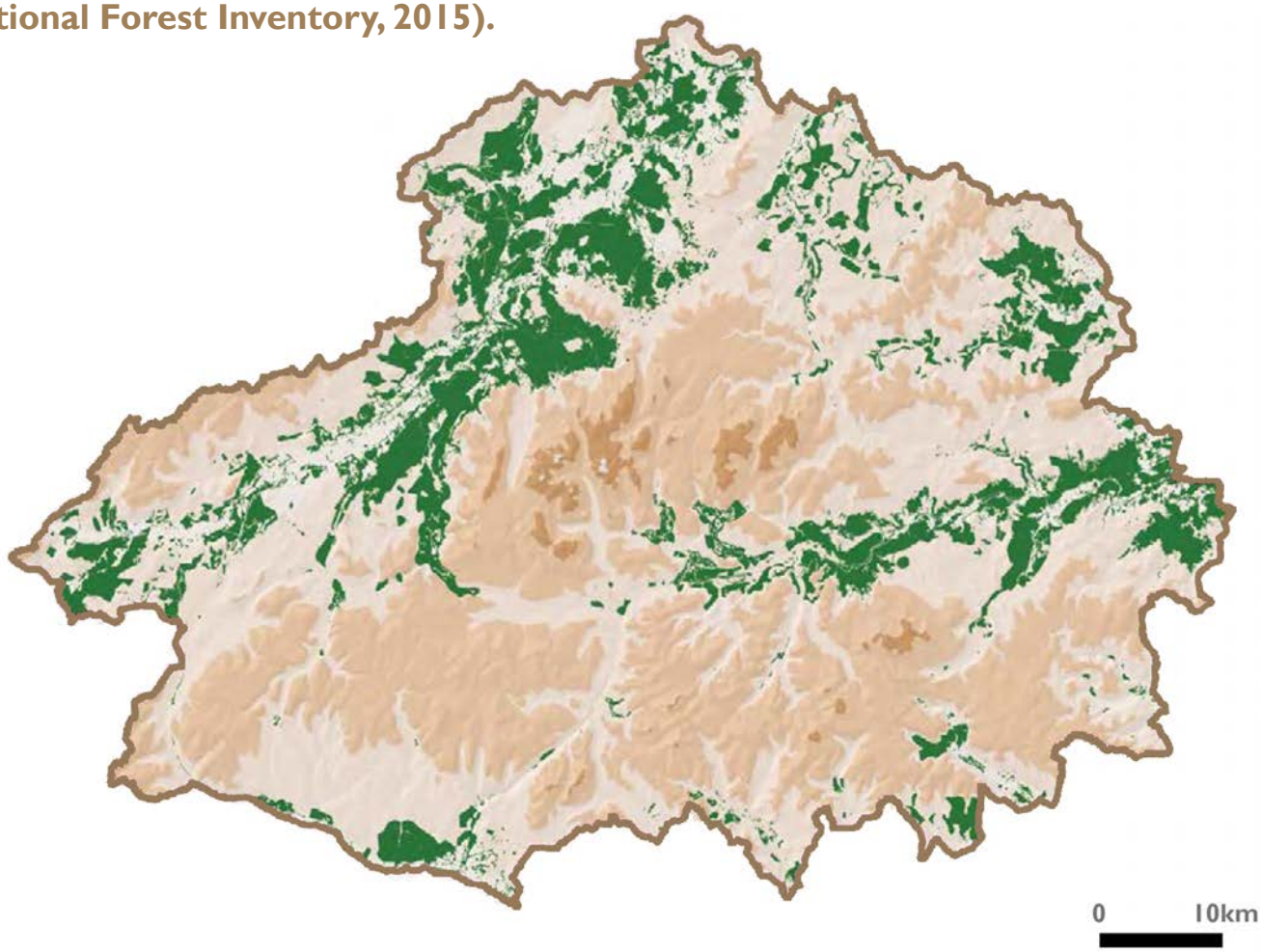
| | Total area (Ha) | Total area (%) | Total volume (K m3 obs) | Total carbon (K t) |
|---|---|---|---|---|
| Scots pine | 36,900 | 60 | 7,240 | 2,577 |
| Sitka spruce | 5,600 | 9 | 1,843 | 549 |
| Lodgepole pine | 3,000 | 5 | 743 | 257 |
| Larches | 2,600 | 4 | 644 | 201 |
| Other conifers | 1,600 | 3 | 552 | 154 |
| **All conifers** | **49,800** | **81** | **11,040** | **3,758** |
| Birch | 10,200 | 16 | 858 | 454 |
| Other broadleaves | 1,900 | 3 | 220 | 104 |
| **All broadleaves** | **12,100** | **19** | **1,082** | **560** |
| | | | | |
| **All species** | **62,300** | **100** | **12,126** | **4,318** |

The table above provides a summary of forest cover by the main tree species in the Cairngorms National Park. 81% of the area of tree cover is coniferous with three quarters of that being native Scots pine (60%). By far the most dominant broadleaf species is birch (16%) with other species, eg rowan and aspen making up only 3% of the tree cover.

## Woodland

Almost all of the Caledonian forest resource ofthe National Park is internationally significant and protected through Special Areas of Conservation (SAC) designation. In the Cairngorms National Park, forest cover is just 16.4% (see the map below), whilst in Scotland as a whole it is 18%. Nevertheless the Cairngorms forests are disproportionately significant for rare flora and fauna. There are 223 species known to be 'highly significant' in the National Park, ie between 75 – 100% of their UK population is within the National Park. Of these, 100 are dependent on woodland whilst, by comparison, wetland hosts 12, grassland eight and moorland only one.

**Current forest resource in the Cairngorms National Park (produced using the National Forest Inventory, 2015).**



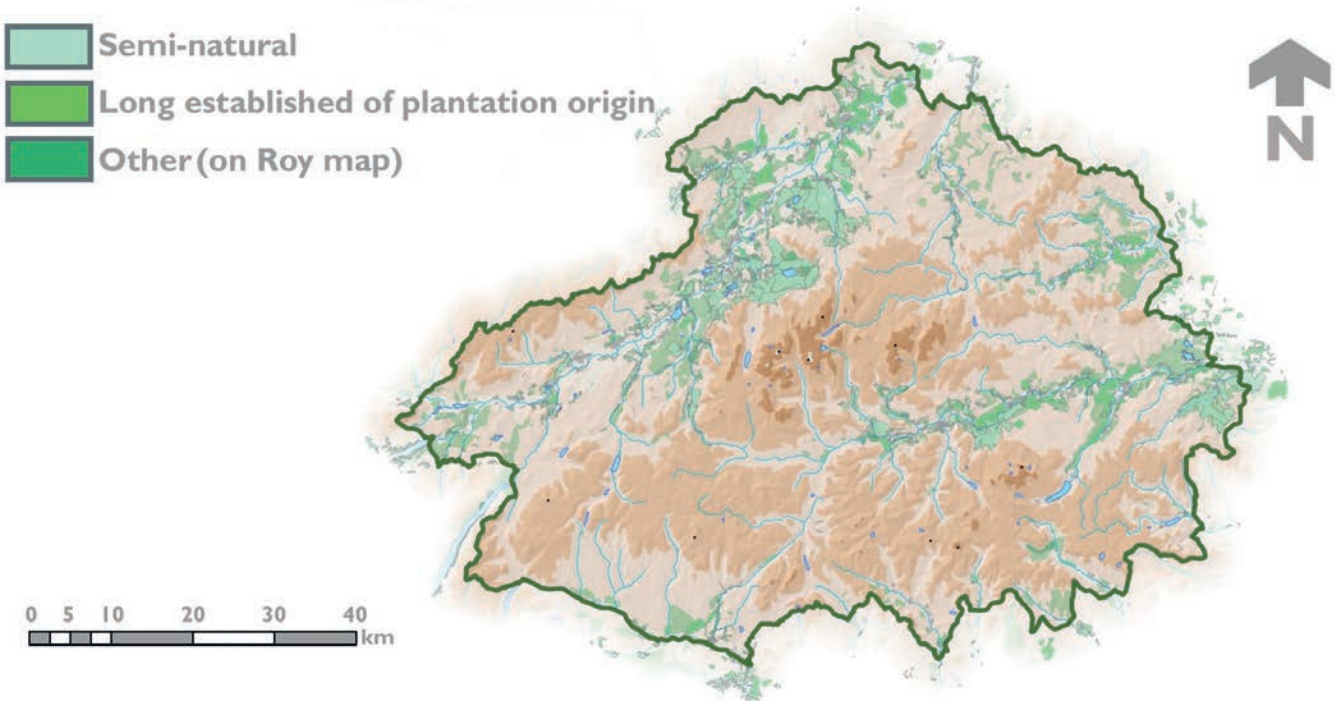



A significant proportion of the National Park forests are managed for timber production, providing employment through all stages of forest management from forest planning to tree nurseries through to planting, felling and providing the raw materials for the sawmills. We are fortunate to have two major sawmills within and on the edge of the National Park and several small scale sawmills in and around the National Park.

The woodland and forest strategy seeks to build upon this resource and infrastructure, creating a sense of optimism and growing forest culture in the National Park.

## Ancient Woodland Inventory woodlands in the Park

Around 340 square km of the National Park's woodlands are identified as being ancient according to the Ancient Woodland Inventory (https://www.nature.scot/professionaladvice/land-and-sea-management/managing-land/forests-and-woodlands/history-scotlandswoodlands ). Although not definitive due to historical mapping issues, the Ancient Woodland Inventory provides an indication of where ancient woodlands can be found in the Park (map below).






Ancient woodland is defined as land that is currently wooded and has been continually wooded, at least since 1750. Around 160 square km of ancient woodlands have been identified as being semi-natural. Ancient woodland is of importance for biodiversity, due to its antiquity and lack of significant disturbance to the soil structure. Once destroyed, it cannot be recreated.

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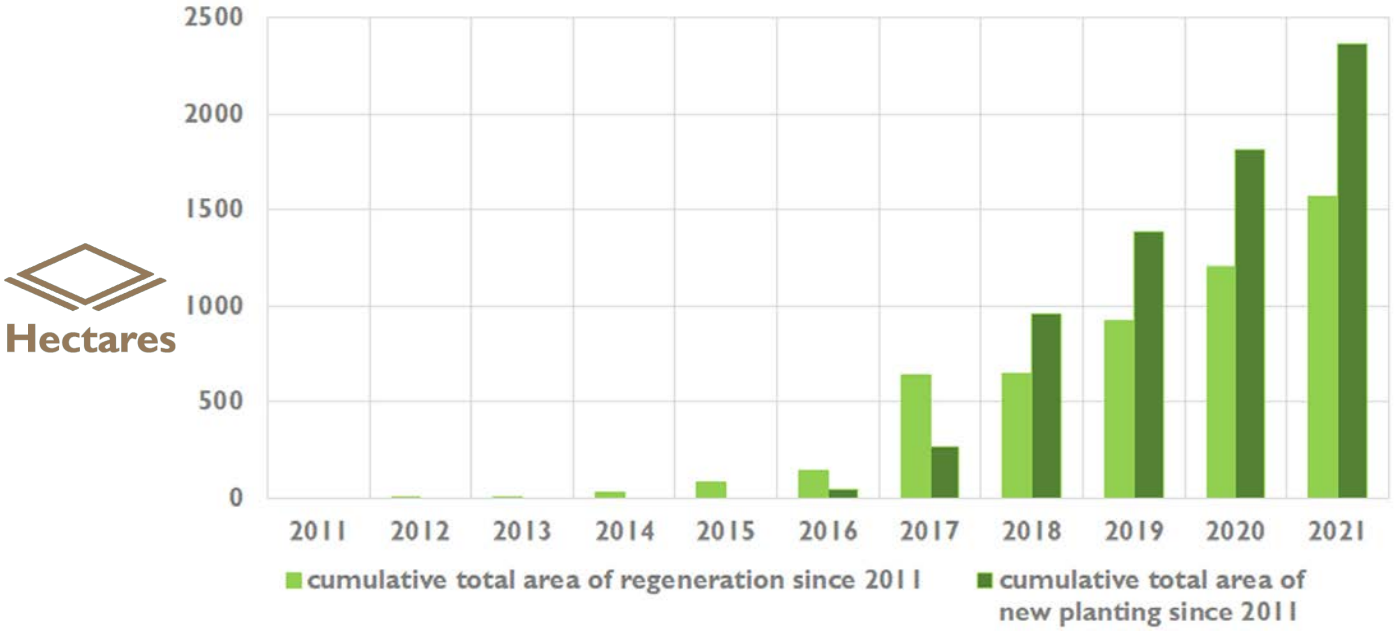
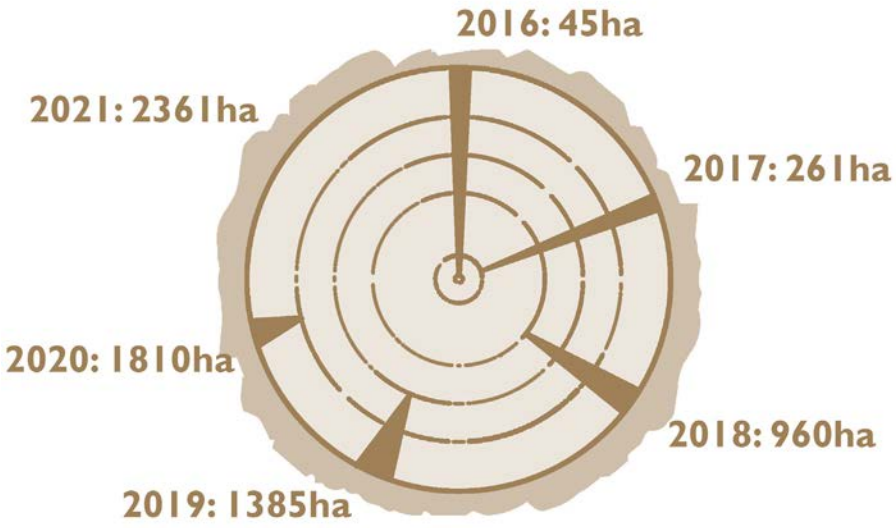
## Woodland Creation

A key aim of the Cairngorms National Park Forest Strategy is woodland creation. Woodland creation can occur through new planting or by creating conditions that allow natural regeneration. Woodland contributes to tackling climate change through trees absorbing carbon dioxide. It can also help to naturally manage flooding, an effect of climate change. There has been a significant increase in new woodland in the National Park since 2011, with around 40% occurring through regeneration and 60% through new planting.

### Cumulative hectares of new woodland since 2011 by creation type




### Cumulative new planting 2016 - 2021



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## Soil

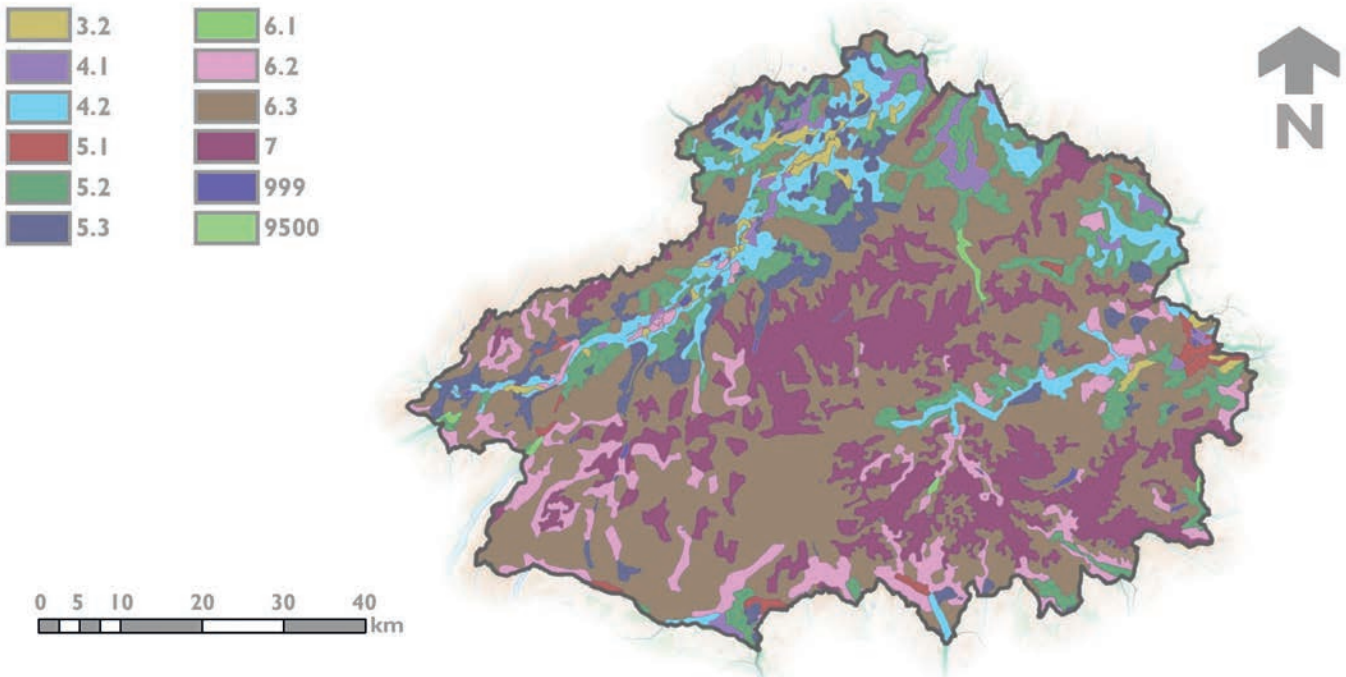
Soils cover much of the surface of the earth, forming the foundation of all terrestrial ecosystems and services. They support key processes in biomass production, atmospheric and hydrological systems. Nearly all of the food, fuel and fibres used by humans are produced in soil. The functions provided by soil depend on a multitude of soil organisms, which makes soil an important part of our biodiversity. Soil is second only to the oceans as a carbon sink, with the potential to play an important role in the slowing of climate change.

## Land Capability for Agriculture

Land Capability Classification for Agriculture mapping provides information about the potential for land to be productive. The classification ranks land from 1 to 7 on the basis of its potential productivity and cropping flexibility determined by the extent to which its physical characteristics (soil, climate and topography) restrict agricultural use. Land classified from 1 to 3.1 is considered to be prime arable agricultural land suitable for production of a wide range of crops. Land classified as 3.2 – 4.2 is suitable for mixed agriculture (primarily cereals, forage crops and grass), with land classified as 5.1 – 5.3 having the potential to be improved grassland. Land classified as 6.1 – 7 is restricted to rough grazing due to severe limitations that prevent improvement by mechanical means.

The majority of land in the National Park, around 93%, is classified as agricultural capability 5 – 7. Around 6% is classified as suitable for mixed agriculture (classes 3.2 – 4.2). Only 0.1%, a small area around Strathdon on the edge of the National Park, is identified as 3.1, prime arable agricultural land.

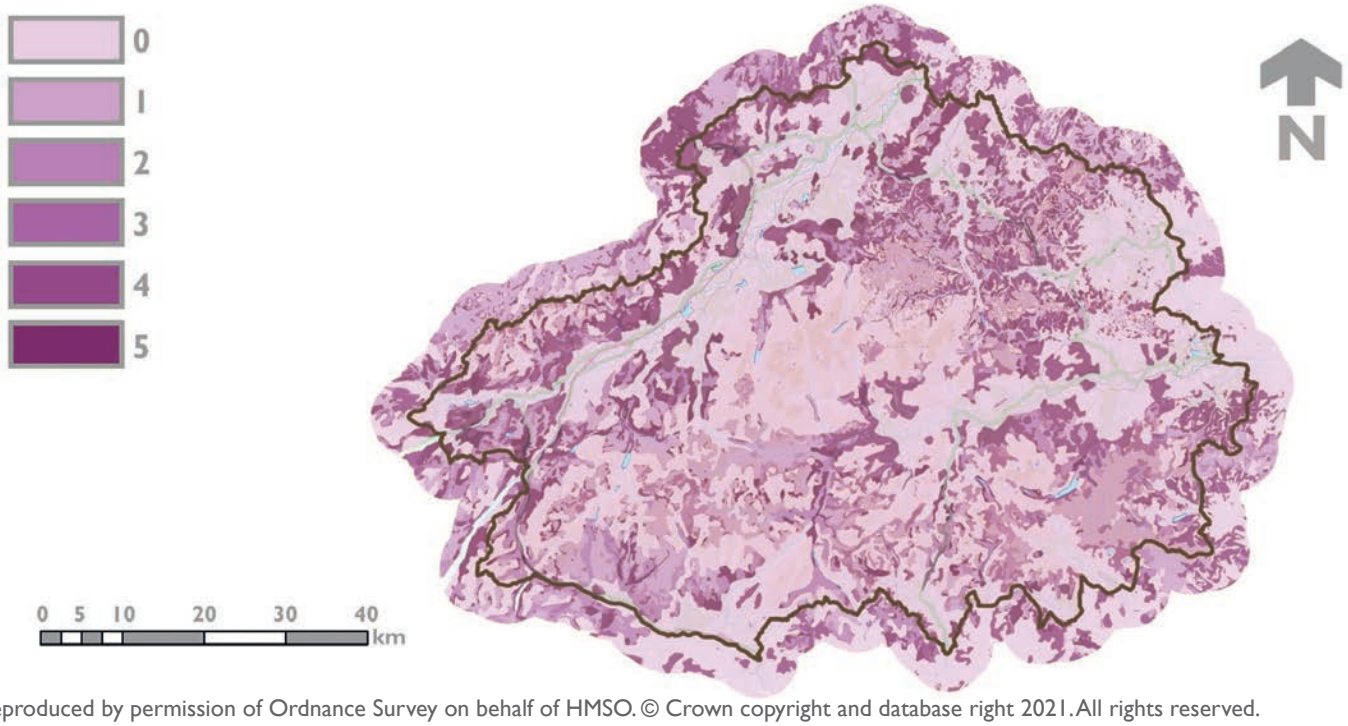
## Land capability for agriculture classification for the Park



## Peatland : Carbon Rich Soils

Carbon rich soils are important carbon sinks that if exposed, start to release carbon back into the atmosphere. Carbon rich soils such as those created by peatland habitats, are very slow to regenerate due to the cool wet conditions stunting plant growth. The soils of the Park are particularly rich in soil organic matter because the cool, moist climate encourages the retention of decomposed organic materials. Peat, the most carbon rich soil, covers an extensive area of the Park.

## NatureScot 2016 mapping of carbon rich soils in the Park






**Class 0.** Mineral soils. Peatland habitats are not typically found on such soils.

**Class 1.** All vegetation cover is by priority peatland habitats. All soils are cabon-rich soil and deep peat.

**Class 2.** All vegetation cover is dominated by priority peatland habitats. All soils are carbon-rich soil and deep peat.

**Class 3.** Dominant vegetation cover is not priority peatland habitat but is associated with wet acidic type. Occasional peatland habitats can be found. Mostly carbon-rich soils, with some areas of deep peat.

**Class 4.** Area unlikely to be associated with peatland habitats or wet and acidic type. Area unlikely to include carbon-rich soils.

**Class 5.** Soil information takes precedence over vegetation data. No peatland recorded. May show signs of bare soil. All soils are carbon-rich soil and deep peat.

Climate is important in determining the equilibrium of soil organic matter content. Changes in climate, such as the increase in heavy rainfall events during winter identified in Topic 1 (climatic factors) are likely to disrupt the equilibrium.

## Deer

There are five species of deer found within the Cairngorms National Park. Their distribution is strongly influenced by human activity and land management:

- Red deer, a native species, have long been central to the cultural and natural heritage of the Highlands. They are common in most upland areas of the Park, although they can also be found in woodlands.

- Roe deer, another native species, are also numerous in the Park. They are more commonly seen on lower ground in and around woodlands.

- Sika deer, a non-native species, are present in much smaller numbers. Populations of sika are found in the Monadhliath mountain range, with individuals also sometimes seen in other areas within the Park.

- Reindeer are found in the Park, mainly in the upland areas around Cairngorm and Cromdale hills. Once a native species, they were re-introduced in 1952, and form a unique semi-domestic herd managed by the Cairngorm Reindeer Centre

- Fallow deer were introduced to Britain in the 11th century. There is a small population in the southern section of the Park in Perthshire.

Deer numbers need to be managed to minimise negative effects on habitats, as well as to ensure there is sufficient food and shelter to maintain the health and welfare of the deer.

## Wild Deer Population Report, 2021, Strath Caulaidh Ltd

Currently, there is insufficient data available to quantify the overall number of wild deer in the National Park, their distribution across habitat types or the regional densities of wild deer with a high level of confidence. However, in work for CNPA (2021, report in preparation), Strath Caulaidh were able to estimate a possible range of values, with an estimated summer population of all species of wild deer of around 50,000 – 80,000 (11 to 17 wild deer per $km^2$).

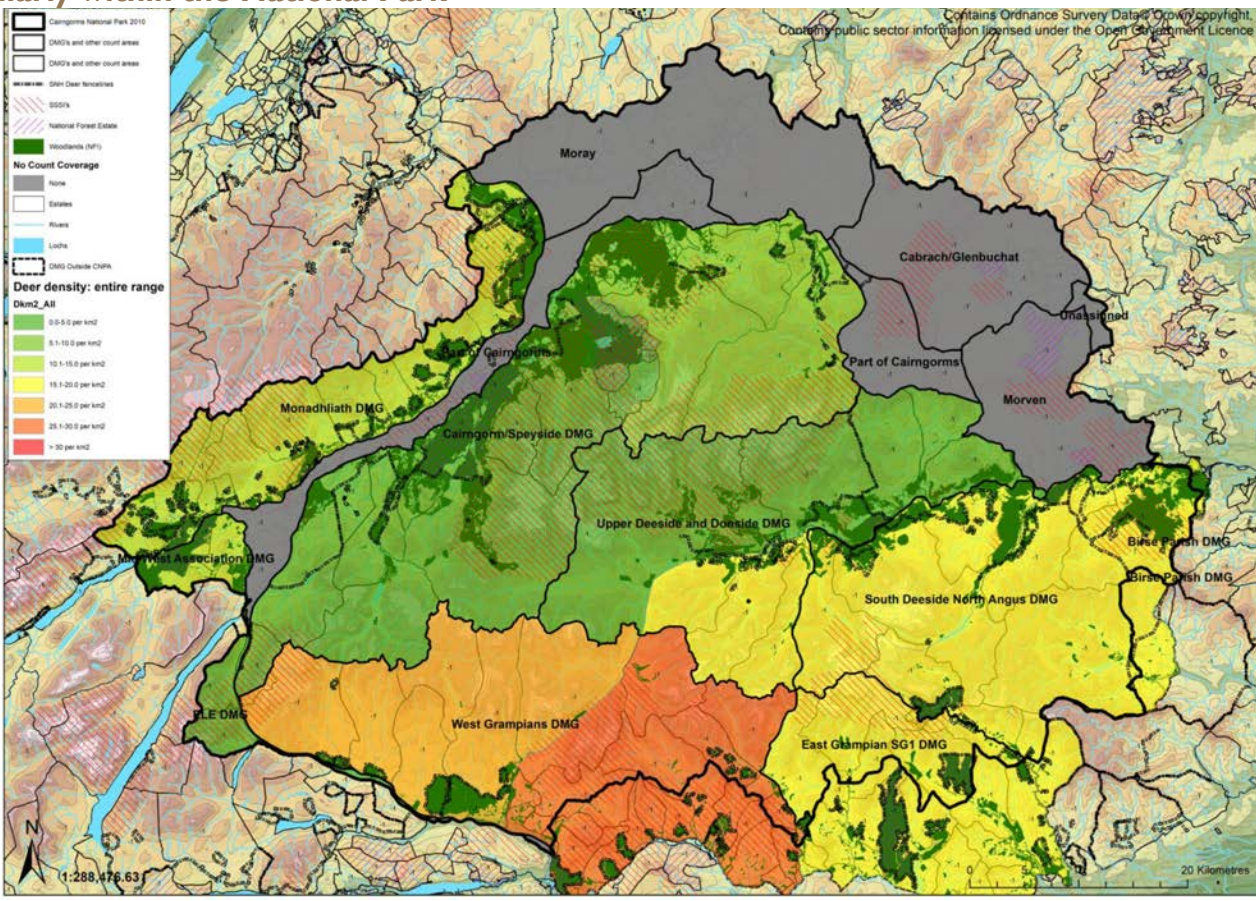
There have been historic changes in the numbers, densities and distribution of wild deer across the National Park, which have influenced present day numbers, densities and distribution. There are marked regional (eg north, south), local (between glens) and habitat type (eg woodland, open range) differences in the population dynamics of wild deer in the National Park. There are also differences between the different wild deer species found in the National Park (red, roe, fallow, sika). This all influences the condition of upland habitats.

For wild red deer, helicopter count data from NatureScot was used by Strath Caulaidh Ltd to extrapolate population information. Over the past 5 years, 68% of the National Park was subject to helicopter counts for wild red deer (not all of the National Park is suitable for helicopter counts, eg areas of woodland). This found that the majority (80%) of wild red deer were in the East and West Grampain deer management areas.

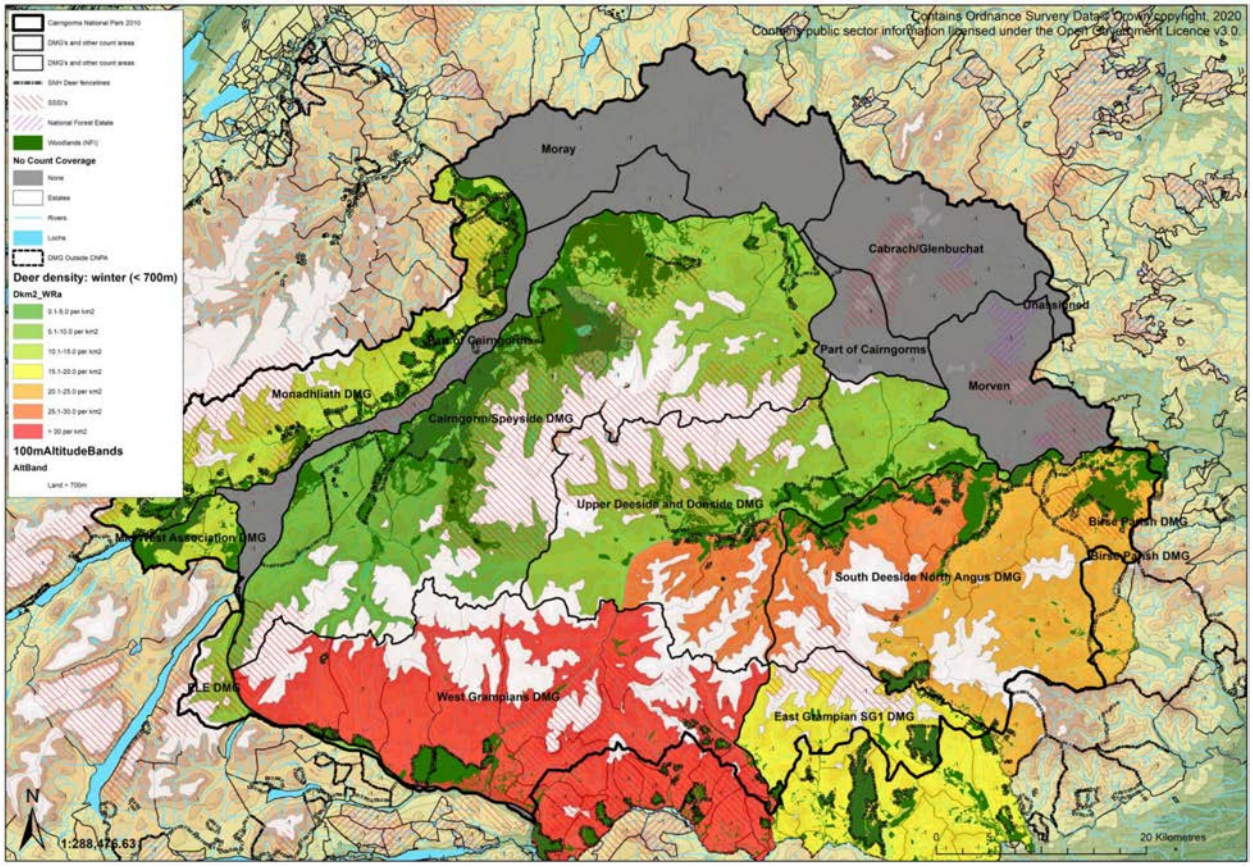
The mean density of wild red deer across the entire range was found to be 11.5 per $km^2$. There was however variation between areas within the National Park, with the lowest density being recorded in the Cairngorms at 4.0 per $km^2$ compared to 20.2 per $km^2$ in the West Grampians (map 1).

In addition, in summer the distribution of wild red deer shifts to upland feeding areas, which has the effect of concentrating their numbers. This results in a variation between summer and winter population counts. In summer the mean density for the National Park was calculated at 19.4 per $km^2$, compared to 16.3 per $km^2$ in winter (maps 2 and 3). Comparing Cairngorms and West Grampians, the summer counts were 6.8 and 34.1 per $km^2$ respectively, with the winter counts being 5.8 and 30.1 per $km^2$ (maps 2 and 3).

**Map 1: Entire range mean wild red deer density polygons for the main areas counted regularly within the National Park**




**Map 2 :Winter wild red deer density polygons for the main areas counted regularly within the National Park.**



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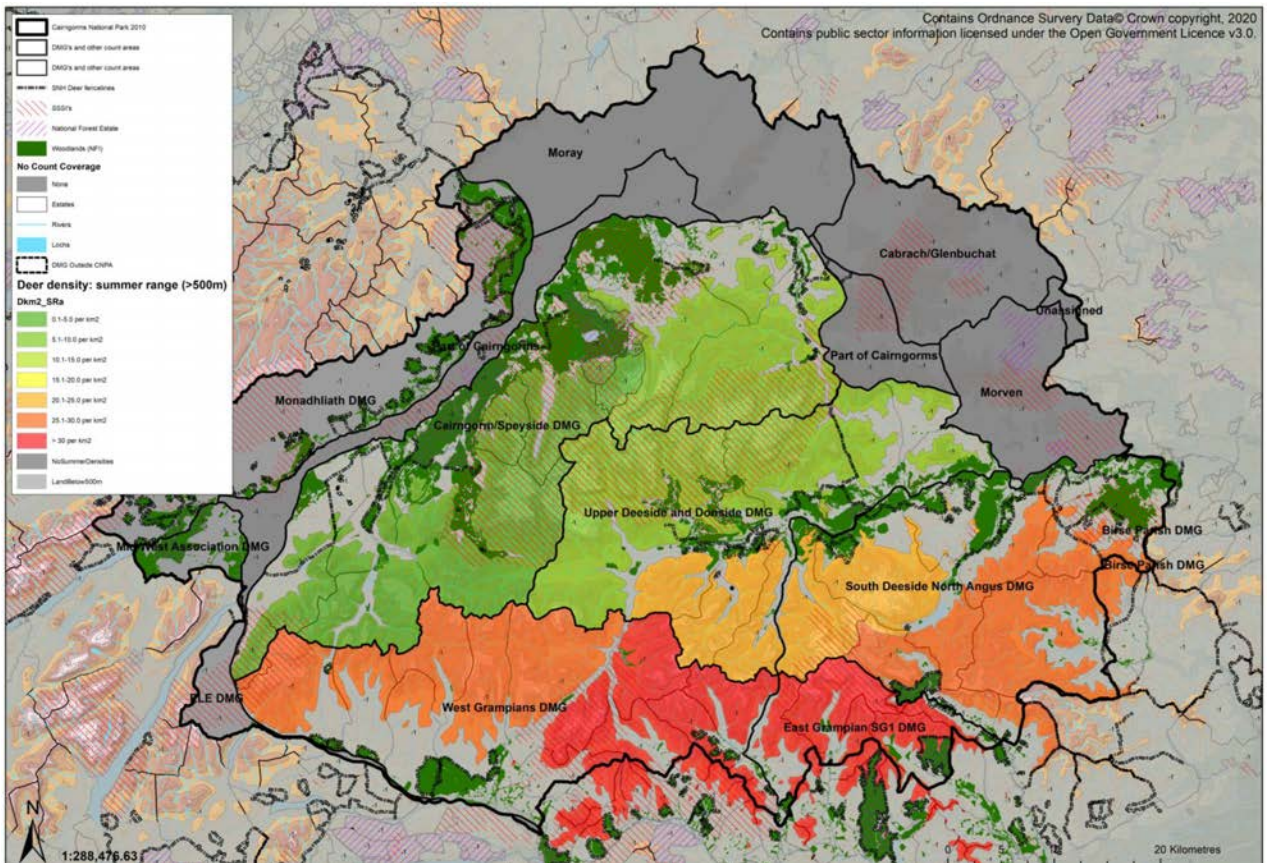
**Map 3 : Summer wild red deer density polygons for the main areas counted regularly within the National Park**




Management of wild deer numbers through culling occurs throughout the National Park. Cull figures, which include all species of wild deer, have changed over time as wild deer populations change and environmental priorities require fewer wild deer in order to reduce damage to fragile upland habitats and woodlands.

Cull records from NatureScot, analysed by Strath Caulaidh Ltd for CNPA (2021, report in preparation) show that almost half a million wild deer of all species (478,216) have been culled in the National Park since 1990. There was a peak of culling activity from the early-to-mid 2000's (24,728 wild deer culled in 2005-06). Before and after this time, culls were lower.

In the National Park, annually 77.1% of culled wild deer are red deer, with 22.3% being roe, 0.2% fallow and 0.4% sika deer. Around 5.2% of wild deer (12,147) were culled on agricultural land, with 23.9% culled in woodlands. The rest were culled on open ground, usually upland areas.

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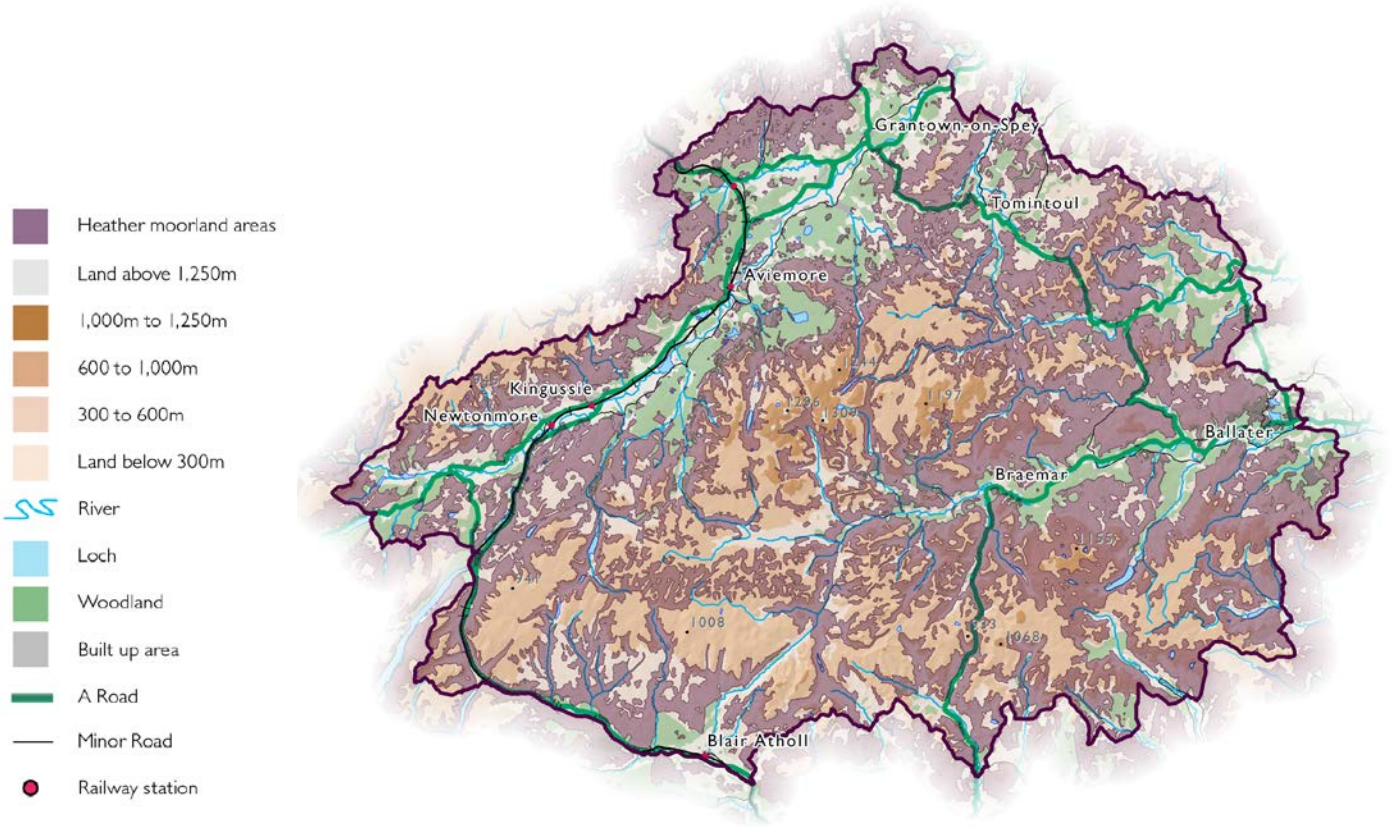
## Grouse Moorland and Muirburn

The sport of shooting driven red grouse on heather moorlands is unique to the UK and has occurred since the mid-19th century. Today, productive grouse moors are mainly found in Scotland and the North of England, where moorlands are actively managed at different intensities by gamekeepers to provide these wild birds with favourable breeding and rearing habitats. Specific management activities include muirburn, predator control and the use of medicated grit to improve grouse health. The following map shows the extent of heather moorland within the National Park, covering just over 40% of its land area. It should be noted that not all of this land is managed for grouse shooting.

## Heather Moorland Areas

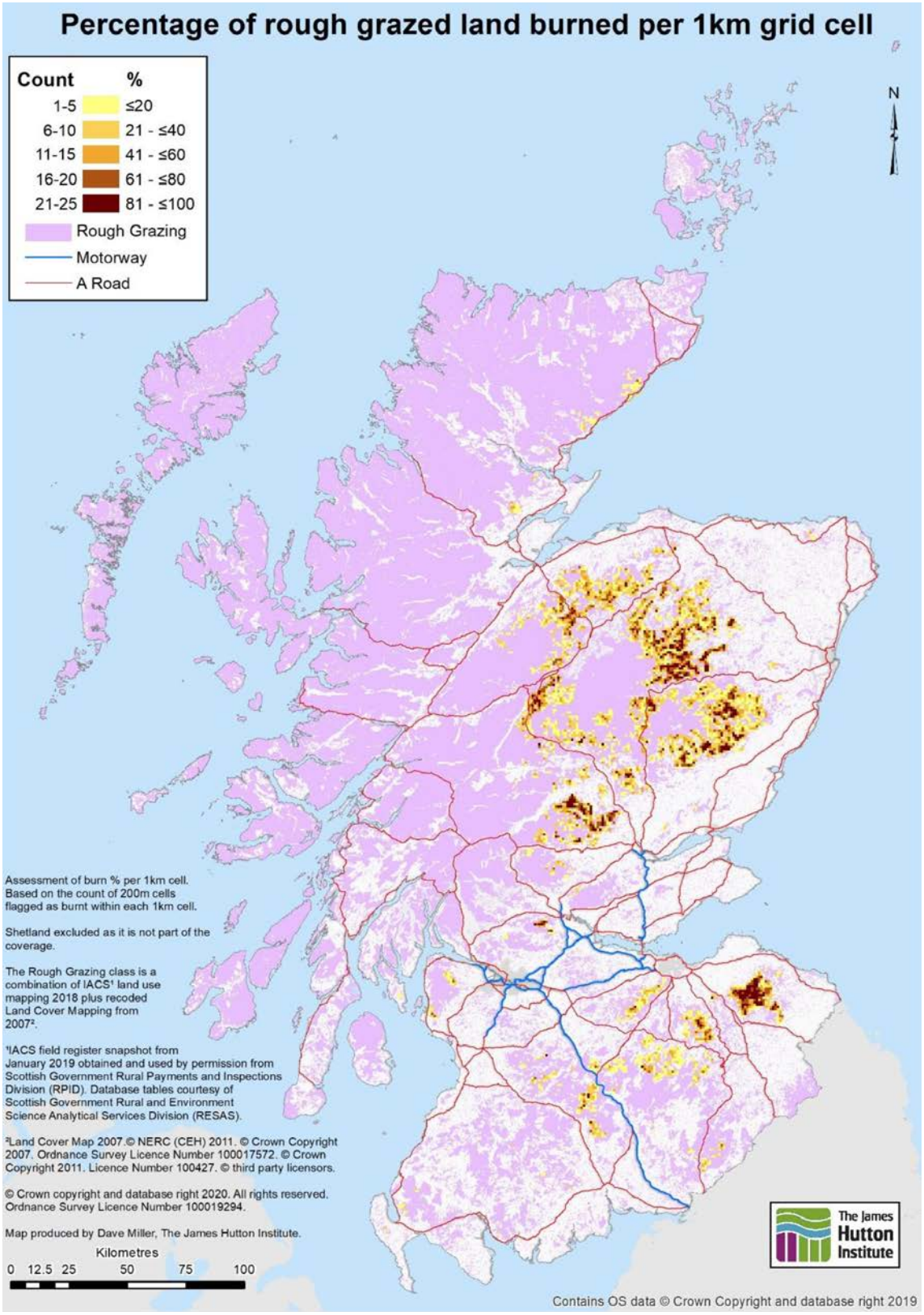





Controlled muirburn creates a mosaic of young and old heather stands, providing food and shelter. It alsoreduces the fuel load and the intensity of any wildfires. Poorly managed muirburn can lead to destruction of rare habitats, carbon emissions, impact on water quality and creation of wildfires.

## Muirburn

Within the National Park there is a high concentration of muirburn in the eastern Cairngorms. Within this area there are clusters of locations with the highest rates of burning (darker coloured areas on the map below).

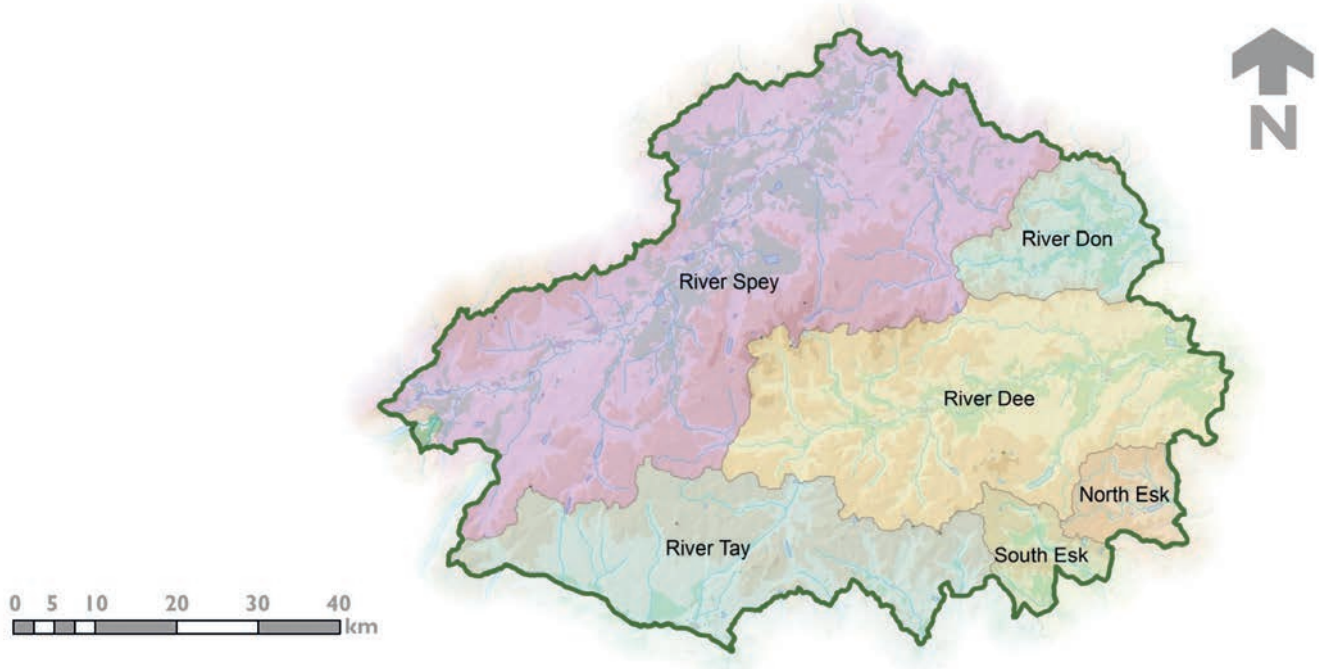


### Muirburn

Here strip burning is being actively practiced – in most cases to support driven grouse enterprises. There is also a wider area with low intensity burning (lighter coloured areas) where either less intensive forms of grouse shooting are being practiced (walked-up or over-pointer shooting) or the grouse shooting enterprise is now absent, with the grouse butts present and the evidence of burning both being relict features.

## Freshwater and Wetland habitats

The Park contains part of eight river catchments, although two have only a very small portion within the Park (map below). The largest catchment is for the River Spey.






The latest data available from SEPA provides information on the ecological status of the 154 waterbodies analysed by SEPA in the Park. This shows that, since the environmental baseline assessment was carried out for the current NPPP in 2015, the number of waterbodies in high, good or moderate ecological status has increased by around 8% while the number in bad or poor status has increased by 1.3%.

## Waterbody status figures for waterbodies in the Park

| Status | 2015, number of waterbodies | 2017, number of waterbodies | % Change |
|---|---|---|---|
| High | 13 | 12 | -0.65% |
| Good | 80 | 87 | +4.55% |
| Moderate | 26 | 32 | +3.90% |
| Poor | 18 | 16 | -1.30% |
| Bad | 2 | 6 | +2.60% |

## Water Framework Directive

The Directive requires all water features above a certain size threshold to be classified using a system of five quality classes – high, good, moderate, poor and bad, with groundwater classified as good or poor. The requirements of the WFD are part of Scottish legislation, and set out the classification of water bodies describing by how much their condition or status differs from near natural conditions. Water bodies in a near natural condition are at high status, while those whose quality has been severely damaged are classed as being in bad status.

## % of waterbodies by status in the Park

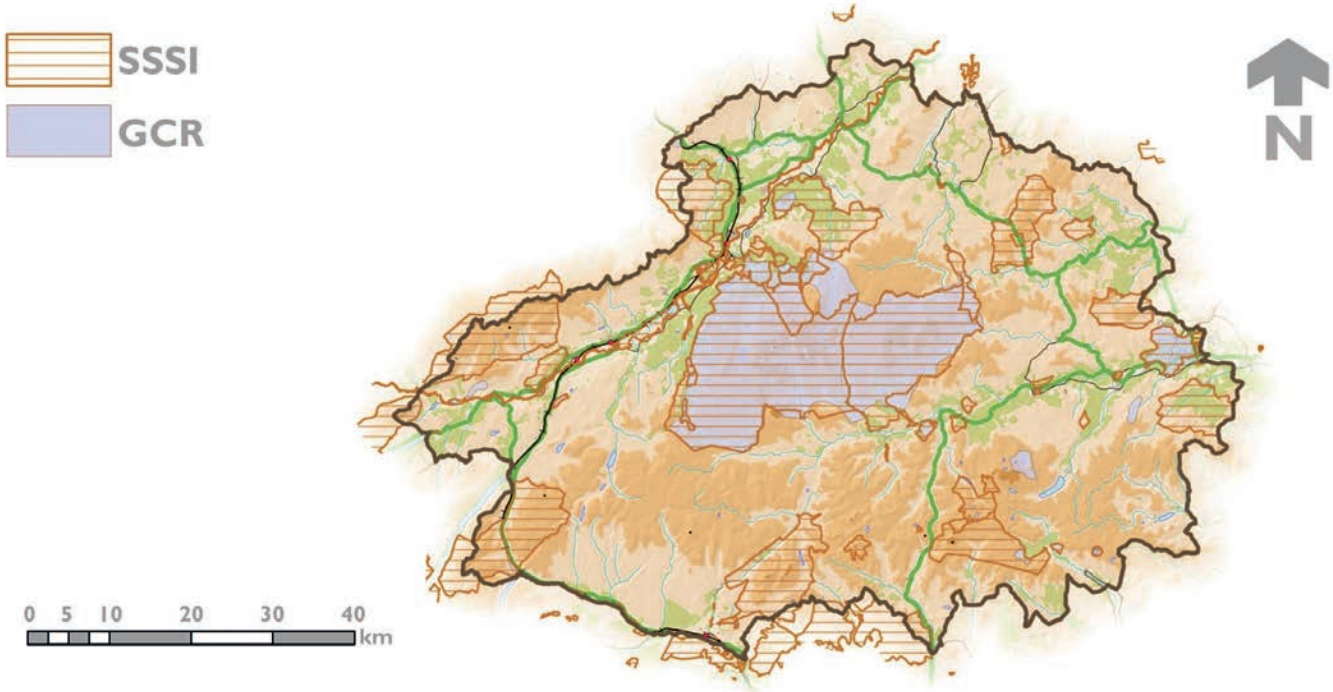

From the available information, between 2013 and 2017 the number of waterbodies in the Park in high status have increased slightly, the number in good and moderate status have declined, while the number in poor status have increased four-fold.

## Geodiversity

Underpinning, and in some instances, part of, soils is geodiversity. Many of the issues affecting soils also affect geodiversity, for example acidification, erosion and unsympathetic land management. Geodiversity is the variety of rocks and soils laid down over millennia, which combine to create that landforms that are the basis for landscapes.

Geological Sites of Special Scientific Interest (SSSI) and Geological Conservation Review (GCR) sites (map below) aim to safeguard wider geodiversity within the Park.

### Map of geological SSSIs and GCR sites wholly or partially within the Park



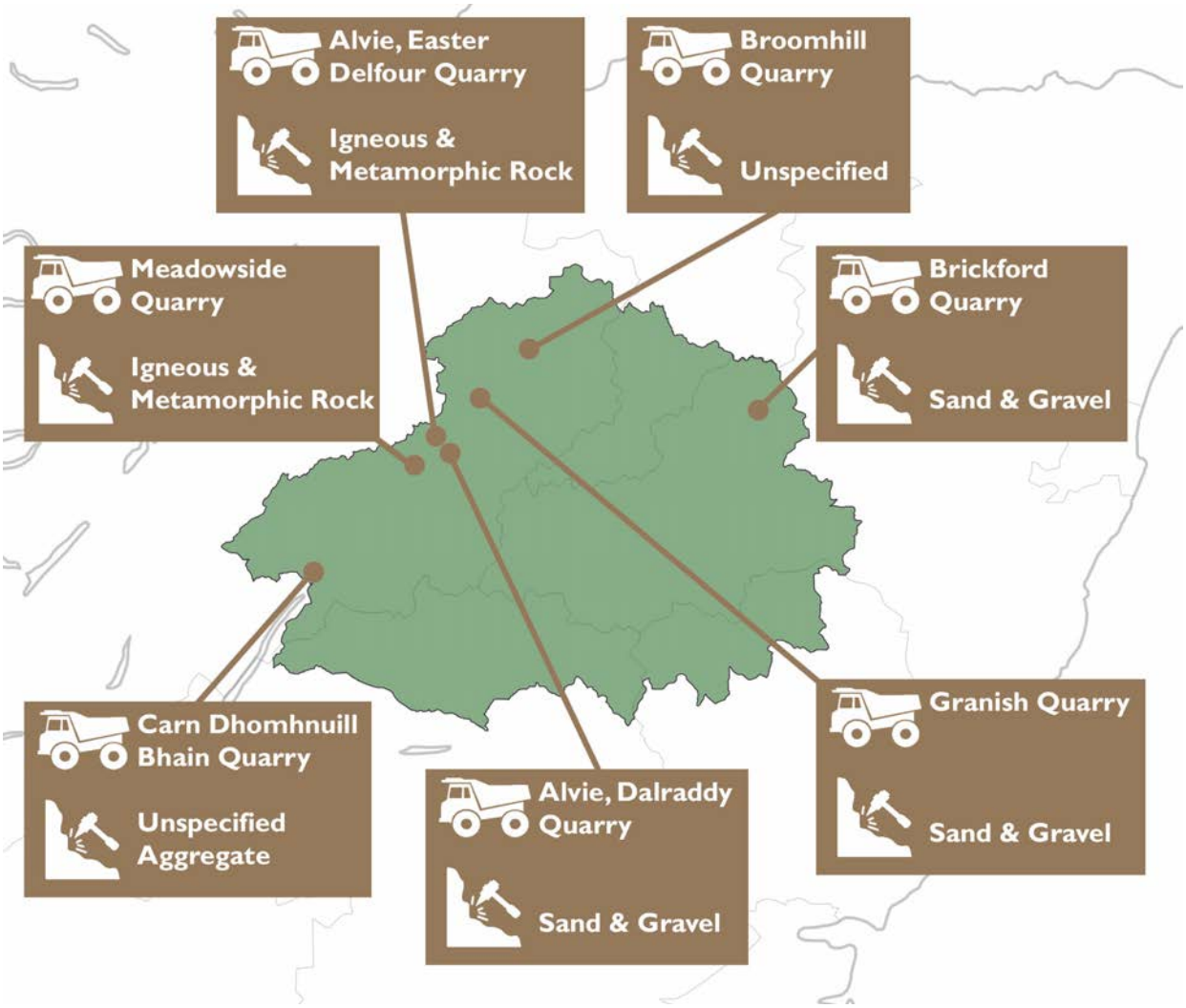



There are 16 geological and mixed (geological and biological) SSSIs within the National Park, covering an area of some 680 km² , around 15% of the Park area, with 39 GCR sites covering an area of around 592 km².

## Geological Mineral Resources

The British Geological Society identifies 4 active quarries operating in the Park ( https://www.bgs.ac.uk/GeoIndex/ ), based on 2014 information. However additional quarries are known to operate or have consent in the Park. For example, Carn Dhomhnuill Bhain quarry near Dalwhinnie and Broomhill quarry near Dulnain Bridge were granted consent to recommence extraction activities in 2018. The quarries in the Park can extract a variety of mineral resources mainly used for construction works.

## Quarries in the Cairngorms National Park



## Further Information

**Land Management in the Cairngorms National Park:**
https://cairngorms.co.uk/working-together/land-management/

**Cairngorms National Park Forest Strategy:**
https://cairngorms.co.uk/working-together/authority/national-park-strategies/forest-strategy/

**Deer Framework for the Cairngorms National Park:**
https://cairngorms.co.uk/working-together/authority/national-park-strategies/deer-framework/

**A strategic overview of wild deer population dynamics in the Cairngorms National Park:**
https://cairngorms.co.uk/wp-content/uploads/2021/06/CNPA-2020-Deer-Population-Dynamics-Report-FINAL-040221.pdf

**Peatland Action Project:**
https://www.nature.scot/climate-change/nature-based-solutions/peatland-action-project

**Mapping the areas and management intensity of moorland actively managed for grouse:**
https://sefari.scot/document/part-3-mapping-the-areas-and-management-intensity-of-moorland-actively-managed-for-grouse