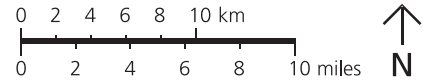


NORTH PENNINES
Area of Outstanding Natural Beauty



North Pennines Area of Outstanding Natural Beauty Management Plan 2019-24





- AONB and Geopark boundary
- A road
- B road
- Minor road
- Railway & station
- Tourist Information Centre
- Pennine Way
- Sea to Sea Cycle Route (C2C)
- YHA Youth Hostel
- Hadrian's Wall

Please note that not all roads and settlements are included on this map

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Ministerial Foreword: Lord Gardiner of Kimble

Parliamentary Under Secretary of State for Rural Affairs and Biosecurity



I am fortunate that England's Areas of Outstanding Natural Beauty are part of my Ministerial responsibilities. Whether it be rolling hills, sweeping coastline or a tranquil village, spending time in an AONB can stir the heart and lift the spirit.

This is a pivotal moment for all AONBs. The Government has set its ambition in the 25 Year Environment Plan which states clearly the importance of natural beauty as part of our green future, while AONBs retain the highest status of protection for landscape through national planning policy. Leaving the EU brings with it an opportunity to develop a better system for supporting our farmers and land managers, who play such a vital role as stewards of the landscape. And the Review of National Parks and Areas of Outstanding Natural Beauty led by

Julian Glover – the first of its kind for generations – will make recommendations to make sure our designated landscapes can flourish in the years ahead.

In my visits to AONBs around the country, I have been struck by the passion of many people – farmers, volunteers, and hard-working staff – for the beautiful places they live and work in. In this spirit I am delighted to welcome publication of this Statutory Management Plan for the North Pennines AONB. It is significant that this plan will be delivered in partnership by those who value the North Pennines. I would like to thank all those involved in the preparation of this document, and wish you the best of success in bringing it to fruition.

Gardiner of Kimble

Chair's Foreword: Jan Simmonds

North Pennines AONB Partnership



Thank you for reading the consultation draft of the North Pennines AONB Management Plan 2019-24.

This document provides a framework for action for looking after one of England's most special and important landscapes. It is a statutory plan, and legislation states that it should be used to formulate the policy of local authorities in relation to the AONB. Important though that is, I also hope it will be a useful and practical guide for organisations and communities to help them care for, enjoy, understand and celebrate our landscape, wildlife and cultural heritage.

Among the other important practical functions of the plan, I also hope that people will use it as part of applications for funding for projects and programmes and to help set the

parameters for new agri-environment schemes.

All of us who are fortunate enough to live and work in the North Pennines know that it is special, but it can't be unchanging. Change is inevitable, and conservation in living landscapes like ours is ultimately about the beneficial management of change. But we have to all get better at sustaining our declining wildlife, conserving our landscape quality and character and being the custodians and architects of a living culture.

So whether you're reading this as a local resident, an elected representative, one of our High Nature Value farmers, a visitor or as someone from one of the many organisations that has a stake in the North Pennines, we want to hear from you about this plan, and about what you will do to support its implementation.

Jan Simmonds.

2030 Vision

There is wide recognition of the breadth of services and benefits provided for society through conserving our biodiversity, landscape and natural processes, and our cultural heritage.

There is even greater connectivity of priority habitats and it is enhanced by improvements in condition and ecological function. Work to restore our moors to fully functioning wetland ecosystems is complete and they are richer in wildlife

Declines in biodiversity have halted and are reversing.

Management of land allows opportunities for more natural processes to develop, over larger areas, including greater native woodland cover.

High Nature Value farming prospers and farmers are well-rewarded for the public goods they produce, including more species-rich hay meadows, wading birds, pollinators and public access.

There are closer partnerships between conservation bodies and land managers of all kinds, focused on delivering more for nature together.

The tourism industry is both environmentally responsible and economically sustainable, with a wealth of nature and culture-related things to see and do.

The North Pennines is a much-used outdoor classroom, which inspires young and old.

Communities are increasingly proud of their natural and cultural heritage and are active in conserving and celebrating it.

Development takes place to a high standard, meeting community need and contributing to the area's quality and character.

The North Pennines AONB and UNESCO Global Geopark is increasingly recognised at a national level as an exemplar of what Protected Landscapes can do for conservation, local communities and local economies.





Alston Moor © Natural England/Charlie Hedley

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The North Pennines AONB

The designation of the North Pennines AONB was confirmed in 1988 and at 1983km², it is the second largest of the 40 AONBs in England and Wales. One of the most remote and unspoilt places in England, it lies between the National Parks of the Lake District, the Yorkshire Dales and Northumberland with the urban centres of County Durham away to the east. The AONB crosses the boundaries of two English Regions, being in both the North East and the North West. It lies mostly within the political boundaries of Durham, Northumberland and Cumbria County Councils, and the districts of Eden and Carlisle, with 2.6km² in North Yorkshire around Tan Hill.

A UNESCO Global Geopark

UNESCO Global Geoparks are places where outstanding geological heritage is used to support sustainable development, through conservation, education, interpretation and nature tourism. Within the Global Geoparks Networks, Geopark staff and partners collaborate to share ideas, raise funds, promote each others' areas and carry out projects.

The concept of 'Geoparks' is a relatively new one, arising only in 2000 out of a LEADER II project between four European partners, with the formal support and endorsement of UNESCO. In 2015, the International Geoparks and Geosciences Programme became the first full heritage programme of UNESCO since the creation of the World Heritage Sites in 1973. The UNESCO Global Geopark status for the North Pennines is managed by the AONB Partnership Staff Unit.

Work to support the Geopark status in the North Pennines includes the creation of geological trails and interpretation, educational programmes and arts projects. Killhope Lead Mining Museum, and Nenthead Mines are also vital parts of the North Pennines AONB and UNESCO Global Geopark.

Outside Europe, an Asia-Pacific Geoparks Network has arisen, alongside fledgling UNESCO Geoparks Networks in Africa and South America. By late 2017 there were 120 UNESCO Global Geoparks in 25 countries and on five continents.

We can all be proud to not only have outstanding geological heritage, but also to be at the forefront of this global family of special places where geology is being used to support sustainable development through nature tourism, education and conservation.

The nature and purpose of the plan

This is the consultation draft of the North Pennines AONB Management Plan (2019-2024). It is the statutory plan for the conservation and enhancement of the natural beauty of the North Pennines over the next five years. It focuses on landscape, biodiversity, geodiversity and cultural heritage which combine to create a sense of place; it also addresses issues around how people can better explore, enjoy and understand the landscape and in doing so support a nature- and culture-based economy. It is a plan for the area, not a work plan for the AONB team, and many organisations, individuals and communities can have a role in implementing it. An AONB Team Plan for 2019-2021 is also available on the AONB website, along with Screening Reports for Habitats Regulation Assessment, a Strategic Environmental Assessment and an Equalities Impact Assessment.

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Introduction to the North Pennines



Lunedale in June © Natural England/Charlie Hedley

“This country, though politically distributed among three counties, is one and the same in all its characteristic features. From it flow the Tyne, the Wear and the Tees and many branches which fall into these rivers. Along the banks of these and several other smaller streams which fall into them are dales or valleys, cultivated near the banks and for a short distance up the sides of the hills, but soon cultivation and enclosure cease, and beyond them the dark fells, covered with peat and moss and heath; and between one vale and another is a wide extent of high moorland, extending sometimes for a dozen miles. In these upland tracts are no inhabited homes but thousands of blackfaced sheep are scattered over them.”

(Royal Commission into Children’s Employment in the Mines. W R Mitchell, 1842)

This description of the North Pennines from 1842 might equally have been written today, but it would be misleading to consider the North Pennines landscape as timeless and unchanging. From prehistoric times (when the clearance of the natural North Pennines forest began) to today, when pressures ranging from changes in agricultural policy to reservoir building and wind farm development have affected the landscape, change has been continuous. Today one of the main challenges for those who love and care for the North Pennines is making sure that the pace of change, and the nature of that change, don’t damage the essential character of the area as, in the eyes of many, the last wild place in England.

Remote, ‘wild’ and tranquil

Much of the North Pennines is remote, ‘wild’ countryside and it is precisely this sense of wildness and remoteness which gives much of the area its character. There are still truly dark skies here, and a relative freedom in places from human noise and modern visual intrusions; it has been recognised by CPRE as one of England’s most tranquil places. There are few places in

England where you can walk all day without crossing a road, but it is still possible here. In spring and summer, high heather moors and blanket bogs are alive with the evocative calls of wading birds, black grouse dance on their leks and merlin race through the air.

People and place

The rise and fall of the lead and other mineral mining industries has shaped much of today’s landscape, not only in the physical remains that can be seen, but also in the pattern of local settlements. Weardale, Teesdale, and the South Tyne, Nent and Allen Valleys in particular, are some of the best places to see the remains of the lead mining industry and to see the ‘miner-farmer landscapes’ which grew out of it. In 1861, 27,000 people lived in the North Pennines orefield, but today the population is estimated to be around 12,000 people, less than half of what it was during the lead mining heyday.

The majority of the AONB population lives in the North Pennine dales, where settlements include small towns such as Alston and Allendale, together with relatively compact villages, isolated hamlets and a wide scatter of individual farmhouses. This landscape became enclosed by the miner-farmers from the 16th century, but beneath the surface of today’s pattern of fields, villages and moorland there is evidence for settlement and landscape change over the past 10,000 years. People have continually contributed to the development of the landscape through Stone Age, Bronze Age, Iron Age, Roman, Anglo-Saxon, Viking, medieval and post-medieval times, and continue to do so today.

Landscape pattern

In the dales, dry stone walls impose strong pattern on the landscape, where buildings on the valley sides are picked out by



This chimney near Allendale provides a reminder of the lead mining history of the North Pennines © NPAP



Blanchland © NPAP/Shane Harris



Dry stone walls near Milburn © Natural England/Charlie Hedley



High Force from the Pennine Way National Trail © Shane Harris

clumps of trees. Buildings and settlements are an integral part of the landscape, with most being built of local stone, reflecting the underlying geology, complementing the stone field walls and reflecting the surrounding countryside. Wading birds feed in the in-bye grassland, rushy pastures and hay meadows. These hay meadows are of international importance and are awash with wild flowers, many of them very rare.

Tyne, Tees and Wear

The world famous rivers, Tyne, Tees and Wear have their birthplace high up in the fells. They tumble, rock strewn, along the dales, clothed in woodland in their middle and lower reaches. Where the rivers cross the erosion-resistant dolerite of the Whin Sill, dramatic waterfalls are formed, such as those at High Force, Low Force and Cauldron Snout, in Upper Teesdale. In these rivers can be found the elusive otter, the water vole (Britain's fastest declining mammal) and Atlantic salmon.

Northern rocks

The world renowned geology of the area has given rise to dramatic landscape features, most famously High Force and the sweeping valley of High Cup Gill, on the Pennine Way above Dufton, and our geodiversity also includes a world famous mineral wealth. The North Pennines AONB is also a UNESCO Global Geopark in recognition of its world class geology and local effort to use it for tourism and education.

Woods

Though not extensive, the native woods of the North Pennines are themselves important examples of woodland types. They are distinctive features of the landscape, following the course of rivers or clinging to narrow gills. The North Pennine woodlands are also one of the last places in England where you can find red squirrels.

Wildlife and habitats

The North Pennines has a remarkably high concentration of nationally and internationally important conservation sites and areas. Fifty percent of the AONB is designated as Sites of Special Scientific Interest (SSSI). There are also two National Nature Reserves (NNR), five Special Areas of Conservation (SAC) under the EU Habitats Directive, and a Special Protection Area (SPA) under the EU Birds Directive. Moor House-Upper Teesdale NNR, Britain's largest terrestrial NNR, supports more than 20 species of Europe-wide conservation importance and in this context it is the most important reserve in the country. But even here, biodiversity is in decline and we can and must do better for nature.

Land and livelihood

Farming plays an important role in the lives of local communities and in managing the landscape. Moorland managers who are engaged in restoring bare peat and blocking grips are enhancing our moors and the services they provide for society. Many farmers are diversifying into new activities and many more are taking advantage of schemes which support environmentally friendly practices. Responsible tourism is an increasingly important aspect of the local economy, and the area offers a warm welcome for those who come to see its wildlife and wild places, to uncover its history and visit its many attractions.

Explore

You can read in this publication about the many important habitats and species of the North Pennines – the blanket bog, hay meadows and the oak/ash woodlands, the Teesdale Flora, the wading birds and the black grouse. But better still you can go out and explore them for yourself. This is perfect country for walking, cycling, horse-riding, wildlife-watching and following in the footsteps of artists and writers who have been inspired by this wild land. There are many footpaths and bridleways to explore, including the PennineWay National Trail, the C2C National Cycle Route, the Pennine Cycleway and the National Byway. Derwent and other reservoirs offer opportunities for sailing, fishing, canoeing and even water skiing. The North Pennines is also the only AONB with its own ski slopes, though the trend towards warmer winters means that snow is less reliable than it once was.

Forces for change

There are considerable forces for change at work in the North Pennines landscape. These come in many forms, including more obvious features like wind energy development, communications masts, increasing traffic, changes in agriculture, mineral developments and military use of the area. There is also the gradual erosion of rural character that accompanies unsympathetic management of roads, out-of-keeping conversion of traditional buildings and the gradual loss of historic features. Tourism has the potential to be an important and positive force in the local economy, but needs to be managed sensitively to ensure that it complements the special qualities of the area. Future climate change will also place new pressures on the area's character and natural beauty.

Change is, of course, inevitable and often desirable. Development which meets community need should take place in accordance with local and national policy and it is entirely possible to do this without compromising the special qualities of the North Pennines.

Background to the Management Plan



Dark skies at High Force © Gary Lintern

Areas of Outstanding Natural Beauty

The 46 Areas of Outstanding Natural Beauty (AONB) in England, Wales and Northern Ireland cover approximately 1/5th of the land surface. The distinctive character and natural beauty of AONBs make them some of the most special and cherished places in England. AONBs are living, working landscapes that contribute some £16 bn every year to the national economy. Although home to less than half a million people (under 2% of England's population), over two thirds of England's population live within half an hour's drive of an AONB and around 150 million people visit English AONBs every year, spending in excess of £2 bn.

Together with National Parks, AONBs represent our most outstanding landscapes; unique and irreplaceable national assets, each with such distinctive character and natural beauty that they are recognised internationally as part of the global Protected Areas Family to be managed in the interest of everyone – local residents, businesses, visitors, and the wider public – and protected for future generations.

The legal framework

AONBs exist within a legal framework which has been progressively strengthened since the first AONBs came into existence after the Second World War.

The 1949 National Parks and Access to the Countryside Act first established the AONB designation, provided AONBs with protection under planning law against inappropriate development and gave local authorities permissive powers to take action for 'preserving and enhancing natural beauty' in them (S.88).

The Countryside Act 1968 placed a responsibility on local authorities, the statutory conservation bodies, and civil servants, in exercising their functions under the 1949 Act (as amended by subsequent legislation) to 'have due regard to the needs of agriculture and forestry and to the economic and social interests of rural areas' (S.37). Within AONBs, this means a responsibility to acknowledge and, where appropriate to promote, farming, forestry and the rural economic and social context wherever this can be done without compromising the primary purpose of conserving natural beauty.

The Environment Act 1995 introduced the phrase 'conserve and enhance' in place of 'protect and enhance' in relation to duties of local authorities, the Environment Agency and other bodies. No statutory duties were placed on local authorities actively to manage AONBs in any particular way.

The Countryside and Rights of Way Act 2000 (CRoW) subsumes and strengthens the AONB provisions of the 1949 Act. It confirms the purpose and significance of AONBs, clarifies the procedure for their designation, and created a firm legislative basis for their designation, protection and management.

In particular:

Section 82 reaffirms the primary purpose of AONBs: to conserve and enhance natural beauty. Section 83 establishes the procedure for designating or revising the boundaries of an AONB, including Natural England's duty to consult with local authorities and to facilitate public engagement.

Section 84 confirms the powers of local authorities to take 'all such action as appears to them expedient' to conserve and



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enhance the natural beauty of an AONB, and sets consultation and advice on development planning and on public access on the same basis as National Parks in the 1949 Act.

Section 85 places a statutory duty on all ‘relevant authorities’ to ‘have regard to the purpose of conserving and enhancing the natural beauty’ of AONBs when coming to any decisions or carrying out activities relating to or affecting land within these areas. ‘Relevant authorities’ include all public bodies (including county, borough, district, parish and community councils, joint planning boards and other statutory committees); statutory undertakers (such as energy and water utilities, licensed telecommunications companies, nationalised companies such as Network Rail and other bodies established under statute responsible for railways, roads and canals); government ministers and civil servants. Activities and developments outside the boundaries of AONBs that have an impact within the designated area are also covered by the ‘duty of regard’.

Sections 86 to 88 allow for the establishment in an AONB of a Conservation Board to which the AONB functions of the local authority (including development planning) can be transferred. Conservation Boards have the additional but secondary function of seeking to increase public understanding and enjoyment of the AONB’s special qualities. They also have an obligation to ‘seek to foster the economic and social well-being of local communities’ in co-operation with local authorities and other public bodies.

Sections 89 and 90 create a statutory duty on all AONB partnerships (local authorities and Conservation Boards) to prepare a Management Plan ‘which formulates their policy for the management of their area of outstanding natural beauty and for the carrying out of their functions in relation to it’, and thereafter to review adopted and published plans at intervals of not more than five years. Where an AONB involves more than one local authority they are required to do this ‘acting jointly’.

Section 92 makes clear that the conservation of natural beauty includes the conservation of ‘flora, fauna and geological and physiographical features.’

The Natural Environment and Rural Communities Act 2006 (NERC)

Section 99 formally clarifies in law that the fact that an area consists of or includes land used for agriculture or woodlands, or as a park, or ‘any other area whose flora, fauna or physiographical features are partly the product of human intervention in the landscape’ does not prevent it from being treated, for legal purposes ‘as being an area of natural beauty (or of outstanding natural beauty).’

Schedule 7 asserts that an AONB joint committee of two or more local authorities, or a conservation board, can constitute a ‘designated body’ for the performance of functions allocated to Defra.

Responsibility for AONBs

The formal legal responsibility for both development control and for management of AONBs (including the duty to prepare an AONB Management Plan) lies with the local authorities in whose area(s) the AONB exists, except in two instances (the Chilterns and the Cotswolds AONB) where this is the responsibility of a statutory Conservation Board.

In addition, the duty of all public bodies and statutory undertakers to ‘have regard’ places an obligation on a wide range of organisations not just to consider any detrimental impacts of their policies and activities outside as well as within the boundaries of any AONB, but positively to consider how they might benefit the AONBs special qualities.

Statutory guidance for the production of AONB Management Plans is contained in CA232 and CA2213. These make it clear that preparation needs actively to engage and gain the support of all key stakeholders, who will assist in its delivery. The AONB Management Plan is a place-based plan derived through local consensus. It seeks to define the approach to conserving and enhancing the natural beauty of the AONB through the application of local solutions to local challenges that also respect the national and international importance of the AONB. It is a plan not for the partnership but for the AONB as a whole.



The meaning of 'natural beauty'

The term 'natural beauty' first gained currency in a legislative context in the 1907 Act, which gave legal status to the National Trust ('for Places of Historic Interest and Natural Beauty'). It has been the basis for the designation of both AONBs and National Parks since the 1949 National Parks and Access to the Countryside Act in which, however, the term was not defined.

In June 2000 the Government confirmed that AONBs and National Parks are of equal status with regard to landscape quality and that they share the same level of protection. In the same year, the CRoW Act formally stated that natural beauty includes conservation of 'flora, fauna and geological and physiographical features' (S.92).

Natural beauty goes well beyond scenic or aesthetic value. The natural beauty of an AONB is to do with the relationship between people and place. It encompasses everything – 'natural' and human – that makes an area distinctive. It includes the area's geology and landform, its climate and soils, its wildlife and ecology. It includes the rich history of human settlement and land use over the centuries, its archaeology and buildings, its cultural associations, and the people who live in it, past and present.

History of AONB designation and milestone documents

AONBs emerged from the mood of civic renewal which characterised the decades following the end of the Second World War – the 1949 National Parks and Access to the Countryside Act was one amongst many – including health, education, agriculture and development planning – which established the basis for a 'new Britain'.

The need to designate special areas of the countryside against inappropriate development, to celebrate and conserve their distinctive features, encourage sustainable agriculture and foster local economic well-being was recognised well before the Dower (1945) and Hobhouse (1947) reports which led to the establishment of AONBs and National Parks.

Since their establishment by the 1949 Act there has been continuous development in the policy and legislative context of AONBs, shaped by a number of key policy documents including:

- Areas of Outstanding Natural Beauty – A Policy Statement (Countryside Commission & Countryside Council for Wales, 1991)
- Areas of Outstanding Natural Beauty – A Guide for Members of Joint Advisory Committees (Countryside Commission & Countryside Council for Wales, 1994)
- Protecting our finest countryside: Advice to Government (Countryside Commission, 1998)
- Areas of Outstanding Natural Beauty Management Plans: A Guide (Countryside Agency, 2001)
- Areas of Outstanding Natural Beauty. A Guide for AONB partnership members (Countryside Agency, 2001)
- Guidance for the Review of AONB Management Plans (Countryside Agency, 2006)
- Guidance for assessing landscapes for designation as National Park or Area of Outstanding Natural Beauty in England (Natural England, 2011)
- Guidance for assessing landscapes for designation as National Park or Area of Natural England Designations Strategy (Natural England, 2012)

Seventy years after the 1949 Act, the production and implementation of revised AONB Management Plans will help to ensure that AONBs are leaders in developing and promoting the intentions of the 1949 Act in a rapidly changing modern context.



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Planning and AONBs

Areas of Outstanding Natural Beauty enjoy the same levels of protection from development as those of UK National Parks. Responsibility for planning policy in AONBs lies with the relevant local authority (in National Parks it lies with the National Park Authority). This means that while AONB Management Plans themselves do not form part of any local development plan they are, nevertheless, vitally important documents in the planning system. They are:

- the basis for identifying the special qualities of the area, those aspects of the AONB which are critical in contributing to its natural beauty and potentially influential in development planning policy; and
- a 'material consideration' in the determination of individual planning applications and at appeal.

These special qualities can't be seen in isolation from each other and are more than a bullet-point list, but include a strong sense of relative wildness, remoteness and tranquillity, wide-open moorlands, species-rich grasslands (especially upland hay meadows), truly dark night skies, world-class mining and geological heritage and a wealth of breeding wading birds. All these qualities are amplified throughout this plan and in combination they produce a unique sense of place. The revised National Planning Policy Framework (NPPF) (2018) states:

- The 'presumption in favour of sustainable development' at paragraph 11. Paragraph 11b(i) states that strategic policies should as a minimum provide for objectively assessed needs for housing and other uses, ... unless the application of policies in the NPPF that protect areas or assets of particular importance provides a strong reason for restricting the overall scale, type or distribution of development in the plan area. Footnote 6 states that the policies referred to are those in the NPPF relating to ... an Area of Outstanding Natural Beauty; and
- NPPF paragraph 172 requires that in any decision great weight should be given to 'conserving landscape and scenic beauty' in AONBs which (together with National Parks) 'have the highest status of protection in relation to these issues.'

The intention is that NPPF provides a framework within which locally prepared plans for housing and other development can be produced. The NPPF must be taken into account in preparing the development plan and is a material consideration in planning decisions. **Local Plans** and **Neighbourhood Development Plans**, in the districts within the North Pennines AONB, provide more detailed policies in relation to the North Pennines. Two documents produced by the AONB Partnership in association with local planning authorities – **North Pennines Planning Guidelines** and the **North Pennines Building Design Guide** – provide a much finer grain of detail to help guide development in, or having an impact upon, the AONB. The documents have been adopted as Supplementary Planning Documents in Eden and Carlisle, and as material considerations in the planning system in Durham and Northumberland. A guidance document on the design, construction and permitting of moorland tracks is also available to aid development proposals and planning decisions which support the purpose of AONB designation.

Major development

Government policy (NPPF paragraph 172) requires that 'major development' should be refused except in 'exceptional circumstances and where it can be demonstrated to be in the public interest.' This reflects the long-established 'Silkin test' for major development in National Parks and AONBs. Where a proposal is considered by the relevant decision taker to be 'major development' paragraph 172 of the NPPF applies, requiring consideration of the need for the development; the cost of, and scope of developing elsewhere or meeting the need in some other way; and any detrimental effects on the environment, landscape or recreation.

NPPF paragraph 11 asserts a 'presumption in favour of sustainable development'; however, this is limited where 'specific policies [including AONB Policies] indicate development should be restricted'.



AONB 'setting'

The term 'setting' is used to refer to areas outside the AONB where development and other activities may affect land within an AONB. Its extent will vary depending upon the issues considered but some can be mapped, for example, the impact of development on views into and out of the AONB. Section 85 of the CROW Act 2000 requires public bodies to consider whether any activities outside the AONB may affect land in an AONB, and Planning Practice Guidance (Natural Environment: 003) emphasises that this duty is relevant in considering development proposals that are situated outside the AONB boundary. Not all activities will be detrimental; conservation practices and economic ties outside the AONB can support the purpose of AONB designation.

The international context

English AONBs are part of the international Protected Area Family. As cultural landscapes, produced through the interaction of humans with nature over time, they have a special significance (together with UK National Parks) as being recognised by the International Union for the Conservation of Nature (IUCN) as 'Category V – Protected Landscapes'.

Category V protected landscapes are defined by IUCN as: 'A protected area where the interaction of people and nature over time has produced an area of distinct character with significant ecological, biological, cultural and scenic value: and where safeguarding the integrity of this interaction is vital to protecting and sustaining the area and its associated nature conservation and other values.' IUCN emphasises their importance as cultural landscapes – in distinction to Category I (Strict Nature Reserves and Wilderness Areas) and Category II National Parks (which for IUCN are large natural or near-natural areas, unlike UK national parks).

Until recently, the AONB designation was regarded (together with that of UK National Parks) as an anomaly in the international protected area system which prioritised 'naturalness' as a criterion of value. In the last quarter-century, however, they have come to be recognised, particularly within Europe, as leaders in the move towards area-based sustainable development. AONBs in particular, as 'working' landscapes, lead the way in pioneering new approaches to integrated countryside

management based on voluntary partnerships engaging and working with local communities to secure common goals.

The new, multidisciplinary, multifunctional concept of landscape is encapsulated in the European Landscape Convention (ELC). Adopted by the Council of Europe in 2000 (it is not an EU directive and will remain unaffected by Brexit) and applicable to the UK since March 2007. ELC promotes a definition of landscape which usefully underpins the rationale for AONBs: 'An area, as perceived by people, whose character is the result of the action and interaction of natural and/or human factors', a rich concept that encompasses but goes beyond sectoral (geomorphological, ecological, archaeological, historical or aesthetic) approaches. ELC makes it clear that people are at the heart of all landscapes (the commonplace and 'degraded' as well as the eminent) each of which has its own distinctive character and meaning to those who inhabit or visit it.

The ELC places obligations on signatory states to recognise landscape 'as an essential component of people's surroundings, an expression of the diversity of their shared cultural and natural heritage, and a foundation of their identity.' Obligations include a requirement to identify the diversity and range of landscapes, the important features of each, and to engage with local communities, private bodies and public authorities in their planning and management. This includes raising awareness and understanding of the character, value and functions of landscape and the way these are changing. There is also a requirement to provide training in landscape-related skills. AONBs and their managing organisations are a very significant contributor to delivering on the UK's obligations under ELC.

The NAAONB and the purpose of the AONB Family

The National Association for AONBs (NAAONB) is a charity that provides a strong collective voice for the UK's 46 Areas of Outstanding Natural Beauty (AONBs). Its objectives are to:

- promote the conservation and enhancement of AONBs
- advance the education, understanding and appreciation by the public of AONBs; and
- promote the efficiency and effectiveness of those promoting or representing AONBs, other protected areas and those areas for which designation might be pursued.



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It does this by taking a collaborative and partnership-based approach to working with its membership and other organisations at a national level to achieve shared goals.

Charity members are involved in the planning and management of around 8,000 square miles of outstanding and cherished landscapes in England, Wales and Northern Ireland. Membership includes most of the AONB partnerships, as well as some of those Local Authorities with statutory responsibility for AONBs, together with a number of voluntary bodies, businesses, and individuals with an interest in the future of these iconic landscapes.

The NAAONB's vision is that the natural beauty of AONBs is valued and secure. The charity's mission is to support and develop a network of ambitious AONB partnerships with a strong collective voice. Through the NAAONB, the following high-level objectives have been adopted as the common national purpose of the AONB Family:

- conserve and enhance the natural and cultural heritage of the UK's Areas of Outstanding Natural Beauty, ensuring they can meet the challenges of the future
- support the economic and social well-being of local communities in ways which contribute to the conservation and enhancement of natural beauty
- promote public understanding and enjoyment of the nature and culture of Areas of Outstanding Natural Beauty and encourage people to take action for their conservation; and
- value, sustain, and promote the benefits that the UK's Areas of Outstanding Natural Beauty provide for society, including clean air and water, food, carbon storage and other services vital to the nation's health and well-being.

Audience for the Plan

One audience for this Plan is the local authorities of the North Pennines, as it is upon them that the duty is placed to produce the Plan (and to conserve and enhance the AONB, a duty also placed on all public bodies). The AONB Partnership discharges the Plan-making function on the authorities' collective behalf.

Another important audience is the Government agencies, statutory undertakers, utilities and public bodies which must, in accordance with Section 85 of the CRoW Act 2000, have 'due regard' to the

purposes of AONB designation in the carrying out of their functions. The objectives and actions in this Plan should guide them in the fulfillment of their duty under the Act.

A third and equally important audience is the wide range of local organisations and individuals with a concern for the future well-being of the North Pennines – be they land owners, land managers, local businesses, local residents or visitors.

It is hoped that this Plan will provide them with the inspiration and guidance to bring forward innovative ideas for the conservation and enhancement of the AONB and lead to greater awareness and understanding of the designation. Crucially, it is not the Plan for the AONB Partnership or the work programme for its Staff Team; it is the Plan for the conservation and enhancement of the AONB and all those with an interest in the area can be involved in its implementation.

The Plan is not intended to be a panacea for all the perceived problems which local communities might face, nor is it intended to duplicate or replace other statutory plans which affect the area. It is, however, the only document with a focus on the whole of the AONB and the only one which is primarily focused on the purpose of AONB designation – the conservation and enhancement of natural beauty.

In addition to this Plan, the North Pennines National Character Area Profile, the production of which was led by Natural England, is a good source of baseline data:

<http://publications.naturalengland.org.uk/publication/5682293?category=587130>

How the draft Plan is produced

This consultation draft was produced by the North Pennines AONB Partnership on behalf of the five local authorities of the North Pennines, on which the statutory duty is placed. The AONB Team was supported in this work by members of the Partnership's formal working groups and Partnership members, and members of the public at the 2018 AONB Annual Forum. It was also informed by the content of the previous statutory Plans, which were themselves the subject of wide consultation. A Strategic Environmental Assessment Scoping Report, an assessment under the Habitats Regulations and an Equalities Impact Assessment will further inform the final version, as will comments received on the draft. The draft will be subject to 8 weeks' public consultation.

Delivering the last Management Plan



Educational activities at Bowlees Visitor Centre
© NPAP

The last AONB Management Plan covered the period 2014-2019 and though it is not yet complete there have been some significant achievements by all of those with a role in delivering the Plan's actions:

Through its **Peatland Programme** the AONB Partnership oversaw major programmes of grip blocking and bare peat restoration. New cross-border collaboration is expanding this work. Programmes underway include the Pennine PeatLIFE project, an INTERREG project ('Carbon Connects') and work to deliver a Defra-funded programme of peat restoration. The AONB peatland programme has now worked with partners to restore over 25,000 ha of peatland in the North Pennines.

The North Pennines has 40% of the UK total of species rich hay meadows. The AONB Partnership's **Nectarworks** and **Plugging the Gaps** projects made a significant contribution to the conservation and enhancement of these special habitats, and of species verges and banks, whilst working with over 1,000 schoolchildren.

WildWatch – the Partnership's community wildlife recording and education project – created 20,000 new wildlife records, delivered 140 training events and spawned three local wildlife groups. It grew into a new citizen science project focused on invertebrates: Cold-Blooded and Spineless. This new project takes up where Wildwatch left off, inspiring people to discover and conserve our natural heritage, with a focus on invertebrates.

With many partners, the **Allen Valleys (HLF) Landscape Partnership Scheme** was completed, restoring buildings, planting woods, conserving rivers, conserving wading birds and red squirrels and creating opportunities to explore and enjoy the countryside (and much more). A new scheme, for the Fellfoot area of east Cumbria, has passed Stage 1 with over £2 m put aside for making it happen.

The AONB Partnership's community archaeology project, **Altogether Archaeology**, not only helped people to discover the secrets of their past landscape, but went on to spawn a new heritage charity with the same name. The LiDAR Landscapes project supported over 100 volunteers to discover over 400 new archaeological sites and features, whilst the OREsome North Pennines project worked with volunteers to understand, conserve and celebrate the geology, archaeology and ecology of eight former mine sites.



© Natural England | Charlie Hedley

Many different organisations ran hundreds of **events and activities**, supporting the local economy and contributing much to people's enjoyment of the North Pennines. Alongside many new walking, cycling and riding initiatives, more people had more fun for longer in the AONB. A wide range of heritage interpretation was developed, including award-winning work at Allen Smelt Mill.

Attractions such as Killhope Lead Mining Museum, continued to thrive and make new investments in their future. The AONB Partnership further developed its Bowlees Visitor Centre into an important economic, environmental and social asset. Bowlees won North East Small Visitor Attraction of the Year in 2016.

Thousands of **schoolchildren explored the North Pennines**, making films, carrying out climate change research, planting trees and more.

In 2015 UNESCO founded its first new heritage programme since World Heritage Sites in 1972. The North Pennines, a 'Global Geopark' since 2004, became an official **UNESCO Global Geopark** – one of only four UNESCO designations in the North East and Cumbria – providing a strong platform on which to promote tourism, education and conservation. The UNESCO status was successfully recertified in 2014.

Potentially England's largest programme of **natural flood management**, in Weardale, took its first steps. This is led by the Environment Agency, with the other Defra agencies, the AONB Partnership and Wear Rivers Trust.

The area's four **Rivers Trusts** – Eden, Tees, Tyne and Wear – all expanded their conservation activities, doing important work on in-stream and riparian management, natural flood management, invasive species control, surveys and minewater remediation. For example, in 2018 Tyne Rivers Trust delivered green engineering solutions at seven sites in the North Pennines to reduce diffuse metal pollution, including installing log revetments, check weirs and silt traps

Sixteen Dark Skies Discovery Sites were nationally designated and in Allenheads the North Pennines Observatory was created. Many different organisations engaged with the first two North Pennines Stargazing Festivals, engaging thousands of people with their dark night skies and extending the visitor season well into the shoulder months.

The **Allen Smelt Mill** volunteers were shortlisted for a 2018 Heritage Angels award.

The Alston community secured a **Townscape Heritage Initiative** grant from the Heritage Lottery Fund to set about improving the built environment of the centre of England's highest Market Town.

Nine year-long **traineeships** were created in the AONB team.

Several groups that began life with AONB Partnership and other support are now fully-functioning independent organisations, hosting training and conservation events, including Allen Valleys Enterprise Ltd, The North Pennines Astronomy Society, the North Pennines Smallholders and Allen Valleys Local History Group.

The Nenthead community came together to win major HLF support for the redevelopment of **Nenthead Chapel** as a community facility.

Durham Wildlife Trust's '**Natural History of Upper Teesdale**' will be the standard reference work on the area's natural heritage for years to come.

The Coal Authority and Environment Agency have led major **minewater pollution remediation work at Barneycraig**, where the AONB Partnership and Allen Valleys Enterprises are restoring the nearby mineshop as a bunk barn.

Hen harriers bred twice at Moor House-Upper Teesdale and once at Geltsdale during the last five years (and though each nest is cause for celebration it's still far too few).

AONB projects and '**Altogether Archaeology**' (2014) and '**Nectarworks**' (2017) both won the **Bowland Award**, for the best project or initiative in an AONB.

The North Pennines featured in national **destination marketing** campaigns from Visit County Durham and Northumberland Tourism.



Altogether Archaeology © NPAP



Helicopter dropping heather brush for peat restoration © NPAP

What's new? The context for the next few years

The operating context for the new Management Plan includes:

- Leaving the European Union means a time of considerable uncertainty. It provides an opportunity to rethink agricultural support towards a focus on public money for public goods, with results-based payments focused in the main on outcomes rather than prescriptions. This could deliver more for nature and more for the tax payer, and build trust and collaboration between farmers and conservationists. However, it will mean the end of EU-funded programmes such as LIFE, INTERREG and LEADER, all of which have been used to benefit conservation, education, nature-based tourism and rural businesses in the area. Replacing these sources of funding will be crucial.
- Revisions to the National Planning Policy Framework (NPPF) and the continued development of Local Plans across the area's local authorities. The NPPF is clear on the 'great weight' that should be attached to the purpose of designation by decision makers in the planning process. Local Plans must include robust policies aimed at conserving and enhancing the special qualities of the North Pennines AONB.
- The continued relevance of '**Making Space for Nature**' (The Lawton Report) which highlighted the importance of enhanced ecological networks across the landscape and taking an approach to management which was summed up by the phrase, 'bigger, better, more, more joined-up' – this is an underpinning principle of the conservation work of the AONB Partnership and other bodies.
- The continued decline in our biodiversity – locally, nationally and globally – and the urgent need to arrest and turnaround that decline. The seriousness of this situation cannot be overstated.
- The 2018 'People's Manifesto for Wildlife' and the associated public march as a prominent example of growing public interest in and concern for our biodiversity and a demand that its conservation should be a high priority in society.
- An increasing emphasis on a whole **ecosystem approach** to landscape management and on the safeguarding of ecosystem services. Allied to this is the Natural Capital agenda – the stock of species, habitats and natural systems from which flow ecosystem services and benefits. To be able to engage with this agenda without commodifying nature will be vital to securing the resources needed to halt the declines in biodiversity, support landscape quality and character and bring further benefits for society.
- A growing understanding that the way in which **climate change** will manifest itself is unpredictable, making it hard to plan for.
- An increasing emphasis on **food and energy security**.
- Likely **continued austerity** in the public sector, limiting public investment in nature.
- The **Glover Review of Designated Landscapes** in England, which may bring new purposes or governance models for AONBs, or may address deficiencies in legislation, amongst other possible changes aimed at enhancing these areas.

What has nature ever done for us?

Natural capital, ecosystem services and the ecosystems approach

With all of the talk about strategies and plans, ecosystem services and natural capital, it's important to remember that nature has an intrinsic value – that it can't all be defined in terms of what it does for us and that it has a value independent of us, yet of which we are the stewards. But the landscape of the North Pennines is not only beautiful and rich in wildlife, important though these things are. Our natural assets, properly cared for, provide services and benefits on which society is dependent.

Natural capital

We recognise several different kinds of 'capital' in society: economic capital, the most familiar to people, is the stock of resources (equipment, premises, money etc.) used to carry on a business, whilst social capital is the working relationships and trust available in our communities that make change possible. 'Natural capital' refers to the stock of physical and natural assets that support services and benefits for society. It includes biodiversity, habitats, landscapes, geological resources and natural processes. So, peatlands are a natural capital asset, that provide water storage services, that bring the benefit of flood risk mitigation. These 'natural services' also depend on economic and social capital, but at their root is the natural capital that makes their delivery possible. By conserving and restoring peatlands, we are doing something intrinsically valuable for nature, but also supporting services and benefits for society including carbon storage and sequestration, water colour and sediment load reduction rivers and flood risk management.

Our natural capital has been seen as limitless and free, and something which has little or no value to business – and usually as a constraint. However, natural capital is clearly not limitless and the OECD acknowledged in 2012 that 40% of global GDP is dependent on it. We have failed to take account of our impacts on natural capital to the point where we may have depleted it beyond its capability to support us into the future. We are 'overdrawn at the bank of nature' and unless we start reinvesting quickly, significantly and in the right places, the declines will continue and the many services nature provides for us will be all but lost.

The Northern Upland Chain Local Nature Partnership (NUCLNP) has produced natural capital investment cases for peatland and woodland. Importantly these proposals are not about funding the status quo, paying for people to sit on a store of carbon; they make the financial case (and solely in terms of carbon at this point) for restoring peatland and creating new woodland. The work is aimed at generating investment in nature, and not about placing a cash value on it so it can be traded away in development.

At the scale of the NUCLNP (Northumberland and Yorkshire Dales National Parks and the AONBs of the North Pennines, Nidderdale and Forest of Bowland), restoring 130,000 ha of degraded peat would provide £460 m worth of avoided carbon emissions over 40 years (and many other benefits not yet monetised). The net benefit to society of creating 35,000 ha of new woodland (in the right places) in these uplands could be at least £30 m before any timber and fuel value.

Investing in natural capital – the IUCN UK Peatland Code

The IUCN UK Peatland Code is a voluntary standard for peatland restoration projects in the UK, supported by sponsorship on the basis of valuing the services and benefits they provide for society. The Peatland Code is still (2018) being trialled but it aims to give potential corporate investors in peatland restoration confidence that their financial contribution is making a measurable and verifiable difference to UK peatlands, and enables them to report this to their stakeholders and shareholders.

Investment generated through the UK Peatland Code will provide the income required to restore peatlands in order that they then deliver significant environmental outcomes over relatively short timeframes. This investment will turn around many years of degradation.

The North Pennines AONB Partnership is trialling the Peatland Code in six of its restoration projects and will look to expand this during the life of the Management Plan. For more information about the UK Peatland Code visit: www.iucn-uk-peatlandprogramme.org.



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Ecosystem services and benefits

If we look after our stock of natural capital assets, a range of valuable services and benefits will flow from them. These services include nutrient cycling, pollination, carbon storage, biomass, erosion protection and water purification, from which we receive the benefits of clean air and water, flood risk reduction, recreation, food, employment opportunities and a source of physical and spiritual well-being. We should never have to ask, 'What has nature ever done for us'?

Taking an ecosystems approach

This Plan identifies some of the services and benefits that flow from our natural assets and brings forward desired outcomes and actions to secure their future.

The plan takes an ecosystems approach:

- it is place-based, focusing on the whole North Pennines (and where necessary beyond, identifying the need for some partnership projects and programmes that will spread out either into the surrounding lowlands or along the Northern Upland Chain);
- it combines action for biodiversity and landscape conservation with an understanding of the public benefits this brings; and
- it is not focused on species, habitats and issues in isolation – rather it promotes an integrated approach to large-scale conservation of biodiversity and ecosystem services, seeking to understand the effects of management and development on nature and people.

This approach attempts to understand, and work within, the acceptable limits of environmental change, in order to meet community need without compromising the natural assets that will support us in the future. It requires a joined-up commitment to delivering the outcomes and the Vision, to drive better and more integrated policy and action on the ground across local authorities, Local Enterprise Partnerships, NGOs and the community.

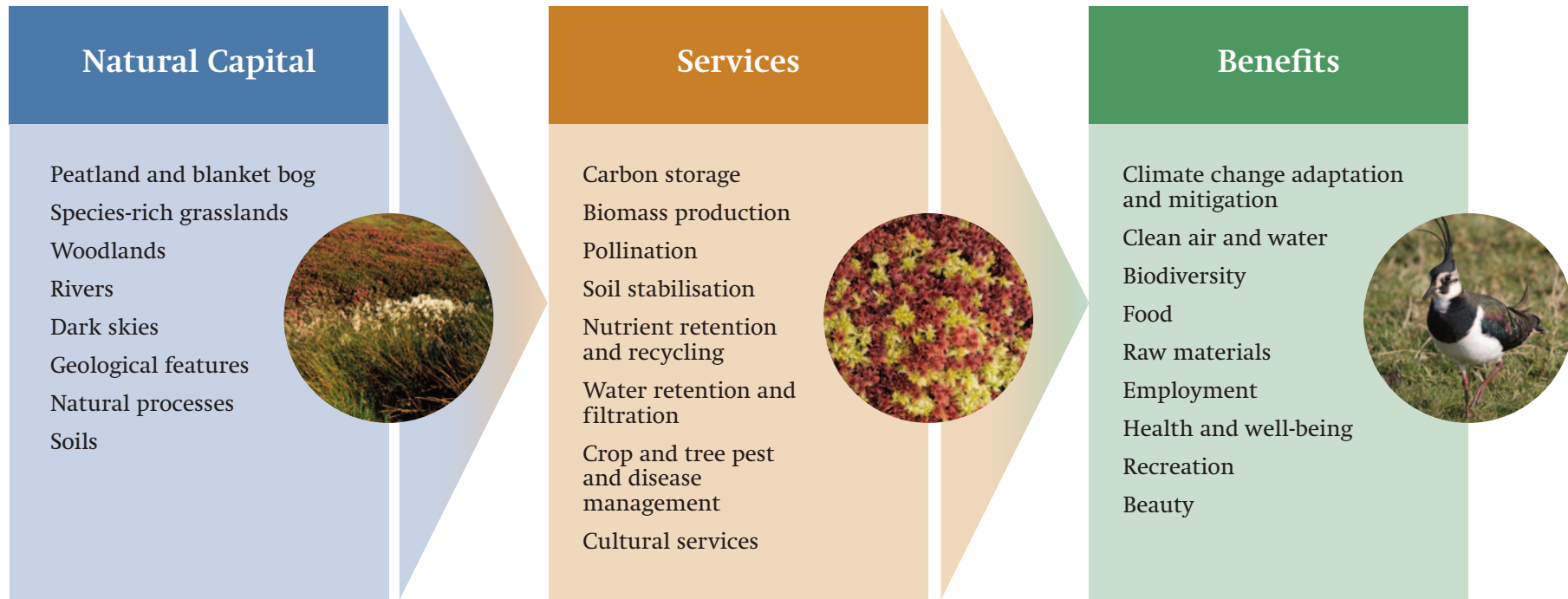
The cost of not investing – a peatland example

Investing in our natural capital supports many services and benefits. It may seem costly to some, but neglecting them will make matters much worse – trying to replicate lost natural assets and all they provide for us is much greater than the cost of maintaining them in good ecological condition. A 2013 study suggested that conserving nature costs 100 to 1,000 times less than trying to restore it once it is lost or damaged and the services it provides are compromised; it makes economic sense, as well as environmental and social sense, to look after it.

Degraded peat soils in England are releasing 3 million tonnes of CO₂ into the atmosphere each year – the equivalent of the annual emissions from 330,000 households and similar to the emissions from the UK chemicals industry. Without investment in peatland restoration, these emissions will continue to increase. Water quality and colour will continue to worsen and the costs of dealing with it will rise; we will be less able to cope with the expected more frequent and severe floods caused by climate change; there are likely to be greater losses and higher insurance costs. Valuable habitat for wildlife will be lost and more grazing land for animals will turn to bare soil.

Natural Capital, Services and Benefits

This diagram helps to illustrate the flows of services and benefits we get from looking after our natural assets. The matrix on the following page looks at this in a little more detail. It is not an exhaustive list.



Look after nature and nature looks after us

The table below sets out (left hand side) the special environmental qualities of the North Pennines (including some elements of our natural capital), that have been identified and agreed in the previous statutory AONB Management Plans through lengthy consultation; it also identifies the area's BD2020 priority habitats against the relevant special quality.

The top row is a list of the main ecosystem services and benefits that we can derive from these special qualities of our upland landscape. It suggests how conserving these special qualities will help to sustain our ecosystem services and their benefits into the future.

Special Quality / BD2020 Habitat	Carbon storage/sequestration and air quality management Climate change adaptation/mitigation, clean air, health and well-being	Nutrient dispersal and cycling Ecosystem health and stability, including soil health, biodiversity, food, clean air and water	Pollination Food and agricultural products, biodiversity	Biomass Habitats, biodiversity, food, energy, raw materials, jobs	Water storage and filtration Flood risk management, clean water for people and wildlife, biodiversity	Erosion prevention/hazard protection Soil health, flood risk mitigation, clean water, agriculture	Cultural services Tourism, recreation, jobs, mental and physical health and well-being, tranquility
Peatland Upland dry heath, blanket bog	●	●	●	●	●	●	●
Hay meadows and species-rich grasslands, including arctic alpine flora Upland hay meadows, upland calcareous grassland, lowland calcareous grassland, lowland meadows, purple moor grass and rush pasture, lowland dry acid grassland, Calaminarian grassland	●	●	●	●	●	●	●
Upland woodland Yew woodland, upland oak/ash woodland	●	●	●	●	●	●	●
Upland rivers		●		●	●	●	●
Geological heritage, including soils Bare rock and scree, limestone pavement		●		●		●	●
Upland birds							●
Cultural heritage and the built environment							●
Remoteness, wildness and tranquillity, including dark skies							●

Some common principles

There are some common principles that underpin all the different strands of this Management Plan. The acceptance of these principles is a key part of adopting and delivering this plan; they should aid policy formulation and decision-making in relation to the AONB across a wide range of organisations, notably local authorities and public bodies with duties in relation to the AONB under S.85 of the Countryside and Rights of Way Act (2000).

The following principles run through all the strands of this Management Plan:

An Ecosystems Approach – that our landscape provides us with vital natural services that we need to sustain. We will collectively identify the most important of these services and bring forward shared objectives and actions to ensure that they can be provided into the future.

Ecological Networks on a landscape scale – that an integrated approach to conservation at the largest scale possible will provide the most benefit, supporting habitats that are bigger, better managed, more numerous and better connected. We will focus on the whole North Pennines landscape, and where necessary, beyond, identifying the need for some partnership projects and programmes that will spread out either into the surrounding lowlands or along the Northern Upland Chain.

Upland biodiversity is declining – the State of Nature Report (2014 figures to be updated for the final Plan) shows that of 886 upland species for which we have information, 65% have declined and 34% have declined strongly. Nationally, more species have become extinct in the uplands (15) than in any other habitat: 137 upland species, including 131 plants, are on recent national Red Lists. In the North Pennines we have 47 of the NERC Section 41 priority species. Many species need further research, some can be sustained by conserving, expanding and connecting habitats and bringing areas with good connectivity into better management. Some species are likely to need specific intervention, including specialist habitat management or preventing persecution. Net gain for biodiversity should be a feature of new development.

Climate change – that human-influenced climate change is real. Projects and initiatives should have as small a carbon footprint as possible. Small-scale renewable energy schemes will be encouraged and local people's effort to reduce the amount of energy and resources they use will be supported. Projects which seek land management solutions to problems of a changing climate will be encouraged, as will research which helps us better understand our changing climate.

Landscape change – that change in the landscape is inevitable, and often to be welcomed, but that change needs to be managed carefully to ensure that it is beneficial to the conservation of the area's high quality environment. The principles of the European Landscape Convention provide a good basis for approaching the evolution, conservation and enhancement of our landscape.

Economy and environment – that somewhere rich in natural beauty and with a strong sense of place and that is rich in wildlife is a tremendous economic and social asset that provides many services for society. An economy is developing which is predicated upon keeping this place special and that, in a nationally Protected Landscape in particular, development must be environmentally sustainable as well as economically and socially sustainable.

Nature and heritage conservation – that opportunities to conserve and enhance landscape, biodiversity, geodiversity and the historic environment should be sought in all projects and developments. There is a need to integrate the conservation of these environmental assets and not see them in isolation from each other, for instance through ensuring that nature conservation work is informed by HERs. There is an assumption in this Plan that actions will not bring about one environmental benefit at the expense of another, eg. new woodlands will not be planted on areas with existing biodiversity importance or historic significance, or wind turbines would not be erected where they would damage the character of the landscape.



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Supporting sustainable land management – that almost all of the AONB is in private ownership and that landowners and land managers have played the largest role in creating today’s North Pennines – ‘natural’ beauty is something of a misnomer; supporting High Nature Value Farming and land-based farm incomes, and ensuring sustainable moorland management are vital factors in keeping the area special.

Outcomes, not prescriptions – a focus on outcomes, the results of actions, will deliver more for nature than a one-size-fits-all approach, but extra care must be taken with our most precious natural assets.

Working together – that strong and meaningful collaborations between landowners, conservation bodies, local authorities and local people are the only way to ensure that nature has a bright future; generating consensus takes time and effort but is always worth it, not least because collaborative approaches add immense value to often very limited budgets.

Open to all – that there should be equality of opportunity for everyone to enjoy what this area has to offer – there are barriers to remove to make this possible, from limited public transport, to the need for better information or better infrastructure. The most accessible option, in relation to physical and intellectual access to the AONB, is the one that should be chosen where this does not compromise natural beauty.

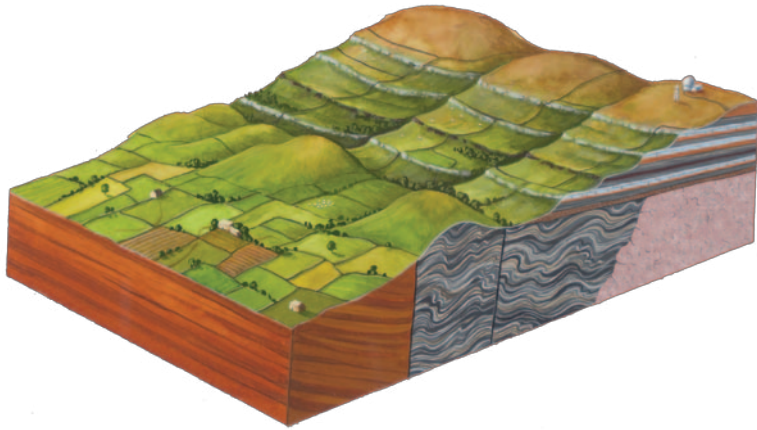
Community and conservation – that local people should be encouraged and supported to devise projects and initiatives that conserve and celebrate natural beauty, or become involved in those led by others. In order to thrive and remain viable, communities need affordable housing, and access to employment, services and facilities and there will be a need for new development so that communities can continue to thrive and evolve.

Learning and discovering – that in all of the conservation work in the AONB, there are likely to be opportunities for interpretation of, and educational activities based on, the special features being conserved. Education and interpretation are not ‘cherries on the cake’ but an integral part of the ingredients of what protected area management should be about.

Costs and benefits – that conserving and enhancing natural beauty, helping people explore, enjoy and understand the North Pennines and supporting land-based industries, is a public good and appropriate resources need to be found for some of it. Equally, this Plan will cover a period of what are likely to be hard times for public funds and there is a need to diversify conservation income streams further and build new sources of support. The loss of EU funding for conservation must be replaced by new resources.

Geology and landscape

The special character of the North Pennines landscape has its foundation in the underlying rocks and the geological processes which have shaped it over hundreds of millions of years of Earth history. Tropical seas, deltas, rainforests, molten rock, deserts and ice sheets have all played a part in creating the bare bones of the landscape. People arrived in the North Pennines a few thousand years ago, heralding a new stage in the evolution of the area—a landscape that is continually evolving through natural processes and human activity.



*Schematic diagram of the North Pennine escarpment showing the underlying geology and its influence on the landscape
Elizabeth Pickett © NERC*

Foundations of the landscape

The deep roots of the North Pennines are slates and volcanic rocks – akin to the rocks of the Lake District. They are mostly buried and are only exposed in part of Teesdale, and along the North Pennine escarpment, where they form a line of striking conical hills. Nearly 500 million years ago these rocks were muds and volcanic ash at the edge of a wide ocean. The ocean closed about 420 million years ago as the continents on either side collided. The muds and ashes were squashed, crumpled and altered to form the hard slaty rocks we see today.





Layers of limestone, shale, sandstone and coal forming terraced hillsides in the Nent Valley © NPAP/KGibson



Limestone pavement near North Stainmore © NPAP/ElizabethPickett



Dolerite columns of the Whin Sill at High Cup Nick © Natural England/Steve Westwood



Crag of Whin Sill dolerite at Holwick Scars in Upper Teesdale © NPAP/Elizabeth Pickett

Weardale Granite and the Alston Block

About 400 million years ago, a huge mass of molten rock rose up into the slates and volcanic rocks. It cooled and crystallised underground to form the Weardale Granite, a hidden but fundamental geological feature of the North Pennines. Granite is less dense than most other rocks in the Earth's crust and is relatively buoyant. Because of this, the area above the granite – much of the North Pennines – has remained higher than surrounding areas for millions of years, and is known by geologists as the 'Alston Block'. The North Pennines is an upland area today because of the effect of the Weardale Granite.

Tropical seas and swamps

About 350 to 300 million years ago – in the Carboniferous Period of Earth history – the North Pennines was near the equator and was periodically covered by shallow tropical seas. Skeletons of sea creatures accumulated as limy ooze on the sea floor. Rivers washed mud and sand into the sea, building up vast deltas on which swampy forests grew. In time, the limy ooze became limestone, the mud and sand became shale and sandstone, and the forests turned to coal. Periodically, the sea flooded in, drowning the deltas and depositing limestone again. This cycle happened many times, building up repeating layers of limestone, shale, sandstone and thin coal seams, known as 'cyclothem's'.

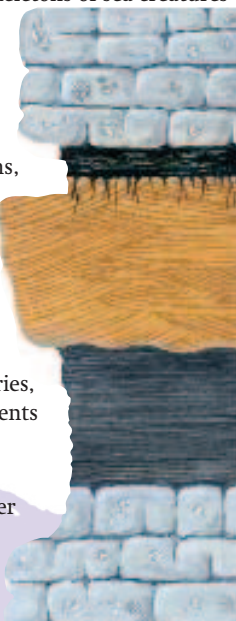
Limestone and sandstone are resistant to erosion, whereas the softer shales wear away easily. This contrast produces the distinctive terraced hillsides and flat hilltops of the North Pennines. Limestone also has its own special features. It dissolves gradually in rainwater creating 'karst' features such as sinkholes and limestone pavements.

Sandstone and limestone have been quarried in the North Pennines for centuries, and the use of local sandstone gives distinctive character to the area's settlements and dry stone walls.

The Whin Sill

Stretching of the Earth's crust 295 million years ago caused molten rock at over 1000°C to rise up and be injected between layers of sandstone, limestone and

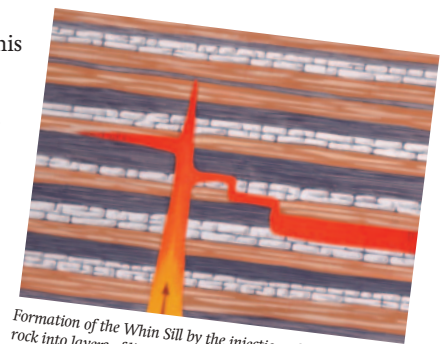
Formation of 'cyclothem's' as a result of changing sea levels and build-up of river deltas in the Carboniferous Period © Elizabeth Pickett



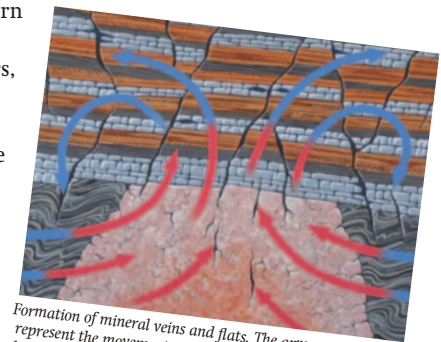
shale. The molten rock cooled and solidified underground to form a roughly a flat-lying sheet of rock, known as a 'sill'. This is made of hard black dolerite or, as it is known locally, whinstone. While molten, its great heat baked and altered surrounding rocks, creating the unique 'Sugar Limestone' of Upper Teesdale. As the sill cooled it contracted, producing vertical cracks along which the dolerite breaks into rough columns. These columns can be seen in Whin Sill cliffs and quarry faces. After millions of years of erosion, the Whin Sill is now exposed at the surface where its cliffs form dramatic landscape features in Upper Teesdale and along the North Pennine escarpment.

Mineral riches

The North Pennines is world-famous for its remarkable mineral veins and deposits, known collectively as the Northern Pennine Orefield. The veins of lead ore and other minerals formed about 290 million years ago when mineral-rich waters, warmed by heat from the buried Weardale Granite, flowed through cracks and fractures deep underground. As the fluids cooled, their dissolved minerals crystallised within the fractures, forming mineral veins. Sometimes the fluids reacted with limestone on the sides of the fractures, altering the rock and forming mineral deposits known as 'flats'. Mining for lead ore in the North Pennines probably goes back at least to Roman times, but it had its heyday in the 18th and 19th centuries when the area's lead mines were of world importance. Other commercially mined minerals include sphalerite (zinc ore), iron ores, fluorite (also known as fluorspar), and barium minerals such as baryte and witherite. Mining for these minerals has had a profound effect on the landscape. Although the mines have all closed, the landscape is imprinted with the legacy of the area's mining past – from shafts, hushes, spoilheaps and chimneys to the patterns of settlement and 'miner-farmer' landscapes.



Formation of the Whin Sill by the injection of molten rock into layers of limestone, shale and sandstone © Elizabeth Pickett



Formation of mineral veins and flats. The arrows represent the movement of mineral-rich waters, heated by the buried Weardale Granite © Elizabeth Pickett © NERC



A drumlin in Upper Teesdale © NPAP/Elizabeth Pickett



Red Triassic sandstone used in buildings in Dufton © NPAP/Shane Harris



Rookhope arch—the remains of a smelt mill flue system © NPAP/Elizabeth Pickett

Deserts and floods

The Eden Valley is underlain by red sandstones which give the villages at the foot of the North Pennine escarpment their distinctive character. These rocks formed between 290 and 210 million years ago, in the Permian and Triassic periods of Earth history, when the North Pennines baked in a hot desert environment just north of the equator. Sands from desert dunes, flash floods and rivers hardened into red sandstones. These rocks lie next to the much older slates and volcanic rocks of the distinctive ‘pikes’ and are separated from them by faults – cracks in the Earth’s crust along which there has been movement.

Ice age

From over 200 million years ago, we have little tangible evidence for what was happening in the North Pennines. We know that Britain drifted north to its present position, and that about two million years ago world climate cooled dramatically, heralding the start of a series of ice ages.

The landscape of the North Pennines owes much of its character to the action of ice and meltwater. About 20,000 years ago northern Britain lay frozen under a huge blanket of ice. A kilometre-thick ice sheet covered the North Pennines and streamed over the landscape, smoothing and scouring the hills and valleys. It dumped a mixture of clay, gravel and boulders known as ‘till’ and created streamlined mounds of glacial debris called drumlins. Some of the highest land in the North Pennines may have poked above the ice at times during the ice age. These hilltops would have been frozen wastes of frost-shattered rock.

After the ice

About 15,000 years ago the arctic conditions started to give way to a milder, wetter climate. The ice began to melt, leaving a landscape of bare rock, unstable slopes and piles of glacial debris. Torrential meltwaters carved drainage channels and deposited sand and gravel in the valleys. Amidst this rapidly changing landscape, arctic plants, grasses and dwarf shrubs began to colonise the bare land. These were eventually



Ancient Scots pine tree stump emerging from peat at the edge of Smiddyshaw Reservoir © NPAP/Elizabeth Pickett

replaced by woodland – part of the great wildwood which once covered much of Britain. Sparse birch and Scots pine dominated the higher parts of the North Pennines. About 7,500 years ago, rainfall increased and blanket bog began to form on the waterlogged uplands. In these areas woodland cover decreased, leaving tree stumps buried and preserved in peat.

People and the landscape

Ever since people first came to the North Pennines, perhaps 10,000 years ago, human activity has profoundly influenced the landscape. The first settlers came to forage for wild resources in heavily wooded valleys, very different from today’s meadows and grassland. From about 5,000 years ago, early farmers began felling trees to create agricultural clearings, and the wildwood has been progressively cleared from this point.

Through the following millennia, many different peoples – Celts, Romans, Saxons, Vikings, Normans – left their mark in settlements, fortifications, field systems, graves and mines. But it is in the last few hundred years that people have had the greatest impact on the North Pennines landscape. Centuries of exploitation of the area’s rich mineral resources have not only left a rich heritage of mining remains, but have influenced the pattern of settlement and agriculture and even the shape of the fells and dales themselves.

Today’s landscape









Today’s North Pennines landscape is the product of millions of years of geological processes and just a few thousand years of human activity. All these have lent a hand in creating both the shape of the countryside and the intricate ‘quilt’ of land use and settlement draped over it.

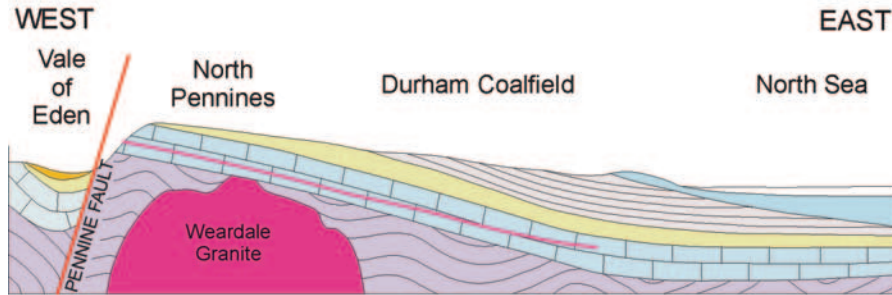
Most people live in the dales which cut through the wild moorland landscape. Villages, farms and dry stone walls built of local stone reflect the underlying geology of the area. The imprint of lead and other mining activity is still strong, with chimneys, hushes, adits, mineshops and other features providing a reminder of our industrial past.

Looking after and celebrating our geodiversity
Action for the conservation and celebration of our geological heritage is included in the North Pennines Geodiversity Action Plan 2018-2022 and is available at www.northpenninesaonb.org.uk
It will be updated during the life of the AONB Management Plan.

A SIMPLIFIED GEOLOGICAL MAP OF THE NORTH PENNINES AONB

KEY

-  **Permian**
mainly limestones and dolomites with sands at the base (illustrated in cross section only)
-  **Permo-Triassic**
mainly red sandstones, mudstones and some breccias
-  **Westphalian - the Coal Measures**
shales, siltstones, sandstones and coal seams
-  **Namurian**
alternations of thin limestones, shales and thick sandstones with thin coal seams, includes the Great Limestone
-  **Dinantian**
alternations of limestone, shale, sandstone and coal with conglomerates, shales and sandstones at the base
-  **Devonian**
mainly conglomerates
-  **Ordovician and Silurian**
mainly slates, impure sandstones and volcanic rocks
-  **Igneous intrusions**
Dolerite, part of the *Whin Sill* suite of intrusions and the *Cleveland-Armthwaite Dyke*, and the Weardale Granite



Diagrammatic Cross-section. Vertical scale greatly exaggerated

N.B. For clarity, faults and minerals veins are omitted from this map.

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Landscape character

Landscape character types

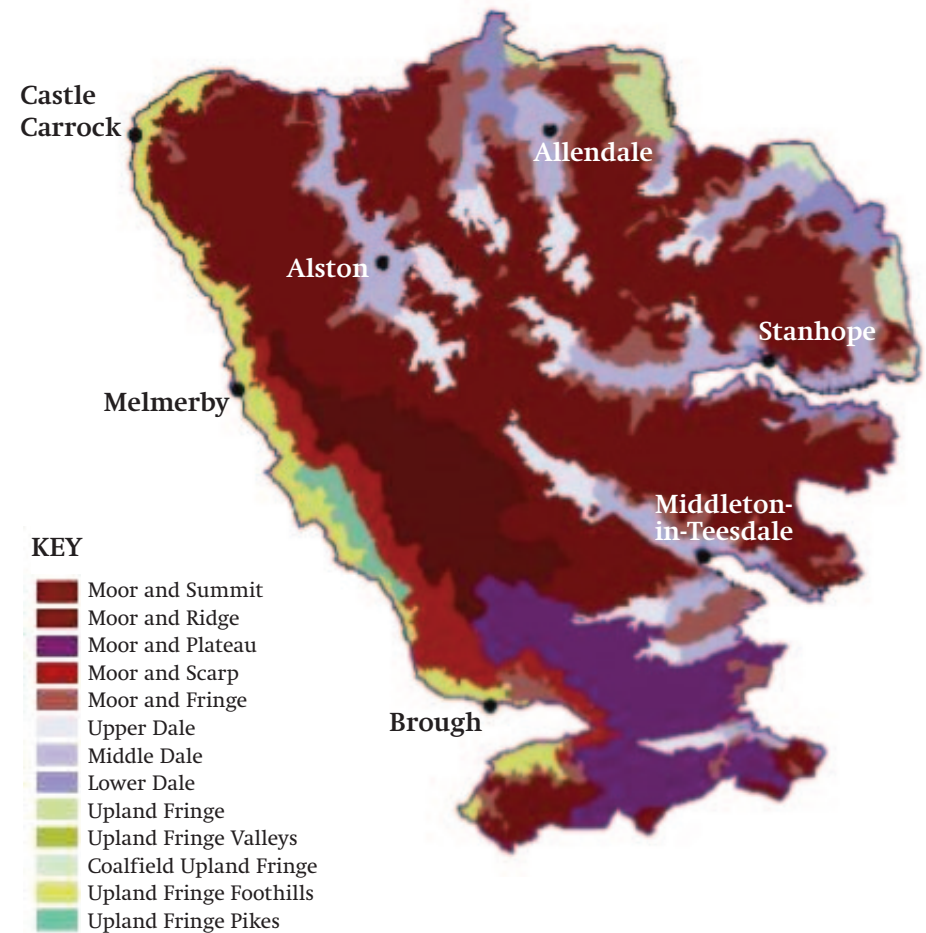
This map shows the different landscape character types in the North Pennines AONB. These landscape types do not follow political boundaries and are best seen without reference to counties, districts or even specific dales. An example of this would be the 'upperdale' landscape type found at the top of all the main dales in the North Pennines. The defining characteristic of each landscape type are shown here.

Landscape character areas

Within these broad 'landscape types' we can find specific landscape character areas, which show some more subtle differences from place to place within areas of the same broad character type. Examples of this include Upper Teesdale and Upper Weardale, within the Character Type 'upperdale'.

The AONB Partnership is undertaking a detailed landscape character assessment, with descriptions of landscape types and character areas, alongside some guidance for land managers and others on reinforcing the distinctive character of these different parts of the North Pennines.

This process does not attempt to set landscapes in stone, but aims to help us understand and reinforce their unifying characteristics and ensure that new development and land use change is in tune with the area's character and quality.



Moorland Ridges

Broad divided ridges and high flat-topped summits • A strong horizontal grain to the topography • Grits and limestones outcrop locally in low grey crags and stone bands • The Whin Sill outcrops in some larger crags and scree slopes • Rocky, quick-flowing becks or burns in steep-sided gullies • Extensive tracts of blanket bog, with heather, cotton grass and Sphagnum mosses • Deep peat exposed in eroded hags and peat edges • Drier slopes clothed in upland heath of heather and bilberry or acid grasslands • Extensive grazing by hardy hill sheep has created extensive areas of 'whitemoor' • Burning patterns on grouse moors create a patchwork of older and younger heather • Unfenced roads marked by snow poles with gates or cattle-grids at the moor wall • Occasional communications masts break the skyline as intrusive features • Relics of leadmining – shafts, hushes, spoil heaps, the courses of railways, reservoirs and water leats, smelt mill flues and chimneys • Few human-made features other than occasional fences, grouse butts, cairns and sheepfolds • Panoramic long-distance views out across unbroken moorlands or adjoining dales/valleys • A remote and elemental landscape with a near wilderness quality in places.

Examples of Landscape Character Areas within Moorland Ridges Character Type include Geltsdale to Hartside, and the Teesdale/Weardale watershed.



Moorland Ridges - Swinhope Moor, East Allen Valley © Natural England/Charlie Hedley

Moorland Plateau

High moorland plateau, the legacy of a major ice sheet in the last glacial period • Gently rolling, almost flat, terrain cut into by steep-sided gullies • Occasional small, low, flat-topped, summits of resistant sandstones such as those of Shacklesborough and Goldsborough • Carboniferous rocks masked by deep peat which is exposed in eroded hags and peat edges • Continuous blanket bog of heather, cotton grass and Sphagnum mosses • Upland heath and acid grassland in drier moorland fringes • Extensive grazing by hardy hill sheep promotes a shift towards grass or sedge dominated vegetation • Burning patterns on grouse moors create a patchwork of older and younger heather. Some of the wetter bogs are too wet for heather burning in most years • Few human-made features other than occasional fences, grouse butts, cairns and sheepfolds • A remote and inaccessible landscape with few roads or tracks • A broad-scale landscape with long-distance views across open moorland to distant summits • An exposed, elemental and simple, often bleak, landscape with a near wilderness quality.

Examples of Landscape Character Areas within Moorland Plateau Character Type include Mickleton and Hunderthwaite Moors, and Cotherstone Moor.



Moorland Plateau – Cotherstone Moor © NPAP/Elizabeth Pickett

Moorland Summit

Wild remote places, with a severe climate • Extensive blanket bog vegetation • Openness and apparent naturalness and an almost total lack of human-made structures and an apparent lack of human influence • Sweeping interlocking ridges and prominent gritstone caps with blockfields on high summits • Dramatic distant views • Peat hags and hidden becks.

Within the AONB there is only one Landscape Character Area within the Moorland Summits Character Type, stretching from south east of Cow Green Reservoir to Cross Fell and towards the road at Hartside.



Moorland Summit – Cross Fell © Natural England/Charlie Hedley

Moorland Fringe

Upland landscape of improved moorland fringes, intakes and allotments, between the open moors and settled dales • Varied topography including valleys and upper dale sides • The contrasting hardness of layers of limestone, sandstones and shales give the hillsides a stepped appearance • The Whin Sill outcrops locally in low crags • Shallow, infertile or waterlogged peaty soils • A pastoral landscape of wet, rushy pastures, rough grazing and enclosed moorland • Large regular fields of Parliamentary enclosures bounded by low stone walls and wire fences • Varying degrees of improvement and grazing creates a patchwork of muted and brighter greens • Isolated farms built of stone with roofs of stone flag or slate, connected by straight roads from the enclosure period. The farms and field barns of the Raby Estate in Teesdale are painted white • The landscape is generally open with few trees or woodlands • There are occasional clumps of sycamore planted as shelter trees around exposed farms, and scattered conifer plantations and shelterbelts with occasional large tracts of commercial forestry on the fringes of the AONB • Relics of the leadmining industry are common – minebuildings, waste heaps, smelter flues, reservoirs and hushes • Visually open and often broad in scale with extensive views across adjacent dales and moors • A remote and tranquil landscape on the margins of settlement and agriculture, sometimes with a slightly neglected quality.

Examples of Landscape Character Areas within Moorland Fringe Character Type include Lunedale and Waskerley Moorland Fringes.



Moorland Fringe – Near Waskerley, Weardale © NPAP/Peter Samsom

Moorland Scarp

Dramatic landforms • A sweep of unimproved rough grazing contrasting with the lower landscape of the foothills and pikes • Exposures of bands of Carboniferous limestone and sandstone • A lack of enclosure • Largely treeless • Long views outwards to the Eden Valley and the Lake District and Howgill Fells.

There are three Character Areas within the Moorland Scarp Character Type: Middle Rigg – Brough; Stainmore; and Lathwaite.



Moorland Scarp – Delfkirk Scar, above Murton on the Eastern Fellside © Natural England/Charlie Hedley

Upper Dales

A pastoral landscape at the limits of agriculture, high in the upper reaches of the North Pennine dales • Varied valley topography, with most upper dales being relatively shallow and broad • Carboniferous rocks bare of drift or covered by glacial till • Fast-flowing rocky streams • Shallow, infertile or waterlogged soils • Wet rushy pastures, upland hay meadows and rough grazing in the moorland fringes • Few trees or woodlands, with occasional small streamside woods, sparse lines of alder and willow scrub following watercourses; occasional concentrations of regular conifer plantations several of which are in the process of being restructured • Regular patterns of generally large fields with dry stone walls often in a poor state of repair. Scattered field barns and sheep folds • Scattered small farms with occasional farm clusters and hamlets occasionally marked by wind-blown groups of sycamore or pine shelter trees • In Teesdale the tenanted farms of the Raby Estate are painted white • Relics of the lead mining industry – mine buildings, waste heaps, smelt mill flues, reservoirs and hushes. Upper dales in Weardale and the East Allen Valley display a classic miner-farmer appearance of smallholdings • Major reservoirs in several of the Durham dales • Visually open but enclosed by encircling moorland ridgelines • Remote and tranquil landscapes on the margins of settlement and agriculture, with a bleak and neglected quality.

Examples of Landscape Character Areas within the Upper Dales Character Type include Upper Weardale and the Upper South Tyne.



Upper Dales — Forest-in-Teesdale, Upper Teesdale © Natural England/Charlie Hedley

Middle Dale

Broad upland valleys with moderately sloping, often gently-stepped valley sides, incised by narrow steep-sided gills • Carboniferous rocks overlain on lower slopes by till give a gently-stepped profile to the upperdale sides in places • The Whin Sill outcrops locally in prominent scars and in Teesdale creates dramatic waterfalls • Narrow floodplains of alluvium or glacial sands and gravels • Rocky fast-flowing rivers and streams • Heavy, often waterlogged clay soils with more fertile brown earths on valley floors • Improved and semi-improved pastures and flower-rich upland hay meadows • Strong regular or sub-regular patterns of dry stone walls with occasional ash, oak and sycamore field trees • Many walls have irregular stones from field clearances and river beds • Sparsely wooded. Narrow ash and oak-birch woodlands along rivers and streams and daleside gills. Scattered plantations of pine, larch or spruce • Small villages, hamlets and farm clusters follow valley floor roads – scattered farms and field barns on the dale side • Buildings of local stone with roofs of stone flag or slate • Active and abandoned limestone and whinstone quarries prominent on some dale sides • Relics of the lead mining industry – mine buildings, waste heaps, smelt mill flues, reservoirs and hushes • Major reservoirs in some dales • Visually open but enclosed by encircling moorland ridgelines • A settled and largely tranquil upland landscape that, with its vernacular buildings, field boundaries and traditionally managed meadows and pastures, has a strong sense of both visual unity and cultural continuity.

Examples of Landscape Character Areas within the Middle Dales Character Type include Mid Teesdale and the South Tyne downstream from Alston.



Middle Dale – Teesdale, near Holwick © NPAP/Paul Frodsham

Lower Dale

Broad valleys with narrow floodplains or gorges on the valley floor • Winding, rocky fast-flowing rivers • Carboniferous rocks covered by glacial drift, river gravels or alluvium • Limestones, sandstones and shales outcrop occasionally on the sides of gorges and daleside quarries • Heavy clay soils with more fertile brown earths and alluvial soils on the dale floor • Pastoral farmland of improved and semi-improved pastures • Old field systems with sub-regular or linear patterns of hedges and walls • Relics of rigg and furrow, and cultivation terraces • Frequent hedgerow oak, ash, sycamore and wych elm, tree lined watercourses and overgrown hedgerows • Ancient ash and oak woods in gorges and denes • Old villages of vernacular sandstone buildings on the dale floor • Scattered stone farmsteads and field barns • Limestone quarries are locally prominent on the dale side • Visually enclosed by woodlands, trees and hedgerows and defined by high moorland ridgelines.

There are few examples of Landscape Character Areas within the Lower Dales Character Type, the most notable examples being the Lower Allen Valley and Lower Derwent Valley.



Lower Dale – Near Muggleswick in the Derwent Valley © NPAP/Peter Samsom

Upland Fringe

Broad ridges and shallow valley heads • Gently rounded topography of drift-free, thinly bedded sandstones, mudstones, shales and coals • Occasional steep bluffs and incised denes • Heavy, seasonally waterlogged clay soils with pockets of peaty soils supporting heathland vegetation •

Pastoral land use of improved or semi-improved pasture with some arable cropping on drier ridges • Regular grids of Parliamentary enclosures bounded by dry stone walls or overgrown hawthorn hedges • Few trees – scattered hedgerow oak, ash, rowan or birch • Sparsely wooded; scattered conifer plantations and shelterbelts • Isolated farms connected by straight enclosure roads • A visually open landscape with commanding views across adjacent valleys to distant ridges.

This Landscape Character Type is represented by just one Landscape Character Area (split into two parts) – The Rowley Uplands, which form higher ground above the valley of the Rowley Burn.



Upland Fringe – Hexhamshire © NPAP/Peter Samsom

Coalfield Upland Fringe

Broad ridges and shallow valley heads • Gently rounded topography of drift-free, thinly bedded sandstones, mudstones, shales and coals • Occasional steep bluffs and incised denes • Heavy, seasonally waterlogged clay soils with pockets of peaty soils supporting heathland vegetation • Pastoral land use of improved or semi-improved pasture with some arable cropping on drier ridges • Regular grids of Parliamentary enclosures bounded by dry stone walls or overgrown hawthorn hedges • Few trees – scattered hedgerow oak, ash, rowan or birch • Sparsely wooded – scattered conifer plantations and shelterbelts • Isolated farms connected by straight enclosure roads • Occasional relics of the mining industry including wagonways • A visually open landscape with commanding views across adjacent valleys to distant ridges.

Within the AONB there are two Landscape Character Areas within the Coalfield Upland Fringe Character Type, Derwent Reservoir to Kiln Pit Hill, and Salter's Gate to Castleside, west of the A68.



Coalfield Upland Fringe – Near Kiln Pit Hill © NPAP/Peter Samsom

Upland Fringe Valleys

Shallow valleys with occasional narrow floodplains, low bluffs and incised denes • Gently rolling topography of thinly bedded sandstones, mudstones and shales overlain by glacial drift and river terrace gravels • Heavy, seasonally waterlogged, clay soils • Pastoral farmland of improved and semi-improved pasture and meadow • Sub-regular field patterns of old enclosures bounded by overgrown hedges, wire fences and occasional dry stone walls. Occasional regular Parliamentary enclosures • Scattered, locally abundant, hedgerow and field trees — oak, ash and sycamore • Ancient oak woods in narrow denes, on riverside bluffs, and along watercourses • Scattered farms. Buildings are of local sandstone with roofs of slate or stone • Narrow winding lanes and occasional straighter enclosure roads • A well-wooded and timbered landscape creating a high degree of enclosure in places • A tranquil settled rural landscape.

This Landscape Character Type is represented by a single Character Area, the Rowley Burn Valley which takes in the valleys of the Rowley Burn and its tributary the Ham Burn west of Whitley Chapel.



Upland Fringe Valleys – Rowley Burn, Hexhamshire © NPAP/Peter Samsom

Upland Fringe Pikes

Distinctive strip of isolated, conical hills or 'pikes' lying between the escarpment and the Eden Valley • Character is strongly controlled by rock type and geological structure (Ordovician and Silurian volcanic and slaty rocks, akin to those of the Lake District) • The pikes form a strip which is separated from the Carboniferous rocks of the escarpment and the Permo-Triassic rocks of the Eden Valley, by major and complex geological faults (fractures in the Earth's crust along which there has been movement) • There is little glacial material on the pikes, resulting in smooth grass-covered slopes with scattered small rock exposures • The steep pike sides are covered in close-cropped turf, with patches of bracken and sparse hawthorn bushes on the lower slopes • Small disused roadstone quarries on the lower pike sides • Land between and around the pikes is a mixture of rolling, improved grazing pasture, and patches of natural/semi-natural woodland and boggy ground along streams • Dry stone walls, some of which contain a mix of rock types, reflecting the pikes' position between the escarpment and the Eden Valley • Glacial meltwaters have enhanced valleys which have formed along lines of geological faults, resulting in steep-sided valleys • Scattered farms and barns, commonly on the Eden Valley side of the pikes.

There is only one Landscape Character Area within this Character Type, stretching from Murton Pike to Burney Hill.



Upland Fringe Pikes — Knock Pike © Natural England/Charlie Hedley

Upland Fringe Foothills

Rolling farmland with low hills • A transitional landscape, between the higher country of the Carboniferous limestones, sandstones and shales, (and in some places the older, more rounded, hills of the upland fringe pikes), and the Eden Valley to the west • Dispersed settlement pattern. Red sandstone villages reflecting underlying Permo-Triassic sandstones and served by narrow lanes • Field systems mainly the product of late enclosure and bounded mainly by stone walls with a small number of hedges • Pockets of semi-natural woodland in small valleys.

There is only one Character Area within this Character Type, stretching from near Tindale in the north, to Nateby in the south (where it is split in two by an area of moorland fringe and moorland).



Upland Fringe Foothills – Near Cumrew © NPAP/Elizabeth Pickett



Bowlees Field Barn © Visit County Durham



Young woodland © Steve Westerberg, RSPB



Castle Carrock © Natural England/ Charlie Hedley

Action for landscape quality and character

- Local authorities should have robust AONB policies in their Local Plans to ensure that development protects the area's special qualities and does not compromise the purpose of designation, taking account of the AONB Planning Guidelines, Building Design Guide and Moorland Tracks Guidance.
- Neighbourhood Plans should include policies which meet community need whilst supporting the conservation and enhancement of natural beauty and bolstering the character of local settlements.
- Public bodies should be aware of, and fulfill, their duty of regard under S.89 of the Countryside and Rights of Way Act (2000):
- Complete a more detailed landscape character assessment for the area
- Support the conservation of drystone walls, field barns, biolds and other characteristic features of the landscape, through development management and agri-environment schemes
- Sensitively expand the area of native and mixed woodland
- Establish a programme of planting individual trees as important landscape features of the future
- Underground overhead wires for landscape and visual amenity purposes as part of the Price Control Review scheme for Protected Areas, encouraging links with BT wherever possible
- Ensure that the management of roads does not detract from the rural character of the area (whilst taking essential action to promote safety)
- Ensure the conservation of the special quality of truly dark night skies in the North Pennines
- Explore and support opportunities for large-scale 'wildland' projects, and in all activities seek to move the landscape further along a 'spectrum of wildness'.



Special grasslands

The North Pennines AONB has more grassland of wildlife importance than most other areas in the country. Herb-rich grasslands are now very rare in the countryside in general, but the relatively less intensive farming practised here in recent decades has allowed more species-rich grasslands to survive. Some of these grasslands can have up to 40 species in a square metre of ground. This diversity in plant species in turn provides excellent habitat for a wide range of specialised insects and other animals, many of which depend on particular uncommon plant species or the unusual habitat conditions provided. Many of these grasslands also support characteristic birds of the area, such as lapwing, curlew and snipe.

The main types of important grasslands in the AONB are described below. Grassland habitats were created by traditional management practices and require continuing management in order to survive.

Action for our grasslands

- Agri-environment schemes should target species-rich grasslands in the North Pennines
- Use appropriate levels of grazing and/or cutting to maintain or enhance biodiversity
- Use very little or no fertiliser on species-rich grassland
- Avoid the loss of any species-rich grassland to ploughing, reseeding or fertilisation
- There should be no drainage of species-rich wet grassland
- Take every opportunity to enhance/restore species-rich, or potentially species-rich, grasslands
- Fence out rabbits where they are abundant
- Take action to promote people's understanding and enjoyment of these special grasslands through events and interpretation.

Upland limestone grassland

Upland limestone grassland can occur wherever limestone is close to the surface. This type of grassland is often much richer in flowers than the surrounding grasslands and is characterised by lime-loving species such as wild thyme, common rock-rose and fairy flax.

In Upper Teesdale a unique type of upland limestone grassland occurs on crumbling 'Sugar Limestone'. Not only is this grassland very flower-rich but it also includes a number of very rare arctic and alpine species such as false sedge, Teesdale violet, spring gentian, hoary rockrose, bird's-eye primrose,





Bird's eye primrose © Shane Harris



Haymeadows in Upper Weardale © NPAP/Rebecca Barrett

mountain avens, and hoary whitlowgrass. Many of these plants are thought to have survived here since the last glaciation.

Another special type of limestone grassland, which is characterised by blue moor-grass, also occurs in the area along the banks of the Tees upstream from Wynch Bridge. In Britain, this type of grassland occurs only in northern England. Other types of upland limestone grassland are scattered around the AONB, especially in Teesdale, Weardale, South Tynedale and the Upper Eden Valley.

Action for our upland limestone grassland

- Maintain the traditional grazing regime, with only very light grazing in summer
- Fence out rabbits where they are abundant

Upland hay meadows

Over 40% of all the UK's upland hay meadows are in the North Pennines AONB! This is now a rare habitat throughout Europe and is recognised as of European importance. Livestock are removed from these fields in late spring and the fields are cut for hay in late summer to provide fodder for grazing animals over the winter.

The best upland hay meadows are very species-rich and differ from hay meadows in the lowlands in having several characteristic 'northern' species such as wood crane's-bill, globeflower, marsh hawk's-beard, and melancholy thistle. A very special group of upland hay meadow plants are the Lady's-mantles. Nine of these Lady's-mantles occur in the AONB, six of which are rare species and three of them occur nowhere else in Britain.

Our hay meadows are also of importance for breeding birds such as curlew, redshank and lapwing, and as a feeding area for birds such as black grouse. They were once home to the enigmatic corncrake and with the right management, these special birds could return to the North Pennines each spring, as they did in the past.

The best upland hay meadows are now scattered around the dales of the AONB. Parts of the upper sections of Teesdale, Weardale and South Tynedale, as well as parts of Lunedale, Baldersdale and East Allendale, support particularly good examples.



Action for our upland hay meadows

- Meadows should be cut for hay rather than for haylage or silage, whenever the weather allows
- Cut in the summer after most of the plants have flowered and set seed
- Graze fields in autumn (and lightly in spring if this has been traditional in the field)
- Walkers should only access hay meadows using Public Rights of Way
- Reduce grazing intensities on our special grasslands to enable more plants to flower and set seed
- Take every opportunity to enhance/restore species-rich, or potentially species-rich, grasslands.

Species-rich road verges and riverbanks

Grasslands along roadside verges and riverbanks would have been an integral part of farm management in the past but often are now fenced off and unmanaged. Species-rich plant communities similar to those in hay meadows or limestone grassland sometimes survive in these areas, even when the special grassland within the adjacent fields has been lost. The best examples of these habitats are also scattered around the dales of the AONB. There is good access to the riverbanks in Upper Teesdale (upstream from Newbiggin) and in Upper South Tynedale (between Alston and Garrigill), which are particularly spectacular. Flower-rich road verges are relatively widespread along the roads through the dales.

Action for our species-rich road verges and riverbanks

- Avoid neglect of verges and riverbank grasslands; cut in late summer and remove the cuttings, to maintain their diversity
- Understand the cutting needs of different banks and verges – some may need cutting once every few years, whilst others may need more regular cutting.

Allotments and pastures – a wader hotspot

The large fields between the moorland and the more intensively managed fields in the valley bottom provide a gradual change in habitat and are particularly valuable for black grouse and for breeding waders such as curlew, snipe and lapwing.

In the British context, the density of the breeding waders here is second only to the Outer Hebrides, and this habitat, allied to ground-predator control, is part of the reason why the wading birds do so



Mountain pansies © Elizabeth Pickett



Lapwings, Brian Irving © Helm Images

well. The North Pennines is now a stronghold for the curlew which, owing to dramatic declines, is classed as globally near-threatened. These fields are often a mosaic of vegetation height with wet areas with patches of rushes and drier areas providing an ideal range of habitat conditions for waders. The vegetation is often not very species-rich but some areas can be of botanical interest, especially where no fertiliser has been used or where lime rich water seeps to the surface from the underlying limestone.

Large numbers of breeding waders can be found in spring and summer in this type of habitat in more or less every part of the AONB below the moorland wall. The upper reaches of Upper Teesdale and the Harwood Valley have particularly high densities of breeding waders.

Action for waders in our allotments and pastures

- Retain the current balance of wet and drier areas. Re-wetting may be appropriate in certain locations
- Manage rush cover across the whole field, ensuring a range of vegetation heights.

Calaminarian (or heavy metal) grassland

Due to the long history of mining for lead, zinc and other minerals in the North Pennines, there are many areas of land contaminated with heavy metals. These include spoil heaps close to old workings and flat gravelly areas alongside rivers, where the metals have been deposited in floods. Unusual plant communities develop in these areas, including some plants that are specially adapted to this habitat such as spring sandwort, alpine penny-cress and thrift (more usually found in coastal grasslands).

Mountain pansies are often very plentiful in these areas and there are often specialised mosses, liverworts and lichens on the less vegetated areas. A rare and unusual orchid, narrow-lipped helleborine, grows on contaminated soil under birch. This habitat is recognised as being of European importance.

The best river gravel calaminarian grasslands occur in places along the South Tyne and the East and West Allen. Spoil heaps are widespread throughout the area but unfortunately on many of these the vegetation has developed so much that the specialised metal-tolerant plants have all but disappeared.

Action for our calaminarian grasslands

- Encourage the conservation of calaminarian grasslands through disturbance where required (disturbance is needed in order for the specialised metal-tolerant plants to survive competition when a new layer of soil builds up on top of the contaminated soil)
- Where light grazing or cutting proves insufficient to maintain sites, more drastic management, such as topsoil stripping, may be needed.

Other valuable grasslands

Other types of species-rich grassland occur locally but are often less well known and understood than those mentioned above. There are occasional examples of species-rich types of vegetation that occur in other parts of the country, such as lowland meadows and pastures. These are valuable not because they are unique to this area, but because of the overall rarity of this habitat in the UK.

Steep or awkward banks within fields, being difficult to access with modern machinery, have often received little or no fertiliser and some have retained species-rich, flowery habitats. Various different types of vegetation can occur, depending on the type of soil, but where these areas have a good cover of betony or bitter-vetch, it is often worth looking for rare plants such as small-white orchid, greater butterfly-orchid and field gentian.

There are many small abandoned quarries in the North Pennines and where these have been allowed to revegetate naturally they often develop into very rich habitats. Different plant communities and habitat conditions develop on different parts of the quarry floor and sides.

These types of grasslands are scattered around the North Pennines, often in quite small patches. Good places to look include streamside banks or ghylls and any of the accessible quarries eg. Bowlees Quarry. Please be aware of hazards such as rough ground, loose rocks on cliffs and holes in quarries.

Action for our other valuable grasslands

- Encourage management of all grasslands through cutting or grazing or both – the intensity of the management needed varies depending on the precise conditions in each area
- Allow vegetation in quarries to develop naturally when the quarries cease to be active.

High Nature Value farming

High Nature Value farming is a term used to describe low-intensity farming systems that support high levels of biodiversity and provide other important ecosystem services such as the storage of water and carbon. The upper dales of the North Pennines provide fine examples of High Nature Value farming and are characterised by low-intensity livestock grazing, principally sheep and beef cattle. These hill farms typically comprise a number of hay meadows and pastures enclosed by stone walls close to the farmstead, one or more extensive rough pasture 'allotments' below the moor wall plus grazing rights on the adjacent heather moorland and blanket bog on the summit plateau.

The practice of High Nature Value farming has led to the retention of important habitats and landscape features that have been largely lost elsewhere. A perfect example is the 'moorland fringe', a wide belt of pasture and 'allotment' land with a characteristically tussocky nature which acts as a 'buffer' between the moorland and more intensively managed grasslands below. This 'messy edge' is of national importance for ground-nesting birds like curlew, snipe and black grouse and its progressive loss is a principal reason for the decline of these species in other upland areas.

From a biodiversity perspective, the habitat diversity found in the upper dales is the key to their importance. Though valuable in their own right, it is the juxtaposition of grasslands managed in different ways which is so vital, enabling birds and invertebrates to move between them and exploit their resources at different times of year. The extensively-grazed rough grasslands at the moorland fringe lie next to damp, rushy pastures which themselves adjoin hay meadows rich in flowering plants. This intimate mosaic of habitats enables the survival of mobile creatures that depend on different elements of the landscape at different times. The bilberry bumblebee feeds on heather moorland in the early summer and then moves down to hay meadows when they are in flower; black grouse and grey partridge breed on the moorland fringe grasslands but depend on hay meadows later in the season; flocks of curlews and lapwings visit the meadows to feed after the hay has been cut.

Throughout the farming year livestock are moved between the meadows, pastures, allotments and moorland. Typically hill sheep graze the higher grasslands and moorland throughout the year, being



Above: cattle grazing in Upper Teesdale © NPAP
Right: globe flowers in Upper Teesdale © NPAP





© Natural England | Charlie Hedley

Action for High Nature Value (HNV) farming

- A results-based, outcome-focused approach to agri-environment payments should be designed and delivered as locally as possible
- Support and strengthen the farmer-led Northern Hill Farming Panel, created through the NUCLNP, to give a stronger voice to upland farmers
- Establish HNV farming demonstration sites to provide peer-to-peer and farmer-to-public training and awareness-raising opportunities
- Provide, as a priority, joint training and knowledge exchange between farmers and conservation bodies
- Use the 'Tees-Swale, naturally connected' project as vehicle to showcase how HNV farming and a results-based approach can deliver major benefits for nature and farmers
- Further action for grasslands on farms can be found in the grasslands section.

brought onto the enclosed pastures and meadows at lambing time in the spring or in the winter. Cattle graze the pastures in the summer and the meadows in the autumn; most are now housed over winter. Despite the arrival of tractors, quadbikes and other trappings of modern agriculture, the traditional pattern of farming in the North Pennines has remained largely unchanged for generations. As a result, the grasslands of the upper dales abound with once-common wildlife, now sadly lost from much of the rest of the English landscape.

However subtle changes are taking place. Hay meadows are being grazed more intensely in the spring and artificial fertilisers are increasingly favoured. Small-scale wetlands are disliked as they impede quadbike access. Housed cattle produce large amounts of 'muck' which is spread in large quantities on meadows. The number of truly species-rich hay meadows in the North Pennines is declining, despite significant restoration work in recent years. These changes are an inevitable consequence of progress in agricultural technology and stretched farm incomes, but they need to be reversed.

Poor recognition of the value of low-intensity grasslands is a further threat. The term 'marginal land' is



Turning hay near Garrigill © NPAP

often used to refer to land of lower agricultural productivity. In the North Pennines this tends to be High Nature Value farmland – principally the moorland fringe. With much discussion currently focused on the future of hill farming and support for the uplands, there are new pressures to target commercial forestry towards farmland that is considered 'marginal' when in fact it is of vital importance from wildlife, landscape and cultural perspectives.

A small number of High Nature Value farmers in the upper dales of the North Pennines AONB are the managing custodians of some of the richest wildlife habitats remaining in England. The role they and their ancestors before them have played in maintaining these habitats on behalf of the nation should be fully recognised, together with the pressures they face in making an acceptable living in a harsh environment. These communities merit targeted action to both support the low-intensity farming they practice and the wildlife that depends upon this.

Moorlands

From the high summits of Cross Fell and the windswept expanses of blanket bog on the plateau above Lunedale, to the high ridges between the eastern and northern dales, the moorland landscapes of the North Pennines are England's wildest places. They are home to some of our most charismatic wildlife and have a sense of naturalness and remoteness found in few other places in our crowded country.

Sense of wildness

This sense of wildness is more imagined than real, as even the most remote summits have been affected by human activity for centuries, be it by grazing livestock, burning or latterly the digging of drains (grips). Most of our moorland landscapes have also been shaped by management for grouse shooting. There are few human-made structures on the moors and most of those that occur, such as the redundant mine shops and smelt mill chimneys, contribute to their wild character. This, and the often dramatic weather, can make them feel like a place apart from the world below. A walk on the moors offers a sense of tranquillity and isolation that is difficult to find elsewhere in England.

Forty five percent of the AONB (almost 90,000 ha) is covered by wild expanses of peatlands, over 66% of which are SSSI. This represents over 20% of England's SSSI blanket bog. A good quality tract of blanket bog in the North Pennines contains heather, cross-leaved heath, hare's-tail cottongrass, bilberry, common cottongrass, cloudberry, deergrass, crowberry and bog asphodel, as well as many species of peat-building Sphagnum moss. In the past, some areas have been damaged by overgrazing or inappropriate burning but it is hoped that agri-environment schemes and changing approaches to management outlined in the Upland Management Group's 'Blanket Bog Land Management Guidance' will reduce both of these problems.

Peatland services

Today the uplands are increasingly valued for the services that peatlands provide for society if they are well cared for and allowed to develop as functioning wetland ecosystems. These services, notably carbon storage, flood risk amelioration and drinking water provision, are of great value to us all as we face an uncertain future with the onset of climate change.

There is more carbon stored in the peatland of the UK than in all the forests of France, Germany and the UK combined, and in the North Pennines peatlands alone there is estimated to be stored 50 years' worth of Drax Power Station emissions! Years of 'gripping' (the cutting of drains in the peat) is being reversed (there were 9,600km of grips criss-crossing our uplands, but we are a long way towards resolving this issue). Increasing amounts of bare and eroding peat are now being restored, all of which ensures that our peatlands keep serving society into the future.





Hen harrier, Brian Irving © Helm Images



Grip blocking on the North Pennine moors © Natural England/Charlie Hedley



Sphagnum magellanicum © NPAP



Red grouse © Laurie Campbell

Historic environment

Peat preserves vital evidence for landscape change since the end of the last glaciation in the form of pollen grains and other organic remains which rarely survive in other environments. When the peat is disturbed or allowed to dry out, this evidence can be lost forever. The peat of the North Pennines has yielded 4,000-year-old horns of aurochs (extinct wild cattle) and a mysterious 18th century coffin containing a body and a bullet. Many more extraordinary finds must still lie buried within the peat, but will only survive for future discovery if we maintain our peatlands in good condition.

Heathland

The moorland habitats include 36% of England’s upland heathland. Dry heath, which covers 14% of the AONB (almost 30,000 ha), is dominated by heather (ling) and bell heather and occurs on the steeper hill slopes and as mosaics with acid grasslands. Wet heath, characterised by cross-leaved heath and/or purple moorgrass, occurs in waterlogged valleys and in association with blanket bog. Although this habitat is generally poor in plant species it supports a variety of dwarf shrubs and is rich in invertebrates.

Montane heath

The highest ground in England, outside the Lake District, can be found in the North Pennines and on the highest and most exposed land is a montane heath with prostrate, weather-beaten shrubs, mosses and lichens, more typical of parts of the Scottish Highlands. Seepages at these higher elevations support a montane ‘brown flush’ vegetation community found nowhere else in England. This includes common yellow sedge, yellow mountain saxifrage, Alpine meadow-rue and three-flowered rush. The North Pennines has one of the largest populations in the world of the endangered marsh saxifrage, which grows in flushes on the high moors.

Acid grassland

Our upland limestone grasslands are described on pages 34 and 35 of this Plan, but there are also four main types of acid grassland in the North Pennines totaling 44,000 ha (almost 21% of the AONB), distinguished by their dominant species – mat grass, sheep’s fescue, common bent, wavy hair grass and heath rush. Large areas remain because they are difficult to improve for agriculture. It is possible to restore some of the less modified acid grasslands to heathland, though this must be balanced with areas where dwarf shrubs have been lost that are still important for breeding waders.

Birds and animals

Our moorlands are also important for a variety of specialised birds. Moorland management supports abundant red grouse, which feed on the young tips of heather. Large areas are covered by the Special Protection Area designation under the EU Birds Directive and Special Area of Conservation designation under the Habitats Directive. Eighty percent of England’s black grouse, and important numbers of other ‘Annex 1’ species including curlew, golden plover and merlin are also found here and utilise surrounding farmland. Peregrine and hen harrier numbers are much lower than their SPA target, with both species now rare breeders – sadly illegal persecution is undoubtedly the reason for this lack of breeding success. Other birds breeding on or using our moors include short-eared owl, red kite (both also victims of illegal persecution), merlin, ring ouzel, dunlin, redshank, oystercatcher and meadow pipit. Adders are relatively common here, and the wetter areas of our moors are home to water voles and amphibians.

Action for our moorlands

- Continue landscape-scale work to restore bare and eroding peat and to block any remaining grips (drains), to support the services peatlands provide for society
- End rotational burning of blanket bog
- Manage grazing pressure to favour conservation (including having a better balance of sheep and cattle on the moors and managing rabbit grazing)
- Work with all interested parties to raise awareness of, and bring an end to, raptor persecution and to prosecute incidences of criminality
- Use responsible, proportionate and legal predator control to benefit key species eg. curlew
- Control bracken encroachment
- Ensure moorlands are entered into new agri-environment schemes based on payment for public goods
- Resist pressure for developments which erode openness and tranquillity of peatland, such as large wind turbines and poorly-sited telecom masts
- Guard against accidental fire and arson
- Cease track-building on deep peat
- Support the implementation of the IUCN UK Peatland Code and the development of new financing mechanisms for peatland restoration.

Trees and woodlands



Wild garlic © Rebecca Barrett

Human activity over several thousand years has created the landscape we enjoy today, benefiting a whole range of species and habitats but greatly reducing our woodland cover. Upland woodland was once a much more common feature in the North Pennines landscape and episodic changes of land use by the miner–farmer communities permitted regeneration of trees and shrubs. However, neglect and persistent grazing by livestock has fragmented and diminished our woods.

Using the National Forest Inventory data (2016) there are 5,225 ha of woodland in the AONB (including 619 ha mapped as ‘assumed woodland’), though there are further 1,151 ha of felled land which is likely to be replanted, giving a total of 6,376ha. Included in the different categorisations is: 2,048 ha of broadleaved woodland, 2,155 ha of coniferous woodland, 152 ha of mixed woodland but mainly broadleaves, 143 ha of mixed woodland but mainly conifer and 523 ha mapped as ‘young trees’. Included in the above is 541 ha of Plantation on Ancient Woodland Sites (PAWS). 930 ha of the broadleaved woodland is ancient and semi-natural.

Many of the ancient semi-natural woodlands occur in steep gills, which have been too difficult to clear for agriculture or graze with sheep. Others are found along river valleys, particularly the Allen and the South Tyne.

Woodland types

Four principal woodland types are found in the North Pennines: upland mixed ash woods, upland oak woods, wet woodland, and conifer plantations. Juniper scrub is also an internationally important feature of the middle dales, notably in Teesdale. The woodland communities of the North Pennines are important in their own right for their contribution to the landscape and for the biodiversity which they support, which includes red squirrels in several locations. Isolated trees and small groups of trees are also a distinctive feature in the landscape.

Upland mixed ash woods

Upland mixed ash woods occur on base rich soils and are dominated by ash and wych elm, with birch, sessile oak, hazel, rowan and bird cherry. The ground flora is herb-rich and is notable for bright displays of flowers such as bluebell, primrose, wood crane’s-bill and wild garlic. Wood avens, common dog violet and wood sorrel are also regular features of the ground flora, which is often rich in ferns due to its higher humidity; it is also rich in bryophytes. The future is uncertain for our ash woods, and important stands of ash in the landscape.



Bluebells © Natural England/Charlie Hedley



Juniper scrub at Moor House-Upper Teesdale NNR © Natural England/Charlie Hedley



Red squirrel © Laurie Campbell

Good examples of these woodlands can be found in parts of Teesdale, Weardale, the Greta Valley and the Derwent Valley. The Helbeck and Swindale Woods Special Area of Conservation near Brough is considered to be one of the best examples of this woodland type in the UK.

Upland oak woods

Upland oak woods are found on free-draining more acidic soils. As well as sessile oak, downy and silver birch are also present as canopy species, with an understorey of rowan, hazel and holly. Ground flora varies with soil type and degree of grazing, but typically includes species such as wavy hair grass, wood sorrel, wood anemone, bluebell and bilberry.

Birdlife in these woods is typical of many such woodlands in the northern and western UK, supporting migrant wood warbler, pied flycatcher, redstart and tree pipit, as well as a range of common resident species. These birds are undergoing significant national declines and in the North Pennines there are opportunities to contribute to their conservation. These woods also support a diverse community of lichens and bryophytes.

This woodland type now typically occurs as fragments, surviving in steep-sided gills, with few blocks in excess of five hectares in size. It is believed that approximately 845 ha of upland oak woodland remains in the AONB with over half of this being in the Allen and South Tyne Valleys. Derwent Gorge National Nature Reserve and the Gelt Valley also have significant areas of species-rich oak woodland.

Wet woodland

Wet woodlands are found on poorly drained soils across the AONB, particularly in river valleys, and are dominated by alder, birch and willows. They are an important winter food source for black grouse. Extensive floodplain and hillside wet woodland is now extremely rare and the alder-ash woodlands of the North Pennines are of national importance.

Juniper scrub

Juniper is one of Britain's few native evergreen shrubs and juniper scrub is an increasingly scarce and fragmented habitat. Juniper stands occur at very scattered localities within the North Pennine dales, although the Moor House-Upper Teesdale NNR contains one of Britain's largest stands, with at least 15,000 bushes, covering around 100 ha. What remains is often even-aged, dominated by older bushes, with virtually no regeneration occurring. Juniper is also under threat from phytophthora. Managing juniper is a notoriously difficult task and it will require considerable conservation effort to maintain the nationally important juniper scrub of the North Pennines.

Plantation on Ancient Woodland Sites

2016 NFI data cut to the AONB boundary identifies 542 ha of plantations on ancient woodland sites. These areas offer opportunities for broadleaved woodland restoration.

Conifer plantations

Coniferous plantation woodlands make up a substantial proportion of the area's woodland cover. These plantations are widespread, but are concentrated along the upland fringes and lowland hills of Teesdale and Weardale. In the past, semi-natural woods, heath, mire and grassland communities were planted with conifers; there is scope for the removal of this non-native stock where remnants of the original ground flora still exist. That said, it is important to take into account the need to retain those conifer plantations supporting red squirrel. Proposals for new native woodland planting should also take into account the need to minimise the potential for grey squirrels to colonise isolated red squirrel sites.

There is much scope for creating new native woodlands across the AONB, which can conserve and enhance landscape character and increase biodiversity.

Action for our trees and woods

- Create new areas of native broadleaved and juniper woodland
- Bring management back to neglected woodlands
- Promote diversity in existing conifer plantations by restocking with native broadleaves
- Encourage markets for wood and wood products to foster woodland management
- Reduce, or bring to an end, grazing in over-grazed woods
- Control the spread of non-native species
- Understand and adapt to tree pests and diseases (including Ash die-back) and minimise risks to wet woodland caused by lowering of the water table through drainage and abstraction, poor water quality, some flood prevention measures and the water-borne fungal disease Phytophthora
- Trees should be planted following the principle of the 'right tree, in the right place', avoiding peatland, species-rich grassland and historic features.

Rivers



Otter ©Laurie Campbell

The world famous rivers Tyne, Wear and Tees all have their birthplace high in the North Pennine hills. Most of our rivers are both relatively unpolluted and free from hard engineering and are home to creatures including otter, water vole, brown trout and Atlantic salmon. The birdlife of our rivers includes dipper, common sandpiper, kingfisher and grey wagtail, with goosander where woodland provides opportunities for nesting.

The rivers also have a diverse range of features, such as riffles, shingle banks and pools, which each support a range of plants and animals. These channel features are complemented by bank features, such as earth or rock cliffs, stands of reeds, woodland or herb-rich grasslands.

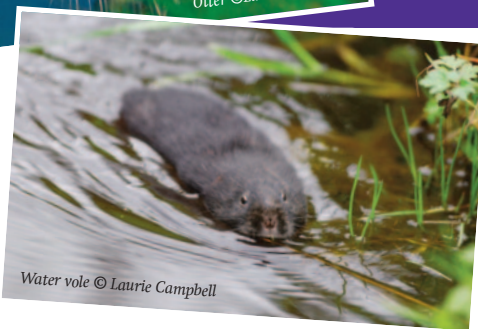
The headwaters of rivers and streams are particularly important wildlife habitats and support species not found in other parts of river systems. Due to the upland nature of the North Pennines, we have more headwaters than other parts of England.

Riverbanks in the North Pennines often support species-rich terrestrial habitats which have largely disappeared from the adjacent agricultural landscape. Where these banks are formed on the Whin Sill or limestone the habitats can be particularly rich. Together, this range of wildlife and habitats and their generally wild and unspoilt nature, makes our rivers one of the greatest natural assets of the North Pennines.

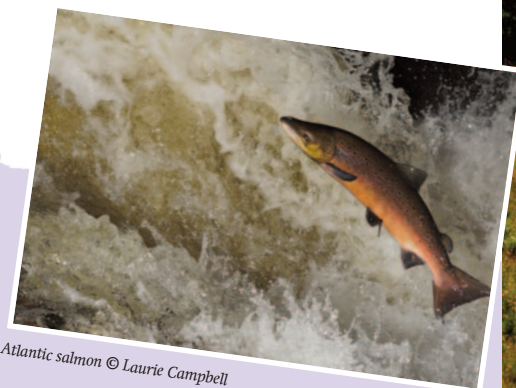
Remarkable recovery

Our rivers have shown a remarkable recovery in fish populations, with the South Tyne, Wear and Tees having greatly improved stocks of salmon and sea trout and the Derwent having a regionally important brown trout fishery. The main River Tyne is now the best salmon river in England in terms of rod catches.

The continuing impact of pollution from historic mining activity on the water quality of the East and West Allen catchments (and that of the Nent) means that there are relatively few invertebrates and fish in these rivers.



Water vole © Laurie Campbell



Atlantic salmon © Laurie Campbell





Cyclists at Balderhead Reservoir © Natural England/Barry Stacey



Low Force © Natural England/Charlie Hedley

However, they have developed a riverside flora which is tolerant of heavy metal pollutants and this is in large part the reason for the designation of the Tyne and Allen River Gravels Special Area of Conservation (SAC).

Our rivers also have geomorphological interest, such as the Geological Conservation Review site/geological SSSI 'The Islands (Alston Shingles) River South Tyne'.

Some of the tributaries of the River Eden arise in the North Pennine fells, forming part of an internationally important river system designated as a SAC for a number of species, including salmon and white-clawed crayfish.

Wetlands

Away from the rivers, other wetland areas, notably springs and flushes, add much to the biodiversity of the North Pennines, with the base-rich flushes of Moor House-Upper Teesdale National Nature Reserve being of international conservation importance. These base-rich flushes are often covered by short vegetation comprised of a rich mixture of bryophytes, sedges, grasses and wild flowers. It is in this habitat that several of the famous 'Teesdale rarities' are found including Teesdale sandwort, alpine bartsia and false sedge.

Reservoirs

The North Pennines provides water from its reservoirs for many surrounding towns and cities; these reservoirs have become home to a range of bird and animal life, including otters and an important breeding population of wigeon. Our reservoirs have also become popular places for fishing and sailing and their banks are popular with walkers and cyclists.



Natural England/Charlie Hedley

Dramatic waterfalls

Several North Pennine rivers have attractive and sometimes dramatic waterfalls, notably High Force, Low Force, Cauldron Snout, Ashgill Force and Thortergill Force. As well as being of considerable geological interest, they make an important contribution to a sense of place and are popular places to visit.

Action for our rivers

- Reduce pollution, including nutrient enrichment, toxic discharges, farm waste and pollution from abandoned metal mine workings
- Undertake programmes of natural flood management
- End inappropriate channel and bankside management, including intensive grazing up to the river edge, unsympathetic engineering works and culverting
- Avoid and/or reverse unsympathetic catchment land use, including moorland drainage (gripping) schemes at headwaters, alteration of flows, water abstraction, agricultural intensification and developments within the floodplain
- Protect species-rich riparian habitats from grazing and erosion
- Control non-native species such as Himalayan balsam, Japanese knotweed and mink
- Resist all calls for the control of fish-eating birds and otters.

Dark night skies

We live in an age when we know more about the universe than at any other time in our history, yet we have never been less connected to it than we are today. 60% of Europeans and 80% of North Americans have never seen the Milky Way, yet it is visible on every clear night from dark locations anywhere on Earth. So we might imagine that even fewer people in our country have seen this natural wonder. Our planet is in a spiral arm of the Milky Way, our galaxy, where billions of stars fill our night sky. Beyond our galaxy, the universe stretches away over incredible time and infinite distance and is full of wonder and beauty, but all of this fantastic spectacle is hidden from most of the population because of the seemingly endless growth in light pollution that prevents us enjoying something that is amazing, and yet completely free.

In contrast to much of England, the North Pennines has truly dark night skies – it is the country's darkest mainland AONB and only the Isles of Scilly AONB has darker skies.

Stargazing doesn't need expensive equipment – in places that have held on to their special dark night skies, the naked eye can reveal wonders that more light-polluted areas hide from us. With just a pair of binoculars in a dark place, the moon, our nearest celestial neighbour, comes to life, whilst some of the planets in our solar system become visible to us for the first time (no one forgets seeing the rings of Saturn).

Dark night skies for people and nature

Protecting our dark night skies is good for human health and well-being and good for nature too. There is a wealth of evidence linking light pollution to poor sleep patterns and the resulting health issues this can generate. With light pollution rising at 3% a year (Royal Commission on Light Pollution, 2009) this problem is worsening, with studies showing up to 44% of respondents having difficulty sleeping because of light pollution (Harris Poll, Europe Omnibus Survey, 2007). Local people stand to benefit greatly from reductions in light pollution in their streets. Similarly, light pollution can have significant impact on the ecology of many different kinds of species. The breeding patterns of species which respond to changes in day length (usually signalled by light levels) can be affected, as can the ability to navigate by moonlight, or the ability to hunt successfully in what should be dark environments which have been polluted with artificial light. The rhythms of animals' lives have evolved in tune with natural light conditions, so it should be no surprise that dramatic alterations in the balance of these conditions will have a harmful effect on our wildlife, and, by acknowledged extension, on us.



Reducing light pollution

It is possible to protect what remains of our dark night skies, and to improve night sky quality, by reducing light pollution. Over time, getting our lighting right also saves public money and saves energy too. Local Authority programmes of new LED street lighting is an important element in reducing light pollution, but only where lower 'colour temperature' lighting (2700 - 3000 kelvin) is used. These new lamps also focus light where it's needed – on the ground – whereas older ones waste a lot of light out into the night sky. *This is not about 'turning the lights off'* – it is about the right lighting, in the right place and direction, on at the right time, to meet local need for safety and commerce, whilst looking after the environment and public health and well-being, and creating an educational and economic asset for the future.

A major tourism asset

Experiencing truly dark night skies and seeing their wonders is a proven attractor to visitors. An advantage is that the peak time for dark skies watching is the autumn and winter; this activity can provide a manageable increase in visitors, with a potentially high visitor spend (partly due to the increase in potential for overnight stays) in traditional shoulder months or off-season. Partnerships that are developing between landowners, public bodies, destination management organisations and skilled and enthusiastic astronomical societies are crucial to the success of making the most of our dark skies.

The potential tourism benefits which dark night skies can bring may depend on the capacity of an area to deliver facilities, events and activities which sensitively exploit the resource. The last few years have seen a growth in work to celebrate and protect dark night skies. In October and November 2018, the second North Pennines Stargazing Festival, with almost 30 events over two weeks, attracted over 1,500 people to see the dark night skies above the North Pennines and take part in fun star-themed day time activities too. The AONB Partnership has been developing 16 designated Dark Skies Discovery Sites and working with local organisations such as the Bishop Auckland Astronomical Society to run stargazing events and activities. Local businesses, such as the Langdon Beck Hotel in Teesdale, are seeing and acting on the potential of dark sky tourism and developing their own programmes of events to add value to their enterprise. In Allenheads, the AONB Partnership has built a new observatory in partnership with community business Allen Valleys Enterprise Limited. Seeking for one of the several international dark sky designations, such as the International Dark Sky Park status secured for part of rural Northumberland, might also be considered as a way to conserve dark skies and promote off-season tourism.

Protecting our dark night skies, and restoring them where they are being lost, can lead to tangible benefits for tourism, promote our health and well-being, help wildlife and save both energy and public money, all whilst maintaining safety and security, if we have the *right light, in the right direction, at the right time.*



Stargazing in the North Pennines © Gary Lintern

Action for protecting and celebrating dark night skies

- Replace old street-lighting with fully-shielded, timer-controlled and low colour temperature (max 3000 Kelvin) LEDs
- Ensure significant new developments, or those in sensitive locations, have lighting plans to reduce light pollution
- Produce lighting guidance for developers and the public and support its implementation
- Continue Dark Sky Quality monitoring
- Develop dark sky tourism through local businesses and communities
- Expand the Star Tips programme of training for tourism businesses
- Expand the North Pennines Stargazing Festival and other dark skies events
- Investigate the creation of an International Dark Sky designation for the whole AONB/Geopark such as International Dark Sky Reserve.

Historic environment



Holwick, Teesdale © NPAP/Paul Frodsham

The North Pennine landscape holds clues to the activities of people over the past 10,000 years, extending back to the Mesolithic (Middle Stone Age), when the first bands of hunters wandered into the area after the Ice Age.

Hunters and gatherers

Mesolithic people, often referred to as 'hunters and gatherers', lived a nomadic lifestyle, moving around the landscape to exploit available natural resources in a manner probably not greatly different from that of many nineteenth-century Native American communities. They have left few clues as to their presence in the North Pennines other than their flint tools and weapons, recovered from the surface of ploughed fields, in many places throughout Weardale, Teesdale and elsewhere. Recent excavations on Birkside Fell near Blanchland and at Cow Green Reservoir have recovered several hundred worked pieces of flint and chert from probable Mesolithic campsites.

The first farmers

Between 6,000 years and 4,000 years ago, during the Neolithic (New Stone Age) period, communities throughout the North Pennines gradually adopted farming alongside long-established practices of hunting, fishing and gathering. Many polished stone axes, beautiful leaf-shaped flint arrowheads and other stone tools provide evidence of Neolithic activity. Several small stone circles, like the fine example at Lunehead, probably stood within and around the AONB in late Neolithic/early Bronze Age times. These may have played a similar role to parish churches in later times, providing foci for ritual and possibly also for burial. The enigmatic rock carvings, known as 'cup-and-ring marks', of which several survive on the fringes of the AONB, also date from this period.

Round houses and round cairns

During the Bronze Age, from about 4,000 years ago, permanent farmsteads of round houses and small fields appeared in the North Pennine landscape. A good example can be seen by the Hilton Beck, Scordale, where recent survey work has recorded a complex of house platforms, field walls and field clearance cairns extending over about 20 hectares. A Bronze Age settlement dating about 1500 BC has been excavated at Bracken Rigg in Teesdale, where a large timber roundhouse stood within an irregular enclosure of about 0.7 hectares. Much more common throughout the region are round cairns, roughly circular piles of stone built to cover burials and also as convenient repositories for stones cleared from fields. These are sometimes found in substantial cairnfields, such as at Crawley Edge above Stanhope in Weardale, where more than 40 examples are recorded. A spectacular hoard of Bronze Age objects, dating from about 1000 BC, was discovered in the 19th century within Heathery Burn Cave, Stanhope. This includes spearheads, axes, knives, tongs, bracelets and cheek pieces from a horse harness, all of bronze, together with jet rings and anklets and armlets of gold.



Excavated Bronze Age burial cairn on Birkside Fell
© NPAP/Paul Prodsham



Excavation of a late prehistoric settlement at Bollilhope, near Stanhope
© RobYoung



Bronze Age aurochs horn, radiocarbon dated to c1950BC, from
Upper Weardale © NPAP/Paul Leadbitter



Whitley Castle © English Heritage

Romans and Natives

From about 800 BC, iron technology was introduced into the area, marking the onset of the Iron Age, but this seems to have had little effect on local settlement patterns. Settlement and agriculture continued to expand gradually throughout the lower slopes of the dales during the Iron Age and into Roman times. Two settlements were excavated in the 1970s at Forcegarth Pasture, Teesdale, both dating from about 250 AD: finds included Roman and native pottery, quern stones, spindle whorls, loom weights and evidence of smithing. Settlement evidence of a broadly similar date has also been excavated on Bollilhope Common in Weardale.

During the latter half of the first century, a network of Roman roads, studded with forts and marching camps, was constructed to enable troops to pass unhindered across northern England. The North Pennines were effectively enclosed by such roads and the Maiden Way ran between the forts at Kirkby Thore and Carvoran (near Hadrian's Wall) passing close by Alston where the fort of Whitley Castle was constructed, presumably to oversee lead and silver mining in the region. Two third-century altars from Weardale, dedicated to Silvanus (a woodland god often associated with hunting), suggest that many areas retained a woodland cover and were perhaps reserved for elite hunting expeditions.

Anglo-Saxons and Vikings

The North Pennines lay within the great Anglo-Saxon kingdom of Northumbria during the seventh and eighth centuries, but seem never to have been anything other than a peripheral zone. In 883, much of the land between the Tyne and the Tees was granted by King Guthred to the Community of St Cuthbert; thus it was owned and managed by the ecclesiastical authorities in an early version of what would become County Durham. Four fascinating settlement sites, dating from the late eighth century, have been partially excavated at Simy Folds on Holwick Fell (Upper Teesdale). These consist of rectangular buildings and small, enclosed yards: one of them produced evidence for iron smelting and smithing. Place-name evidence suggests that northern and eastern regions of the AONB were dominated by Anglo-Saxon communities, while Norse (Viking) influence was much greater to the south and west, in Teesdale and the Eden Valley.

Medieval times

After 1066, England was divided up amongst William the Conqueror's loyal followers, many of whom built castles to protect their property. The area's transport and communications network was still very much based on the Roman road network and some important Norman castles, of which Brough is a particularly good example, were built on the site of Roman forts. Other medieval castles were

constructed at numerous places around the fringes of the AONB. During the three centuries preceding the Union of the Crowns in 1603, the region was constantly threatened with cross-border reiving associated with Anglo-Scottish border conflict. In response to this, in about 1600, several bastles (thick-walled defensible farmhouses with living accommodation at first-floor level over a byre) were built in the Allendales and on Alston Moor.

In medieval times, all the land owned by the Community of St Cuthbert came under the jurisdiction of the immensely powerful Prince Bishops of Durham. Upper Weardale was maintained as a vast hunting forest, subject to special forest law rather than common law. Between 1250 and 1300, Stanhope deer park was set up within the forest, along with some 30 new vaccaries (seasonally occupied, tenanted cattle ranches). Several of these vaccaries grew into hamlets and villages, some of which still survive today. Other great medieval forests in the North Pennines included those of Teesdale, Geltsdale, Gilderdale, Milburn, Lune and Stainmore. In addition to Stanhope, many other deer parks existed in and around the AONB, for example at Wolsingham, Waskerley, Marwood (near Barnard Castle) and Thorngarth (Lunedale).

Medieval villages consisted of rectangular houses clustered round a green or, more typically in the upper dales, set out along a road, each house having a long field known as a 'toft' behind it. Beyond the village were communal 'ridge-and-furrow' fields and hay meadows, and beyond these, communal grazing land and woodland. The upland pastures in the hills were occupied seasonally by herders who moved out from the villages in spring along with sheep and cattle, living in crude shelters known as 'shielings' through the summer, before returning with their beasts the following autumn. The beasts would then be over-wintered in the fields, fed largely on hay harvested from the village hay meadows.

An industrial landscape

From medieval times, the North Pennines became one of Britain's most important lead mining regions. Mining was on a relatively small scale until the mid-18th century, but from this time, until the early 20th century, much of the area was dominated by lead mining and the landscape was transformed. Levels were driven miles underground to exploit the lead veins, and the ground surface became studded with mine complexes, dressing floors and smelt mills. The hills were criss-crossed by leats providing water power to various sites, flues taking noxious gasses away from the smelt mills to chimneys high in the hills, and tracks and railways providing access to all the different sites.

Many lead miners lived in small farmsteads scattered throughout the dales, working their shifts in the mines and also growing produce to support their families. Limekilns were constructed to produce



Blanchland, an 18th century estate village on the site of a medieval abbey © NPAP/Paul Frodsham



Nenthead Mines Heritage Centre © NPAP/Elizabeth Pickett



The ruins of Shildon engine house, near Blanchland, stand as a stark reminder of the growth and decline of the North Pennine lead industry © NPAP/Elizabeth Pickett



The Weardale Museum in Ireshopeburn documents the social history of Weardale © Weardale Museum

quicklime, used on the fields to improve the fertility of the acid soils, and as lime mortar for the construction of buildings. Today's distinctive landscape of scattered homesteads (most with a single building that originally combined cottage, byre and hayloft) set within a patchwork of stone-walled fields, generally referred to today as the 'miner-farmer landscape', dates essentially from the 18th and 19th century heyday of the North Pennine lead industry, when at least a quarter of all Britain's lead came from the region.

Other miners lived in villages (such as Nenthead, Garrigill, Allenheads and Carrshield) heavily influenced by the mining companies, or in larger settlements, such as Stanhope, Middleton-in-Teesdale, Alston and Allendale, that survived from medieval times and contained the ancient parish churches. Lead-mining families throughout the region tended to be Methodists rather than Anglicans, and numerous Methodist chapels were built from the mid-18th century, both within villages and at isolated roadside locations for dispersed communities. The lead mining companies supported several new schools during the 19th century in Teesdale, Weardale and Allendale, alongside numerous Institutes and reading rooms.

North Pennine industries received a great boost during the mid-19th century with the introduction of the railways, and the road network was also much improved. However, in more remote areas, pack ponies continued to tread well-worn tracks to get ores to the nearest road or railway.

Although lead was the dominant industry, it was far from the only one. Iron was mined and worked on a local scale from medieval times, and, from the mid-19th century, on an industrial scale at Tow Law and Stanhope Dene. Elsewhere, limestone, sandstone, whinstone and coal have all been worked on a large scale, and from the late-19th century the development of fluorspar, zinc, barytes and witherite mining helped to offset, albeit only to a small extent, the worst effects of the decline in lead mining.

Historic houses

Today, few domestic buildings from earlier than 1600 survive in anything like their original form, but many attractive 17th-, 18th- and 19th-century houses contribute much to the character of the AONB. Many still retain historic characteristics such as multi-pane sash windows, although others have been 'improved' over recent years through the addition of modern, plastic doors and windows that, unfortunately, detract markedly from the appearance of otherwise well-preserved historic settlements.

Historic buildings are invariably of local stone, often with roofs of heavy sandstone slabs. Building stone was obtained from small-scale quarries operated on an ad-hoc basis to meet fluctuating demand.

Huge quantities of quarried stone were also used to construct hundreds of miles of dry stone walls throughout the AONB during the enclosure movement of the 18th and early-19th centuries, when previously communal pasture land was divided into stone-walled fields and allocated to individual landowners.

Recent times

Following the decline of the lead industry, the 20th century saw population levels decline throughout much of the AONB. Village shops, chapels, schools and pubs became redundant, sometimes being redeveloped for domestic use. Many isolated smallholdings in the dales lie abandoned, while others have been redeveloped as holiday homes.

Within the AONB today there are 16 Conservation Areas, 183 Scheduled Monuments and 13 Buildings at Risk. Of the 968 Listed Buildings, 15 are Grade I, 36 are Grade II and 917 are Grade III.

From the hunters and gatherers of prehistory to the miner-farmers of the 19th century, communities have continually left their mark on the historic environment of the North Pennines. Properly managed, this historic environment has much to offer the local economy, as well as being of great social and spiritual value to local people and visitors alike.

Action for our historic environment

- Increase our understanding of the area's historic buildings and structures and its archaeological features, and share that knowledge widely
- Use the planning system and other means to avoid the piecemeal erosion of the historic character of buildings and settlements
- Ensure the retention of the skills required to maintain historic buildings and structures
- Encourage greater community participation in identifying and conserving what is special about the North Pennines' historic environment
- Use agri-environment schemes to conserve and enhance archaeological features and built heritage on private land.

Culture, landscape and community

A cultural landscape

Despite how remote and naturalistic the North Pennines can seem in comparison with some parts of England, nowhere is it truly 'natural' or 'wild'. This is a cultural landscape, the product of around 7,000 years of human interaction with the environment. Other than geological processes and climate processes, the dominant influences on the story of the post-glacial landscape have been forest clearance, the evolution of farming, the development of settlements, mineral mining and in relatively recent times the management of the high fells as grouse moors. These things have brought some positive developments for nature, such as species-rich grasslands and high populations of breeding waders, but they have also brought the loss or decline of some species, land contamination and the large-scale drainage of the moors from which the area is only just recovering

If the accepted definition of 'natural beauty' is about the coming together of landscape, wildlife and our built heritage, then landscape ought to be seen as much more than just the view. Our understanding of landscape is bound-up with how the land has been used over time, how it has evolved, and the stories often hidden within it. When the stories of a landscape are known to us, our appreciation of it (and crucially in this context our desire to look after it) can be so much greater than when faced with a beautiful view without the time-depth of stories that may go with it. The historian Simon Schama captured this in the phrase, "Before it can ever be a repose for the senses, landscape is the work of the mind. Its scenery is built up as much from strata of memory as from layers of rock." People have made this landscape and to understand it properly it is important to see the human stories alongside, and as part of, those of nature.

Approximately 12,000 people live within the boundary of the AONB and UNESCO Global Geopark today. When the lead mining industry was at its peak 150 years ago, about 27,000 people lived in the area. The legacy of buildings, structures, hushes and spoil heaps from the area's lead mining heyday have made a huge impact on the character of the area. A history of religious nonconformity is evident in the chapels that dot the landscape and even the Rights of Way network connects a heritage of chapel and mine.

In the context of the management of 'natural beauty', a long-term and sustainable future relies on understanding and celebrating the role of people in the landscape, both in the past and today – this is not about nostalgia, but about a living and breathing culture now and in the future. An approach

based purely on science can miss a vital element in the area's long-term conservation and risks pushing local communities – past, present and future – to the side of their own story.

Community capacity for heritage management

The long-term future for our natural and cultural heritage lies in local people caring about it and caring for it. This can't just be about encouraging local communities to engage in the plans and work of others; it is essential to promote the development of skills, knowledge and resources among community organisations and voluntary groups, so they can take an increasingly skilled and informed lead in heritage management. A classic example of this is Altogether Archaeology, which began life as AONB Partnership project but continued as an independent charity, led by local people, who had built up the necessary skills, knowledge and experience to keep it alive and expand it.

Art and association

On one level, there is a North Pennine story of famous artists' responses to the landscape. Most notable amongst these perhaps are JMW Turner and WH Auden. Auden is perhaps the central figure of English 20th century poetry and the North Pennines are to him what the Lake District was to Wordsworth. The lead mining landscapes of the area provided Auden with a never-failing source of reference and inspiration. Many of his poems of the 1920s and 1930s, and two influential plays, are set here. The landscapes around Rookhope in Upper Weardale and on Alston Moor had a particular impact on Auden and this is reflected in some of his best loved poems of the period, including 'The North', 'Alston Moor', 'The Old Lead Mine' and 'The Engine House'. After the outbreak of war, Auden even declared to the



Part of 'Natural Creation' by Rob Mulholland



Spar box at Killhope, the North of England Lead Mining Museum © Killhope Museum

Alston © Natural England/Charlie Hedley

Sheep judging at Eggleston Agricultural Show © NPAP/Shane Harris

American media his patriotic allegiance to the 'North Pennine moors', rather than to England as such. When we look to what Auden saw as his "great good place", we can see both the geographical area he defined and his particular places of fascination and affection, in this extract from New Year Letter (1940):

*I see the nature of my kind
As a locality I love,
Those limestone moors that stretch from Brough
To Hexham and the Roman Wall,
There is my symbol of us all...
Always my boy of wish returns
To those peat-stained deserted burns
That feed the Wear and Tyne and Tees,
And turning states to strata, sees
How basalt long oppressed broke out
In wild revolt at Cauldron Snout
And from the relics of old mines
Derives his algebraic signs...
The derelict lead-smelting mill,
Flued to its chimney up the hill,
That smokes no answer any more*



Turner's High Force

Arguably Britain's finest landscape painter, JMW Turner was also inspired by the North Pennines, producing outstanding work in Teesdale in the late-1790s and between 1816 and 1836. He painted several scenes around Bowes and Greta Bridge, before travelling through Deepdale to Cotherstone and on to Middleton-in-Teesdale. Here he stayed and painted the town bridge and the river. He followed the route of the modern-day Pennine Way, visiting the upper dale to produce wonderful paintings of High and Low Force, Wynch Bridge and Cauldron Snout, before moving on through High Cup Nick to Dufton.

Telling local stories

Whilst celebrating the North Pennines through the eyes of great artists can help to raise its profile and reinforce its identity as somewhere special, it is the imprint of ordinary people's lives on this landscape that give it its special character. There have been many local initiatives to bring out and tell people's stories in the landscapes through drama, artworks, music and oral histories etc. A recent success story has been the rebirth of the Allendale Folk Festival, whilst major installations such as Steve Messam's 'Waterfall' have attracted new audiences to experience this landscape. The HLF- and Arts Council-funded 'Northern Heartlands' programme is helping to increase people's participation in telling their own stories in the landscape, whilst the AONB Partnership and others are working with school and community groups to explore the landscape through artistic expression and reach new audiences.

There is a strong community of writers, painters, sculptors, photographers, textile artists and more who draw their inspiration from the wildlife and wild places of the North Pennines. Local communities are celebrating their culture in ways that mean something to them.

All of this activity should be encouraged and supported as part of an approach that utilises culture to reinforce a sense of place, increase local pride and act as a force for future conservation.

Action for culture, landscape and community

- Support local people to uncover and tell their stories about their landscape
- Build community capacity to take a lead on conserving and celebrating natural and cultural heritage
- Recognise and celebrate the area's artistic and literary heritage
- Support programmes and projects such as Northern Heartlands and Highlights Rural Touring Scheme that work with communities to promote cultural activities
- Support festivals and large scale events such as The Allendale Folk Festival, Weardale Wordfest and Music on the Marr.
- Conserve heritage buildings and structures and tell their stories
- Maintain the high quality landscape on which much of the area's cultural heritage is built.

Discovering and enjoying the North Pennines

Key features of the AONB as a destination

The North Pennines AONB and UNESCO Global Geopark is a stunning landscape of open heather moors, dramatic dales, tumbling upland rivers, wonderful woods, inky-black night skies, close-knit communities, glorious waterfalls, fantastic birds, colourful hay meadows, stone-built villages, intriguing imprints of a mining and industrial past, distinctive plants and much, much more.

The North Pennines...

- is recognised as one of the most tranquil parts of England
- has truly dark skies and is the darkest mainland AONB
- is a distinctive landscape of demonstrable quality
- has almost 40% of the UK's upland hay meadows
- has outstanding geology recognised by its UNESCO Global Geopark designation
- has iconic birds and other wildlife (eg. 80% of England's black grouse, 22,000 pairs of breeding wading birds, red squirrels); and
- has a rich industrial heritage, including lead mining/quarrying.

Product, attractions and activities

The tourism offer of the North Pennines is based on the area's natural and cultural assets and the products, attractions and activities that have developed from them.

Walking

There are over 2,000 miles of public rights of way in the AONB and open access land covers 131,000 ha (61%) of the North Pennines. Highlights include:

- England's premier National Trail – the Pennine Way. April-September are the busiest months and there are approximately 1,000-2,700 end-to-end walkers each year
- Wainwright's Pennine Journey
- Three regional routes – Teesdale Way, Weardale Way and Isaac's Tea Trail.
- 33 'Nuttalls' – England's 2,000ft mountains – are in the AONB
- Numerous promoted day walks

Cycling

The area has excellent cycling opportunities, including: road; touring; cross-country/forest mountain biking; and traffic-free family trails. Highlights include the following National Cycle Network routes:

C2C; Pennines Cycleway; and the Walney to Wear.

Attractions

There are a variety of attractions in the area. Notable amongst them are:

- High Force waterfall – England's largest waterfall and the most visited site in the AONB
- Bowlees Visitor Centre – gateway centre to Upper Teesdale and the North Pennines
- South Tynedale Railway – England's highest narrow-gauge railway
- Derwent Reservoir – the second largest reservoir in Northumberland
- Killhope Museum – excellent place to get to grips with the area's lead mining history

Just outside the boundary, Hamsterley Forest attracts over 200,000 visitors a year and is a big draw for mountain bikers, walkers and families.

Nature-based

Nature-watching opportunities are integral to the offer of the North Pennines – either as a passive backdrop to a visit or as a more active, guided experience.

The area has some of the finest upland reservoirs and rivers, renowned for the quality of their fishing.

Stargazing

There are more designated Dark Sky Discovery Sites in the North Pennines than anywhere else in the UK. The area is recognised, and promoted, as a stargazing destination. The success of the North Pennines Stargazing Festival indicates the potential.

The tourism industry in the North Pennines

A survey of tourism businesses in the area in 2016 provided a snapshot of the shape of the industry in the AONB:

- Overwhelmingly, tourism businesses in the area are small: 86% employ five people or less. Forty-two percent are one-person enterprises. A third reported annual turnovers of up to £25K.
- Almost half of all stays with accommodation businesses were short breaks (2-4 nights). Twenty-three percent of all stays were for single nights.
- The two most important groups for tourism businesses in the North Pennines are couples and groups of friends.
- The top five (reported) motivations for visiting the North Pennines are: peace and tranquillity; enjoying the view; walking; visiting the North Pennines as a destination; and AONB designation.

Responsible tourism issues

Economic

- Seasonality – the vast majority of visitor economy activity takes place in the spring and summer months. This sharply seasonal nature is identified as an issue by each of the area's three Destination Management Organisations.
- Day visitor dominance.

Environmental

- Transport and travel – nine out of ten visitors use their own cars to visit the area. Public transport connectivity is poor across administrative boundaries.
- Impacts of tourism businesses.

Socio-cultural

- Local community services – seasonality can lead to reduced services for local communities in the quieter months.
- Social tension – seasonal incomes could lead to uncertainty and associated tensions.

Other

- Identity and administrative complexity – the area's tourism geography is complex, leading to a fractured identity and often a lack of confidence in the North Pennines as a destination.
- Reducing resources – to support destination management activities and maintenance of the public realm.

Action for discovering and enjoying the North Pennines

- Use planning policy and investment initiatives (eg. Growth funds etc.) to support development of an environmentally and economically sustainable visitor economy based on, and sustaining, the special qualities of the North Pennines
- Develop/expand shoulder season programming which supports the extension of the spring/summer season, such as the North Pennines Stargazing Festival
- Promote activity which extends dwell-time, including more heritage based and events
- Promote activity which encourages overnight stays, such as festivals and itineraries
- Increase partnership working across Destination Management Organisation/administrative boundaries – improving business and visitor engagement, inclusivity and participation
- Develop work that improves the profile of the North Pennines and business confidence in the destination and its offer, including making more of the promotional value of the UNESCO Global Geopark brand
- Generate better cross-border monitoring and collection of tourism data, especially cut to the AONB boundary
- Support the development of new (and enhancement of existing) walking and cycling product linked to public transport hubs – linked to promoting the area as a slow travel destination
- Support activity which encourages a reduction in within-destination car travel eg. car-free days and itineraries
- Expand the broad portfolio of activities related to the natural and cultural heritage of the North Pennines.

Strengths	Weaknesses	Opportunities	Threats
Natural beauty Inspirational landscape Tranquility/dark skies/sense of wildness Authenticity – people/places/experiences Outdoor recreation offer Community values tourism Industrial/religious heritage Quiet/un-crowded The AONB and UNESCO Global Geopark designations	Fragmentary destination messaging Perceived remoteness/poor weather Poor transport connectivity Dependence on day visits Strongly seasonal Quality is mixed – accommodation/food offer Fragmentary data Administratively complex Weak 'AONB'-brand Deeply rural Reliance on private car Historic low recognition/awareness of the North Pennines as a destination	Target niche markets eg. stargazing Emerging events/festivals Slow tourism Nature-based/outdoor activity/wellness agenda/car-free tourism Archaeology/industrial heritage Capacity for growth Linking to higher-profile offers Emerging/new attractions Increased collaboration Proximity to visitor markets in major cities and towns Conversion of day visits to overnights	Poor co-operation/competition between sub-destinations Declining public/private investment Better differentiated rural UK destinations Fuel/transport costs Economic leakage Poor rural infrastructure Low margins/seasonality

Education and lifelong learning

If we are to conserve our natural heritage, then it is essential that people understand how our natural systems function. Understanding past lives in this landscape is also valuable for its own sake and for what it tells us about the cultural evolution of this special place. The North Pennines has great potential to be a fascinating outdoor classroom, where schools, universities and the wider public can learn formally and informally about how nature works and how it can be better conserved, how farming can provide both food and public goods and how the area's rich culture has developed and will keep evolving.

In the last Management Plan period (2014-19) thousands of school children, students and adult learners made the most of the educational and learning opportunities they sought for themselves in the landscape or found through work with conservation organisations. There has never been a greater need to engage children, in particular, with nature than there is now, as even many children in rural areas appear to be losing a connection to the natural world that would have been stronger in the relatively recent past.

Formal education

The nature of the education system means that inspiring children about our natural and cultural heritage needs to meet objectives in the curriculum; thankfully this is usually possible and a wide variety of work has been done by many organisations with the 30+ schools in and immediately around the North Pennines. From the AONB team alone this has included:

- Film-making about geology and landscape
- Long-term climate science investigation
- Pollinator studies
- Practical conservation
- Art and drama activities; and
- More traditional field work.

Barriers to engagement with schools include the pressure of the curriculum, the cost of travel, and lack of awareness of the opportunities, allied to continued pressure on conservation organisation budgets. Despite this, there is considerable potential to build on the current offer and in particular to generate better understanding about where our food comes from and how land is farmed and managed.

Action for formal education

- Support school visits to the North Pennines, through developing projects and programmes linked to the curriculum
- Support the organisations across all sectors that deliver environmental education
- Provide school travel grants where possible
- Deliver training and other activities with teachers
- Provide support to universities to encourage and enable fieldwork and research
- Support farmers and land managers to deliver educational programmes on their land.

Skills Training

The future conservation of the uplands will require skills and knowledge in land-based practices as diverse as farming, forestry, ecology and practical field work of all kinds. Training and skills in this field are well-supported by local agricultural colleges and universities and in the past have been augmented by the work of farming organisations such as Upper Teesdale Agricultural Support Services and conservation bodies such as the AONB Partnership and the Rivers Trusts. This work actively supports improvements in conservation and increases people's environment sector employability locally.

A clear area of need is to enable different sectors to learn from each other, especially farmers and conservation bodies. Farmers have a large skills and knowledge base and supporting them to share those attributes is important, acknowledging that time away from farming costs money. It is particularly pertinent in a time when agricultural support is likely to move towards payment by results for delivering public goods; farmers would benefit from being given more of the tools to deliver more for nature and to monitor their actions and impacts in relation to these payments.

Action for skills training

- Provide resources to support land-based skills training in the North Pennines
- Support the exchange of skills and knowledge between farmers/land managers and conservation bodies.



Bee workshop at Low Force © NPAP



Winners of the First Northern Open Scything Competition © NPAP

Lifelong learning

There is a long tradition of lifelong learning in the North Pennines, going back to the reading rooms established by and for the mining communities in the 19th century. In the heritage field, today it takes many forms including:

- Conservation and other heritage skills training of the kind delivered by the Rivers Trusts, Wildlife Trusts and the AONB Partnership
- Knowledge-based training for the tourism industry; and
- Conservation- and heritage-related community programmes such as that delivered for many years through the Upper Teesdale Botany Group.

These initiatives create a deeper pool of skills and knowledge in communities, actively supports conservation and serve to connect people and place.

The barrier to such provision is usually a lack of resources to make it possible, though bodies such as the Heritage Lottery Fund, conservation organisations and (in County Durham) Area Action Partnerships have provided consistent support.

Action for lifelong learning

- Support organisations to deliver programmes of lifelong learning on conservation and heritage themes, including practical and knowledge-based activity
- Develop knowledge-based training for the tourism industry
- Support conservation- and heritage-related community programmes such as that delivered for many years through the Upper Teesdale Botany Group.



School group working with the AONB Partnership © NPAP

The top ten conservation priorities

These are the draft top ten conservation priorities for the North Pennines AONB during the life of this Management Plan, aimed at building a nature recovery network across the landscape. **Do you broadly agree with them, and/or do you have others?**

Priority	Action	Main partners
Peatland	Continuing to block the remaining grips and address large-scale bare/eroding peatland. Using bespoke projects and management agreements to restore ecosystem function on our moorlands, including addressing issues created by burning blanket bog and track construction. Benefits of this work include action on natural flood management, biodiversity conservation, carbon storage and sequestration and water quality.	Estates, AONB Partnership, Natural England, Environment Agency, Water Companies
Species-rich grassland	Conserving the best sites and building on programmes of large-scale restoration across the landscape. Benefits include promoting connectivity and key species recovery/expansion.	Farmers, AONB Partnership, Natural England
Native and mixed woodland	Expanding the area of native and mixed woodland to promote biodiversity, add texture and depth to the landscape, store and sequester carbon, support natural flood management and improve riparian habitat. Benefits include promoting habitat connectivity and diversity, without compromising wader, grassland and peatland conservation.	Forestry Commission, Estates, Farmers, AONB Partnership, Rivers Trusts
Rivers and riparian habitat	Improve the water quality and habitat quality/diversity in rivers and streams. Through minewater remediation, managing invasive species, removing blockages to fish passage, improving riparian habitat and in-stream habitat and reducing run-off from farms / sediment load from peatlands	Environment Agency, Rivers Trusts, Farmers, Estates, AONB Partnership
Breeding wading birds	Understanding local trends in wader populations, farmers and Estates being supported to take action for wader conservation through advice and practical measures, including creating small wetlands, modifications to management practices and proportionate, responsible and legal predator control. Collaboration to ensure important sites for breeding waders are not targeted for afforestation.	Farmers, Estates, RSPB, Natural England, AONB Partnership, Forestry Commission

Priority	Action	Main partners
Arctic-alpine flora	Conserving the arctic alpine flora of upper Teesdale on the Moor House-Upper Teesdale NNR through managing vegetation, grazing, rabbits and access.	Natural England, Farmers and Estates around
Dark night skies	Replacing old street lighting with LED at low colour temperature, on at the right time and directed only where needed. Production of joint lighting guidance.	Local Authorities, AONB Partnership
Raptors	Work to eradicate raptor persecution, protect breeding and wintering birds and see an increase in breeding pairs of hen harrier, short-eared owl, peregrine and red kite. To include: raptor-crime awareness campaign; increased collaboration between conservation organisations, land managers and the police; training for police and PCSOs; a commitment to prosecutions over cautions where evidence allows.	Estates, Police, RSPB, NERF, Natural England, AONB Partnership
Archaeological sites and features	Excavations and research focused on improving the conservation and understanding of North Pennines archaeology. Maximising public support and engagement by making this work accessible and supporting community-based organisations who share this interest. Including a new community archaeology project in the Fellfoot Forward Landscape Partnership Scheme	Historic England, Altogether Archaeology, North Pennines Mines Research Group, Community Groups
Historic buildings and structures	The conservation, consolidation and interpretation of historic buildings and structures through projects and agri-environment schemes, especially those related to mining heritage. Working closely with land managers, volunteers and community organisations to develop capacity to maintain and interpret some of these structures into the future.	Historic England, North Pennines Mines Research Group, Community Groups, AONB Partnership

Taking action together

This Plan has already highlighted many of the actions and activities that will conserve and enhance our natural and cultural heritage and help people discover, enjoy and understand the area and support the economy in sustainable ways. It is suggested that those actions, amongst others, will create a set of desirable outcomes.

Rather than present a long and detailed table of actions, this Plan focuses on desired outcomes – the result of actions – and they will be used in the process of monitoring progress during the life of the Plan. This outcomes-focus allows many people and organisations to make a contribution to delivering this Plan for their area's natural and cultural heritage. The Management Plan will be accompanied by an implementation plan for the AONB staff team, outlining its work initially until April 2021 when the document will be reviewed.

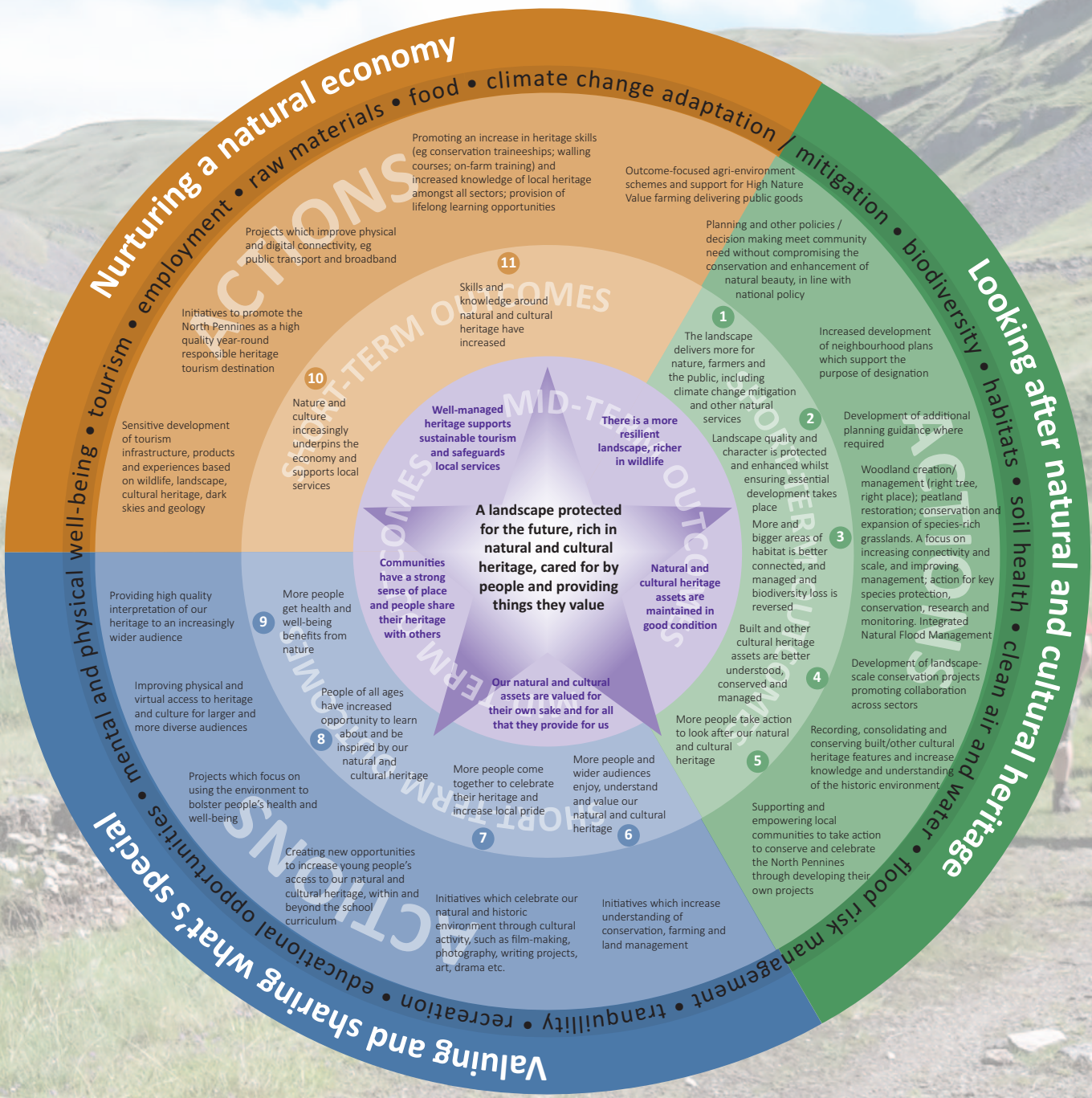
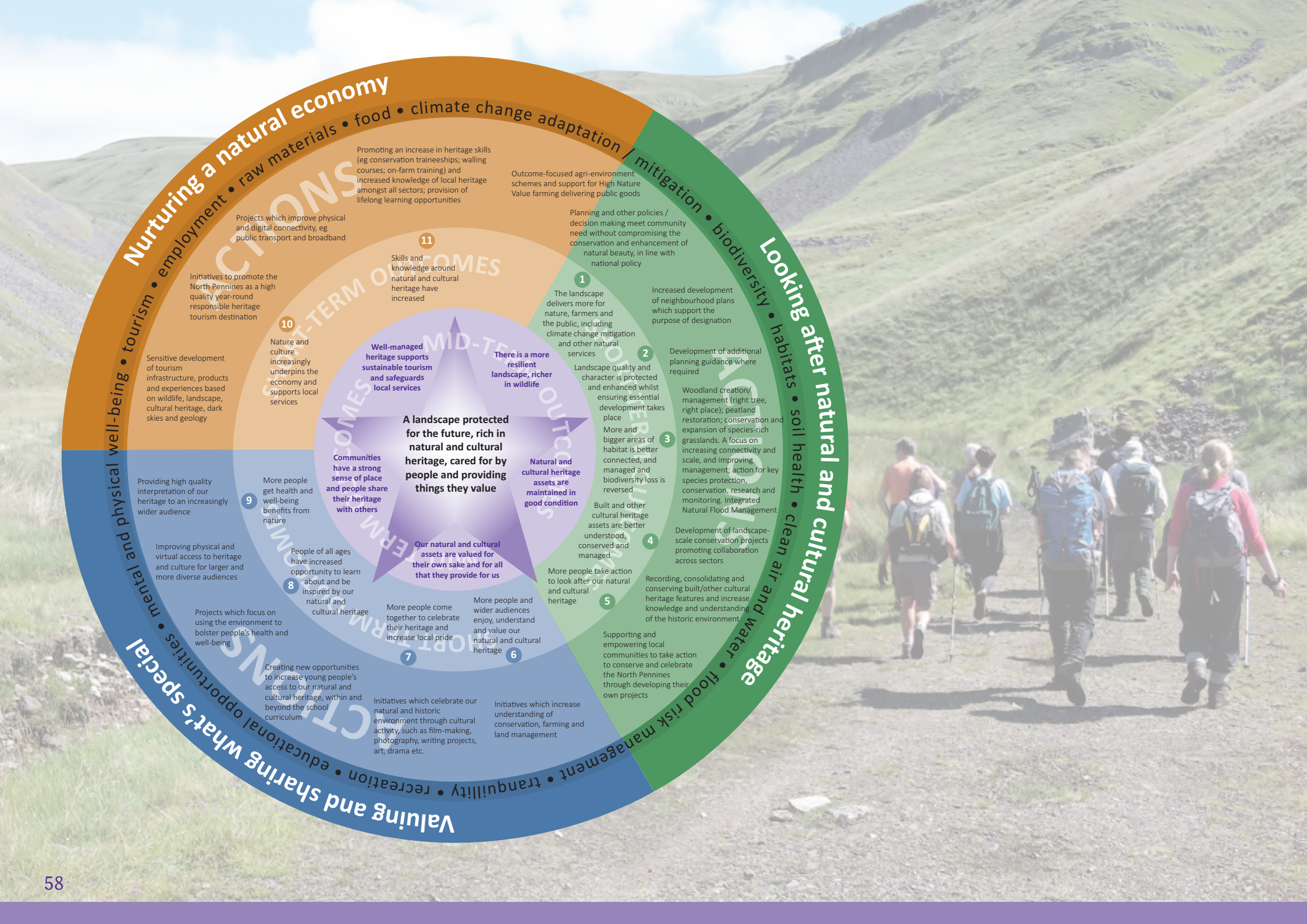
The diagram on the following page sets out:

- A draft goal for the North Pennines (a summarised version of the Vision outlined on page 5)
- Some draft indicative medium-term outcomes that need to be in place to achieve that goal
- A set of 11 numbered short-term outcomes that form the core of this Plan and which will be used to help monitor its effectiveness
- Some of the benefits derived from ecosystem services
- Some broad thematic areas of work.

- **Do you agree with this goal for our natural and cultural heritage?**
- **Do you agree that these are desirable outcomes?**
- **What will you, or your organisation or business, do to bring them about?**

Surveying a species-rich hay meadow © NPAP







Curlew © Brian Rafferty



Allenheads mineyard



Local produce on sale at Bowlees Visitor Centre

Monitoring actions

The AONB Partnership will be responsible for monitoring implementation of this Plan on an annual basis.

The Staff team will be gathering information from partner organisations on how their work has delivered these outcomes; this will be combined with information on the AONB team's activities.

Statutory agencies, NGOs, community organisations, farmers' groups and others will all be invited to add their voice to how they have all contributed to making the North Pennines richer in natural and cultural heritage.

The AONB team will have an implementation plan, updated annually, as a companion to the AONB Management Plan and setting out its work, with many partners, to conserve this special place.

Indicators – what to you think?

A Management Plan needs a set of indicators that can be monitored and that can show whether things are heading in the right direction. Ideally, indicators should be able to tell us about more than just that one factor. We want to know what indicators you think should be measured, in relation to the conservation and enhancement of natural beauty, to show the North Pennines' natural and cultural heritage is in good heart. To the right are a couple of suggestions to get you thinking:

Natural Heritage – an increase in:

- area of species-rich hay meadow, as measured against 2019 baseline datasets
- the curlew population on in-bye and allotments, measured against 2016 BTO survey
- breeding raptors, measured against 2018 breeding information

Cultural Heritage – an increase in:

- Built heritage features on farms managed through agri-environment schemes, measured against 2018 baseline
- Number of structures removed from the At Risk register due to conservation action, measured against 2018 data

Economy and community – an increase in:

- Conservation and heritage volunteering, measured against 2019 data
- Visitor spend in the local economy, measured against 2019 STEAM data
- High-speed broadband coverage, measured by new connectivity to previously unconnected settlements

What else should be identified as indicators, that can be reliably measured and is ideally monitored as a matter of course or at modest cost?

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