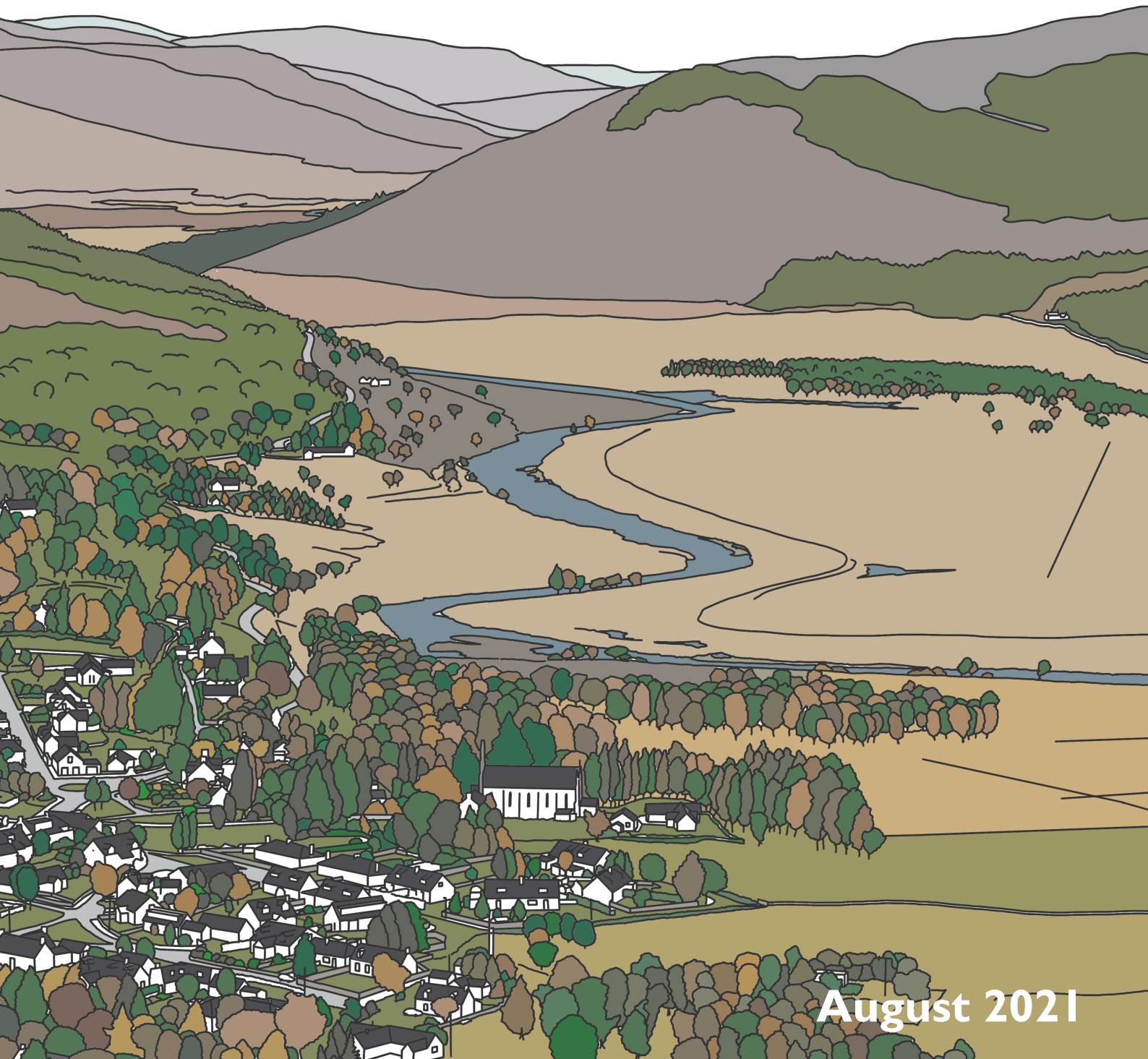
Cairngorms NATIONAL PARK
Pàirc Nàiseanta a' Mhonaidh Ruaidh

National Park Partnership Plan 2022
Draft SEA Topic Papers



August 2021

CONTENTS

Topic 1
Climatic Factors

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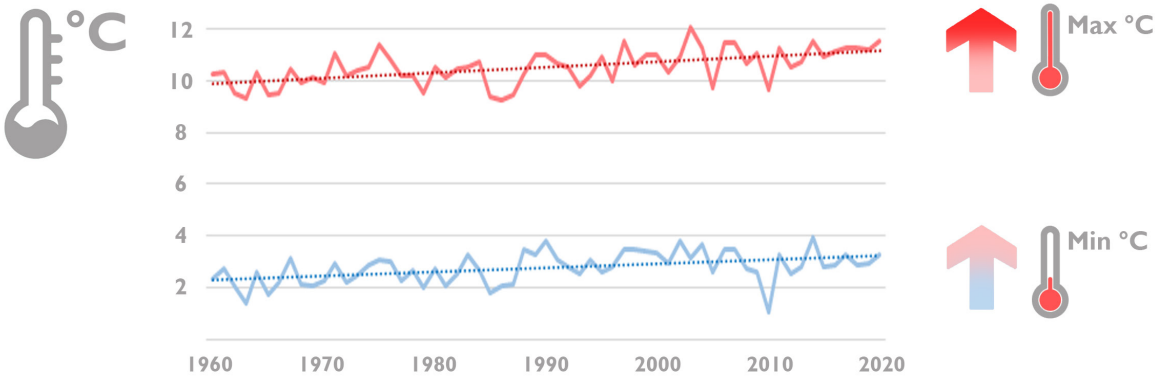
Historic Climatic Trends

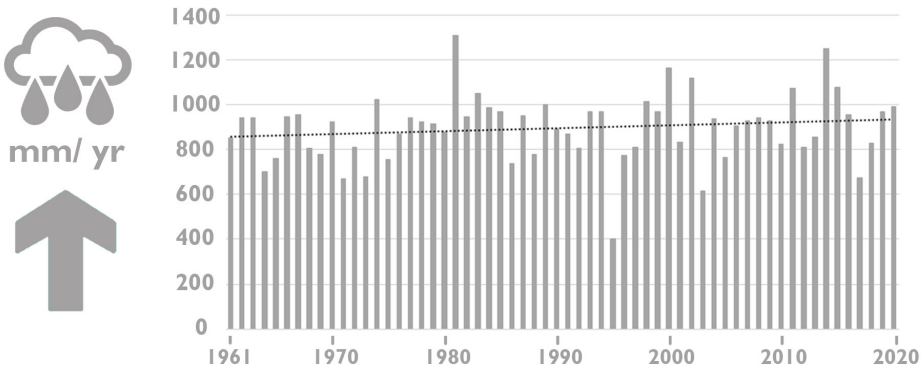
This data is provided by the Braemar and Aviemore weather stations.

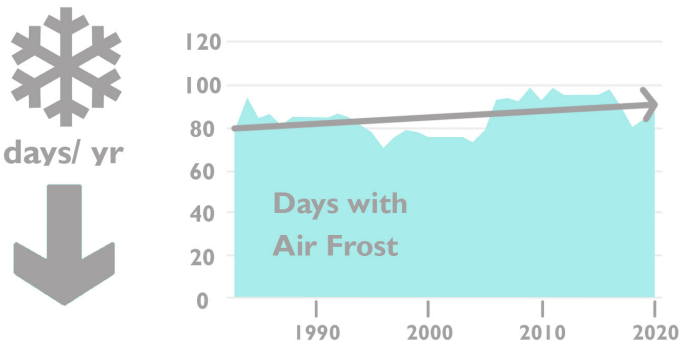
Braemar

Braemar weather station is a sufficient distance from main settlements to not be affected by urbanisation and therefore best reflects the nature of the climate within the Park.



The findings are consistent with broader trends across Scotland, where temperatures have risen by around 0.8 degrees since 1980, with increased heavy precipitation events contributing to an increase in winter rainfall versus decreases in summer rainfall.

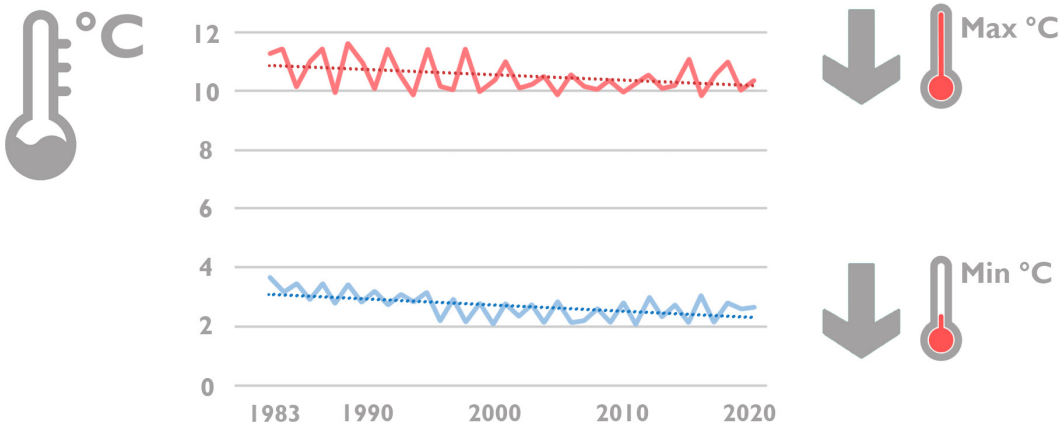


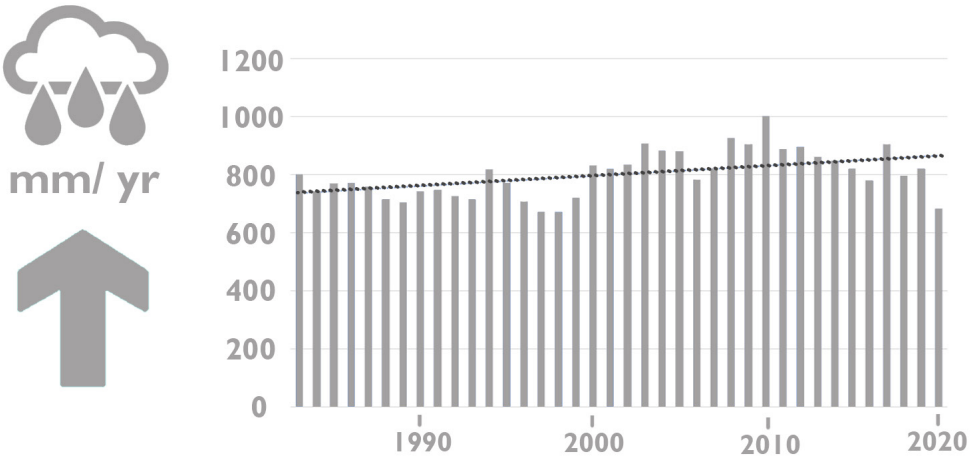


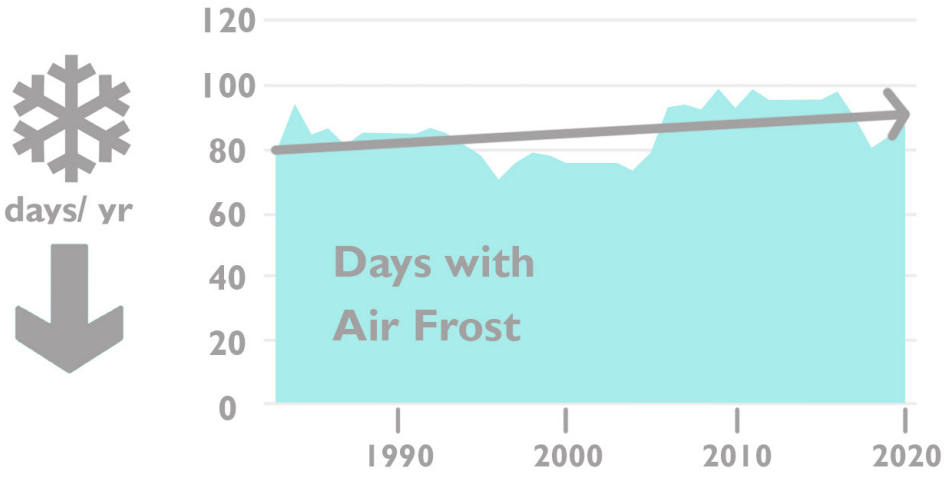
Records from the weather station indicate that this area of the Park is experiencing a decrease in the number of days of air frost and an increase in annual rainfall.

Aviemore

The trend is for both Aviemore and Braemar to become wetter. However, in contrast to Braemar, the temperature trend for temperature in Aviemore is colder, and with more days air frost. Indicating an east/west divide, potentially caused by the intervening mountains. The difference between Aviemore and Braemar is also to be expected as the effects of climate change will not be even across all areas.





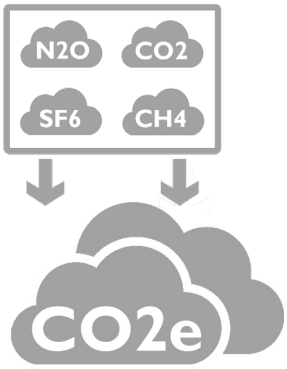


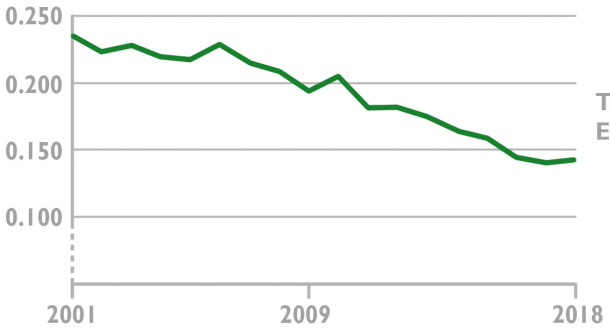
Topic 1
Climatic Factors

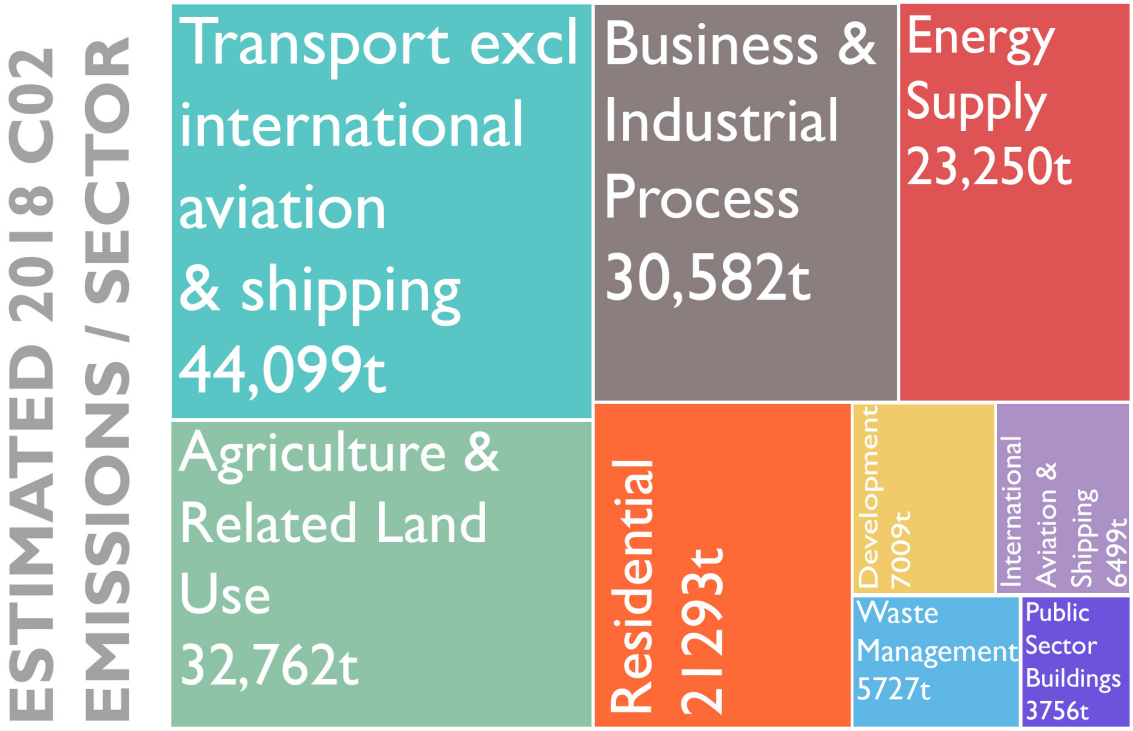
Cairngorms NATIONAL PARK

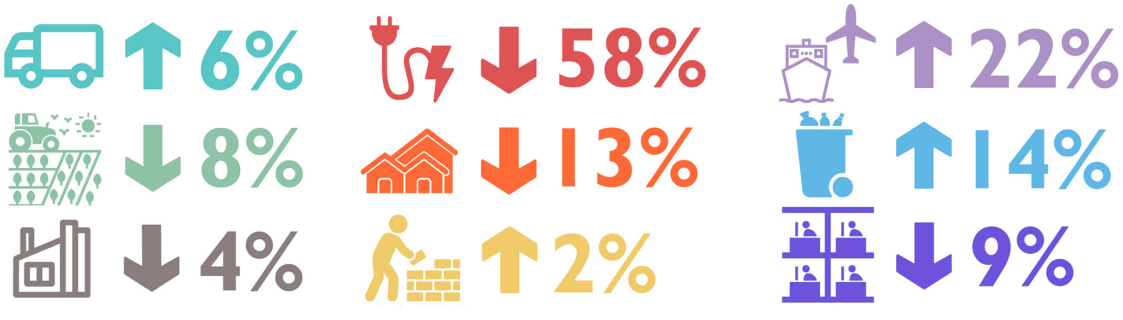
Greenhouse Gas Emissions

The trend in CO2 equivalent emissions in the Park is encouraging with a marked decline since 2001 overall. However this is not represented equally amoung all sectors. There have been recent increases in Transport, Waste and Development emissions within the Park which have eaten into the decreases made through more tree planting and renewable energy.







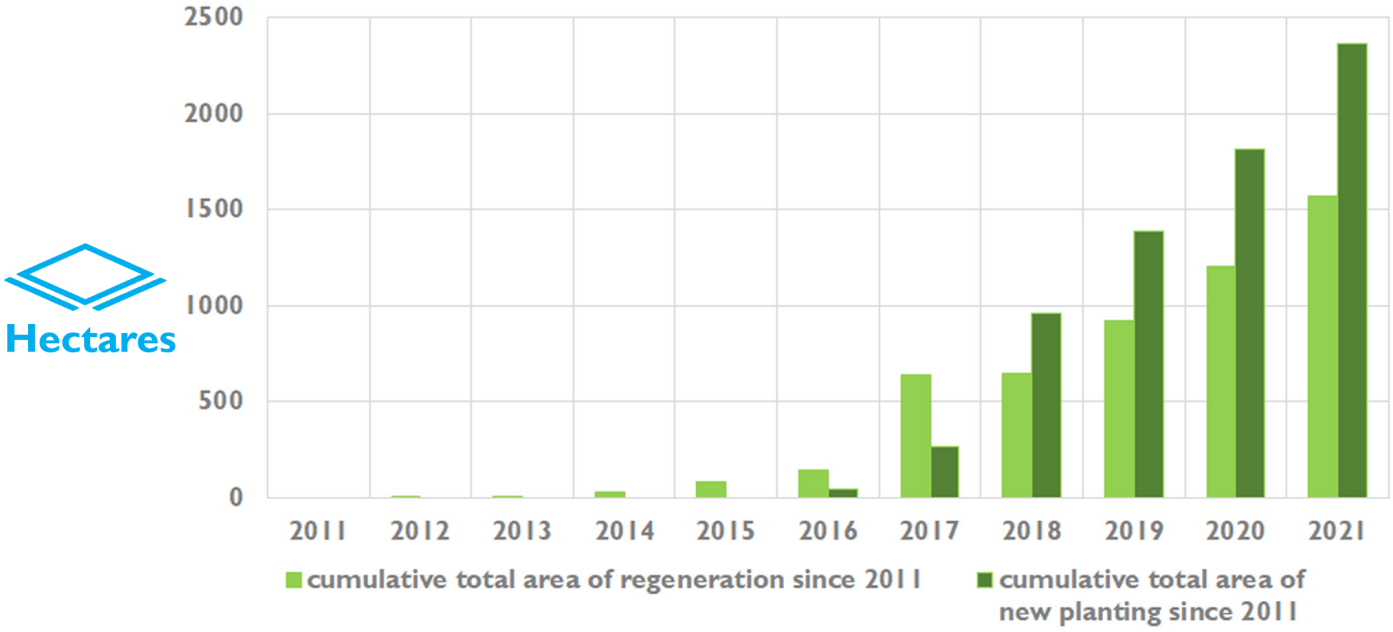


% Change 2013 - 2018 | Data obtained from https://statistics.gov.scot

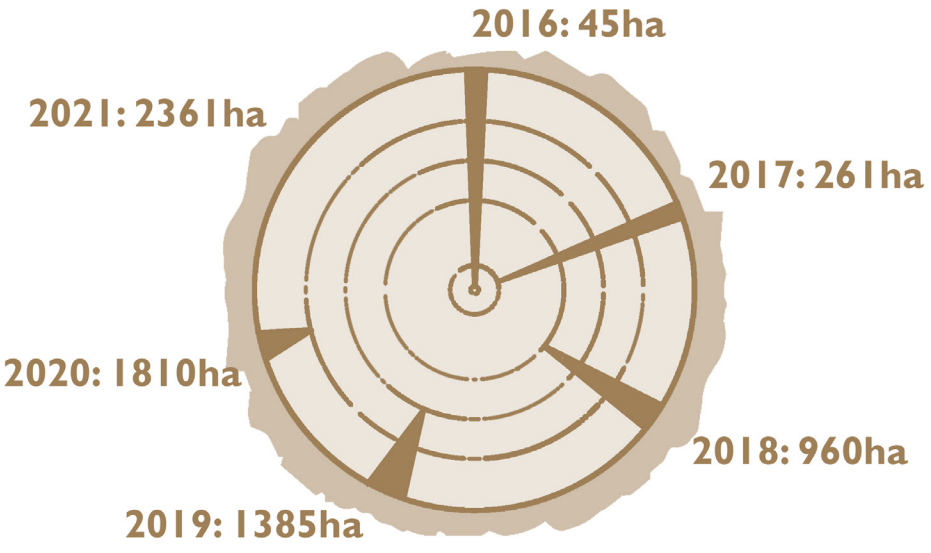
Woodland Creation

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

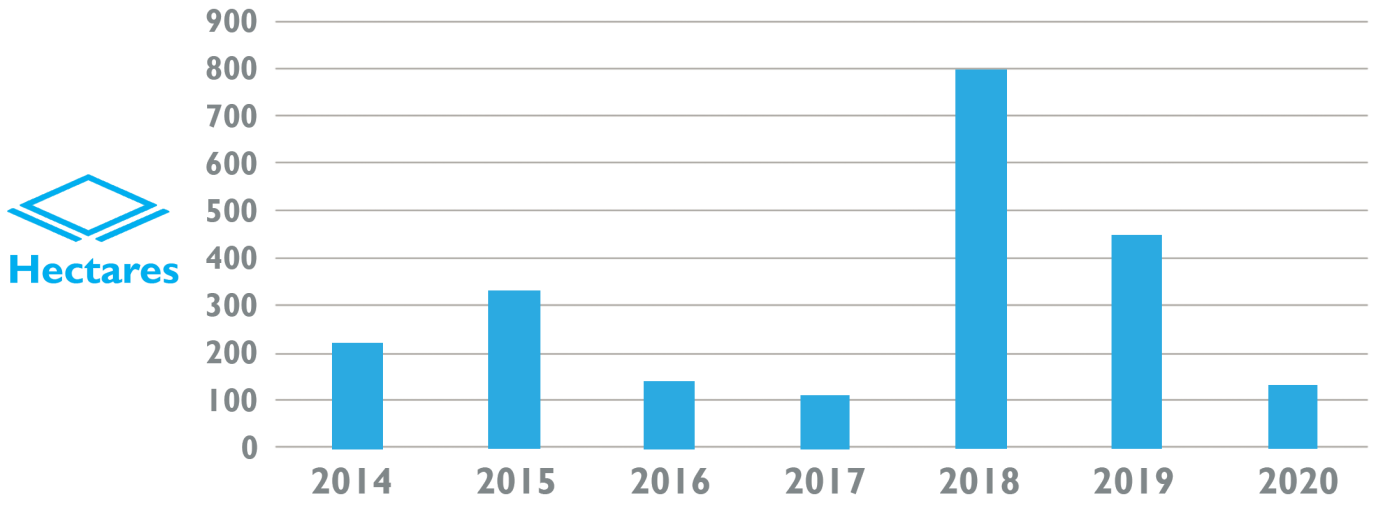


Peatland Restoration

Peatlands are the largest natural terrestrial carbon stores sequestering more carbon than all the other vegetation types combined (globally). Their protection and replacement are critical in efforts to take climate change. Globally damaged peatlands account for 10% of the greenhouse gas emissions from the combined land use sector. The National Park is therefore involved in the replacement and protection of its natural peatlands in an effort to tackle climate change.

Limited funding and weather issues in 2016 and 2017 affected the works during those years. Following delays due to Covid-19, six legacy projects carried forward from 2019 started in the late summer of 2020 with two of these completing by March 2021. The CNPA were unable to attract any suitable contractors for other legacy projects or for new projects, and there remains a significant lack of contractors. Actual restoration management totalled only 131 hectares in 2020/21.

Peatland restored since 2014 (note 2020 figures impacted by covid and contractor supply issues)

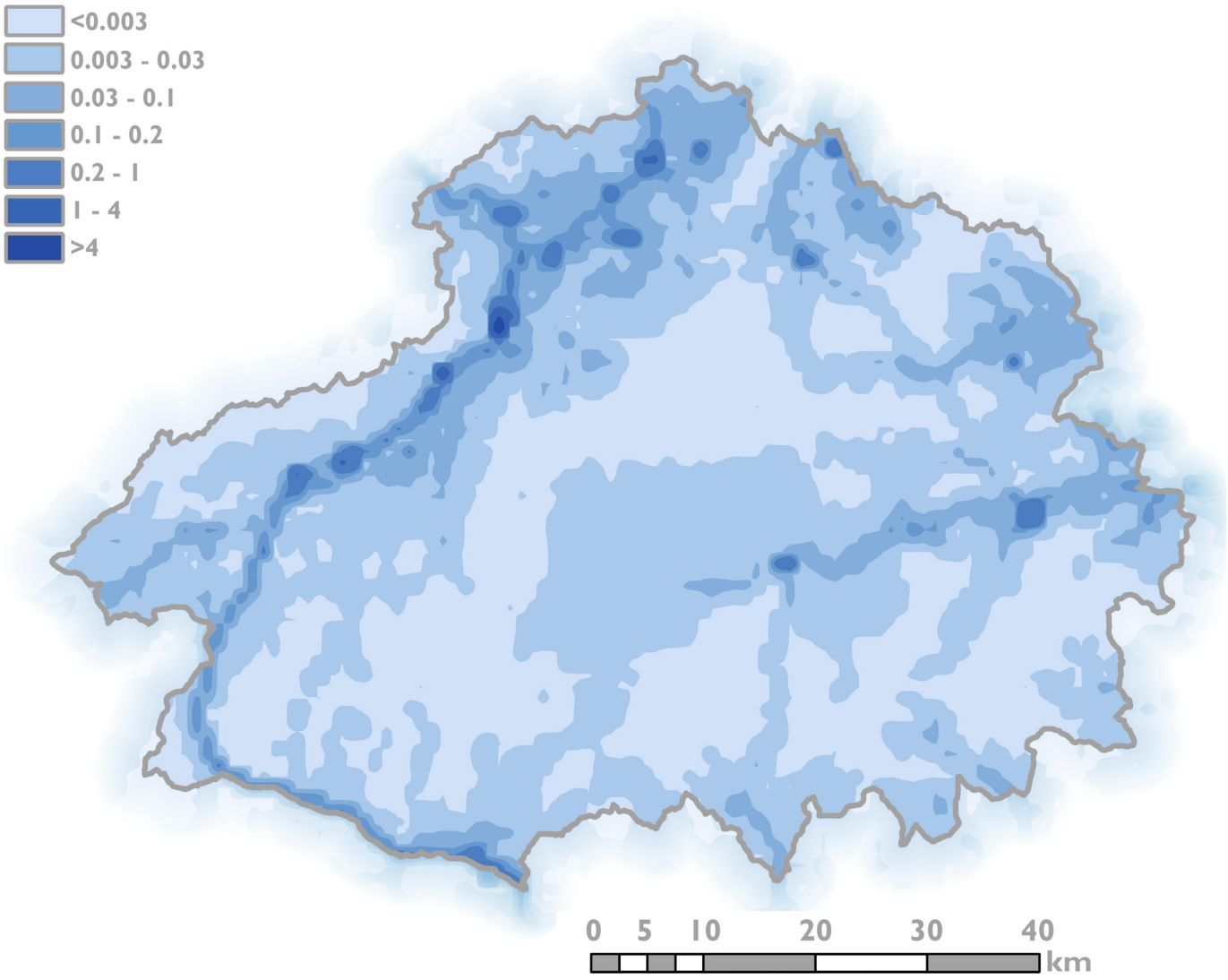


Greenhouse Gas Emissions: Carbon Dioxide

The UK National Atmospheric Emissions Inventory maps greenhouse gas emissions. In the Park (map below) the most significant carbon dioxide emissions are associated with road transport corridors and settlements.

Other emission sources include those associated with agricultural practices and the Granish landfill site near Aviemore. Due to topography and climate, the Park has limited land suitable for the lowland agricultural practices compared to upland land uses, meaning that emissions from agriculture are limited. The degraded peatlands in the mountain areas are also emitting carbon dioxide, adding to the emissions in the National Park. However peatland restoration projects are underway to bring peatland habitats back to functioning carbon sinks.

Carbon Dioxide (as carbon) emissions (t) for the Park, 2017 (km² data)

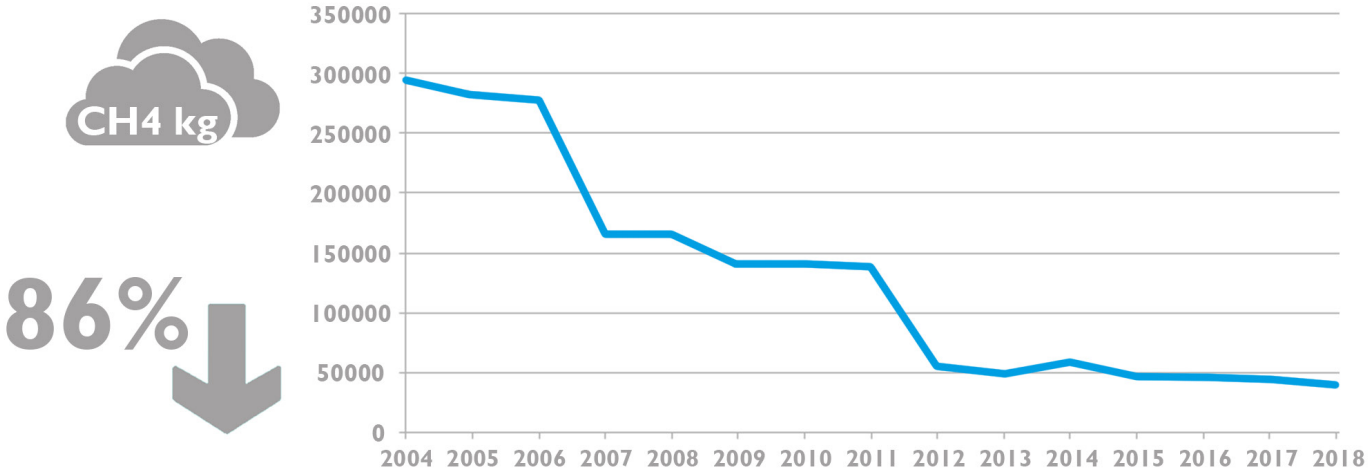


Topic 1
Climatic Factors

Cairngorms NATIONAL PARK

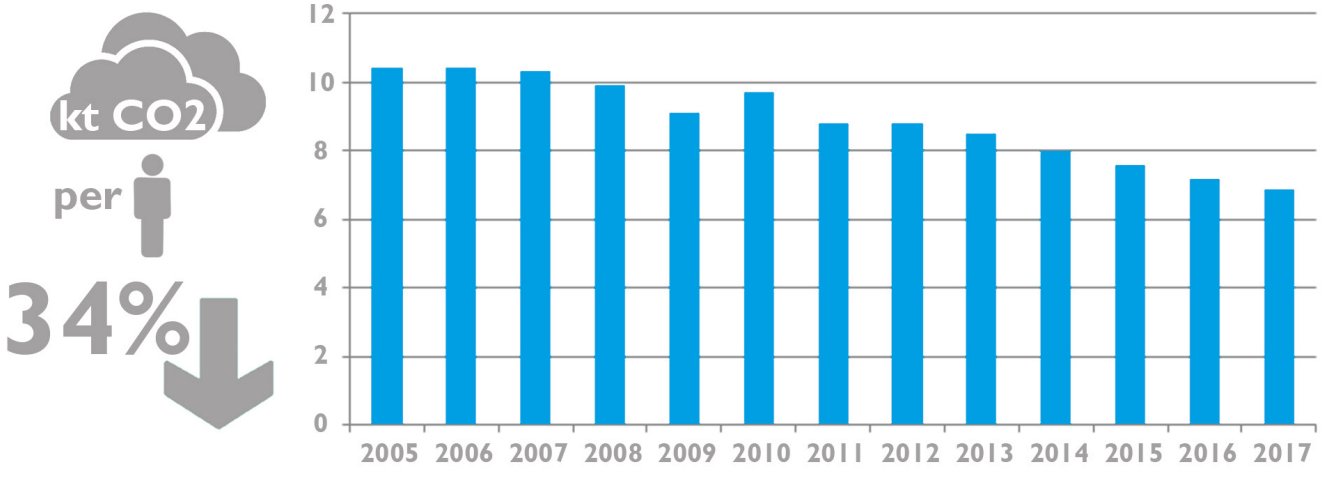
Greenhouse Gas Emissions: Granish Landfill Site

With regard to methane (CH4), another greenhouse gas, the only facility within the Park that contributes towards the Scottish Pollutant Release Inventory is Granish landfill site, which is operated by the Highland Council. Estimates of the methane emissions for the site indicate atrend for sudden significant reductions in emissions which then plateau.



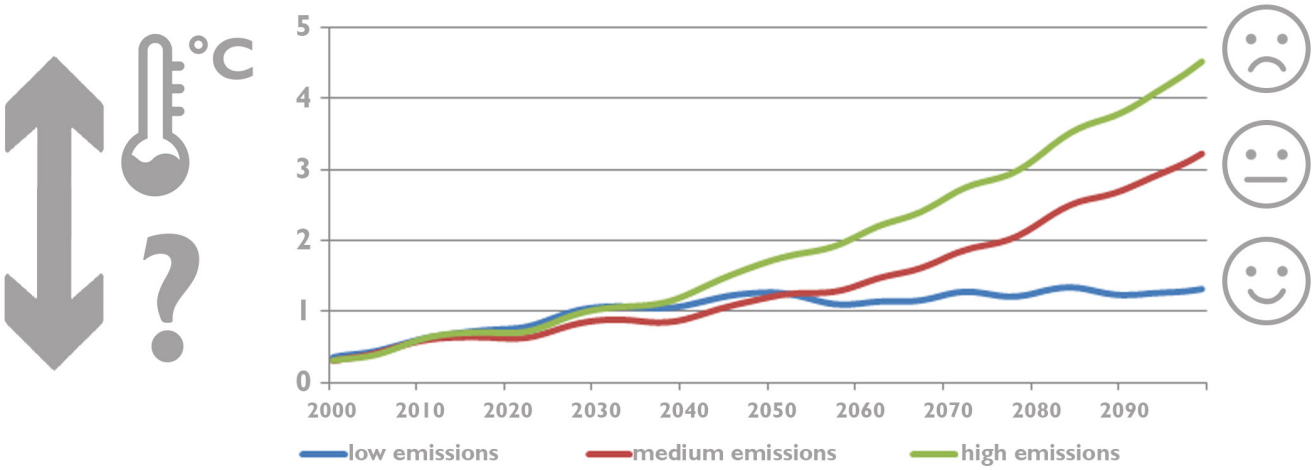
Greenhouse Gas Emissions per person

Annualised data for National Parks is not available. To get an approximation of the contribution of the Park, further analysis of data from the 2019 Department of Business, Energy and Industry Strategy (https://ukclimateprojections-ui.metoffice.gov.uk/) has been required. Mid-year population estimates have been used as a proxy for proportionally attributing the emissions of the residents within the Park. The overall the trend has been for a combined reduction in emissions per person in the Park between 2005 - 2017.



Future Climatic Projections

Probable projections available from the UK Climate Projections (UKCP18) website (https://www.metoffice.gov.uk/research/approach/collaboration/ukcp/index) are available for high, medium and low emission scenarios, with the latest projections down to a local resolution of 2.2 km2. However the degree of uncertainty changes with the scale of resolution, so the data used for the baseline is for the 25km2 area including Braemar.



This is helpful as it increases the reliability of the projections and includes the Braemar weather station used to record the actual climatic changes shown since the 1960s, allowing comparisons to be made.

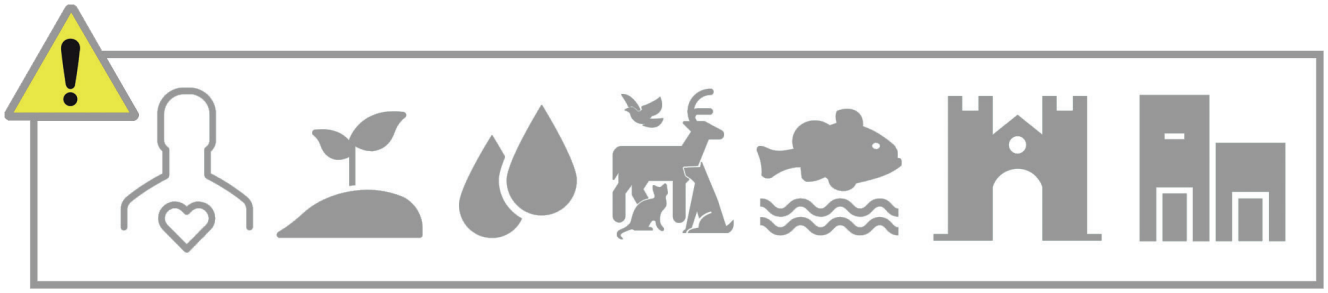
Although the overall trend in greenhouse gas emissions is downward in the Park, it is likely that substantial further decreases will be required to meet the emissions targets of the Climate Change (Emissions Reduction Targets) (Scotland) Bill 2019.

Air Pollution

Air pollution results from the introduction of a range of substances into the atmosphere from a wide variety of sources, including industry, transport and power generation. Domestic activities such as driving, heating and cooking also contribute, as do natural sources like sea salt, wildfires, volcanic activity, soil erosion and farming.

Effects

Poor air quality can have both short term and long term effects on human health. Air pollution can also damage the wider environment, causing the acidification of soils and water or deposition of nutrients, negatively affecting plant and animal life. Air pollution can also damage the fabric of buildings and historic environments.



Main Pollutants

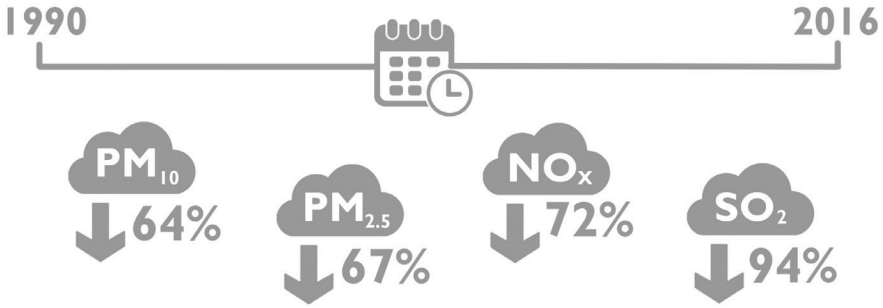
The air quality objectives for Scotland are set out in the Air Quality (Scotland) Regulations 2000 (as amended). The main pollutants of concern are:

- Nitrogen oxides (NOx)
- Particulate matter (PM10 and PM2.5)
- Sulphur dioxide (SO2)
- Non-methane volatile organic compounds (NMVOCs)
- Ground-level ozone (O3)
- Ammonia (NH3)

Reduction in Emissions

The air quality of Scotland is generally better now than it has been at any time since before the industrial revolution, with increasingly strict control over industrial emissions, tighter fuel and emission standards for road vehicles and the control of smoke from domestic premises yielding positive results.

An independent review of air quality in Scotland published in 2019 found 4/6 of the main pollutants had significantly reduced.

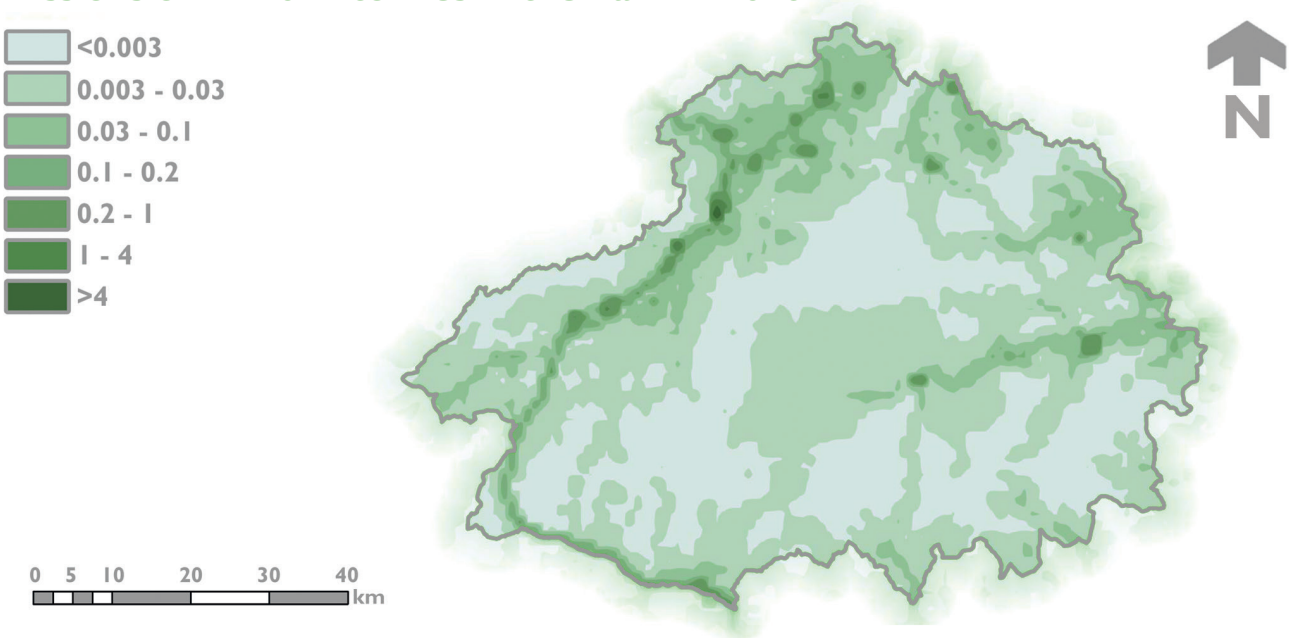


https://www.gov.scot/publications/cleaner-air-scotland-strategy-independent-review/

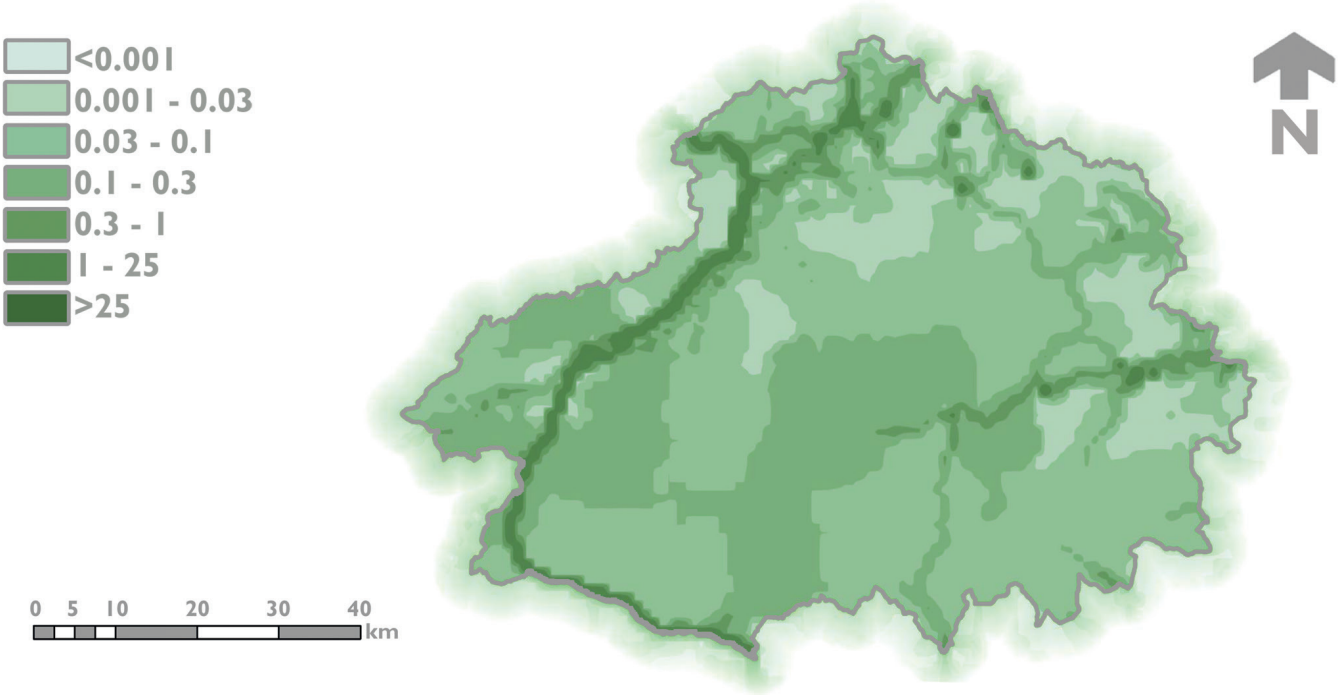
Transport

Dualling of the A9 and how this could change traffic levels and visitor numbers in the Park means that air quality could be a future concern. In particular, the potential for increasing pollutants associated with traffic emissions such as PM10 and nitrogen dioxide (NO2). Spatial data on the emission of PM10 and NO2 is available from the UK National Atmospheric Emissions Inventory for 2016. The highest emissions are located along the A9 and within the main settlements of Aviemore, Grantown-on-Spey and Ballater, where traffic volumes are greatest. However these emissions are still well below the World Health Organisation levels that would have adverse effects on human health.

Emissions of PM10 in tonnes in the Park in 2016



Emissions of NOx in tonnes in the Park in 2016



Topic 3 Water

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Rivers

The Cairngorms National Park encompasses the headwaters of three of Scotland's major rivers, the Tay, Dee and Spey, as well as many smaller ones.

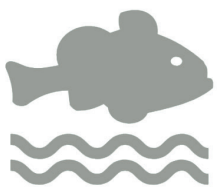
River Catchments within the Park

Many of the rivers and their tributaries, as well as the lochs and wetlands connected to them, are internationally and nationally important areas protected for nature conservation. The rivers are also important, providing water for business and people within and outwith the Park, as they flow downstream towards the sea.

Water Quality

The European Union Water Framework Directive (2000/60/EC) (WFD, sets out the objectives for water protection in Scotland). The WFD sets out a number of objectives to improve the quality of water and water bodies.

OBJECTIVES



General protection of the aquatic ecology

Specific protection of unique & valuable habitats

Protection of drinking water resources

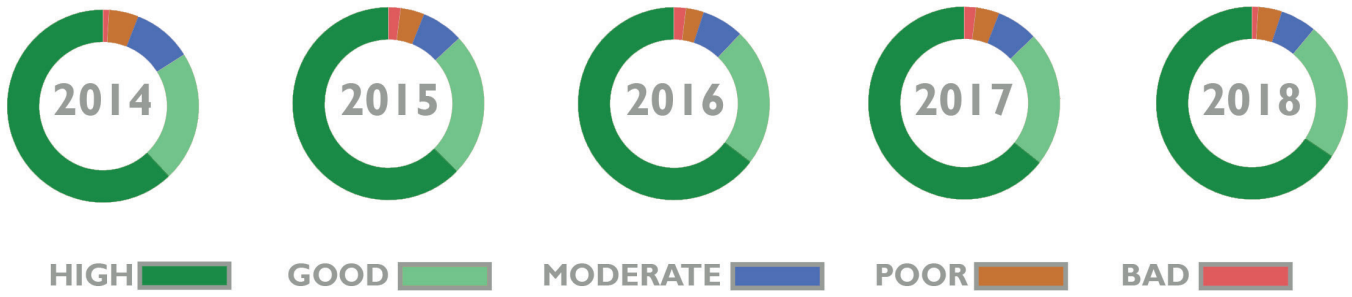
Protection of bathing water

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.

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.

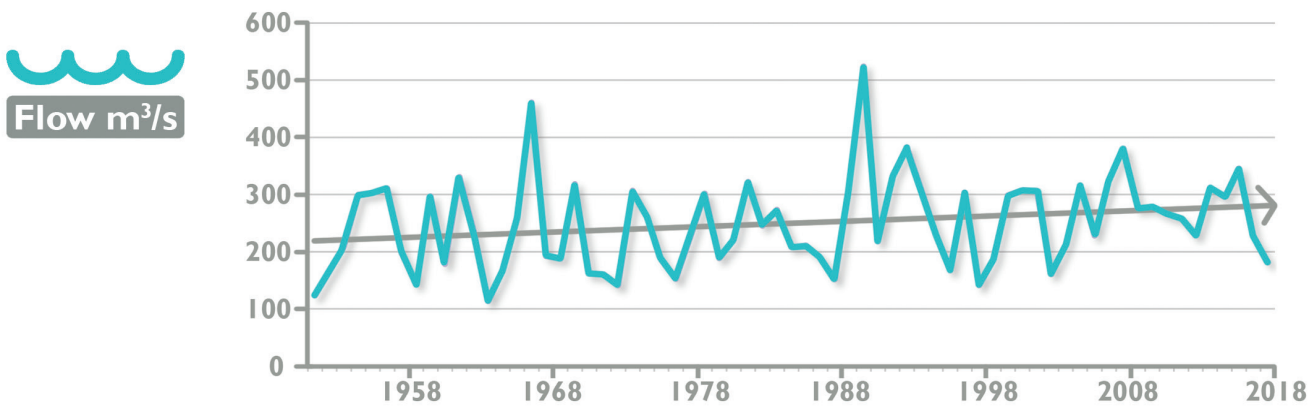
% of waterbodies by status in the Park



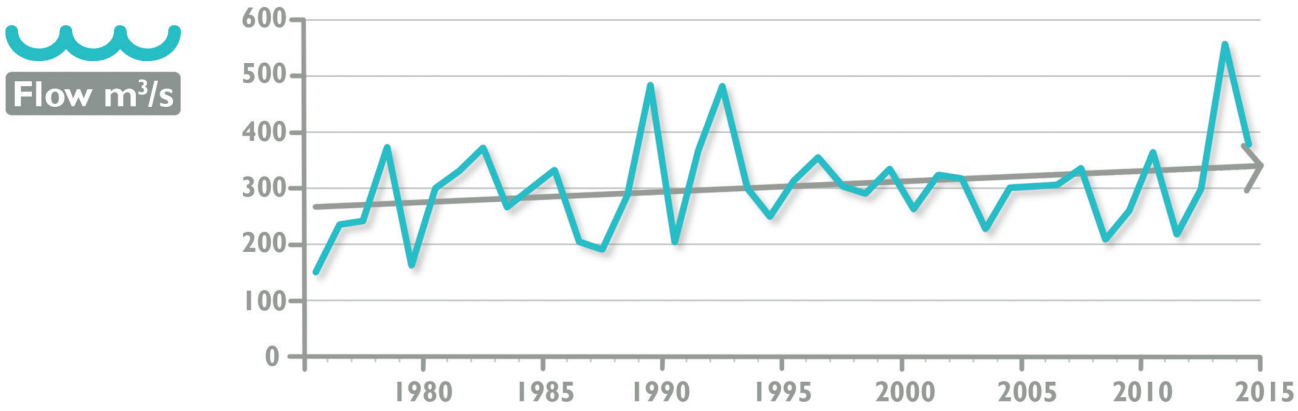
Water Quality

SEPA monitor water levels at 20 sites within the Park, as well as at a number of locations just outside the Park boundary. The trends can be used as an indicator of climate change or as an identifier of potential risks such as flooding.

SEPA annual maximum (AMAX) flow and trend for the River Spey from the Grantown-on-Spey monitoring station (8010) between 1951 and 2018



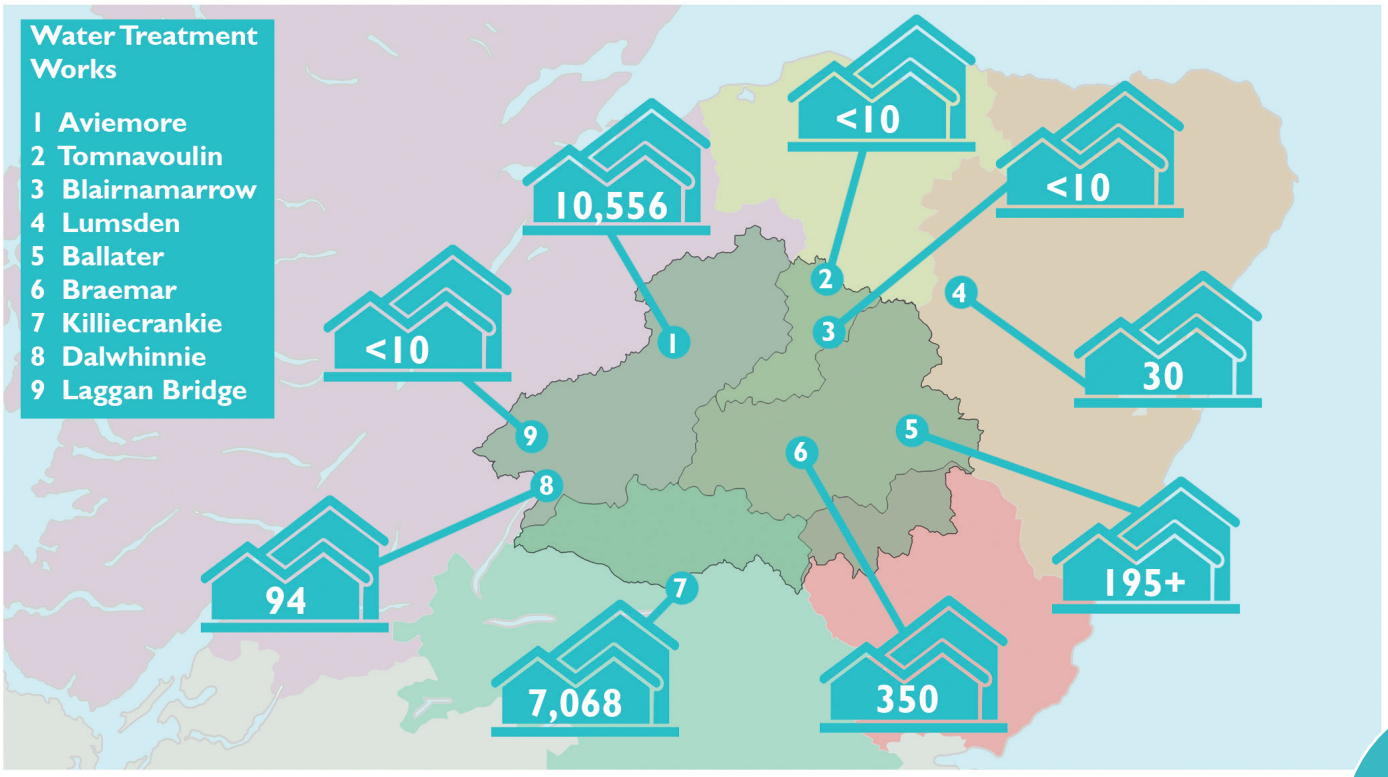
SEPA annual maximum (AMAX) flow and trend for the River Dee at Polhollick, near Ballater (monitoring station 12003) between 1951 and 2018



The data from both stations shows a general trend for higher annual maximums during the monitoring period.

Water Infrastructure

The current capacity status of the water and waste treatment works provided by Scottish Water that serve the settlements in the Park. The map below shows how many houses in the Park each water treatment works plant serves (Angus Glens and Glenmore are served by private supplies).



Water Infrastructure

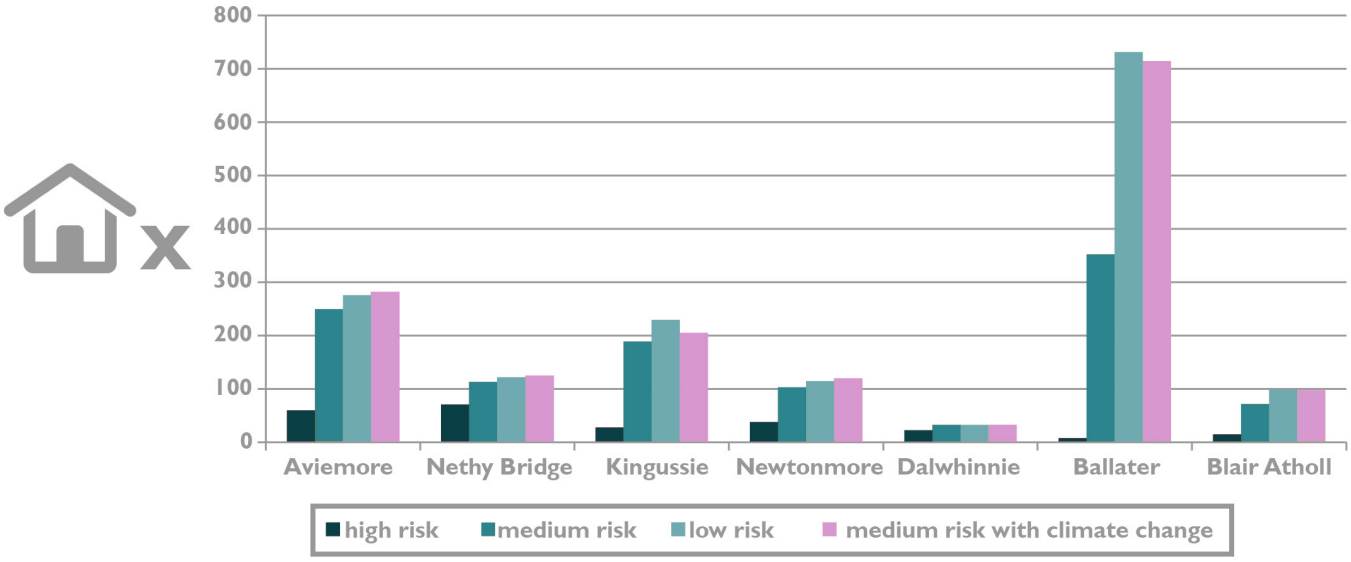
Including all planned and committed development proposals, capacity exists at most of the Scottish Water treatment works serving settlements in the Park. However the reported current capacity of many waste treatment works serving the Park is a constraint to development.

Flooding

All of the rivers and watercourses in the Park have the potential to flood to some degree. When the main rivers break their banks, they often cause damage to land, building and infrastructure, resulting in economic cost.

The River Spey and its tributaries continue to flood regularly. These floods have damaged properties in Newtonmore, Aviemore and Carrbridge on a number of occasions. A significant number of properties remain at risk of future flooding in these and other settlements identified as Potentially Vulnerable Areas (PVAs) in the Park.

No. of properties at risk of flooding (selected settlements in Park)



The Dee suffers from flooding related to heavy rain and melting snows. In 2014 the caravan park and a number of roads were closed due to flooding, and in December 2015 / January 2016, the Dee experienced widespread flooding, which caused significant damage to property and transport infrastructure. Ballater has a significant number of properties at risk of flooding.

The Tay catchment contains one PVA that falls across the National Park boundary at Blair Atholl. A number of historical river floods have been recorded in this area, including July 1916 and June 1931 when the railway was affected and evacuation was required as River Garry flooded near Blair Atholl. There continues to be a risk of flooding at Blair Atholl from the Garry Burn and from surface water.

Topic 4
Soil & Geodiversity

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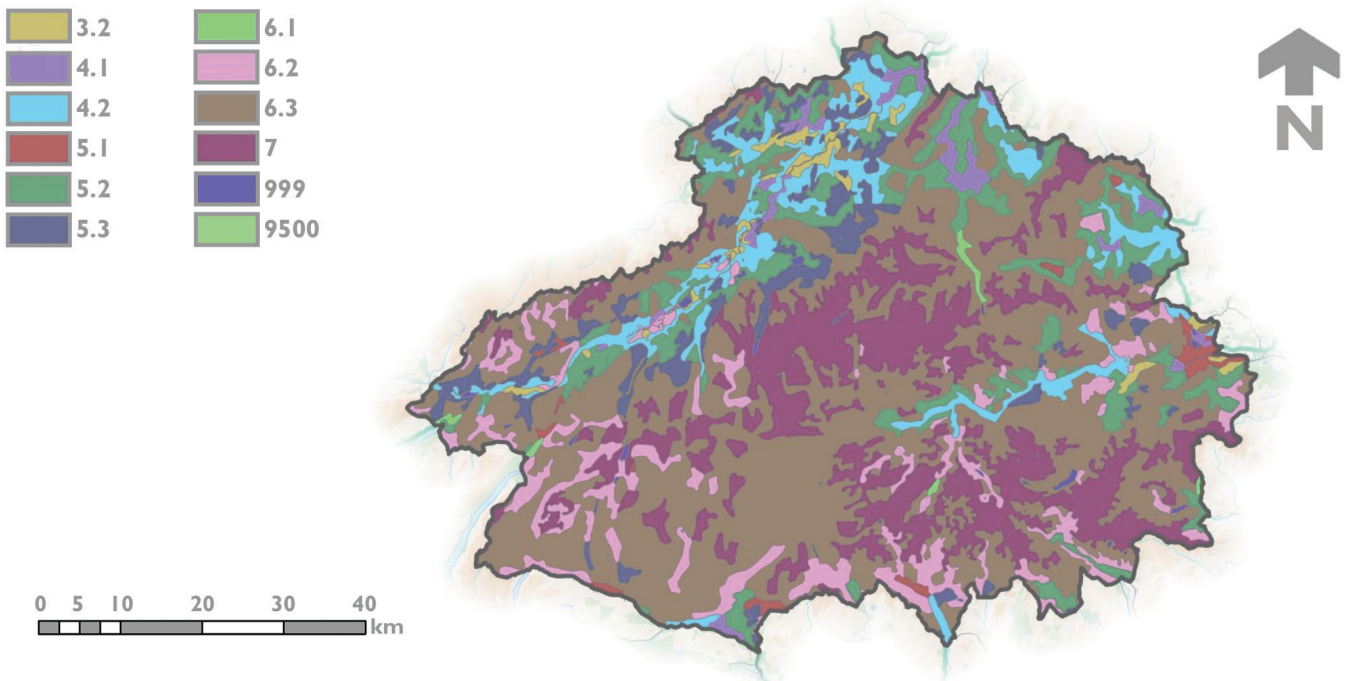
Context

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.

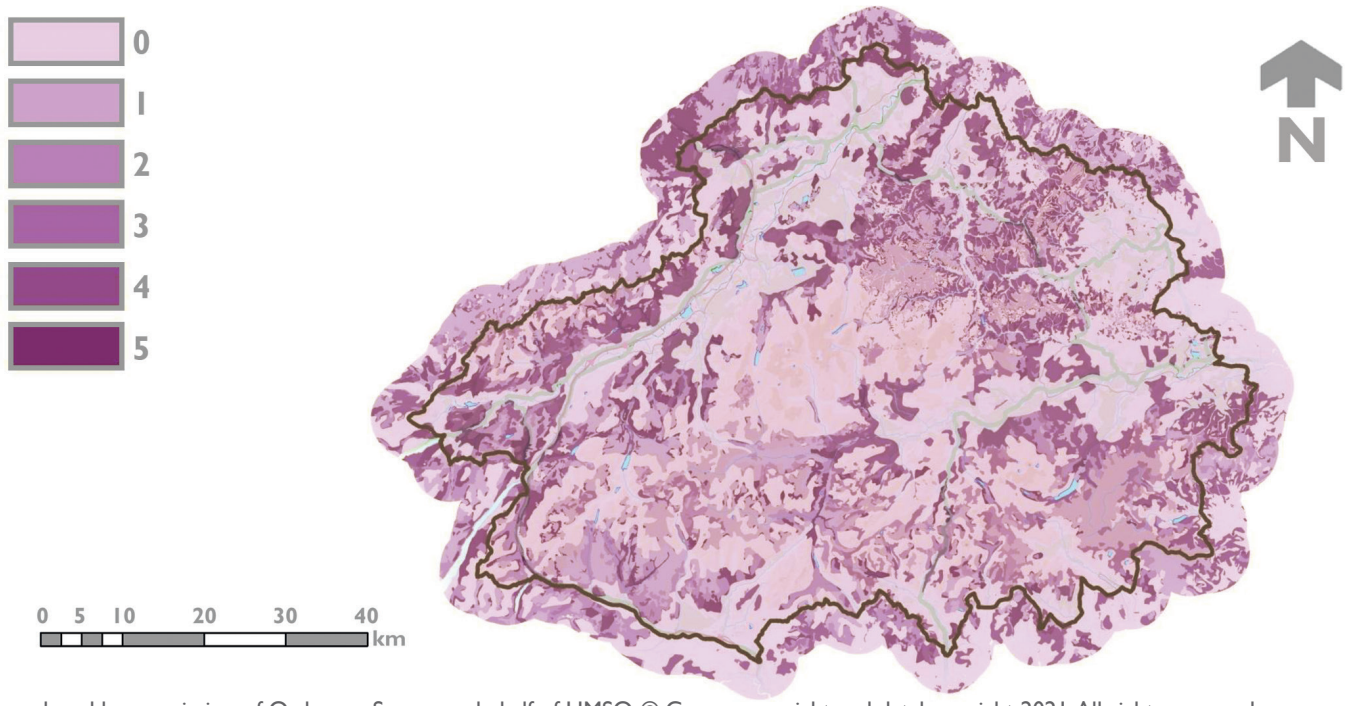
The majority of land in the National Park, around 93%, is classified as agricultural capability 5 – 7. Around 6% is classified as suitable for mixed agriculture (classes 3.2 – 4.2). Only 0.1%, a small area around Strathdon on the edge of the National Park, is identified as 3.1, prime arable agricultural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



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.

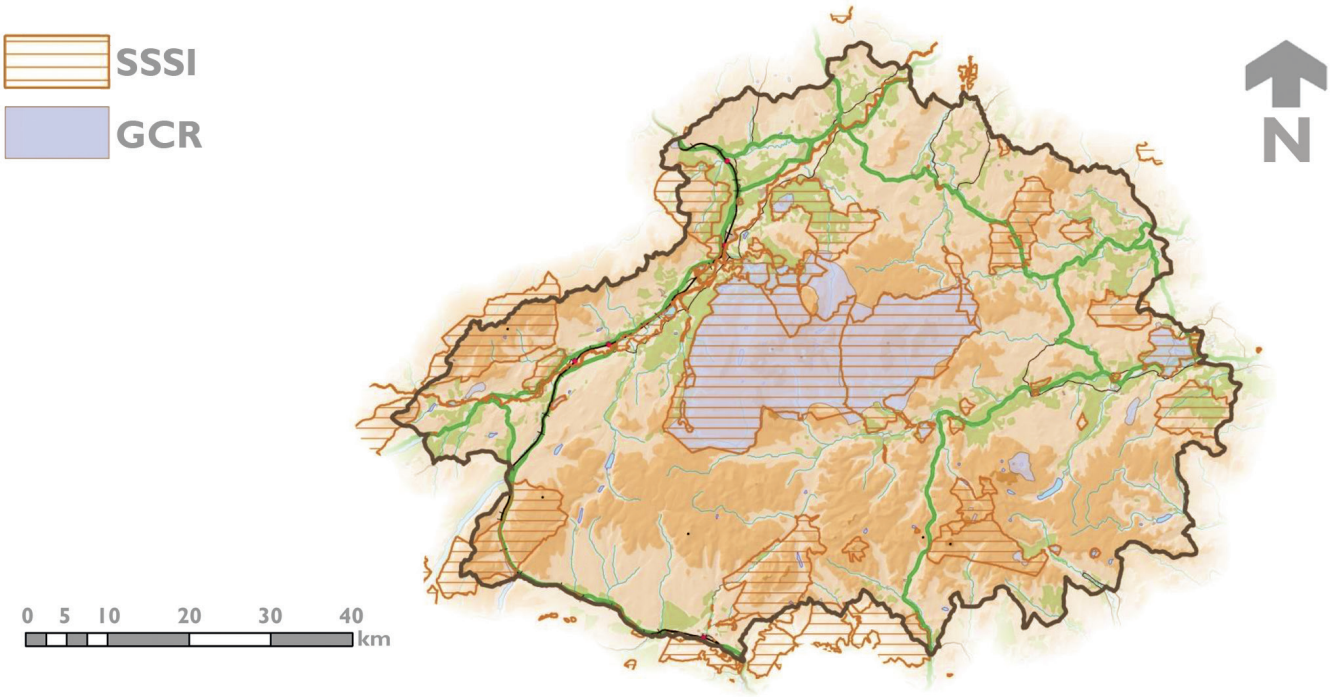
Climate is important in determining the equilibrium of soil organic matter content. Changes in climate, such as the increase in heavy rainfall events during winter identified in Topic 1 (climatic factors) are likely to disrupt the equilibrium.

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.

Topic 5
Material Assets

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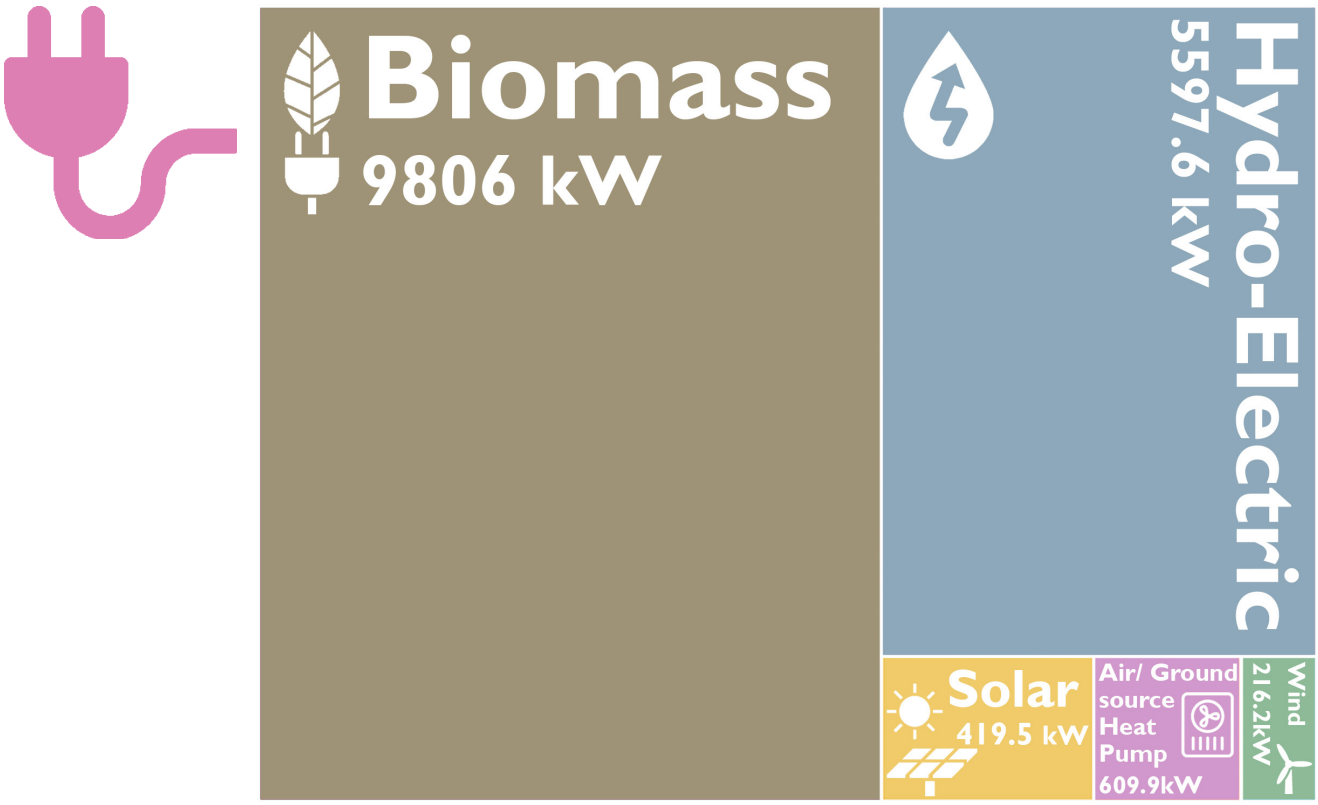
Context

Material assets can include a wide range of apparently disparate interests. In this topic paper, consideration of the baseline has been given to energy, waste, geological materials used as a resource, transport and digital infrastructure.

Energy Generation

In order to safeguard the special landscape qualities of the Park, the Park Authority has historically implemented restrictive policies on large scale renewable energy development in the Park. As a result, developments of energy generating infrastructure have been relatively minor in scale and number. It should be noted that this may not reflect the amount actually generated, due to some permissions not being implemented and also variations in predicted and actual generation once built.

kW of installed renewable energy generation granted planning permission in the Park, 2005 - 2021

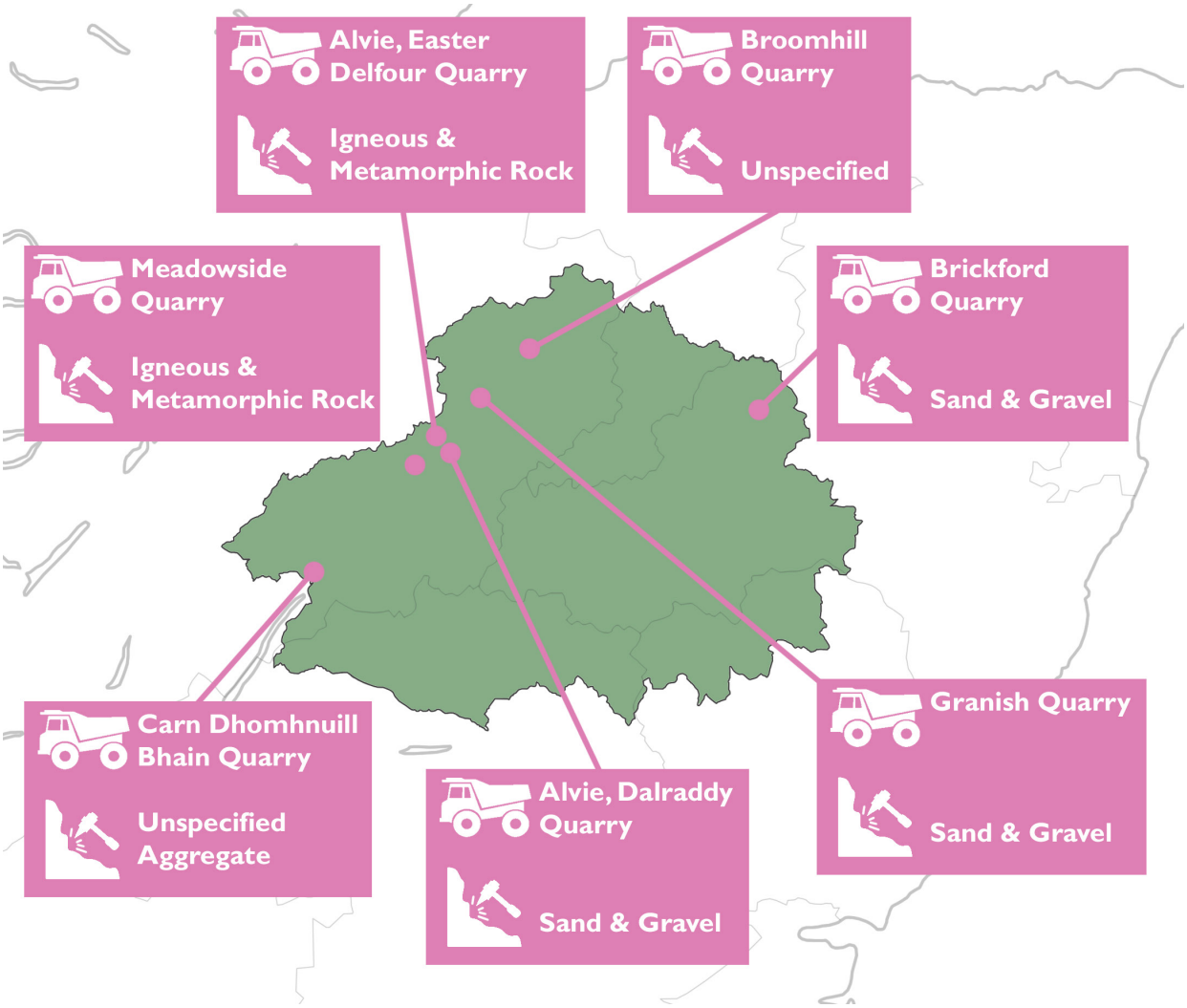


Installing certain renewable energy technologies, such as solar panels and biomass boilers, is within the permitted development rights of householders and businesses provided certain conditions are met. This means that no data is available on energy generation installed under permitted development rights as it is not recorded officially. Therefore, figure 1 does not offer a comprehensive indication of the amount of energy generated within the Park - the figures are likely to be higher.

Geological Mineral Resources

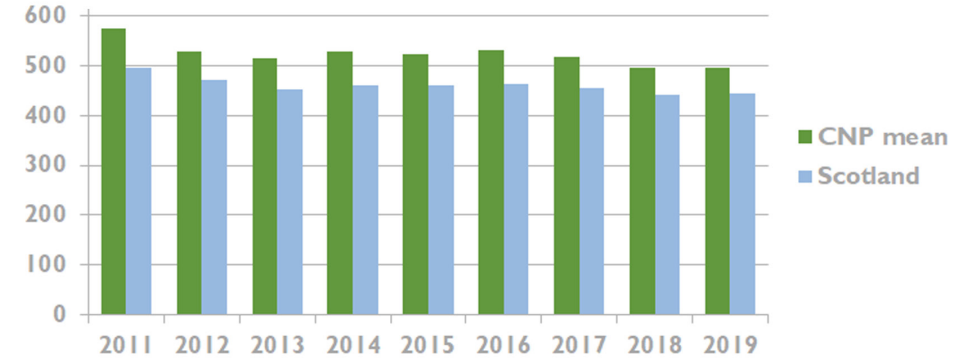
The British Geological Society identifies 4 active quarries operating in the Park (https://www.bgs.ac.uk/GeoIndex/), based on 2014 information. However additional quarries are known to operate or have consent in the Park. For example, Carn Dhomhnuill Bhain quarry near Dalwhinnie and Broomhill quarry 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

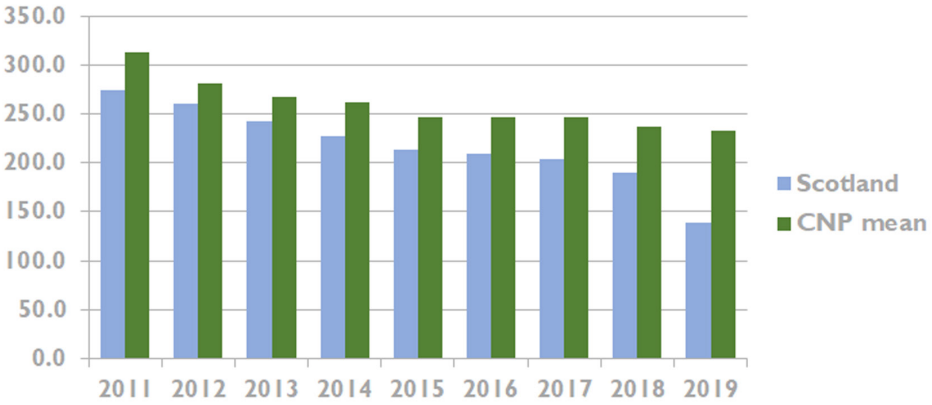


Waste Comparison: National Park and Scotland

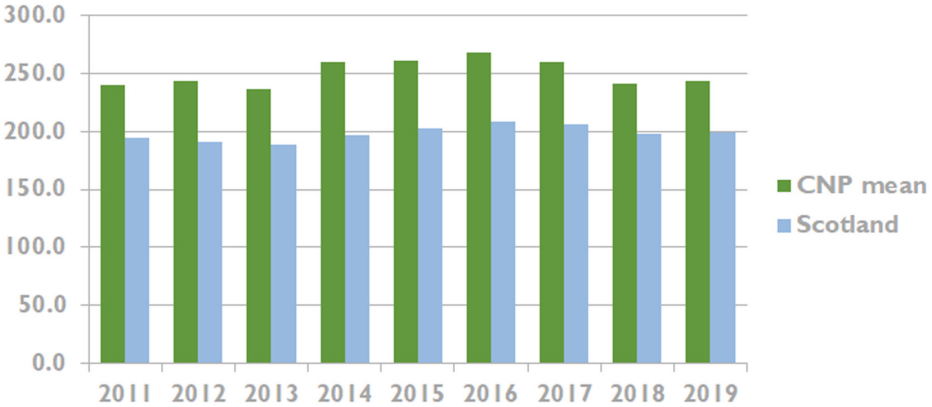
Average kg waste generated per person



Average kg waste landfilled per person

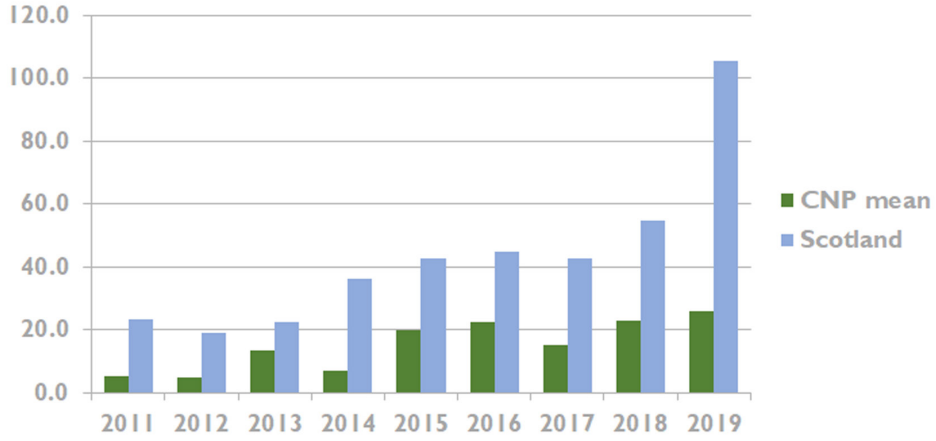


Average kg waste recycled per person

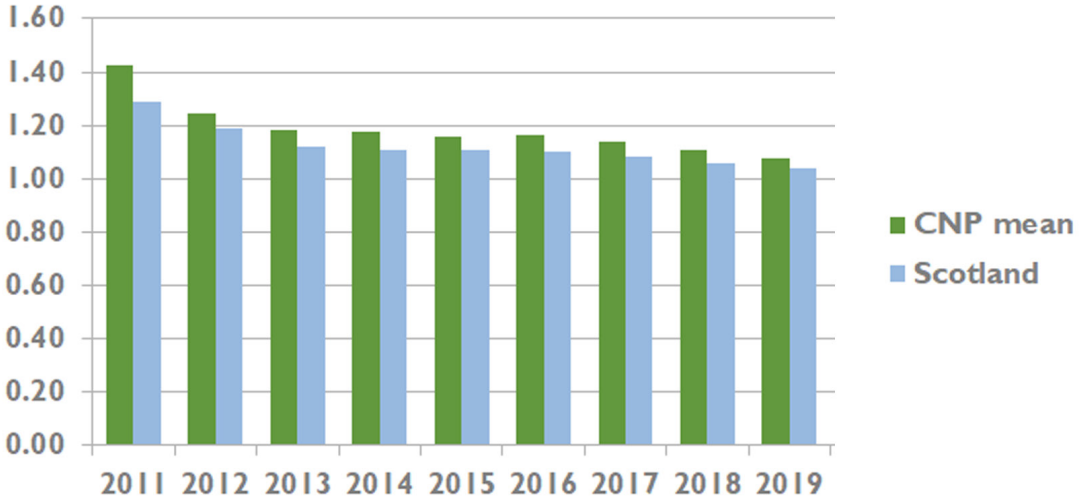


Waste Comparison: National Park and Scotland

Average kg waste diverted from landfill by other means, per person



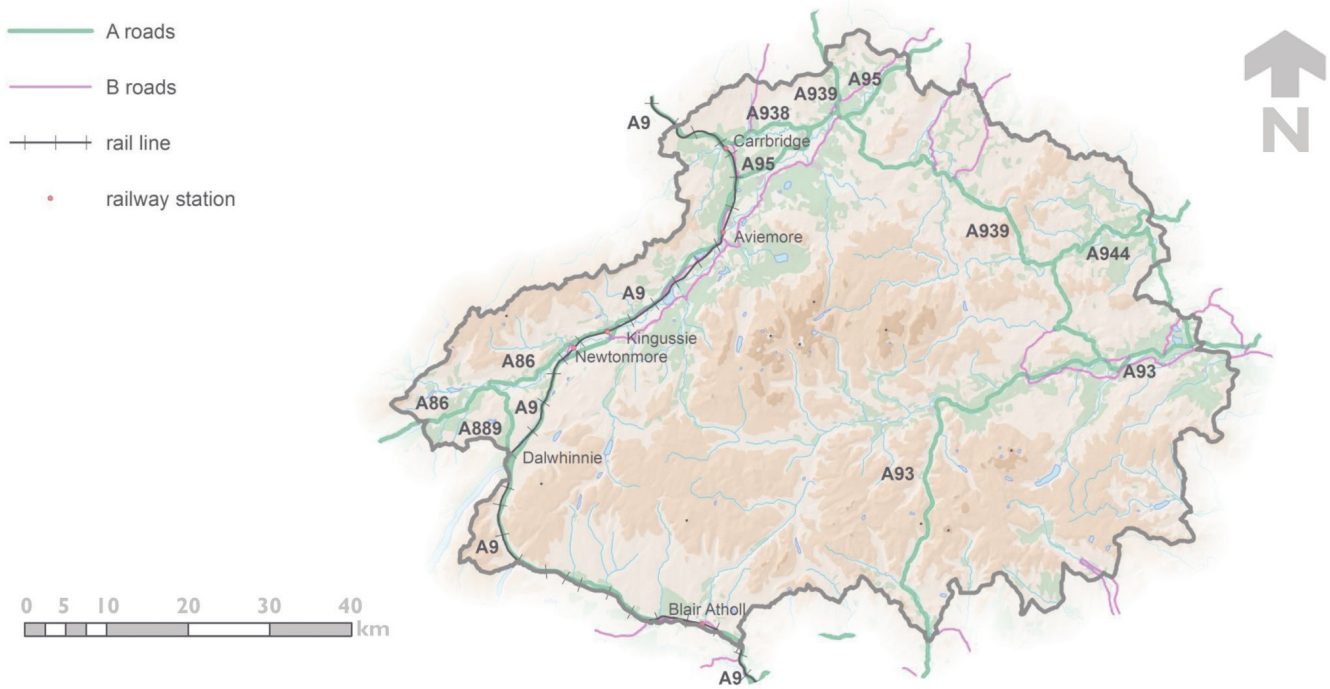
Average tonnes CO2 equivalent produced from waste



Transport Infrastructure

The Park benefits from relatively good major transport infrastructure links compared to many other rural areas in Scotland. A mainline railway between Perth and Inverness and four A Class roads (A9, A93, A95 and A86) connect the area with Highland, Moray, Aberdeenshire, Perth and Kinross and the west of Scotland (see map below). Of the A roads, one is subject to a current improvement project. The A9 Dualling Strategy aims to link existing sections of dual carriageway to create a continuous dual carriageway between Inverness and Perth

Major Road and Rail Links outwith/into the Park



The geography of the Park means that links between certain parts of the Park are relatively poor due to topography and climate affecting their travel times and passability in poor weather.

Networks of other A, B, C and unclassified roads provide access to other parts of the Park, although many are narrow and twisty, increasing journey times. The travel times have an effect on access to services for residents and visitors.

Access to Services (SIMD 2018 Data)

Range of mean minutes to reach local amenities by car/ public transport

	Highland	Moray	Aberdeenshire	Perth & Kinross
Primary School	1 - 9	4 - 6	2 - 8	6
Secondary School	2 - 19	27 - 28	15 - 37	20 - 21
GP Surgery	2 - 13	5	1 - 12	17
	5 - 28	13	6 - 29	36 - 39
Post Office	1 - 10	4 - 5	2 - 8	7 - 12
	4 - 25	11 - 13	5 - 21	18 - 25
Retail Centre	1 - 13	25 - 26	2 - 25	19 - 20
	5 - 28	65 - 72	5 - 63	42 - 44
Petrol Station	2 - 11	20 - 21	2 - 13	7 - 16

The drive times demonstrate the nature of the road infrastructure in the Park, with the population often having to travel for a long time to reach key services. The rural nature of the area is also demonstrated through the relatively high instances of car ownership. According to the 2011 Census around 85% of households had access to a car or van, which is higher than the Scottish level of around 70%. As a result, a high proportion of the population of the Park have a reliance on the road infrastructure of the area for access to services, as well as for work

Topic 5
Material Assets

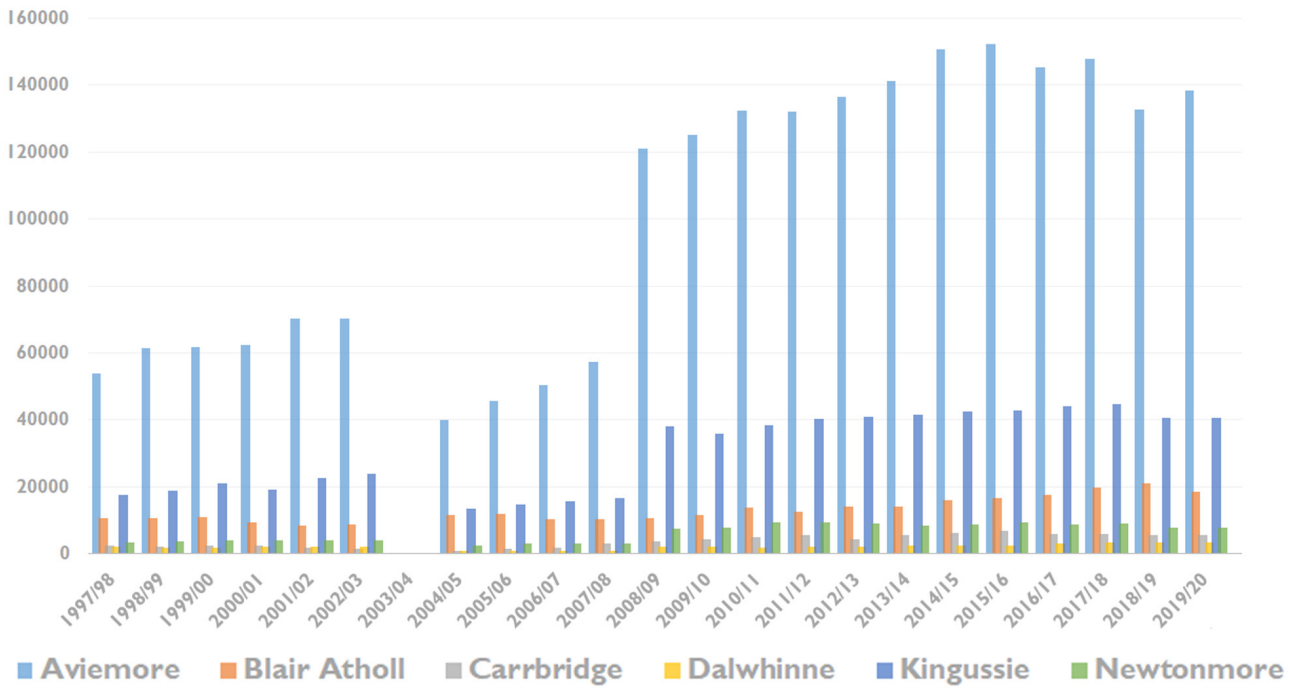
Cairngorms NATIONAL PARK

Rail

The Highland Main Railway Line runs between Inverness and Perth, through the Park with stations at Carr-Bridge, Aviemore, Kingussie, Newtonmore, Dalwhinnie and Blair Atholl.

Using annual passenger usage at stations based on sales of tickets as an indicator of the overall use of the line, then there is an indication that use has increased significantly within the Park over the last 17 years.

Station use in the National Park



Digital Infrastructure

Good digital connectivity is increasingly seen as a basic service that is required by residents, businesses, students, visitors and the public sector.

There are currently 28 telephone exchanges that cover the Park, not all of which are located within the Park boundary. All 28 exchanges are enabled to provide asymmetric digital subscriber line (ADSL) broadband, with all but two capable of providing connection speeds of up to 8 Mbps. (ASDL is a broadband connection provided over home telephone lines.)

4G Not Spots

4G Not Spots remain a significant problem in rural areas and the Cairngorms National Park is no exception. Although coverage has improved in recent years and remains strongest with the carrier EE (Figures 1 and 2), in terms of delivering 4G accessibility, there are still areas within the Park that have no 4G coverage with any of the four main carriers (see individual not spot maps below: black areas indicate not spots).

4G COVERAGE

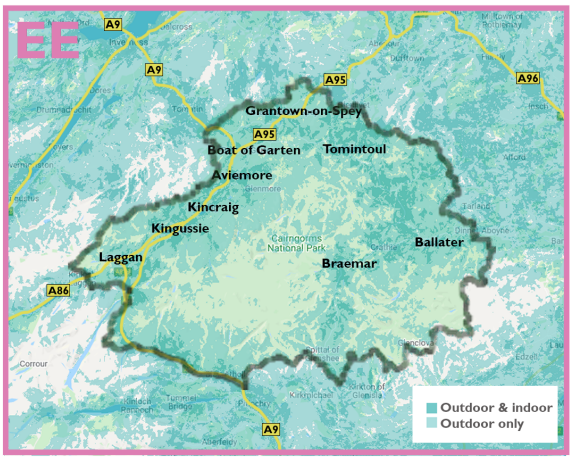


Figure 1

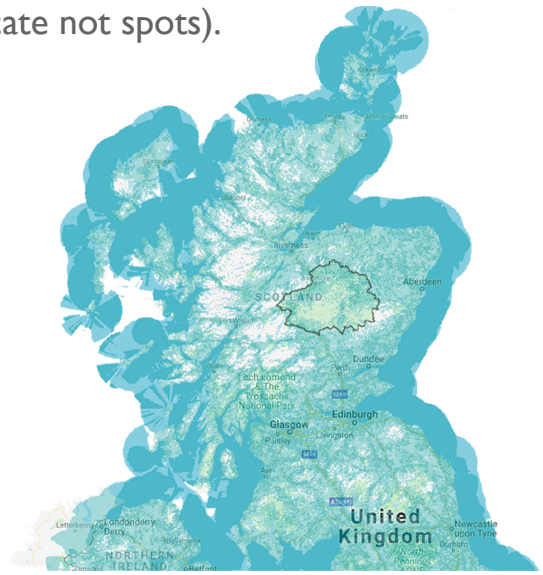
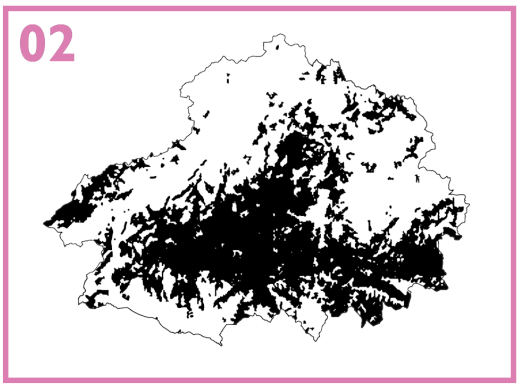
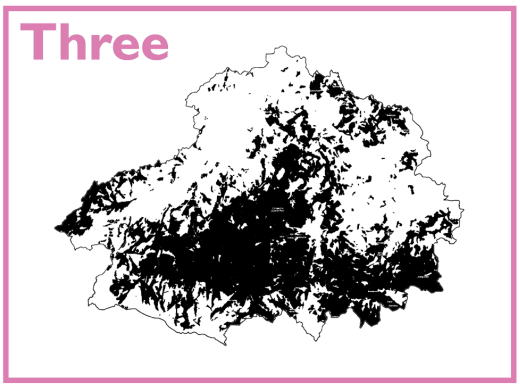
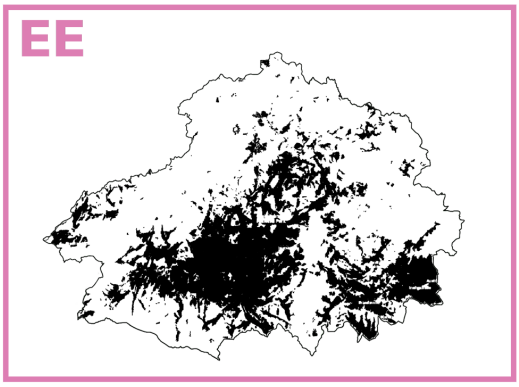


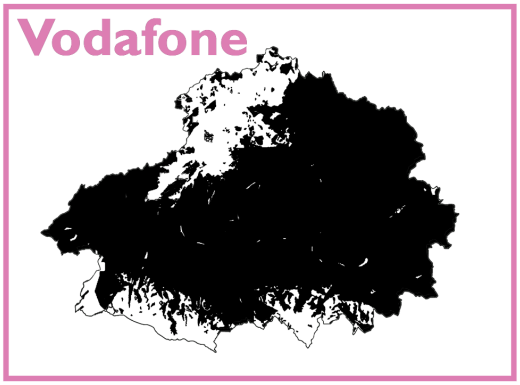
Figure 2

CARRIER NOT SPOTS









Data Source: EE: https://coverage.ee.co.uk/coverage/ee , O2: https://www.o2.co.uk/coveragechecker, Vodafone: https://www.vodafone.co.uk/network/status-checker, Three: http://www.three.co.uk/Discover/Network/Coverage. Accessed June 2021

Topic 6
Flora & Fauna

Cairngorms NATIONAL PARK

Context

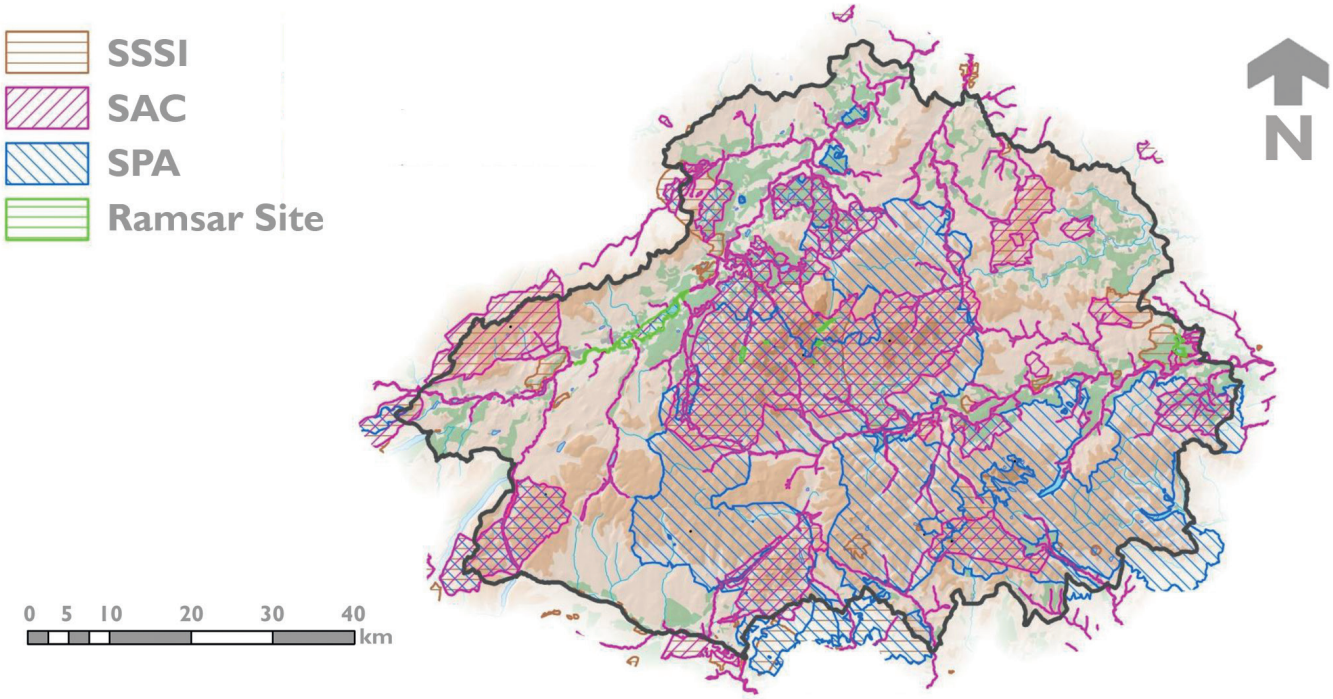
The Cairngorms National Park is a nationally and internationally important haven for nature and wildlife. Habitats are rich and varied, from montane alpine habitats high on the Cairngorms plateaux; freshwater and riparian habitats of the renowned salmon rivers the Spey, Dee, Tay and South Esk; peatland habitats important for storing carbon; Caledonian pine woodlands, home of the rare capercaillie; to stands of aspen in Strathspey supporting rare insects and fungi.

2% UK LANDMASS

25% of rare animal, insects, lichen & fungi

Areas protected for nature conservation

With 55 nationally and 42 internationally important areas protected for a nature conservation completely or partially within the National Park boundary, many of which overlap with each other, over half of the National Park is designated as one or more areas protected for nature conservation.



Topic 6
Flora & Fauna

Cairngorms NATIONAL PARK

Changes in protected area condition 2015 - 2021

The condition of the protected areas could be considered a reflection of the wider state of biodiversity within the Park. Since the environmental baseline assessment was carried out for the current NPPP in 2015, the overall number of protected areas in favourable condition has increased from 42% to 58%.

Protected area type	No. completely or partially within the Park	No. in unfavourable condition		% in favourable condition		Change in condition
		2015	2021	2015	2021	
SSSI	55	23	21	58%	62%	+4%
SAC	23	16	11	30%	52%	+22%
SPA	16	9	8	44%	50%	+6%
Ramsar Site	3	2	1	33%	67%	+33%

Summary of pressures affecting protected areas

A wide range of pressures (below) affect qualifying interests and notified features of protected areas resulting in unfavourable condition, most of which relate to land/water use and management. The information below shows the number of protected areas affected by the particular pressure according to the latest Site Condition Monitoring carried out by NatureScot.


X175
Over/ Under grazing, trampling & other grazing


X47
Agriculture/ Forestry ops, game/ fisheries management


X46
Burning


X44
Recreation disturbance


X43
Invasive species, plant pests &


X29
Water management, water quality


X27
Natural Events


X9
Climate change


X7
No pro-active management


X6
Pro-active onsite management & conservation


X5
Extraction


X4
Development


X4
Wildlife Crime


X3
Maintenance activities


X2
Flood defence works


X1
Air pollution


X1
Dumping/ spreading of material


X1
Inter-specific competition

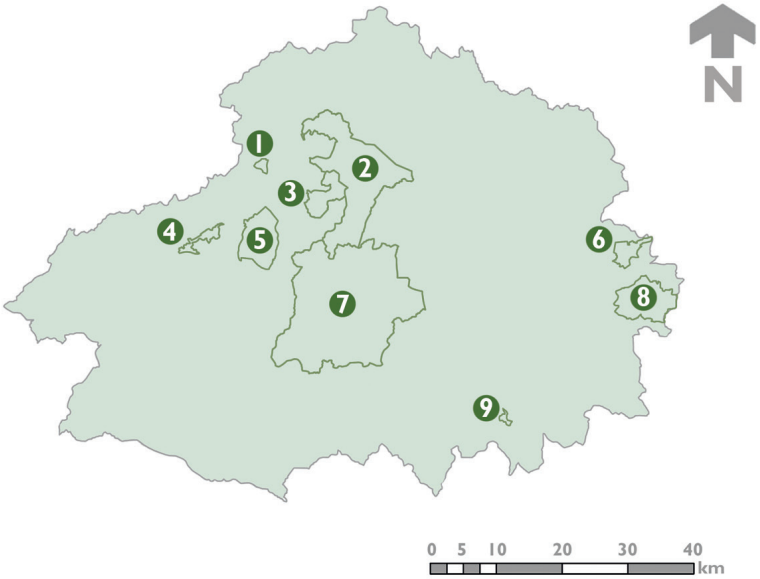
Topic 6
Flora & Fauna

Cairngorms NATIONAL PARK

National Nature Reserves

There are 9 actively promoted NNRs within the National Park.

NNR		Managed by
1	Craigellachie	NatureScot
2	Abernethy	NatureScot and RSPB
3	Glenmore	Forestry and Land Scotland
4	Insh Marshes	RSPB
5	Invereshie and Inshriach	NatureScot
6	Muir of Dinnet	NatureScot
7	Mar Lodge Estate	National Trust for Scotland
8	Glen Tanar	Glen Tanar Estate
9	Corrie Fee	NatureScot



Cairngorms Nature Action Plan (CNAP) priorities

A number of species and habitats important for conservation and tackling the effects of climate change have been identified for landscape scale conservation and priority species management within the CNAP.

CNAP targets for landscape scale restoration/ enhancement

5,000 Ha new woodland (including regeneration & montane)

70% of new woodland to be native species

750 Ha plantations on ancient woodland sites (PAWS) & native woodlands under active restortaion

20 farms in woodland & grassland projects

5000 Ha peatland restoration

150km river and riparian restoration

50 ponds created or restored, including SuDS

increase in farmland wader populations from the existing 2015 baseline

Topic 6
Flora & Fauna

Cairngorms NATIONAL PARK

Habitats and species identified for action in the CNAP 2019 – 2024, and the habitat type(s) that they are predominantly associated with

Habitats	native woodlands (particularly Caledonian pine forest supporting capercaillie), moorland and peatlands, freshwater and wetlands (particularly for natural flood management)
Mammals	Scottish wildcat (found in woodland habitat); mountain hare (found in upland habitat)
Birds	capercaillie (found in woodland habitat); curlew (found in wetland and grassland habitat); golden eagle, peregrine falcon, (found in upland habitats); hen harrier (found in upland and grassland habitats)
Invertebrates	Kentish glory, dark bordered beauty, pine hoverfly, wood ants, pinewood mason bee, aspen hoverfly, shining guest ant (reliant on woodland habitats); scabious mining bee (reliant on grassland habitats); Northern silver stiletto fly, Northern February red stonefly, Northern damselfly (reliant on water/ wetland habitats)
Molluscs	freshwater pearl mussel (found in freshwater)
Trees, shrubs, plants	aspen, woolly willow, twinflower, one-flowered wintergreen, small cow wheat (found in woodland habitat); marsh saxifrage, alpine blue sow thistle, oblong woodsia (found in upland habitat)
Fungi & lichen	waxcaps (fungi, found in grassland habitat); Alectoria ochroleuca (lichen, found in upland habitat); Hertelidea botryose (lichen, found in woodland habitat)

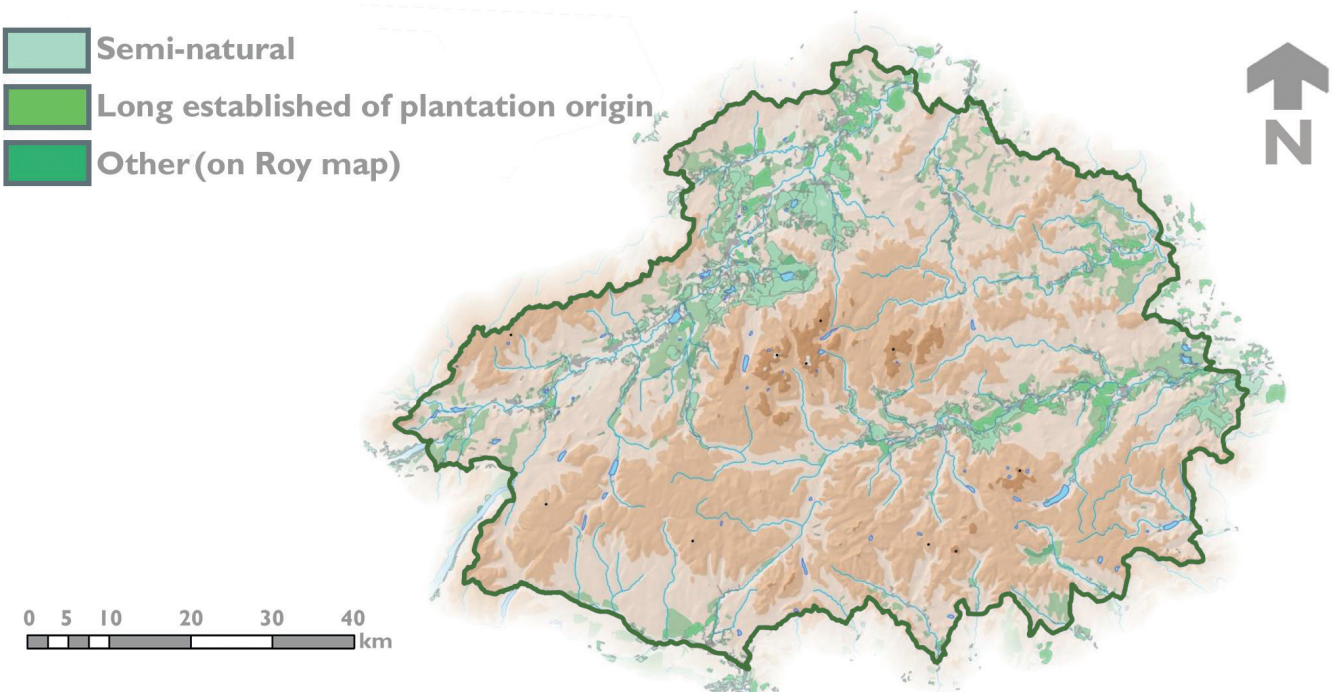
Woodland habitats

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.

Ancient Woodland Inventory woodlands in the Park

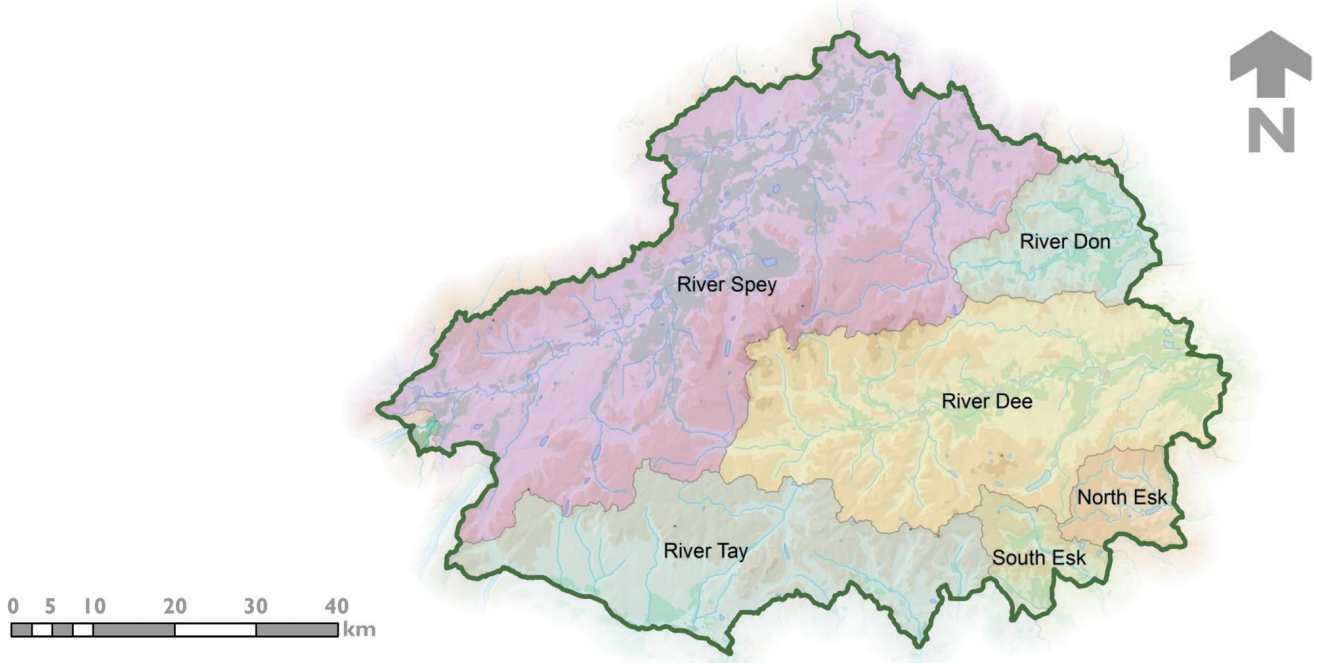
Around 340 square km of the National Park's woodlands are identified as being ancient according to the Ancient Woodland Inventory (https://www.nature.scot/professionaladvice/land-and-sea-management/managing-land/forests-and-woodlands/history-scotlandswoodlands). Although not definitive due to historical 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.

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%

Scottish Wildcat

Knowledge about population figures is patchy, partly due to the elusive behaviour of wildcat and also because of interbreeding with domestic/feral cats resulting in hybrids that can be difficult to tell apart from pure bred wildcat. The Highland Wildlife Park near Kincraig are hosting a breeding and reintroduction programme for Scottish wildcat, Saving Wildcats. This should boost the population of Scottish wildcat in the National Park in future years.

Capercaillie

Capercaillie populations in Scotland have declined significantly from an estimated 20,000 birds in 1970 to 1,114 at the national winter survey in 2015/16. The Park holds a significant proportion of the national population – around 80%, the majority in Strathspey - mostly in areas protected for nature conservation but also in other forests that host metapopulations.

Capercaillie also persist in Deeside. The Strathspey capercaillie population is crucial to the long-term survival of the species in the UK.

Curlew

The National Park is one of the most important UK mainland sites for breeding wading birds due to its combination of wetlands, wet grasslands and low-intensity mixed farming. Nevertheless, curlew have seen their numbers dramatically reduce by over 62% between 1994 and 2017.

Topic 6
Flora & Fauna

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.

Other issues affecting biodiversity –diseases, non-native species

Non-native species can kill, harbour disease, and/or compete with native species.

Pathogens

Pathogens can cause death or reduce viability of populations of host species, which has implications ecosystems and biodiversity. In the Park, the main issues relate to tree health:

- Dothistroma (red band) needle blight is a fungus that causes the premature loss of pine needles, weakening the tree which may lead to premature death.
- Ash die back or Chalara (Hymenoecyphus fraxineus) is a fungus causing dieback and mortality in ash trees.
- Ramorum Phytophthora ramorum is a fungal disease of larch.
- Phytophthora austrocedraeon is a fungus that causes dieback and mortality in juniper where it attacks the roots and stems.

Topic 7 Landscape & Cultural Heritage

Context

Landscape is the shape and diversity to our surroundings, the product of thousands of years of interaction between man and nature, encompassing the physical and cultural environment. Landscape is important, because it links culture with nature, and the past with the present.

At 4,528 square kilometres, and comprising 6% of Scotland's land area, the Park is amongst the largest protected landscape in the UK.

Summary of the special qualities of the Park

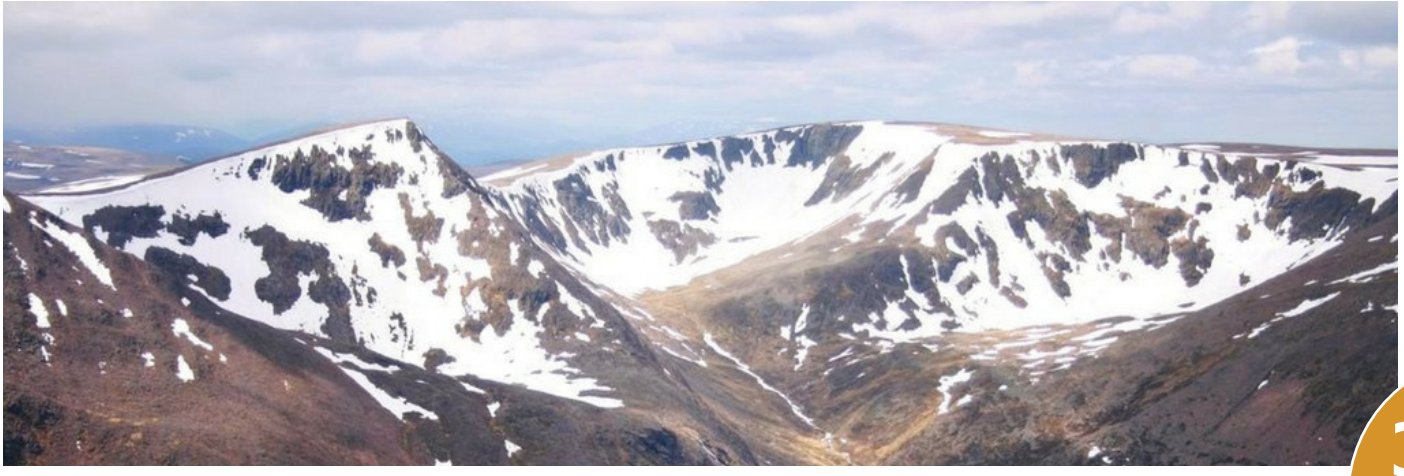
General qualities include:

- Magnificent mountains towering over moorland, forest and strath.
- Vastness of space, scale and height.
- Strong juxtaposition of contrasting landscapes.
- A landscape of layers, from inhabited strath to remote, uninhabited upland.
- 'The harmony of complicated curves'.
- Landscapes both cultural and natural.

More defined qualities:

The Mountains and Plateaux

- The unifying presence of the central mountains.
- An imposing massif of strong dramatic character (image below: Braeriach)
- The unique plateaux of vast scale, distinctive landforms and exposed, boulder strewn high ground.
- The surrounding hills.
- The drama of deep corries.
- Exceptional glacial landforms and snowscapes.



Trees, Woods and Forests

- Dark and venerable pine forest (image below mid-ground tree cover).
- Light and airy birch woods (image below: foreground trees).
- Parkland and policy woodlands.
- Long association with forestry.

Moorlands

- Extensive moorland, linking the farmland, woodland and the high tops.
- A patchwork of muirburn.

Wildlife and Nature

- Dominance of natural landforms.
- Extensive tracts of natural vegetation.
- Association with iconic animals.
- Wild land.
- Wildness.

Glens and Straths

- Steep glens and high passes.
- Broad, farmed straths.
- Renowned rivers.
- Beautiful lochs.

Topic 7 Landscape & Cultural Heritage

Cairngorms NATIONAL PARK

Visual and Sensory Qualities

- Layers of receding ridge lines.
- Grand panoramas and framed views.
- A landscape of many colours
- Dark skies.
- Attractive and contrasting textures.
- The dominance of natural sounds.

Culture and History

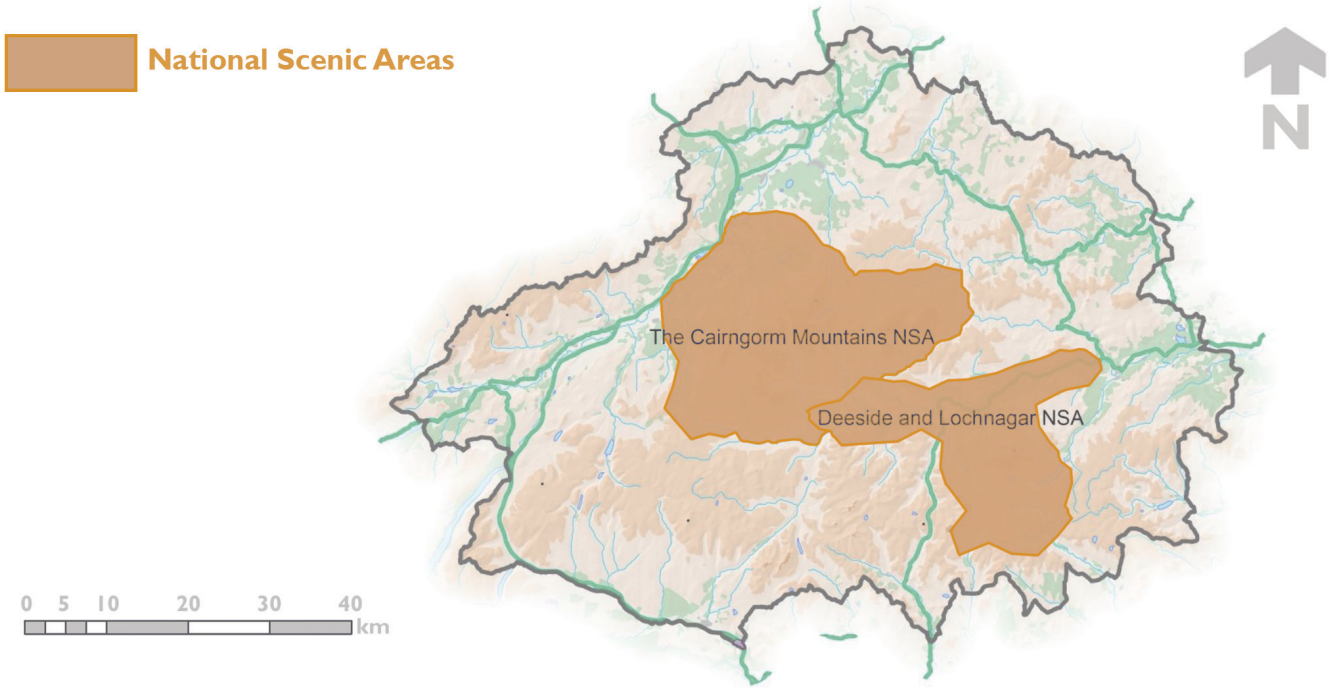
- Distinctive planned towns (Grantown; right)
- Vernacular stone buildings.
- Dramatic, historical routes
- The wistfulness of abandoned settlements.
- Focal cultural landmarks of castles, distilleries and bridges.
- The Royal connection.

Recreation

- A landscape of opportunities.
- Spirituality.

National Scenic Areas

Two National Scenic Areas (NSAs), the Cairngorm Mountains NSA and Deeside and Lochnagar NSA, are located entirely within the Park boundary, covering an area of around 1,072 square kilometres, which equates to just under 25% of the land area of the Park.



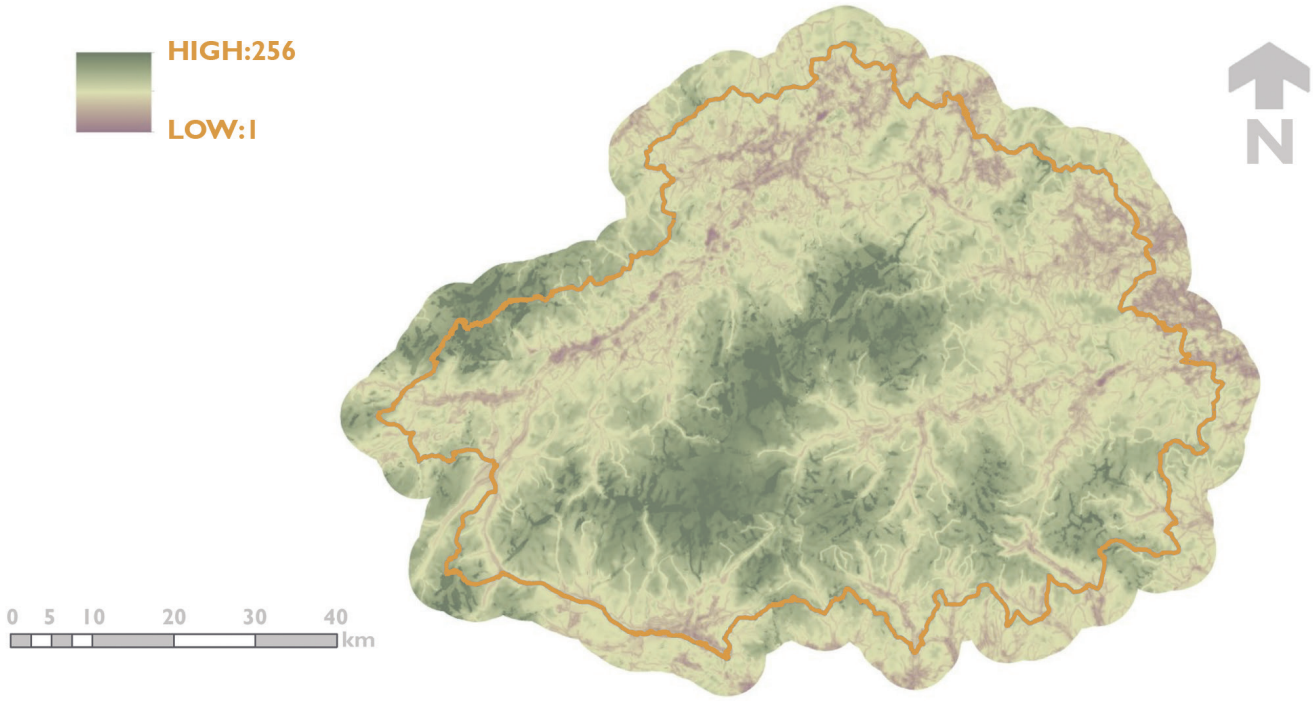
Wildness and Wild Land Areas

Wildness is a quality experienced by people when visiting places of a certain character.

Wildness is objectively considered through four physical attributes being present namely;

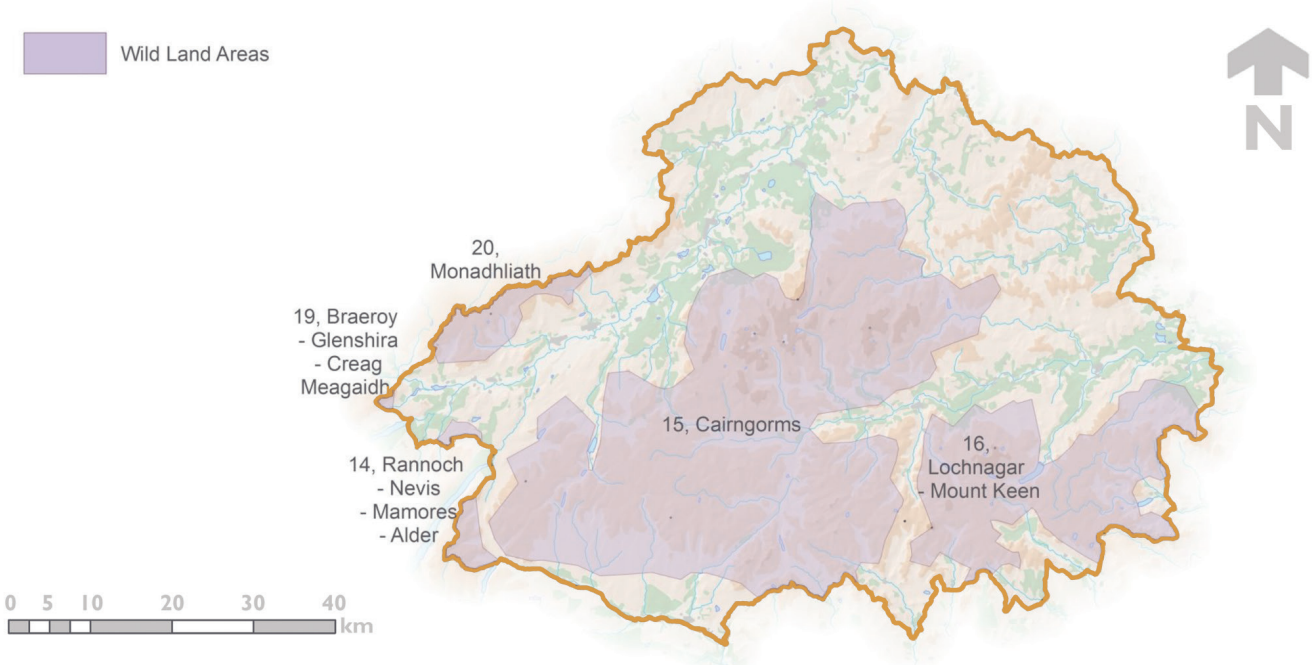
- perceived naturalness of the land cover;
- ruggedness of the terrain;
- remoteness from public roads, ferries or railway stations and the visible lack of buildings, roads, pylons,
- and other modern artefacts.

NatureScot Relative Wildness Mapping



Wild Land Areas, which represent the most extensive areas of high wildness in Scotland. Around 2,100 km², or 46%, of the Park has been identified as a Wild Land Area.

Wild Land Areas Within or Overlapping the Park



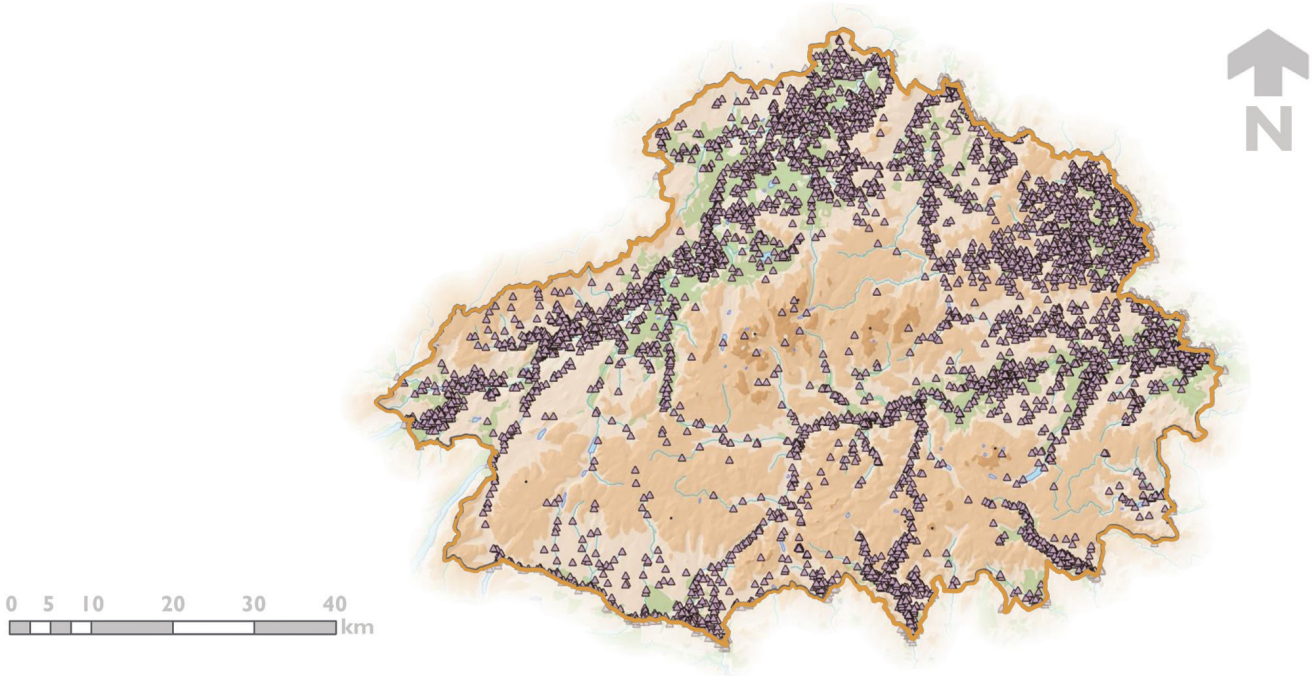
Topic 7 Landscape & Cultural Heritage

Cairngorms NATIONAL PARK

Historic landscape

The landscape seen today is the result of a complex interplay of climate, geology, geomorphology, soil development, vegetation succession and herbivore impacts, along with human elements linked to settlement, transport, farming and forestry. The map below identifies where historical archaeological records, as held by the Royal Commission on the Ancient and Historical Monuments of Scotland and others, occur in the Park. These provide an indication of where human activity has occurred in the past.

Distribution of National Monuments Record Sites in the Park



x110
Scheduled Monuments

x11
Gardens and designed landscapes

x753
Listed Buildings

x2
Inventory of Historic Battlefields

x5
Planned Towns: Ballater, Blair Atholl, Tomintoul, Grantown-on-Spey and Kingussie

Conservation Areas

Parts of the planned towns of Ballater, Grantown-on-Spey and Blair Atholl have been designated as Conservation Areas, which are protected under the Planning (Listed Buildings and Conservation Areas) (Scotland) Act 1997. The Park also has a further two Conservation Areas within its boundary at Braemar and Inverey.

Buildings at Risk

The Buildings at Risk Register (BARR) for Scotland highlights properties of architectural or historic merit throughout the country that are considered to be at risk or under threat. To be at risk, a building does not necessarily need to be in poor condition, it may simply be standing empty with no clear future use. Many buildings at risk are in this latter category. From the latest available data, 31 buildings were recorded as being at risk in the Park.

Linguistic Heritage

The Located near the centre of Scotland, and owing to the restrictive nature of its mountainous terrain, the Cairngorms National Park occupies a position where many of the linguistic and cultural differences found in Scotland intersect. The language used in place names in the Park often has historical meaning that describes the landscape, place, wildlife or activities that could or are still found there.

Spoken Languages

Gaelic, which is recorded to be the language was spoken by a very small proportion of the population (around 2.2% in the 2011 Census, down from around 3.1% in 2001 Census) in the Park, it is a visible and inseparable part of the identity of the area, as it continues to dominate the names of places, both built and natural.

Scots, (Doric), is stronger in the east where the influence of the lowlands is greatest. The language has also seen a fall in use, with around 29.3% (5,400 people) of the National Park's population claiming to be able to speak it in the 2011 Census.

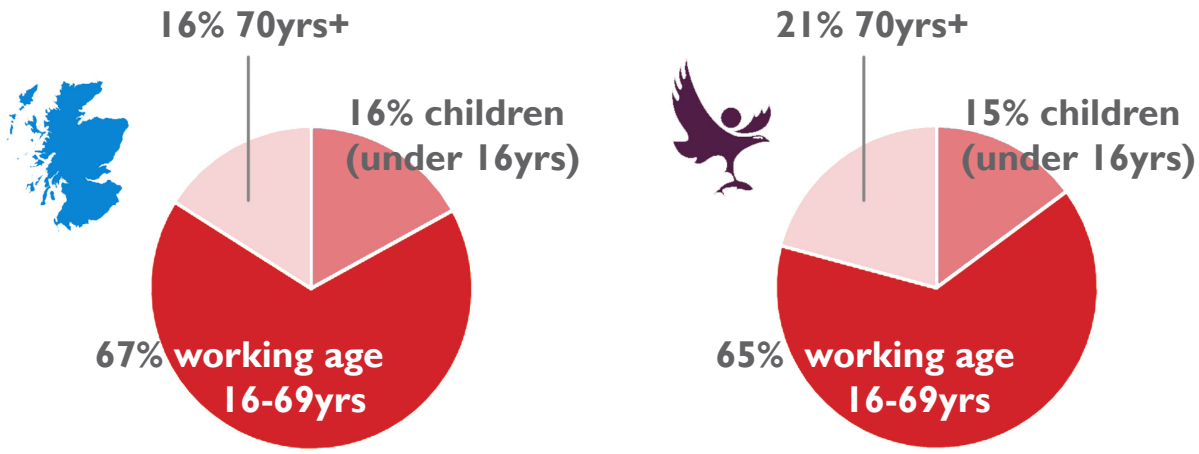
Topic 8 Population & Human Health

Cairngorms NATIONAL PARK

Population Information to 2019

The mid-year estimate of the population of the Cairngorms National Park in 2018 was 18,654 people, with around 50% female and 50% male. This is similar to the Scottish population where 49% of the population in 2019 were estimated to be male and 51% female.

Proportion of 2019 mid-year Population Estimate by Age Category



The age profile of the people living in the Park differs from the national population. A larger proportion of the population in Park is made up of people within the 70 years and over age range compared to the Scottish population, which is thought to reflect the attractiveness of the Park as somewhere to retire to.

It should be noted that the mid-year population estimates for the working age category may also be skewed by the time of year that data is collected, as this is when the working population increases to service tourism. Therefore the proportion of pensionable age people resident in the National Park year round compared to working age people is likely to be greater than shown.

Topic 8 Population & Human Health

Cairngorms NATIONAL PARK

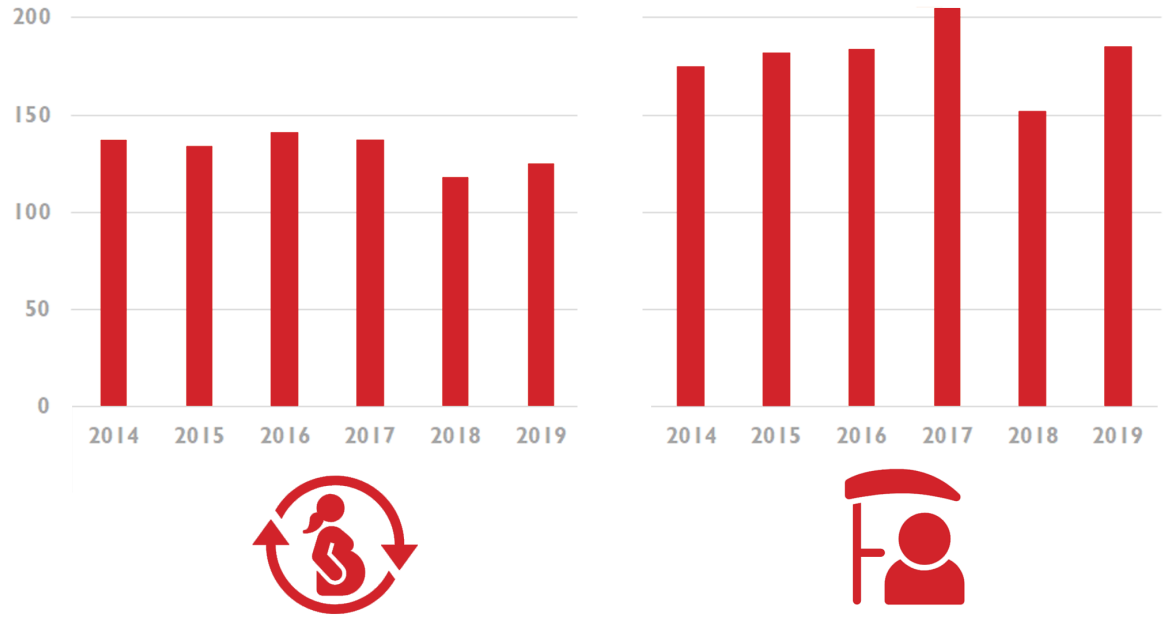
Population Change

During the 21st century, the National Park has experienced a significant net increase in its resident population, rising by approximately 2,321 people, a growth of around 14% between 2001 and 2019. This is above the overall Scottish rate, which saw an increase of around 7.8% over the same period. However after steady 1-2% annual increases during most of the first decade, the National Park population has plateaued.

However population growth in the Park is not spread evenly (table below), with areas of decline and areas of growth. The overall National Park population figures are also skewed by the Aviemore area, which saw a far greater population growth compared to other areas of the National Park.

Locality	Change in no. of people 2001 - 2019	Percentage change 2001 - 2019
National Park overall	**2321**	**14.2%**
Aberdeenshire	**-96**	**-3.1%**
Highland (including Aviemore)	**2336**	**20.1%**
Aviemore	**1249**	**48.9%**
Highland (excluding Aviemore)	**1087**	**12.0%**
Moray	**121**	**19.2%**
Perth and Kinross	**-40**	**-4.3%**

Births and Deaths



During this period, deaths have exceeded births every year of this period, indicating that the population growth of the Park is driven by migration of people into the National Park.

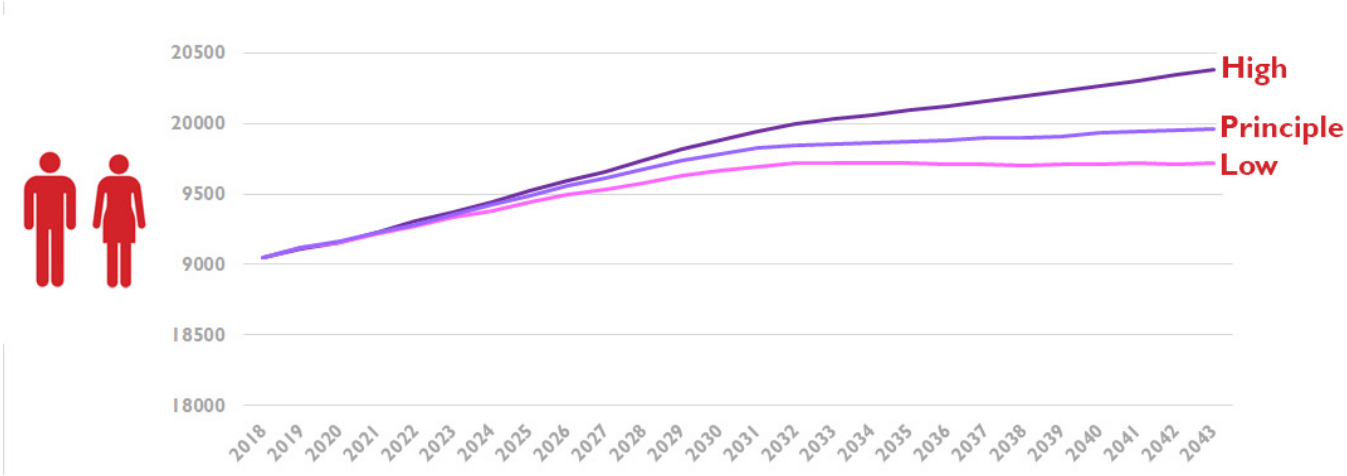
Topic 8 Population & Human Health

Population Projections

The most recent population projection for the National Park was based on 2018 data, published in October 2019. The NRS principal projection is that between 2018 and 2043, the population of Park will increase by around 5% (with the low and high migration figures being +4 and +7%).

The National Park projected population compares favourably to the Scottish projections, which predict a 0, +3 or +5% population change between 2018 and 2043 under the low, principal and high migration scenarios.

Cairngorms National Park - Population Projections (2018)



Projected Population Change in the National Park and Scotland

The National Park is likely to encounter similar population trends as Scotland as a whole but to a greater degree. The increase in over 65s is 57% higher in the National Park, and the decreases in working population and number of children are 59% and 67% greater respectively.

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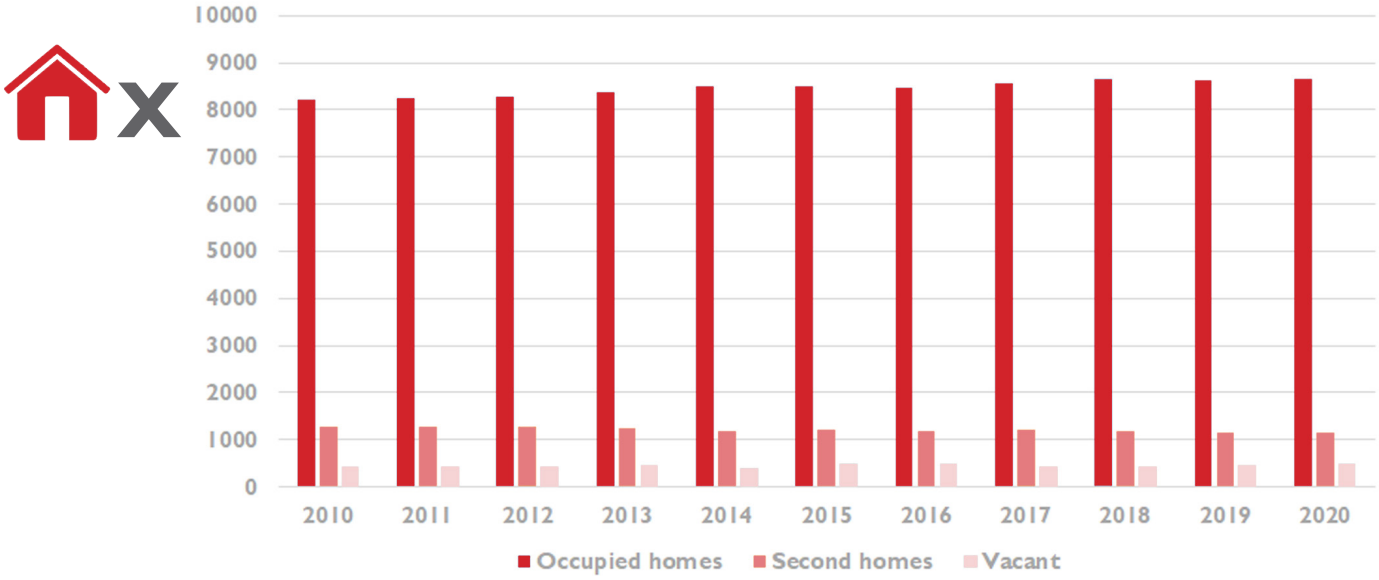
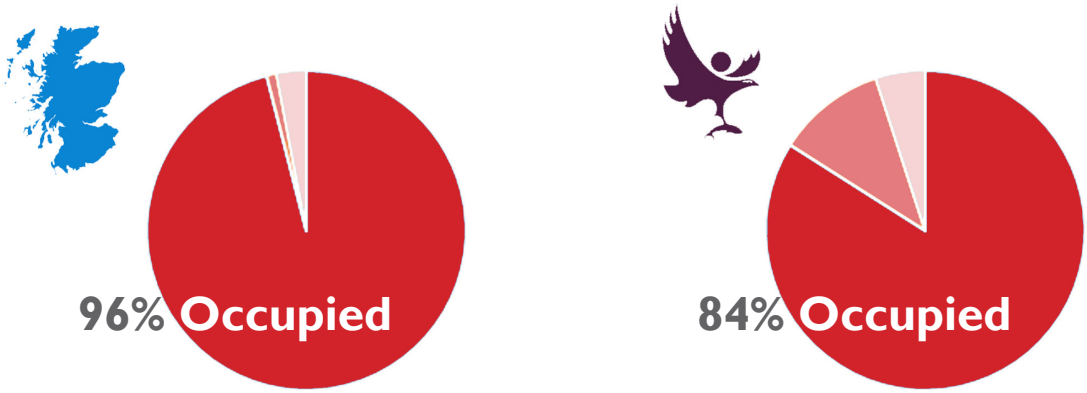
Cairngorms NATIONAL PARK

Housing

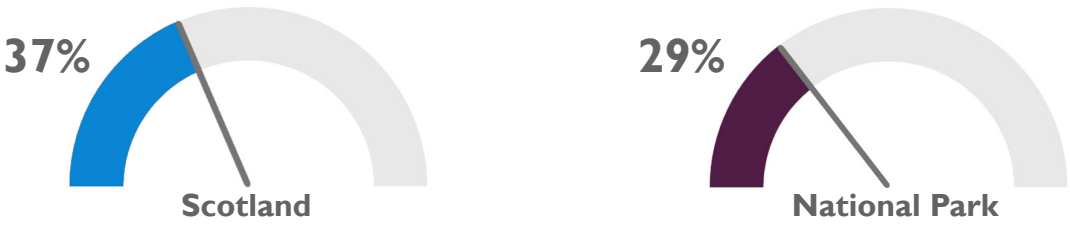
Between 2010 and 2020 the number of dwelling in the Park grew from 9888 to 10273 (an increase of around 4%), with occupation levels remaining between 83% – 84% across the period. The number of second homes has declined by 10.1% (128 dwellings) with the proportion reducing from 12.8% to 11.1%. The number of vacant dwellings has increased from 409 to 493 (20.5%) with the proportion increasing from 4.1% to 4.8%.



Household occupancy comparison between Scotland and National Park



Single Adult Discount comparison between Scotland and National Park



Topic 8 Population & Human Health

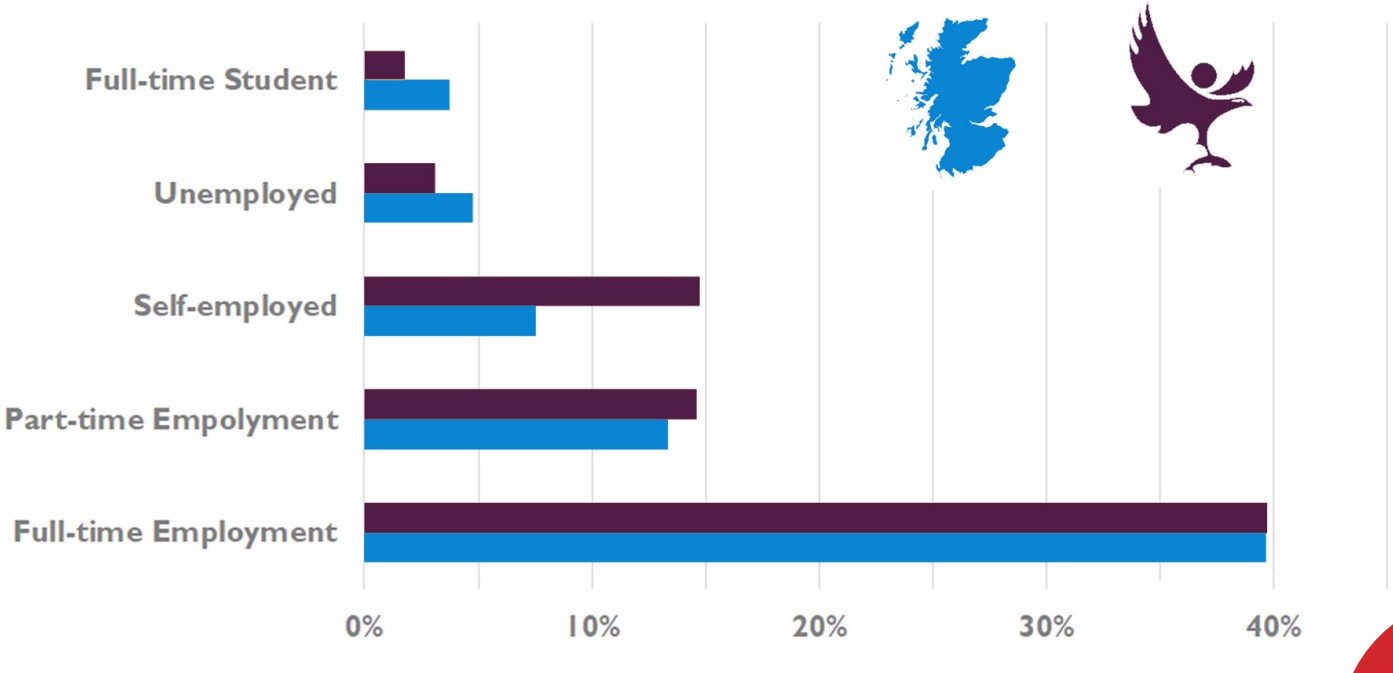
Employment in the National Park

Data obtained from Skills Development Scotland (SDS) in 2021 informes us that :

- 8,100 people employed in the Natoinal Park in 2020.
- Full- time jobs were most numerous with 4,900 people, 60% compared to 74% in Scotland.
- Part-time jobs were held by 3,200 people or 40% of those employed.

Population by Activity Type

The Park has a higher proportion of part time and self-employed people (both around 15%) than the Scottish population (around 13%). This may reflect the makeup of the main employment sectors in the Park (accommodation and food; arts, entertainment, recreation and other; skilled trades), which tend to be fulfilled by part time and self-employed workers.



Education and Training

In the Park the mean adult educational score and attainment of school leavers are above the national averages and significantly below national average in terms of adults with no qualifications. There is a very low proportion of young people 16-19 year olds not participating in employment, education and training (NEET) factors that may be contributing to this include:

- High average educational/ vocational qualifications.
- Low unemployment rate and high availability of employment in particular in the tourism sector.
- Out migration of young people

How the Park compares with Scotland

mean adult educational score	school leavers educational attainment*	adults (16-64) with no qualifications	16-19 year olds NEET*
 2.02	 5.66	 27%	 0.037%
 1.84	 5.53	 23%	 0.008%

* Publically funded schools.

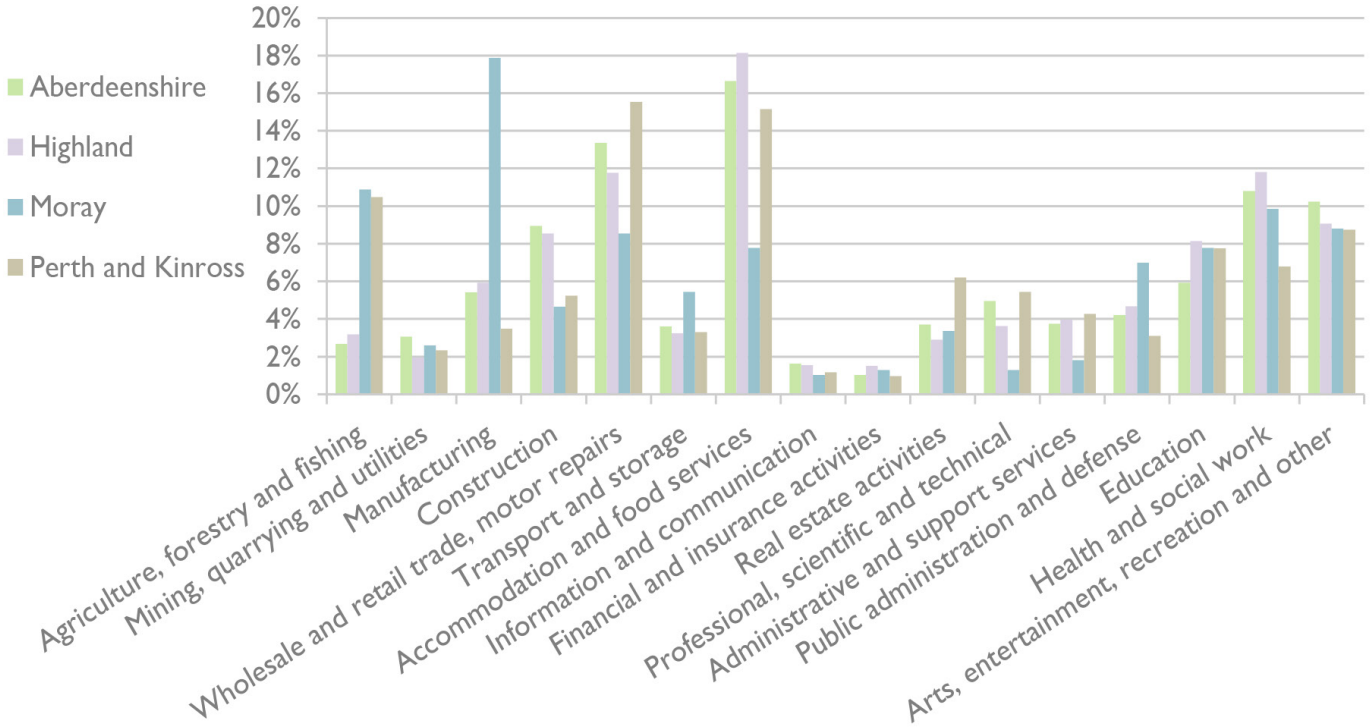
* NEET: Not in Education, Employment or Training

The National Park out performs the Scottish national averages in all categories, with significantly less young people aged 16-19 not in education, employment or training (NEET).

Labour Market

The importance of certain employment sectors varies both between the different industries and between the different Local Authority areas within the Park.

Proportion of employment by industry from the 2011 Census for the different Local Authority areas in the Park

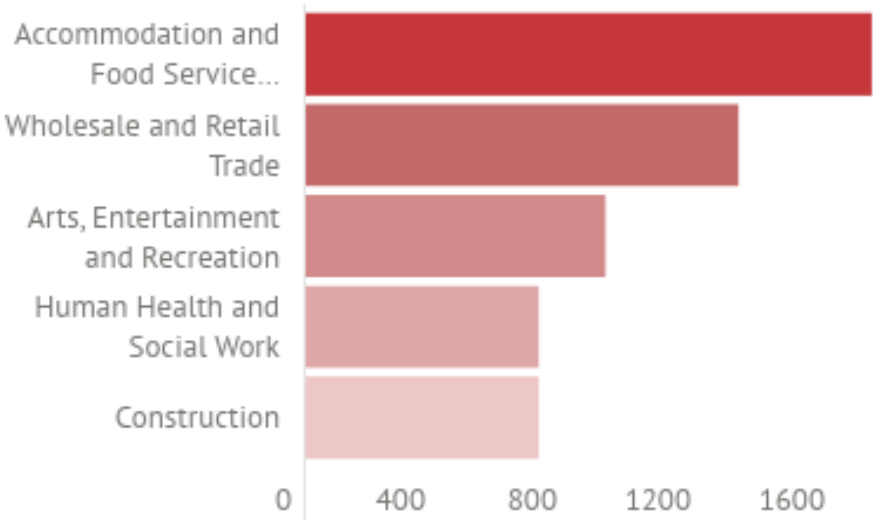


Moray has a different profile to that of the other Local Authority areas. The largest differences are seen in the manufacturing and the accommodation and food services sectors. Manufacturing is a key sector for Moray, contributing 18%, compared to between 3 and 6% for the other Local Authority areas.

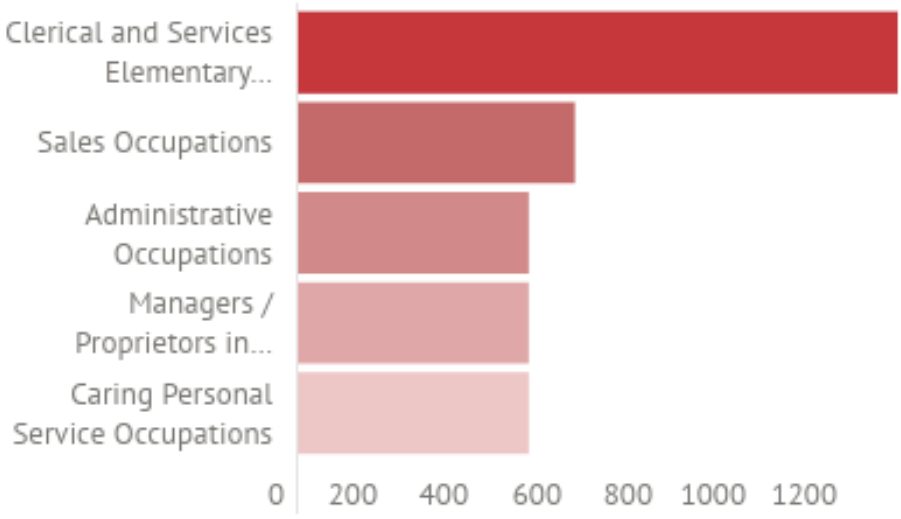
In contrast, accommodation and food services contribute far less at 8%, compared to between 15 and 18% for the other Local Authority areas. This could reflect the reliance the other areas in the Park have on tourism, which influences the accommodation and food services sector, whereas Moray has traditionally had a different economic focus.

Labour Market in the National Park

Largest Sector



Largest Occupations



The workforce shrunk by 2.7% between 2019- 2020 largely caused by a decrease in the prominent Accommodation and Food Service Activity Sector. Over a third of occupations (36%) were 'higher level', 33% were 'mid-level' and 31% were 'lower-level' This is compared to 45% 'higher level' and 35% 'lower level' occupations across Scotland.

Labour Market Requirements

The labour market of the National Park is forecast to face some challenges in the immediate term, with macroscale events such as Brexit and the COVID-19 Pandemic resulting in job losses and limiting economic growth.

The forecast for the mid-term (2020 - 2023) suggests there could be some job growth (100 people) and opportunities created as a result of the need to replace workers leaving the labour market due to retirement and other reasons (800 people).

Around 900 people are forecasted to be required to fill job openings

100 people could be required to fill the jobs created due to expansion in the labour market

800 people could be required to fill opportunities created by people leaving the labour market

These are expected to be concentrated in a small number of sectors:

30%

Accommodation and Food Services

20%

Wholesale and retail trade

20%

Arts, entertainment, and recreation

10%

Construction

10%

Agriculture, Forestry and Fishing

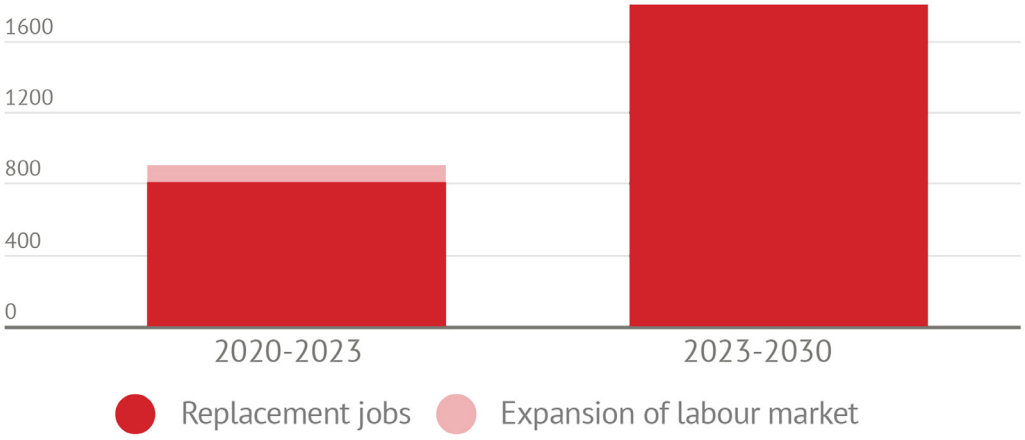
10%

Education

The forecast for the long-term (2023 - 2030) predict a halt in growth. However there could be an ongoing requirement for skilled people to fill opportunities created by people leaving the labour market. This feature of the labour market, known as the replacement requirement, is a symptom of demographic change.

Replacement Requirement

It is forecast that there will be a requirement of 1,800 people to fill job openings between 2023 and 2030. As the forecast expansion demand is zero, all 1,800 potential job openings are forecast to be a result of the replacement demand.

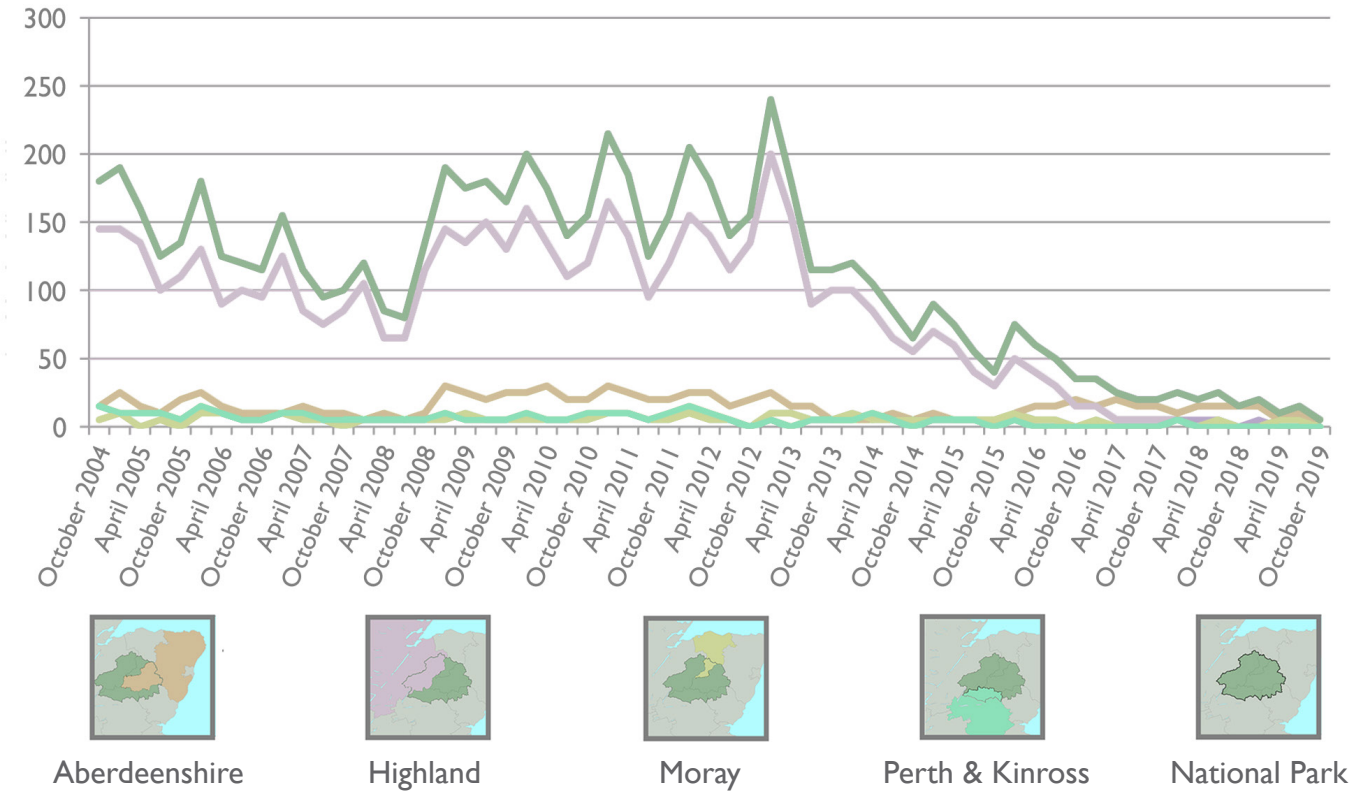


Unemployment

Unemployment levels within the Park are relatively low, with the 2011 Census finding that only around 3% of the population aged 16-74 were unemployed, compared to around 5% for Scotland. Around 0.3% had never worked compared to around 1% for Scotland, with around 1% being long term unemployed compared to around 2% for Scotland. There is a variation between the Local Authority areas, with Moray experiencing higher rates of unemployment than Scotland and the other Local Authority areas within the Park, and Perth and Kinross experiencing muchlower rates.

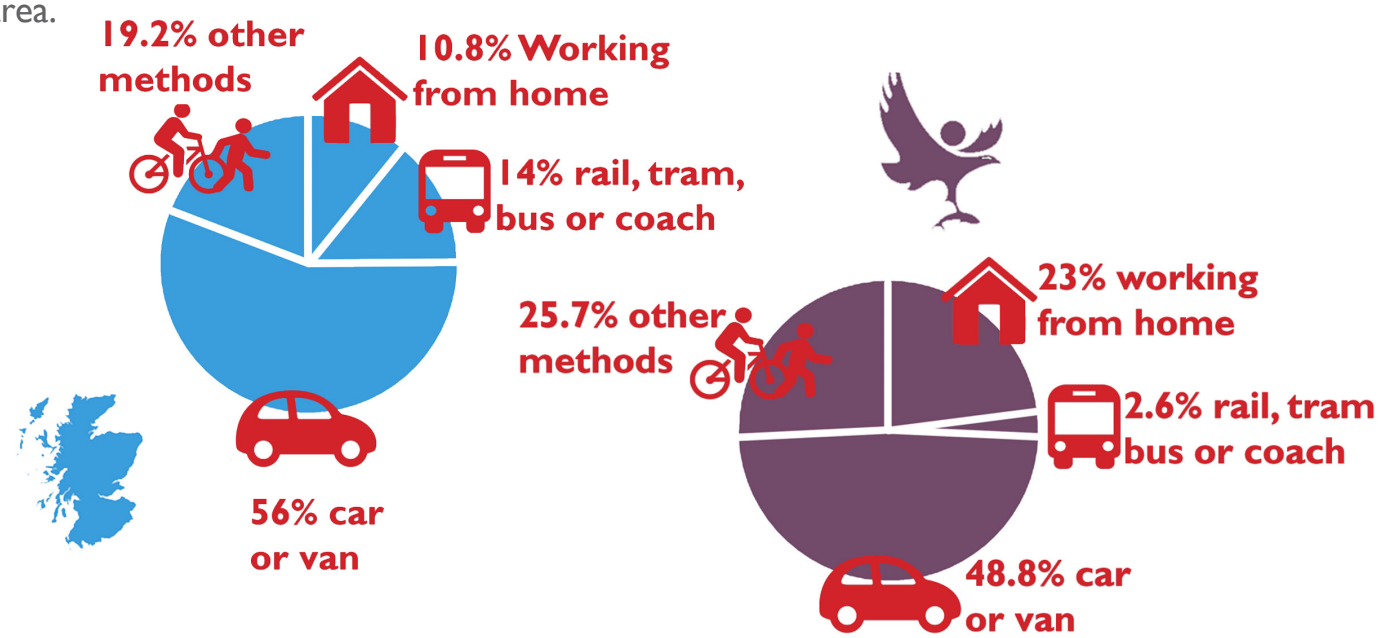
The nature of employment within the Park is however extremely seasonal, with Job Seekers Allowance (JSA) claimants peaking in the winter months (see graph below). Unemployment is at its lowest in July, which coincides with Scottish school and public holidays and key tourism months.

Number of Job Seekers Allowance Claimants by Local Authority Area



Travel to work information

Data from the 2011 Census found that, of the 18,712 people aged 16 -74 in employment in the Park, around 52% of them commuted to work via car, van or motorbike. This is lower than the Scottish level of 56%, a reflection of the fact that the Park has a relatively high level of home working at around 23.4%. The use of public transport is particularly low within the Park at around 3%, a reflection of the difficulties of providing good service in such a rural area.



Unfortunately a breakdown of the other methods of transport was not available, so it is not possible to say how many people in the Park walk or cycle to work.

Comparison of the proportion of commuters by distance

The largest proportion of people commuting within the Park travel less than 2km to their work . At around 23%, the Park figure is higher than the Scottish level of around 17%. However, in the Park a greater proportion of people commute further when compared to the Scottish average; in Scotland around 50% of commuters travel less than 10km to their work, whereas for the Park only around 36% of commuters travel that distance. In the Park around 16% travel of commuters travel more than 30km, compared to the Scottish average of 7%.

LA Area	<2km	2km to <5km	5km to <10km	10km to <20km	20km to <30km	30km +
Aberdeenshire	25.1%	20.4%	3.6%	3.7%	8.6%	4.9%
Highland	21.9%	24.1%	5.8%	7.6%	9.2%	3.4%
Moray	8.4%	2.9%	7.7%	16.1%	4.5%	16.6%
Perth and Kinross	11.7%	5.7%	6.7%	11.3%	4.5%	11.7%
National Park	23.3%	5.4%	6.8%	9.3%	3.8%	15.5%
Scotland	16.8%	17.6%	16.2%	14.5%	6.2%	7.0%

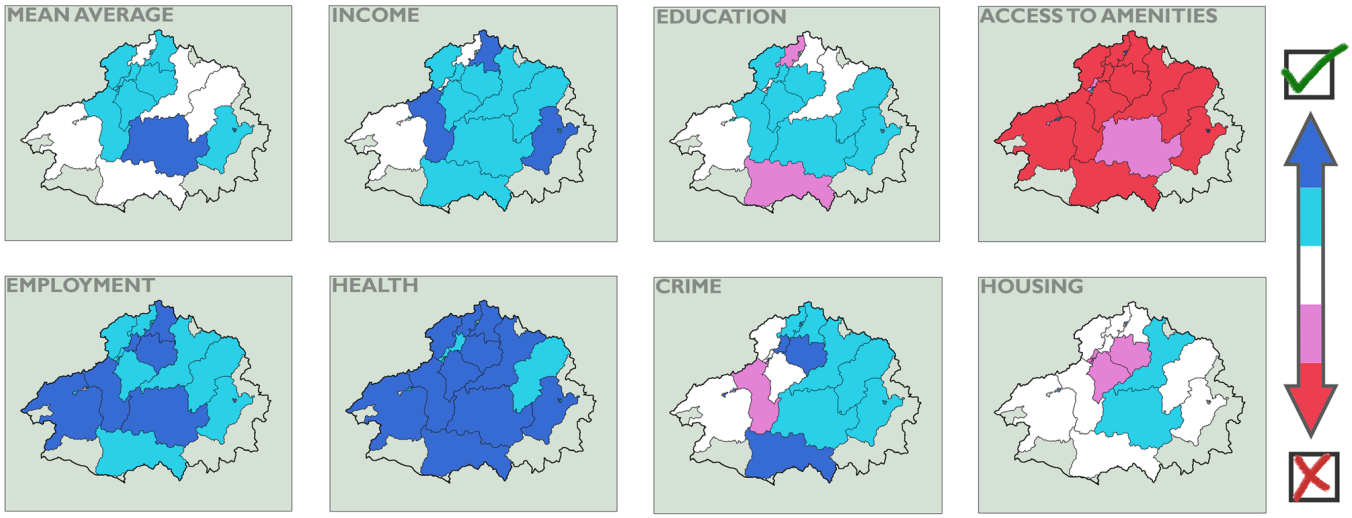
Topic 8 Population & Human Health

Cairngorms NATIONAL PARK

Link Between Health, Housing and Deprivation

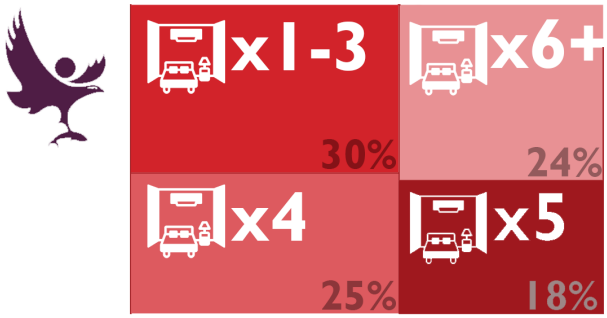
It is well recognised that the quality of housing, deprivation and health are linked. The NHS consider that housing costs and quality, along with fuel poverty, influence health inequality in Scotland (http://www.healthscotland.scot/media/1250/housing-and-health_nov2016_english.pdf).

National Park SIMD Data 2020



There is a low level of housing related deprivation within the Park, with no data zones falling within the 20% most deprived. However there are areas where indicators of housing deprivation exceed the national average. In particular, at 4.3% many areas of the National Park have relatively high proportions of the household population living in homes with no central heating, higher than the Scottish average of 2.3%.

Proportion of Dwellings by Number of Habitable Rooms: Park and Scotland



A significant barrier in reducing household deprivation is the availability of enough new housing to enable people to move from housing that does not meet their needs (such as overcrowded or lacking central heating) into more suitable homes that are within their means.

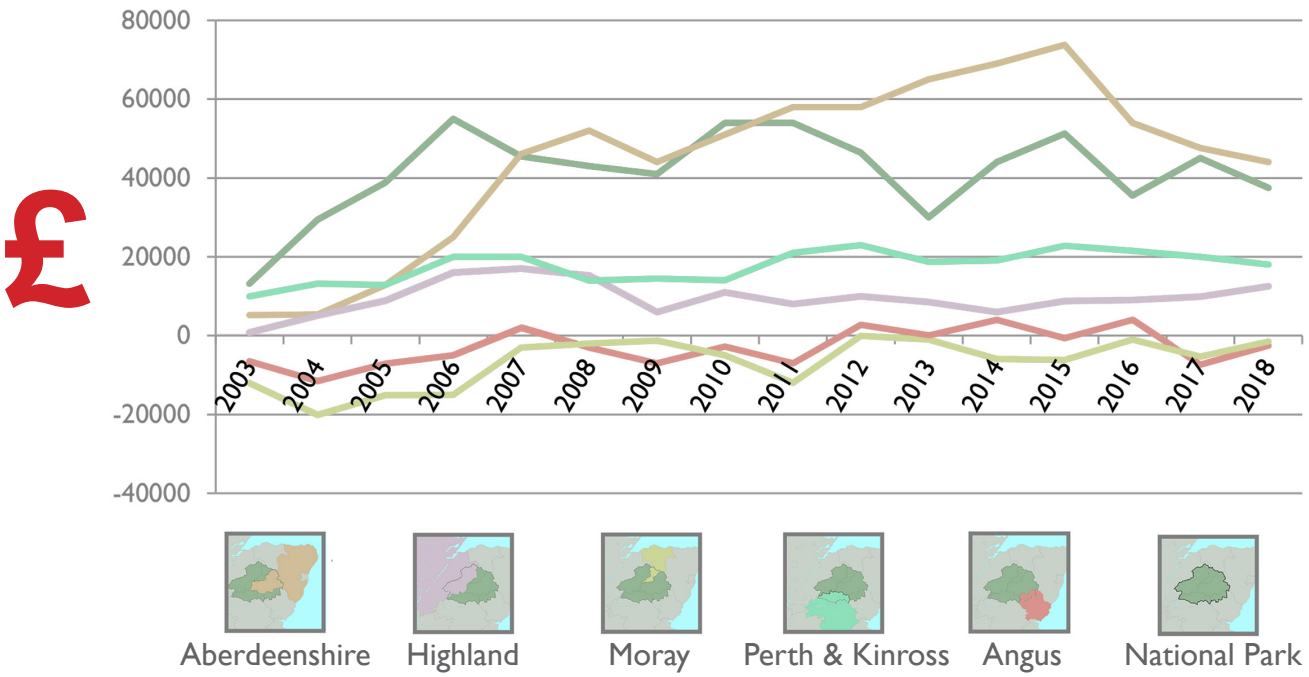
Housing Affordability

Affordability is a recognised issue in the Park. Between 1993 and 2015, the median price of a property in the Cairngorms National Park saw a net rise of almost 230%, with a peak in 2015 of £192,500. In 2018 it had reduced slightly to £190,000.

The graph below shows the amount that median house prices in the Park and Local Authority areas within the Park are below/above the Scottish median house price since the Park was established.

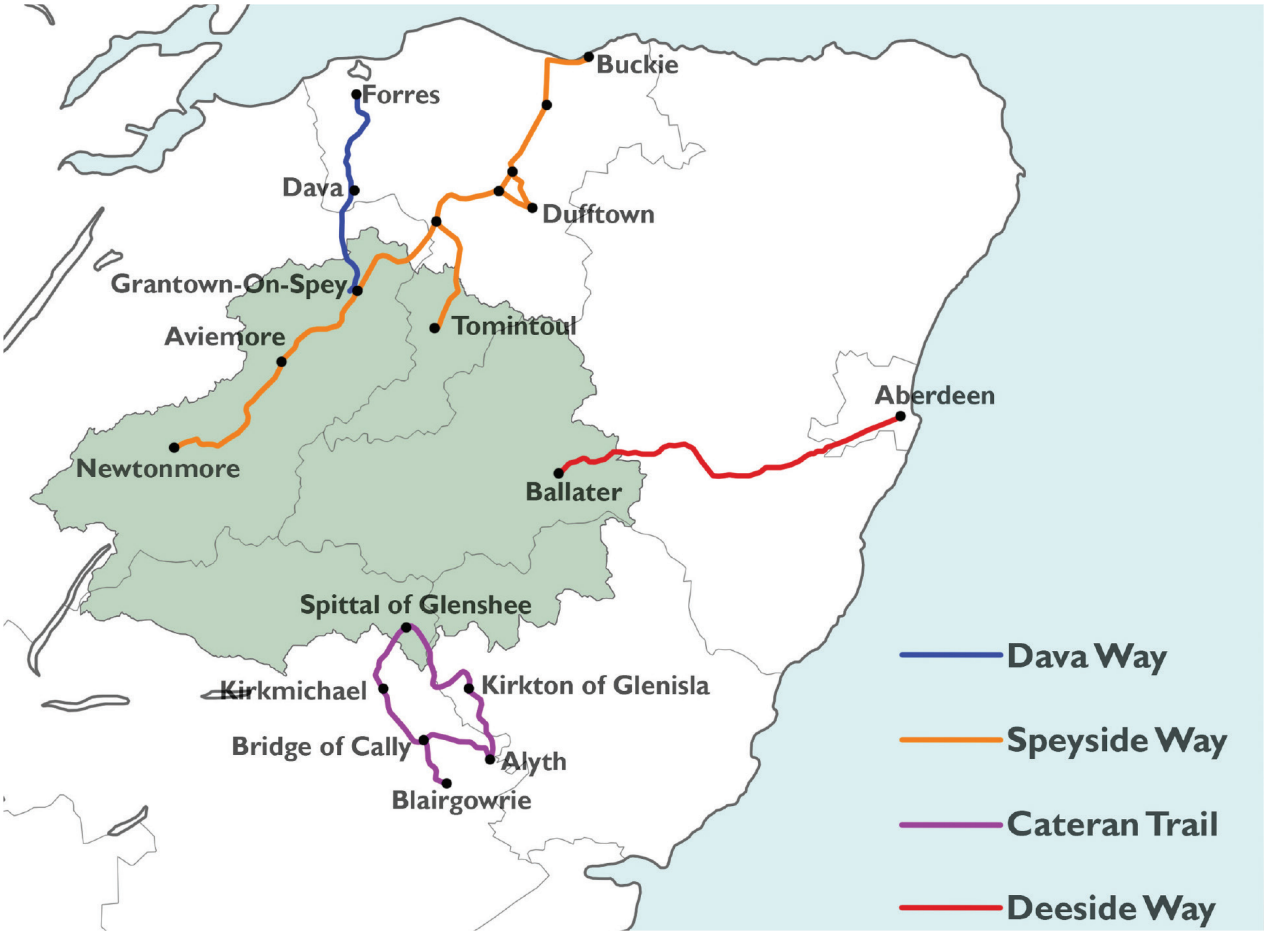
When the Park was established in 2003, the median Park house price was already £13,197 above the Scottish average. This gap has since increased to £37,500 in 2018, placing many houses outwith the financial reach of workers in the Park wishing to buy a home there.

£ above/below Scottish median house price



Recreation Opportunities

In addition to the usual measures of deprivation related to employment, finances and transport, other factors can influence human health, such as opportunities to access the outdoors for recreation, leisure and exercise. Being outside and physical activity is well known to improve physical and mental health, as well as addressing health inequalities.



The Dava Way, around 41 miles in length, follows the old railway route that used to link Grantown on Spey in the Park with Forres in Moray.

The Speyside Way, around 65 miles in length, follows the River Spey from Buckie on the Moray coast to Newtonmore in the Park. There is also a spur off the main route, which goes from around Ballindalloch through Glenlivet to Tomintoul. A section of the Speyside Way forms part of the off-road National Cycle Network route 7.

The Cateran Trail, around 64 miles in length, is a circular route following old drove roads and ancient tracks through Perthshire and the Angus Glens, between Blairgowrie, Alyth and Spittal of Glenshee.

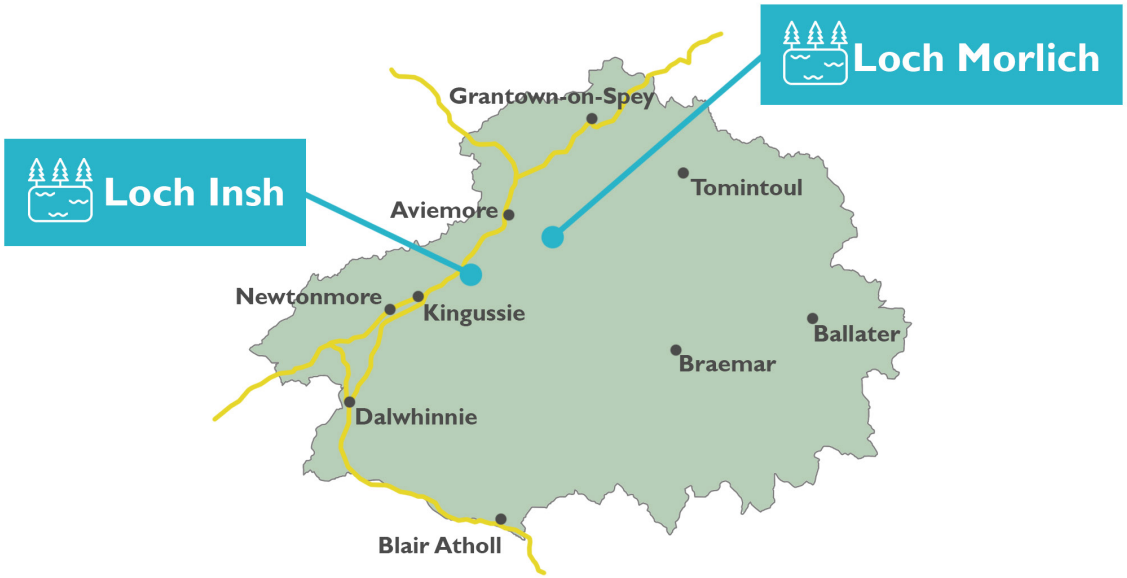
The Deeside Way, around 41 miles in length, follows the old railway route the used to link Ballater in the Park with Aberdeen. It also forms part of National Cycle Network route 195.

Recreation Opportunities

As well as the long distance routes, there are numerous path networks associated with settlements providing shorter routes for exercise or getting around. Some of the path networks also link settlements, offering opportunities for commuting by active travel

Many of the paths in the Park are multi-user paths, providing opportunities for cyclists as well as pedestrians to be active. National Cycle Network route 7 goes between Inverness and Sunderland, passing through the Park, while the shorter route 195 provides opportunities in Aberdeenshire.

There are two water sports centres that facilitate non-motorised water sports through teaching and equipment hire, at Loch Insh and Loch Morlich.



Cairngorms
NATIONAL PARK
Pàirc Nàiseanta a' Mhonaidh Ruaidh

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