DRAFT NATURE RECOVERY PLAN FOR THE YORKSHIRE DALES NATIONAL PARK

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1. Preface & Introduction

[Member champion for natural environment + chairs of the three forums]

2. Executive Summary

[A separate executive summary is to be prepared and a link inserted here]

3. Why We Need a Nature Recovery Plan

The world is facing climate and biodiversity emergencies, which are inextricably linked. Nature is in decline across the globe and at the UN's COP15 conference in 2022 188 governments (including the UK's) adopted new targets for biodiversity conservation. Some research suggests the UK has the twelfth worst ecological intactness rating of 240 countries and territories, having retained only half of its plants and animals (REF). In 2019 the State of Nature Report revealed 41% of UK species were in decline and more than one in ten were at risk of extinction REF.

The Government has recognised the urgent need to achieve a significant recovery of nature across the country. It has stated that "thriving plants and wildlife" is the "Apex Goal" of the national Environmental Improvement Plan (EIP). This is reflected in targets to protect 30% of the UK's land for nature recovery by 2030 and restore 500,000 ha of habitat outside SSSIs REF.

It is a statutory purpose of National Parks to conserve and enhance the wildlife, natural beauty and cultural heritage of the area. Conservation of wildlife and enhancement of the natural environment are addressed in the National Park Management Plan REF, and (in the past) there were detailed Biodiversity Action Plans prepared by the Yorkshire Dales National Park Biodiversity Forum REF. (The Forum was set up by the National Park Authority and comprises local representatives from conservation bodies – see Appendix A). The last Biodiversity Action Plan ran until the end of 2020 and this current document is intended to provide direction to conservation policy in the National Park from now until 2040.

Instead of producing another series of detailed Biodiversity Action Plans it has been decided to prepare a single 'Nature Recovery Plan'. Why?

For the future, government has asked that actions for nature recovery be delivered through Local Nature Recovery Strategies (LNRSs) REF. These will be developed by county councils and unitary authorities and this Plan seeks to influence those which will be produced for our area. The LNRSs will underpin the National Nature Recovery Network by acting as the spatial mapping aspect of the NRN. In anticipation of the production of a new Yorkshire Dales National Park Management Plan to replace the current one (due to run to 2024) we anticipate the need for a National Park focussed strategic nature recovery document. As a step towards this, the Biodiversity Forum has been tasked with producing a twenty-year (2040) vision and outline plan for nature recovery across the National Park. This is to be done in partnership with the two other forums advising the National Park Authority – the Farming & Land Management Forum and the Dales Woodland Forum.

4. Developing our Vision for Nature Recovery

Coming up with policies for the whole National Park that command widespread consensus across the land management sector presents us all with serious challenges, as well as offering opportunities for better integration of activity and cooperation. The Yorkshire Dales National Park is largely owned and managed by farmers and by landowners with interests in sporting, forestry and other forms of land management. We need to work together and, if we do, we can achieve much for nature recovery.

In tackling the challenges, the first step is to set out a clear vision for nature that also addresses all the other major public benefits sought across the National Park.

As shown by the most recent Nature in the Dales Trends and Status report REF, biodiversity in the Yorkshire Dales National Park is in somewhat better health than in many other parts of the country, but nonetheless a huge amount remains to be done to achieve fuller nature recovery with a functioning network of habitats. This vision and plan will describe what is needed and how it might be achieved. The vision is to be shared, developed and agreed with stakeholders and made accessible for a wide range of audiences.

Foremost amongst those stakeholders are the individual farmers and land managers across the National Park, without whose involvement we can make no progress. Over the UK as a whole there has been a steady rise in agricultural productivity since 1970 linked to intensification of land management which has had led to documented negative impacts on wildlife REF.

Over decades, farmers across the Dales have responded to the changing calls from government and wider society – to intensify food production during and after World War 2 and then, especially in the higher hill areas, to move to producing lower volumes of quality food alongside various environmental benefits. There have been gains for wildlife in some areas and there are some excellent examples of landowners and tenants who manage their land holistically, looking after nature as well as profit margins. However, this has not been enough to stop the overall decline in wildlife. Many farmers are understandably proud of what they have achieved, but are concerned about the uncertainties around their future incomes and incentive options. We will need to work closely together to share best practice, test new approaches and to make sure that they work for as many people as possible.

It is also important to recognise the significance of larger estates across the National Park, including those managing grouse moors and with other sporting interests including fishing. Many have worked positively for nature, for example by facilitating restoration of blanket bogs and managing land to encourage sustainable breeding populations of birds such as black grouse, curlew, lapwing, golden plover, ring ouzels and merlin. Active predator control has been a factor in the maintenance of ground-nesting bird populations at nationally significant numbers REF. There are tensions over issues such as illegal persecution of birds of prey and moorland burning but there are great opportunities for fuller nature recovery and, again, these can be achieved best with joint listening, learning and good cooperation.

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5. Principles

5.1 More, Bigger, Better, More Joined-Up

It is widely recognised that nature recovery will require more than a focus on individual sites, habitats and species (Lawton et al, 2010).

Past joint work has focussed rather too much on individual habitats and species. Many good things have been achieved but we now have, for example, isolated areas of hay meadow, wetland or woodland confined within their own fenced or walled boundaries. Also, many of the larger areas of semi-natural habitat, across the moorlands and limestone grasslands, are missing a more natural diversity of structure: patches of wetland and scrub and copses of trees; areas of taller and shorter grass or heath; and even some locally poached (disturbed) land. The transitions between habitats, such as scrubby and wetland edges, can be some of the richest and most important areas for many of our scarcer species. Arguably, the most widely distributed, yet most abused and overlooked in terms of value, is the riparian zone - the transition between aquatic and terrestrial habitat beside rivers.

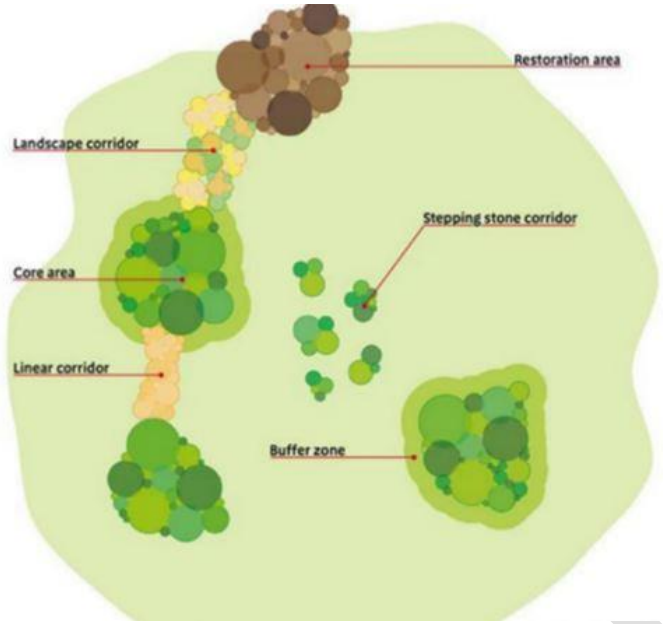
To improve prospects for wildlife, we need to recover structural complexity of habitats and the ability for species to move through a more connected, less fragmented landscape. Among the most prominent wildlife corridors within the Dales' landscape are those associated with river networks, providing longitudinal connection throughout and beyond the National Park boundaries.

So far as terrestrial habitats are concerned, before there was extensive grazing by domesticated livestock, natural animal grazing would have helped create a mosaic of habitats and structures whilst now farmers can manage their livestock to help achieve something similar (see Appendix B). In the riparian zone the patchwork mosaic and the associated enhanced biodiversity would have been assisted also by rivers and tributaries flowing naturally across floodplains, something which is less common nowadays due to river straightening, culverting and other engineering works.

Thus, for nature recovery to succeed, the wildlife habitats of the National Park need to be bigger, better and more joined-up, often comprising dynamic mosaics (intimate mixes) of wildlife-rich habitat. Figure 1 illustrates the principles behind the sort of landscape-scale ‘nature networks’ that support nature recovery.

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Figure 1: What landscape scale-nature recovery could look like (Source: Lawton et al 2010)



Core Areas - Sizeable blocks of land of high nature conservation value that form the heart of an interconnected network. They can be made up of single habitats or be mosaics. Core areas provide places within which species can thrive and from which they can disperse to other parts of the network. They include protected wildlife sites and other diverse semi-natural areas of high ecological quality. Sites of Special Scientific Interest (SSSIs) will form a large part of the core areas within the National Park (although significant areas of SSSI are themselves currently in a non-favourable but recovering state). Large areas of high-quality habitat outside of SSSIs will also be core areas.

Corridors and 'stepping stones' - Spaces that improve the functional connectivity between core areas, enabling species to move between them to feed, disperse, migrate or reproduce. This is essential so that plants and animals can easily re-colonise areas depleted in wildlife and species may adjust their distributions in the face of climate-change. 'Landscape corridors' are relatively wide and may comprise mosaics of more than one type of habitat, whereas 'linear corridors' are typically narrow, yet relatively uninterrupted lengths of similar habitat (e.g. hedgerows).

Restoration areas - Areas where measures are planned to restore or create new high value habitat (and which will ultimately become new 'core areas').

Buffer zones - Closely surround core areas, restoration areas, 'stepping stones' and ecological corridors, and protect them from adverse impacts from the wider environment (e.g. rough grassy edges to hedges that protect tree roots, strips of woodland and other semi-natural habitat created beside rivers).

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Table 1 summarises ten key principles that should guide the restoration of functioning 'nature networks'.

Table 1: Principles underpinning Nature Networks (Adapted from: Natural England Research Report NERR082)
• understand the place; • create a vision; • involve people; • create core sites; • build resilience; • embrace dynamism (through more natural processes); • encourage diversity; • think 'networks'; • start now but plan long-term; and • monitor progress.

The intention is to increase the extent of nature-rich land over time so as to enable nature recovery across the National Park. Objectives and targets for this are set out in Section 6. These targets will be refined over the years in partnership with the Responsible Authorities that are producing the Local Nature Recovery Strategies.

5.2 Connections outside the National Park Boundary

A key part of achieving nature recovery within the National Park is to work with neighbours to make sure there are positive links and connections to the land bordering the National Park especially where that land is functionally linked. There are important existing and potential habitat networks and habitat connections allowing for flows of species – which will become increasingly important with the developing pressures induced by climate change. Maps in Appendix E show some of the most important habitat links.

Even some areas that are a considerable distance from the National Park, support the National Park's wildlife in important ways. For example, land outside of the National Park offers foraging areas and wintering grounds for waders that breed in the National Park.

Natural Flood Management enhancements within the National Park will provide benefits in downstream urban centres, whilst enhanced water quality will also improve the status of downstream rivers and drinking waters. Conversely, the removal of downstream barriers to fish migration will help species such as salmon, eel, lamprey and trout to reach and navigate through the National Park.

Other linear features that could provide useful corridors for wildlife include the long distance footpaths/bridleways that cross the National Park such as the Pennine Way, Pennine Bridleway and Coast to Coast national trail. Such 'green infrastructure'

supports nature to recover and thrive everywhere in urbanised settlements and countryside, conserving and enhancing natural beauty, wildlife and habitats, geology and soils, and our cultural and personal connections with nature - see https://designatedsites.naturalengland.org.uk/GreenInfrastructure/Principles/GIPrinciples.aspx

6. A Vision for Nature Recovery

6.1 Home to the finest variety of wildlife in England

The statutory National Park Management Plan sets out a shared local ambition for nature recovery to be 'home to the finest variety of wildlife in England' by 2040 REF. To achieve this:

- Our farmers, landowners and land managers, conservationists, communities and public bodies will have worked together to create a more natural, wildlife-rich National Park, of which we can all be proud.
    - Mosaics of wildlife habitats will have been enhanced, extended and integrated into a network of nature-rich land, with blurred edges between patches, and corridors linking them to other wildlife-rich land beyond the National Park boundary;
    - Wildlife is abundant, thriving and resilient. Where necessary species have been provided with space to adapt to change;
- These improvements for nature recovery also:
    - provide other vital benefits: including high-quality food; enhanced carbon storage; natural flood management; beautiful landscapes with access for relaxation and inspiration; and vibrant local communities;
    - support farming, sporting, woodland and other businesses that are renowned as excellent, profitable enterprises working in harmony with nature;
    - help people living in and visiting the National Park to connect to nature, be inspired by its special wildlife, and get actively engaged in its conservation;

Visionary objectives are outlined below that relate to four broad landscape types across the National Park. These landscape types are:

- ***Limestone Country*** of Craven and parts of Westmorland, characterised by outcrops of limestone and thin soils over the limestone;
- ***Moorland*** is the land above the 'moorland line', which comprises heathland, blanket bog and associated habitats. It also includes the valley-side allotments, many of which are 'in-bye' land important for waders and other birds;
- ***Freshwater*** comprising streams, rivers and the few lakes or tarns;
- ***Valleys*****,** meaning the often more intensively farmed valley bottoms which also include most of the towns and villages.

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It should be noted that, although ***woodlands*** are a constituent of all the four landscape types, our aspirations for woods, scrub and wood pasture are described separately to avoid duplicating the messages.

We describe the sort of changes and resultant habitats or habitat mosaics and species populations that we hope can be achieved by 2040. Photographs are included to help describe the range of end results that are sought. Section 7 looks in more detail at extra objectives for a number of key species or species groups.

Grazing is an issue of such importance to achieving the objectives of the Plan and one that impinges on every aspect of habitat management that a position statement on the subject is included in Appendix B.

We aspire to landscape-scale change but must be mindful that the vision has to be flexible enough to embrace changes to the plan as nature recovery unfolds. For this reason, this Plan will be monitored and periodically reviewed by the Yorkshire Dales Biodiversity Forum. The Forum recognises that new habitat creation must not be at the expense of significant damage being inflicted on existing nature conservation interest, so, for example, tree planting schemes must take into account sensitive habitats and species such as wading birds and amelioration of mine water pollution must not be at the expense of important calaminarian grasslands.

If the Plan is to succeed funding for nature conservation and environmental measures will have to be sufficient to place these at the forefront of land management. (If farmers and land managers are to manage in a different manner and this affects incomes, then there will have to be financial incentives. Not all of this can come from private finance, so an element of public subsidy will still be required.)

The methodology that has been used for target setting is explained in detail in Appendix E.

6.2 Limestone Country

Our Vision for 2040

The Yorkshire Dales National Park will remain the premier example in England of a 'karstic' landscape with limestone pavements, screes, scars & caves prominent and visible.

The whole limestone pavement resource will continue to be protected from deliberate or incidental mechanical destruction.

There will be a diversity of limestone pavements contributing to a wildlife-rich mosaic that also includes limestone grassland, scrub, woodland, wood pasture and other inland rock features (such as scree slopes, cliffs, scars, swallow holes, etc.). Pavements will vary from a few that are completely tree-covered, through examples that have a degree of tree & shrub cover to pavements that are more or less completely open.

The unique plant assemblages that have earned the best areas of the Yorkshire Dales Limestone recognition as an Important Plant Area will remain intact. In particular, ferns

and woodland plants will flourish in pavement grikes in a way that belies the apparent harshness of the surroundings. Dog's mercury, ramsons, hart's-tongue fern, maidenhair spleenwort, wood anemone and wood sorrel will predominate, along with sanicle, enchanter's nightshade and, occasionally, herb-Paris, angular Solomon's seal and lily-of-the-valley.

Near the highest tops on the limestone, populations of 'arctic-alpine' specialist plants such as purple saxifrage, yellow saxifrage, roseroot and alpine meadow-grass will thrive, albeit some may be increasingly threatened if the rate of global warming is not reduced.

Limestone grassland dominated by blue moor-grass will cover about 5,550 ha, roughly the same amount as the 2020s. However, the quality of the habitat will have greatly improved in terms of the species diversity, due principally to modifications in grazing that will allow flowers of plants like common rock-rose, small scabious and common thyme to bloom in profusion and set seed.

There will be undisturbed old grasslands with locally and nationally-significant assemblages of waxcaps and other fungi – extremely colourful mushrooms with evocative names like 'parrot waxcap', 'ballerina waxcap and 'yellow earth-tongue'. The extent, distribution and value of these 'waxcap grasslands' within the Dales will be understood and the better examples will be in management that conserves their special fungi.

In many areas there will also be small proportions of native shrub species (such as juniper, hawthorn, holly and hazel) established in patches across the grasslands and pavements. These shrubby clumps will add diversity to the habitat, providing a home for a different array of plants, insects and birds.

Limestone flushes and damper soils will also be species rich, characterised by the pink-purple haze of bird's-eye primrose in spring.

The extensive cave systems beneath the Dales will continue to provide important hibernation sites for moths and bats with responsible cavers ensuring that the accessible systems are carefully conserved.

Objectives and targets for 2040

Objective 1: More and Bigger

- Target 1a: Create or restore 700ha of species-rich calcareous grassland (containing proportions of scrub/wood pasture in places). (Appendix E, Figure 2). [This is a 10% increase in species-rich calcareous grassland increasing the coverage across the park from 5.5% to 5.8% by land area.]

Objective 2: Better

- Target 2a: Enhance an additional 1500ha of existing limestone pavement, calcareous & calaminarian grassland and flush habitats (and mosaics including these habitats) to good condition. [This figure is 13% of the area of existing habitat with 67% of existing habitat needing enhancement.]

How the vision could be achieved

The limestone pavements have been resurveyed very recently (REF) and this will allow mapping and classification so that the state of pavements across the National Park is known and appropriate management objectives can be implemented and monitored. Robust legislation needs to be maintained and there needs to be monitoring to prevent further damage to limestone pavement.

An increased use of hardy breeds of cattle (as opposed to sheep) on limestone pastures can bring about positive change. Farmers and advisers should work together to trial a variety of grazing systems including mixes of sheep and cattle, and sheep at varied levels through the seasons.

The continued presence of arctic-alpine specialist species can be assisted by carefully-planned reintroductions establishing new populations.

6.3 Moorlands

Our vision for 2040

The higher ground within the National Park continues to support nationally important and sustainable populations of breeding waders and other typical moorland birds including red grouse, hen harrier, merlin and short-eared owl.

All the degraded blanket bog in the National Park will have been restored and will be being managed so as to promote peat formation and sequestration of carbon as well as water quality benefits.

The wider moorland areas will be managed as dynamic, landscape-scale mosaics of habitats, including wet and dry heath, scrub and woodland, springs, flushes, areas of both acidic and calcareous grassland as well as upland tarns. Heathland will have recovered across significant areas of grassland from which it was lost through overgrazing. Some areas of heather will deliberately be allowed to grow long and senesce naturally. Such areas will be chosen carefully and planned to ensure the wildfire risk is not increased, especially on areas of deep peat. Amidst the heather there is good coverage of other 'dwarf shrubs' such as bilberry, crowberry and cowberry.

Peatland habitats will have high water tables and be actively accumulating peat. Sphagnum mosses will cover the greatest area of ground but species such as sundews, bog rosemary, bog asphodel, cotton grasses and cranberry will also be common in areas of wetter blanket or raised bog; with a variety of dwarf shrubs, bryophytes and cloudberry present on higher altitude blanket bog. The repaired (previously-drained) peatland will slow water flows during rainfall events, in many cases reducing erosion and protecting communities downstream.

On the drier moorland soils, there will be a significantly increased area of native trees and shrubs; adding diversity to the moorland habitat, providing niches and stepping-stones for plants, insects and for birds such as black grouse. The key areas for tree and shrub expansion will be along gill-sides, over bracken beds and patchily across steeper slopes and the lower moorland margins. The flatter heathland areas will be mosaics of different structures of heath and grassland, supporting a rich array of moorland birds,

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typified by species like red grouse and golden plover. The spongier, mossy soil surfaces created under lightly grazed heath, grassland and wooded areas will also aid natural flood management and carbon storage.

Extensive wetland flushes and rushy pastures at the moor margins will play a crucial role in 'slowing the flow' of rainstorm water and will be critical havens for ground-nesting wading birds like curlew, snipe, lapwing and redshank. They will produce such a surplus of these birds that they will make a considerable contribution to re-populating the English lowlands with waders. Birds of prey will also be a common sight across the moorlands and will no longer suffer illegal persecution (see species section).

The industrial heritage of the Dales will still be read in the 2040 landscape, particularly in the areas of sparsely-vegetated mine spoil heaps – mostly found around the moor edges. Here there will be nationally-important examples of 'calaminarian grassland', comprised of a few metal-tolerant species and varieties of plants, mosses and lichens eking out a living. The extent and condition of this habitat will be much-better known in 2040 than it was in the 2020s and will be better understood and looked after.

Objectives and targets

Objective 1: More and Bigger

- Target 1b:, Convert or restore 2,250ha of fragmented heath, rough grazing and severely degraded peatland to moorland priority habitats, including species-rich heathland[1] and blanket bog which is actively accumulating peat. (Appendix E, Figure 3). [This represents a 5% increase in moorland priority habitat, increasing the coverage across the park from 22% to 23%].
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Objective 2: Better

- Target 2b: Restore and enhance an additional 8,000ha of upland heath, bog, and flush to good condition. [This is 17% of existing habitat, with 84% of existing habitat needing enhancement].
- Target 2c: By 2030, identify, survey and map calaminarian grassland to better understand how it grades into the surrounding landscape, and where it is in need of restoration.

How the vision could be achieved

Across the full range of moorland habitats and mosaics livestock grazing management will be sympathetic to the desired outcomes described above. This will require partners working together, sharing best practice and exploring different approaches that involve a range of livestock, including hardy cattle and ponies and well as sheep.

Trees, shrubs and dwarf-shrubs will need to be planted in some places. In other areas, natural regeneration of these species can be promoted with sensitive management including across areas of species-poor acidic grassland targeted for heathland recovery.

[1] Defined as structurally diverse heath, often with proportions of grassland, wetland and scrub

Work to block moorland drainage ditches and restore eroded areas needs to continue. This will help heal the damaged blanket bogs as well as re-establishing large areas of sedge and rush habitats on sloping areas of moor and in moor edge allotments.

Heather burning is a complex issue and the scientific research on the subject is not clear-cut and remains fiercely debated as to the impacts on nature, carbon storage and water quality. There are concerns that burning and also cutting of moorland vegetation has some damaging effects on nature interests – especially on those species ill-adapted to such management (certain plants, reptiles, amphibians and invertebrates) as well as tending to create an overly uniform vegetation structure. But conversely, moorland management comprising careful burning or cutting and predator control has sustained important and valued populations of a number of ground-nesting birds. It is considered very important by the moorland managers for sustaining their grouse shooting and farming businesses, and providing some additional protection against the risk of wildfire.

Management needs to be guided by good conservation science and where this is inconclusive more research is needed to guide practice. Over the period of this plan, all parties will be encouraged to work together on further scientific research on burning and cutting and the trialling of new ways of managing moorland for our multiple objectives. It is expected that burning and cutting can be phased out on blanket bog areas as they return to an 'active' state with the high water tables reducing risks of damaging fires, suppressing heather growth and allowing for heather layering and regeneration through the moss layer. As described above, nature recovery of heathland requires significant areas of diverse dwarf-shrub structure amongst patchy tree and shrub cover. These patches are best restored along gillsides, steeper slopes and bracken beds without burning or cutting. It is expected that careful 'cool' burning or cutting will continue across the more shallowly-sloping or plateau heathlands whilst we work on further research and trialling (e.g. of cattle or pony grazing to create a more varied structure and reduce the need for burning/cutting). Maintenance of strategic firebreaks will be necessary in some places to minimise the danger of damaging summer fires. Management techniques should change to reflect emerging evidence of sustainability over time.

Conifer plantations located on deep peat or blanket bog will be assessed in accordance with national policy approaches for the restoration of open priority habitat (REF) and, where appropriate, the trees will be removed and the land restored to open moorland mosaics.

Appropriate financial support in the form of payments from government or other sources is vital to incentivise the required works and ongoing management and to ensure the sustainability of the relevant land management businesses.

6.4 Freshwater

Our vision for 2040

The streams that run off the moorlands will run clearer and will demonstrate a marked improvement in water quality. There will be more widespread recognition of the ecological importance of small headwaters and tributaries and a greater focus on and

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protection of these features (which act as the capillaries of the network supporting arterial flow in the main river systems).

Action taken to improve soil health and introduce other Natural Flood Management (NFM) measures will have slowed flows over winter and allowed a more consistent release of water over drier summers.

Improvement in flows and water quality will have been factors leading to almost all of the rivers in the Dales consistently being assessed in 'good ecological status' in 2040.

Increased lengths of river and stream will be accessible to migratory fish compared with twenty years previously, so brown trout, for example, can move freely between headwaters and lowland reaches in response to flow, feeding and breeding opportunities. In addition, we envisage the return of other iconic species like Atlantic salmon, river lamprey, and European eel.

In places, rivers will have been allowed to take their own course and meander across the landscape, creating more natural and functional floodplains contributing to boosting the area of rare wetland habitats but also providing NFM value.

In other sections of river, morphological features like repeating pool-riffle-glide sequences, features like gravels, riffles and backwaters will have been allowed to form, and areas of erosion and subsequent deposition facilitated to retain gravel within the system. Ponds in the floodplain and elsewhere will be relatively common, especially in areas like Wensleydale where they were once abundant but were lost in the twentieth century. Riparian fen and wet woodland will be more extensive.

Dales' rivers will support self-sustaining populations of native fish, providing good fishing, not only because the fish have clean, pollutant-free freshwater but also because there will be more riparian woodlands to provide shade to cool the waters.

The National Park's three upland alkaline tarns (Malham Tarn, Semer Water and Sunbiggin Tarn) will be well on the way to recovery from the times when they were all suffering from high inputs of phosphates. This will also have improved the condition of the fen, wet grassland, reedbed and wet woodland habitats that are closely associated with these lakes.

Objectives and targets

Objective 1: More and Bigger

- Target 1c: Carry out works on 100 km of rivers so that they are reconnected to their floodplains and there is an increased area of associated wetland habitat (e.g. fens and wet woodland).
- Target 1d: Riparian planting along 500km of rivers will increase riparian habitat and increase shading of rivers. Riparian planting will contribute to Targets 1i and 1j. (Appendix E, Figure 4)
- Target 1e: Create 100 new wildlife ponds or scrapes and/or other wetland features for waders and wider biodiversity.

Objective 2: Better (95% of rivers in good ecological status)

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- Target 2d Carry out works along 1,000km of river to protect or enhance river and riparian (ecological) condition
- Target 2e: Carry out work to bring all three marl lakes within the National Park (Malham Tarn, Semer Water & Sunbiggin Tarn) into good ecological condition.

Objective 3: Joined Up

- Target 3b: 80% of the manmade barriers to fish passage identified in the rivers obstacle dataset will have been removed, bypassed, undergone easement, or otherwise mitigated. (Appendix E, Figure 4).
- Target 3c: Work to remove or control INNS in and along watercourses, and prevent further spread, will be carried out along 100km of watercourses and their riparian habitats. Removal efforts will start in headwaters and systematically move downstream.
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How the vision could be achieved

A significant programme of riparian woodland creation and tree-planting in significant stretches would be needed along waterways.

Measures taken on the moors to restore peatlands and reduce erosion should continue, as these are important in facilitating the slow release of water into feeder streams reducing downstream amounts of peat and sediment as well as reducing flooding risk.

Inputs of nutrients such as nitrates and phosphates can be reduced through Catchment Sensitive Farming schemes, and improvements in the treatment of wastewater from domestic sources as well as by enforcement of tougher legislation directed at polluters, a reduction in the use of chemical fertilisers and by a switch towards more regenerative farming. Soil health improvements will help capture, storage and slow release of water. To improve water quality in some catchments a programme of works to ameliorate lead mine water pollution would be required also.

Schemes to help 're-wiggle' rivers and create new wetland habitat (local examples to be cited) need to be made sufficiently attractive to farmers and landowners. The benefits of reconnecting rivers with their flood plains need to be made clear to wider stakeholders, including the general public.

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6.5 Valleys

Our vision for 2040

Flower-rich hay meadows and pastures will be the outstandingly colourful, spectacles that were seen in most dales before agricultural intensification. There may not be quite as many of these meadows as before World War 2, but the area of species-rich hay meadow will have increased substantially.

Species traditionally prevalent in upland hay meadows will be much more common than the present day, including yellow rattle, lady's mantles and eyebrights, wood crane's-bill, melancholy thistle and globeflower.

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Well-managed, flower-rich road verges will provide important reservoirs of grassland flowers, help linkages across areas of less-rich countryside and aid pollinating insects to move through the landscape.

The areas of flood-plain wetlands and wet & riparian woodlands will have expanded.

The more intensively managed farmland in the valleys will support some wider environmental objectives, such as greater biodiversity, improving soil health and the quality of water runoff. There will be thicker and better-managed hedges which are functional as well as having wildlife benefits and an increase in the number of individual trees in fields and in field corners.

Connectivity between patches of wildlife habitat will have improved through measures such as planting and 'gapping up' of hedgerows, establishment of small groups of trees as 'stepping stones' in the landscape for woodland/scrub species and by maintenance of drystone walls. The walls support some significant species (Nowell's limestone moss is pretty much confined in UK to walls in Craven) and recent research has revealed their considerable value for a range of lichens, moths, ferns, etc. They shelter birds like wrens and mammals like voles, weasels and stoats.

Objectives and targets

Objective 1: More and Bigger

- Target 1f: Create 1,300ha of species-rich grassland (such as meadow, pasture or wood-pasture). (Appendix E, Figure 5). [Although this is a 88% increase in species-rich grassland, it alters the total area in the National Park only slightly from 0.7% to 1.3%].
- Target 1g: Create 250km of species-rich hedgerow.
- Target 1h: By 2030, waxcap-rich grasslands will be identified, surveyed and mapped, to identify where this habitat exists; to better understand the value of this habitat; and to inform appropriate measures to protect this habitat from disturbance.

Objective 2: Better

- Target 2f: Restore and enhance an additional 350ha of species-rich meadow, pasture & semi-improved grassland habitats (and of mosaics including these habitats) to good condition. [This is 24% of existing habitat, with 47% of existing habitat needing enhancement.]

Objective 3: Joined Up

- Target 3d: By 2030, the best examples of grassy roadside verges will be identified, surveyed and mapped. [This is to identify where species-rich habitat exists, to better understand how this contributes to habitat connectivity within and beyond the National Park and to identify priority areas for enhancement.]
- Target 3e: By 2030, the National Park's networks of hedgerow will be, surveyed and mapped. [This will be undertaken in order to better understand how this network contributes to habitat connectivity within the National Park, establish the condition of the existing hedgerow network; and to identify priority areas for hedgerow creation.]

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How the vision could be achieved

Payment-by-results and other agri-environment incentives will need to be introduced that are well-designed, not overly bureaucratic and sufficiently generous to attract farmer uptake. The schemes should enhance species-rich grassland, increase tree cover, encourage better hedgerow management and support the retention of patches of wetland.

Enhanced availability/provision of comprehensive whole-farm advice – on business economics, farm ecology, and new agri-environment options – is needed.

Roadside verges and roadside hedges need to be managed sympathetically by the relevant bodies.

6.6 Woodlands (including Wood Pasture and Scrub)

Our vision for 2040

A vision for trees and woodlands in the Yorkshire Dales National Park is already set out in the 'Dales Woodland Strategy: 2020-2030':

"*Trees and woodlands in the Yorkshire Dales will: contribute significantly to a carbon net zero National Park, enable habitat connectivity, improve water quality and reduce flooding, in a way that enhances the landscape and special qualities of the area, provide health and amenity benefits to people, and be economic for landowners."*

The vision has been refined here, through to 2040, particularly to encompass trees and shrubs providing diversity within other habitats

By 2040, Dales woodlands will have increased in land covered and in number, to the extent that they now occupy at least 7% of the National Park, with the woodlands being better connected than they were in the 2020s. Areas of new native woodland will have been planted or regenerated to expand and join-up fragments.

Wood pasture-type habitat (Add textbox with a description of the forms of wood pasture including scrub) will be a more familiar aspect of the landscape in many dales. These wood pastures will remain important grazing land for livestock farming but with varied (often small) proportions of trees and shrubs - providing useful browse and protection for the animals as well as vital habitat for wildlife. Areas of wood pasture and scrub will be found across all the landscape types.

Heavily-treed pastures which contribute so much to Dales Landscapes and provide connectivity between woodland habitats will have been enhanced by further tree planting (or natural regeneration).

Although there has been a net gain in woodland cover, some conifer plantations on peatland will have been removed. Others will have been re-configured so as to provide better opportunities for wildlife. For example, in the case of larger plantations, feathered

edges, glades and scalloped edges to rides will have been created in line with UKFS (see below).

The areas of native woodland that existed in 2021 will all now be in forms of management that have improved their condition, so they will be better for biodiversity, for providing seed sources for natural regeneration and for countering the spread of diseases. The woodlands will include dead wood (both standing and fallen), open spaces and varied ground floras.

Sheep grazing of remnant ancient woodlands will no longer occur, though occasional cattle grazing may occur in woodlands where it has been identified as a beneficial management tool (e.g. to open up small areas to introduce diversity in woodland structure). Damage from intensive game bird release in ancient woodlands has been eliminated, and shoots manage their woodlands in line with best practice (e.g. GWCT/Woodland Trust's Woodland creation and management for pheasants – a best practice guide).

Tree diseases will be better controlled by 2040 through improved biosecurity and planting of tree mixes with greater diversity. There will be some recovery of species like ash and elm from disease-resistant stock as and when this ever becomes available.

Objectives and targets

Objective 1: More and Bigger

- Target 1i: Increase woodland cover in the NP from 4% to 7% of land area by 2030 (equivalent to 6,000ha of woodland habitat) (Appendix E, Figure 6)
- Target 1j: By 2030, in addition to woodland, plant 6,000 trees either as individual specimens or in small clumps.
- Target 1k: By 2030, survey and map all existing wood pasture and parkland habitat and identify sites in need of restoration.

Objective 2: Better

- Target 2h: Improve the condition of native woodland, parkland and wood pasture habitats (and of mosaics including these habitats) such that 75% of the total area is in good condition by 2042.
- Target 2i The condition of ancient woodland (an irreplaceable habitat) improves such that 75% of the total area is in good condition by 2042.
- Target 2j: 70% of woodland is in active management by 2030.

How the vision could be achieved

We should look for opportunities to encourage good management and expansion of existing woodland including those woods that are significantly old but which are not defined as 'ancient' (e.g. ones on the 1856 OS maps but not in existence before AD 1500). These are the ancient woodlands of the future even though they do not appear on the current Ancient Woodland Inventory.

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Woodland and other habitat management schemes should aim for much of the new and expanding areas of woodland and scrub to be achieved through natural regeneration, with new plantings focussed on areas and species with limited seed sources and other places where natural regeneration proves problematic.

In addition to new woodland and wood pasture, 6,000 field trees (as individuals or in small blocks) need to be planted to achieve the targets in the Dales Trees and Woodland Strategy, following the principles of the 'right tree in the right place' and avoiding planting that might harm sensitive habitats and species.

The species to be planted will include oaks, birches, willows, rowan, alder, aspen, hazel, hawthorn and other native shrubs. Local provenance trees and shrubs for planting should be supplied through a developing network of profitable local nurseries. Climate change pressures may ultimately influence choice of species included in planting mixes.

Ancient and veteran trees need to be retained and managed appropriately during their long senescent years but with planning for replacements over the longer-term. Significant specimens of trees should be identified in the landscape now (as locally notable trees') and safeguarded (e.g. through Tree Preservation Orders). (Add text box to explain terminology)

Woodland creation schemes ought not to be just about planting trees, but trying to create structurally diverse woodlands (with a ground flora comprising locally appropriate species, a shrub layer and mixed ages of trees) as well as mosaic habitats with wood pasture and scrub. The England Trees Action Plan 2021-2024 (REF) recognises the importance of bringing existing woodland into good management. Woodland creation and woodland management operations in England are expected to comply with UK Forestry Standard (UKFS) requirements (REF) and Government grants and regulatory approval for felling and restocking and woodland creation are conditional on this.

The UKFS outlines a series of requirements and guidelines so woodlands, both new and well established, provide a range of economic, environmental, and social benefits in accordance with international commitments made by the UK Government. It also includes the design principles mentioned above.

7. Species

Our Vision for 2040

Conserving wild species (whether common or rare) is a vital part of protecting biodiversity. Previous Biodiversity Action Plans (BAPs) for the National Park have identified a suite of 'Priority Species' that were intended to be the focus of special conservation effort. This Nature Recovery Plan also identifies species that need help if we are to stop them from declining, but the approach to species conservation here is different in some important respects to that in the BAPs. For example, it has been a deliberate decision not to include a multitude of highly detailed Species Action Plans with myriad objectives, targets and actions.

This decision reflects a change in UK-wide conservation practice: a move away from highly prescriptive national, regional and local BAPs dealing with hundreds of species

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and containing thousands of individual actions requiring considerable monitoring effort. The Government's 25 Year Environment Plan deals much more with addressing the biodiversity crisis at the level of whole landscapes, seeking to establish a flourishing national network of habitats, healthy and functioning well to support wildlife. The goal is still to stop species from going extinct due to human activities, but the strategy for how to do this has changed its focus.

This document, in line with the 25 Year Environment Plan, emphasises landscape-scale initiatives aiming at more wildlife habitat which is bigger in extent, in better ecological condition and more joined up. Such an approach will benefit many species that are currently declining or are threatened by climate change, because habitat loss, deterioration and fragmentation are major drivers of species extinction, whilst habitats that are well-functioning tend to be more resilient to the negative effects of global warming (REF). However, a focus purely on habitats will not conserve all species being adversely affected by human-induced impacts. There are species the populations of which are so fragile that they require 'bespoke' conservation action above and beyond simply looking after habitats.

An example of a species in the Yorkshire Dales requiring bespoke conservation action is the red squirrel. The national decline in red squirrel is due to the introduction of the grey squirrel from North America into Britain in the nineteenth century. Not only does the grey squirrel compete very aggressively against the red squirrel, but it has also brought with it a viral disease that is the main cause of decline now amongst red squirrel populations. To conserve the important populations of red squirrels that are left in the National Park it is necessary actively to manage grey squirrels so as to maintain a buffer between red and grey squirrel populations. The control of grey squirrels in the buffer zones is a 'bespoke action' towards the conservation of red squirrels as is the maintenance and management of certain woodlands as red squirrel refuges.

In this Plan, we define 'category 1 species' as ones that require bespoke actions of the kind described above. It should be appreciated that these are not the only important species which occur in the National Park and they are not the only ones which require conservation action. How the review has been conducted that has led to this categorisation is explained in Appendix D.

LNRS Species Recovery non-statutory guidance has been published by Defra and Natural England (REF) which in future will be an additional reference when assigning species to categories for prioritisation through LNRS. The categorisation exercise that has been undertaken has broadly complied with that guidance although the guidance has only recently become available.

Objectives and Targets for Species

Target 4a – 90% of species in category 1 (as listed in Appendix C) are in stable or increasing populations.

Target 4b – By 2025 draw up and adopt a plan for monitoring taxa that are sensitive to landscape-scale changes in habitat (chosen from category 2 species).

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How the vision could be achieved

As outlined above, there are 190 species of conservation concern in category 2 of the baseline list for which it is considered landscape scale habitat management will deliver positive conservation without the need for bespoke management. The fortunes of some of these species could be monitored within the Dales as 'biodiversity indicators', measuring the success of landscape-scale habitat-focussed initiatives. Taxa such as birds, butterflies, moths and vascular plants are used already at UK Government level to assess the impact of environmental policies because there are datasets for these that go back a relatively long way into the recent past and which are robust enough to enable statistical analyses to be performed. Much of the data has been collected by volunteer recorders and via national recording schemes involving 'citizen scientists'.

No detailed species plans for Category 1 species are set out in this Plan. Yet, by definition, they require some form of bespoke action to conserve populations. The broad nature of the sort of action required for each species is outlined in Appendix C.

There are examples from the Category 1 Species that could lend themselves to large-scale Park-wide conservation initiatives involving whole communities. For example, there are already local swift conservation groups active in some places and the number of these groups and of the people participating could be increased if resources can be found for this.

Some of the species on the list in category 1, notably the suite of bat species (but also some of the birds) require a level of protection from harmful developments that might threaten places that they rely upon for shelter or use as breeding or wintering sites. The statutory land use planning system plays a big role in the protecting these species and their fortunes can be enhanced through the actions of developers, businesses and householders.

At the time of writing, a few species of birds of prey that are on the list, such as hen harrier, still suffer illegal persecution. Action against wildlife crime must be taken to ensure an end to persecution and a sustainable future for these species in the National Park.

As we noted above in connection with red squirrel, invasive non-native species may pose a direct or indirect threat to some of our most iconic species. Another example is the native white-clawed crayfish, which is declining due to the incursion into the National Park of signal crayfish which has brought the devastating 'crayfish plague' in its wake.

Inevitably, there are species on the list that need the attention of experts to identify. The same and/or different experts will be needed to monitor and conserve populations. Examples on the list include some of the moths and vascular plants. Some of these are already the subject of their own 'Species Recovery' projects such as lady's slipper, an orchid brought back from the very brink of extinction by dedicated conservationists in the Dales. Species such as this will need targeted reintroduction to sites prepared in advance.

It is intended that lead organisations – 'species champions' – will come forward to take responsibility for conservation and monitoring of each of the species on the list as

category 1. The Biodiversity Forum will play a key role in coordinating the species conservation work.

The Forum also will keep the species list under review: Adding to it as new species of conservation concern come to light within the National Park, considering the case for moving species between the categories and helping to produce periodic 'Trends and Status' reports assessing population trends.

As new wildlife habitats are created and existing ones are enlarged, improved and linked up, species that are not currently present in the National Park will colonise naturally. Some of these could be species that existed formerly in the recent past which may return to former haunts perhaps enabled by changing climate, others will be new to the National Park. However, there are species that would be welcome additions to our flora and fauna but which will not get here unaided (or at least be long delayed) and such reintroductions will be encouraged as and when conditions allow. For example, some members of the Biodiversity Forum are strong advocates of beaver reintroduction because of the animal's role in 'ecosystem engineering'.

All reintroductions ought to follow IUCN guidelines (REF).

Instances have already been mentioned where Invasive Non-Native Species (INNS) have been implicated directly in the catastrophic declines in some iconic native species. In the two examples mentioned previously, the INNS (grey squirrel and signal crayfish) have exerted much of their negative effect through introducing novel diseases into populations of native species. Strong biosecurity measures that work against the spread of animal and plant diseases are part of the answer and there are good examples of good practice in organisations represented on the Biodiversity Forum that should be shared and made mainstream.

Some INNS cause insidious effects through their monopolisation of habitats that they may come to dominate. Himalayan balsam, for example, can take over whole swathes of riparian habitat, casting shade that excludes most other plants and leaving river banks bare and exposed to erosion when the balsam dies back in winter. Eradication may prove practically impossible and even a measure of control over infestations can be technically difficult, time consuming and costly to achieve.

The Biodiversity Forum will seek out advice and best guidance from organisations such as the Environment Agency and the Rivers Trusts operating in the National Park to identify where targeted, systematic campaigns against INNS would deliver results that would justify the heavy investment of time and money that could be involved in controlling INNS.

Where eradication and/or effective control of damaging INNS are unlikely to be achieved there may be a need to undertake work to mitigate the deleterious effects on native species. Grey squirrel culling has been mentioned already in this context and mink control is advocated to encourage the return of water vole. In the case of the white-clawed crayfish, so-called 'Ark' sites are being searched for to which native crayfish may be moved and kept isolated from invading signal crayfish.

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8. High Nature Value Farming

The Nature Recovery Plan is not meant to be a comprehensive land use strategy. The Yorkshire Dales National Park Authority currently intends to work with its partners to produce detailed policy on farming to help shape the next statutory National Park Management Plan. Nevertheless, it is recognised that an environmentally sustainable and profitable farming sector is crucial to the Nature Recovery Plan's success. The prospects of this Plan achieving genuine gains for wildlife are dependent on the land uses outside of the 'core areas' and other elements of the nature recovery network (as shown in Figure 1) being complementary and supportive of the measures being proposed in the network.

In 2015 the Northern Upland Chain Local Nature Partnership (NUCLNP)[2] called for greater support for what it termed ' High Nature Value' (HNV) farming': "*low intensity farming systems that are particularly valuable for wildlife, the environment and people*" (NUCLNP 2015). The Partnership emphasised that "*low intensity does not mean low-maintenance – managing livestock, meadows, and thousands of miles of dry-stone walls is time-consuming, expensive, and requires high levels of skill and knowledge*". The Yorkshire Dales Biodiversity Forum believes that HNV farming is essential to support nature recovery and would like to see the techniques borrowed from 'regenerative agriculture' deployed more widely:

- Less ploughing and greatly reduced use of chemical fertilisers to benefit soils and improve overall biodiversity;
- More rotational grazing to mimic the effects of wild herds of grazing animals (which would enable areas of grassland to improve soil condition and develop more diverse swards);
- 'Herbal leys' to create forms of grassland that are richer in plant species and which fix nitrogen and need much reduced inputs;
- Meadow diversity enhanced through established techniques such as green-hay strewing, plug planting and wildflower seeding;
- 'Silvo-pastoral' systems with low density tree planting to provide shelter and browse to livestock.

The Forum advocates for the nature benefits of mixed stocking and supports moves towards a greater proportion of cattle grazing for the more natural habitats (see Appendix B). Large herbivore grazing is (and always has been) a key natural process and we cannot achieve nature recovery without it. There is a climate change challenge regarding livestock and methane, but this may be overcome through trialling new approaches such as including minerals in feed to reduce methane emissions from ruminants.

Potentially, there are business benefits from some of the approaches that are suggested, for example, through economies arising from reduced or zero fertilizer and less reliance on imported feedstuffs and moves towards pasture-fed systems. There

[2] The Northern Upland Chain Local Nature Partnership was established in 2012, and includes over 50 organisations. It covers four nationally designated landscapes: Northumberland National Park, North Pennines AONB, Yorkshire Dales National Park, Nidderdale AONB and Forest of Bowland AONB.

can be niche marketing opportunities for farmers who can demonstrate their commitment to HNV principles. Organic farming can also have a part to play.

The Biodiversity Forum wishes to continue working jointly with the National Park Authority and the other partners engaged in the Farming and Land Management Forum and the Dales Woodland Forum to trial and monitor new forms of land management that can deliver more for nature.

9. Focus on Public Benefits

The actions we are seeking for nature recovery are designed to provide many additional benefits for people. These cover:

- Engaged local communities;
- A sustainable future for farming, producing high quality food.
- Sustainable sporting enterprises.
- Sustainable forestry.
- Sustainable tourist businesses.
- Climate change mitigation, reducing greenhouse gas emissions.
- Climate change adaptation.
- Reduced flood risk in settlements outside the National Park
- Clean water and soils.
- Beautiful landscapes with sustainable access opportunities promoting recreation, health & well-being - walking; cycling; inspiration; relaxation; volunteering; education; citizen science;
- Maintaining archaeological features and cultural histories.

10. Summary Tables of Objectives and Targets

The Biodiversity Forum's intention is to develop five-year delivery action plans to elaborate the general objectives set in the National Park Management Plan and the county-level Local Nature Recovery Strategies.

In the summary tables below the baseline figures are taken from the last published National Park 'Trends and Status' report (REF) and relate to the situation as it was known in 2020.

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	Objective	2020 Baseline		2040 Target	Baseline Detail (Ref)		
	Limestone Country					Within SSSI	Outside SSSI
1a	Create or restore 700ha of species-rich calcareous grassland (containing proportions of scrub/wood pasture in places)	Upland Calcareous grassland	7,022ha	+700ha	Upland Calcareous grassland	6,001ha	1,021ha
		Lowland Calcareous grassland	130ha		Lowland Calcareous grassland	43ha	87ha
		Totals	**7,152ha**	**7,852ha**	**Totals**	**6,044ha**	**1,108ha**
2a	Enhance an additional 1,500ha of existing limestone pavement, calcareous & calaminarian grassland and flush habitats (and mosaics including these habitats) to good condition	Outside SSSI	1,544ha	150ha enhanced	Condition A	N/A	575ha
					Condition B	N/A	355ha
					Condition C	N/A	408ha
		Within SSSI	10,356ha	1,350ha enhanced	Favourable	3,130ha	N/A
					Unfavourable Recovering	6,602ha	N/A
					Unfavourable No Change	566ha	N/A
					Unfavourable Declining	9ha	N/A
		Totals	**11,900ha**	**1,500ha**	**Total**	**10,307ha**	**1,338ha*NB**
		Total improvable	**7,940ha**	**6,440ha**	**Total improvable**	**7,177ha**	**763ha**

NB The baseline for condition data may be greater than the sum of the breakdown in baseline detail column, where not all habitat has been condition assessed

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	Objective	2020 Baseline		2040 Target	Baseline Detail (Ref)		
	Moorland					Within SSSI	Outside SSSI
1b	Convert or restore 2,250ha of fragmented heath, rough grazing and severely degraded peatland to moorland priority habitat	Blanket Bog	29,782ha	+2,250ha	Blanket Bog	21,458ha	8,324ha
		Upland Heath	16,615ha		Upland Heath	15,759ha	856ha
		Upland fen, Flush and Swamp	1,624ha		Upland fen, Flush and Swamp	414ha	1,210ha
		Totals	**48,021ha**	**50,271ha**	**Totals**	**37,631ha**	**10,390ha**
2b	Enhance an additional 8,000ha of upland heath, bog, and flush to good condition.	Outside of SSSI	10,390ha	1,788ha enhanced	Condition A	N/A	1,447ha
					Condition B	N/A	2,529ha
					Condition C	N/A	6,368ha
		Within SSSI	37,631ha	6,212ha enhanced	Favourable	6,386ha	N/A
					Unfavourable Recovering	29,731ha	N/A
					Unfavourable No Change	1,513ha	N/A
					Unfavourable Declining	0ha	N/A
		Total	**48,021ha**	**8,000ha**	**Total**	**37,630ha**	**10,344ha*NB**
		Total improvable	**40,141ha**	**32,141ha**	**Total improvable**	**31,244ha**	**8,897ha**
2c	By 2030, survey and map existing calaminarian grassland	N/A		N/A	N/A		

NB The baseline for condition data may be greater than the sum of the breakdown in baseline detail column, where not all habitat has been condition assessed

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	Objective	2020 Baseline	2040 Target	Baseline Detail (Ref)
	Freshwater			
1c	Carry out works on 100 km of rivers so that they are reconnected to their floodplains and there is an increased area of associated wetland habitat	6,950km mapped watercourses 222km statutory main river	+100km	464km of watercourses sits within 20m of an area identified in the EA floodplain reconnection potential dataset
1d	Riparian planting along 500km of watercourses	6,950km mapped watercourses 222km statutory main river	+500km	4,000km identified as needing shade in the Keeping Rivers Cool dataset
1e	Create 100 new wildlife ponds or scrapes and/or other wetland features	116 ponds	+100 (216 in total)	116 ponds have been recorded during the 'Dale by Dale' habitat surveys, but the total number of ponds within the National Park will be considerably higher
2d	Carry out works along 1,000km of river to protect or enhance river and riparian (ecological) condition	6,950km mapped watercourses 222km statutory main river	+1,000km	The sum of targets 1c, 1d and 3c (700km), plus additional
2e	Carry out work to bring all three marl lakes within the National Park (Malham Tarn, Semer Water & Sunbiggin Tarn) into good ecological condition.	All 3 in unfavourable condition	N/A	Condition assessed by Natural England and/or Environment Agency
3b	80% of the manmade barriers to fish passage will have been mitigated.	196 artificial barriers mapped in the park	80% = 157 barriers mitigated	This is consistent with the aspirations of organisations and partnerships focused on barrier removal, such as the Great Yorkshire Rivers partnership
3c	Work to remove or control INNS and prevent further spread, will be carried out along 100km of watercourses and their riparian habitats	6,950km mapped watercourses 222km statutory main river	100km	The extent of INNs along watercourses is poorly known

NB The baseline for condition data may be greater than the sum of the breakdown in baseline detail column, where not all habitat has been condition assessed

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	Objective	2020 Baseline		2040 Target	Baseline Detail (Ref)		
	Valleys					Within SSSI	Outside SSSI
1f	Create 1,300ha of species-rich grassland (such as meadow, pasture or wood-pasture).	Upland Hay Meadows	1,184ha	+1,300ha	Upland Hay Meadows	741	443
		Lowland Meadows	301ha		Lowland Meadows	1	300
		Totals	**1,485ha**	**2,785ha**	**Totals**	**742ha**	**743ha**
1g	Create/plant 250km of species-rich hedgerow	Length of hedgerow in the park unknown EIP target: Create or restore 37,000miles of hedgerow by 2037, and 45,000 by 2050 250km is 0.42% of the national target		250km	CPRE target: 120,000miles by hedgerows 12km forecast to be funded through FiPL 2021-2024		
1h	By 2030, waxcap-rich grasslands will be identified, surveyed and mapped	N/A		N/A			
2f	Restore and enhance an additional 350ha of species-rich meadow, pasture & semi-improved grassland habitats	Outside SSSI	743ha	234ha enhanced	Condition A	N/A	244ha
					Condition B	N/A	124ha
					Condition C	N/A	340ha
		Within SSSI	742ha	116ha enhanced	Favourable	514ha	N/A
					Unfavourable Recovering	216ha	N/A
					Unfavourable No Change	3ha	N/A
					Unfavourable Declining	9ha	N/A
		Total	**1,485ha**	**350ha**	**Totals**	**742ha**	**708ha*[NB]**
		Total improvable	**692ha**	**342ha**	**Total improvable**	**228ha**	**464ha**

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3d	By 2030, the best examples of grassy roadside verges will be identified, surveyed and mapped	N/A	N/A	N/A	N/A	N/A	N/A
3e	By 2030, the National Park's networks of hedgerows will be identified, surveyed and mapped.	N/A	N/A	N/A	N/A	N/A	N/A

NB The baseline for condition data may be greater than the sum of the breakdown in baseline detail column, where not all habitat has been condition assessed

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	Objective	2020 Baseline	2040 Target	Baseline Detail (Ref)
	Woodland			
1i	Increase woodland cover in the NP from 4% to 6% by 2030 (equivalent to 6000ha of woodland habitat)	Dales Woodland Strategy	6,000ha	Dales Woodland Strategy
1j	Plant 6,000 trees either as individual specimens or in small clumps	N/A	6,000	Dales Woodland Strategy
1k	Survey and map all existing wood pasture and parkland habitat	N/A	N/A	N/A
2h	Improve the condition of native woodland, parkland and wood pasture habitats (and of mosaics including these habitats) such that 75% of the total area is in good condition by 2042	**Significant proportion not condition assessed. The below figures are a percentage of the total condition assessed area, not the total areas.**	75%	

	Good condition
Within SSSI	27% across 1375ha
Outside SSSI	16% across 447ha

	Within SSSI	Outside SSSI
Condition A	N/A	72ha
Condition B	N/A	58ha
Condition C	N/A	317ha
Favourable	375ha	N/A
Unfavourable Recovering	926ha	N/A
Unfavourable No Change	74ha	N/A
Unfavourable Declining	0ha	N/A
Totals	**1375ha**	**447ha*NB**
Average Favourable/ Condition A	**27%**	**16%**

2i	The condition of ancient woodland (an irreplaceable habitat) improves such that 75% of the total area is in good condition by 2042	TBC	TBC	TBC
2j	70% of woodland is in active management by 2030	TBC	70%	TBC

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NB The baseline for condition data may be greater than the sum of the breakdown in baseline detail column, where not all habitat has been condition assessed

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	Objective	2020 Baseline	2040 Target	Baseline Detail (Ref)
	Species			
4a	90% of species in category 1 (as listed in Appendix C) are in stable or increasing populations.	76% of the 'Priority Species' for which meaningful data was available (61 out of 122 Species) had populations that were either stable or increasing.	90%	There are 41 species currently in Category 1 (see appendix C). Of these 22 were Priority Species in the last BAP: Two species were in populations that were increasing (Hen Harrier, Northern Brown Argus); four were declining (Yellow Wagtail, Juniper, Field Gentian, Marsh Saxifrage); ten species were in stable populations and the status of five was unknown. Therefore, out of the suite of 22 species, 55% were known to be in either stable or increasing populations.
4b	By 2025 draw up and adopt a plan for monitoring taxa that are sensitive to landscape-scale changes in habitat (chosen from category 2 species).	N/A	Plan by 2025	N/A

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11. References

To be added

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APPENDIX A: Biodiversity Forum members

Organisations represented on the Yorkshire Dales Biodiversity Forum

- Cumbria Wildlife Trust
- Environment Agency
- Friends of the Dales (Yorkshire Dales Society)
- National Trust
- Natural England
- Royal Society for the Protection of Birds (RSPB)
- Upper Wharfedale Field Society
- Wharfedale Naturalists' Society
- Wild Trout Trust
- Wildlife Trust for Lancashire, Manchester & North Merseyside
- Woodland Trust
- Yorkshire Dales Millennium Trust
- Yorkshire Dales National Park Authority
- Yorkshire Peat Partnership
- Yoredale Natural History Society
- Yorkshire Wildlife Trust
- Yorkshire Dales Rivers Trust

Independent members seconded by the Forum:

- Dr Steve Carver
- Dr Peter Welsh (Chair of Forum)

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APPENDIX B: A Position Statement on Livestock Grazing Systems for Nature

Grazing as a Natural Process

The main natural herbivores in western Europe prior to human agriculture and livestock management would have `been deer, aurochs and wild boar, in places with bison, elk and tarpan (ponies). Our plant and animal communities evolved with this grazing impact. The native species and communities relied (and still rely) on the diversity and dynamism of habitat structure created. Things have changed progressively and dramatically over the last few thousand years but evolution is generally slow and most of our plant/animal communities are still adapted to those longer-term natural processes.

Thus, grazing is a vital 'natural process' and our most natural and biodiverse areas of countryside are those with a mix of trees, shrubs and open ground habitats that are created and maintained with grazing as part of the system. Situations where people have tried to exclude any significant grazing have generally resulted in relatively species-poor and uniform communities. Fencing-out livestock can allow for short-term recovery of some species, it often results in a dense and smothering growth of grasses or shrubs or alternatively uniform shady woodland without the diversity of grassy of shrubby clearings. There are exceptions, particularly where the environment is so harsh as to naturally limit grazing and plant growth - such as cliff ledges, very wet bog and extensive blocks of limestone pavement (eg as at Scar Close on Ingleborough).

What Grazing Animals?

We still have roe and red deer but we need modern replacements for the other major grazers and obviously want to work with livestock farmers to help mimic the grazing impacts. The options are clearly cattle, ponies, pigs and now sheep.

There are surprisingly very few scientific studies into the relative effects on nature of different grazing animals but conservation bodies and conservation graziers have lots of observational and anecdotal evidence. In relation to sheep and cattle, the experience generally favours hardy cattle for most situations, albeit with the potential addition of ponies and/or pigs in certain situations. The argument is that sheep in high numbers tend to produce a uniform grassy vegetation whilst in low numbers they abandon areas of coarser vegetation and concentrate on any patches of sweeter grazing. Sheep graze more selectively than cattle and often preferentially graze 'valued' herbs like orchids whilst ignoring coarse species like mat grass, purple moor grass or bracken. By contrast, light grazing with hardy cattle tends to produce a much more structurally diverse vegetation, through the impact of hoof prints and dunging as well as by grazing and trampling areas of coarser vegetation. Sheep can also access steeper and rockier terrain than cattle and limit regeneration of shrubs and other species in these areas.

With light cattle grazing, conservation bodies have seen positive results either year-round across extensive areas or alternatively with pulse grazing across different units. However, there are also many situations where sheep grazing has produced positive results for nature. In particular, late summer or phases of autumn/winter grazing with sheep can help create or maintain high-quality communities. There are also situations

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where sheep and even goats might be used to help slow the speed of scrub encroachment to maintain a dynamic mix of woodland, scrub and open habitats.

More research and trialling of different grazing animal mixes is needed. It is hoped that Dales farmers can work with ecologists/conservationists to trial new approaches including of various proportions of cattle with sheep.

What Grazing Systems?

The diverse mosaic of natural habitats that nature recovery requires can be achieved either through careful management of different fields or units across farms or estates (e.g. using classic agri-environment scheme prescriptions for different habitats) or alternatively through light and extensive grazing across large areas (with restored hydrology and some trees and shrubs).

Fuller nature recovery, across the range of landscapes of the National Park, is going to be most easily achieved with a move to the very low-input farming systems that economic studies suggest are now also the most cost-effective for farm businesses. Most core livestock enterprises are shown to be loss making when relying on the increasingly expensive fertilisers, feedstuffs and machinery. Thus, moves towards pasture-fed systems, without inputs of nutrients as fertiliser or bought-in feed, save on costs at the same time as drastically reducing nutrient pollution of habitats and water.

There are debates as to what the term 'regenerative farming' means or encompasses. However, it is certainly clear that approaches to improving both soil health and vegetation growth and diversity can benefit farm outputs as well as nature, carbon storage and natural flood management.

Organic farming systems are also desirable for nature recovery given that minimising herbicides and pesticides will mean that fewer non-target species are affected.

Livestock and Climate Change

Climate change is undoubtedly a very serious challenge, and there are those who argue that our country needs to go as far as getting rid of methane-emitting livestock.

We believe this would be disastrous for nature and an inappropriate response. It is true that sheep and cattle do produce methane as a by-product of their digestive systems. However, natural herbivores have always produced methane in this way and there are also microbes in soils that break down methane. Away from core nature recovery areas there is a need for further research into methane cycling and the carbon budgets for different forms of livestock grazing systems including wood pasture or agro-forestry.

For the Yorkshire Dales National Park we argue that low levels of livestock grazing are essential to assist nature recovery, and can be achieved alongside carbon neutrality or positive carbon sequestration. The overall package of nature recovery measures proposed will significantly increase carbon storage in peatlands, soils and in trees.

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APPENDIX C: Species of conservation importance

Category 1 Species - where bespoke conservation action above and beyond habitat / site management is required. (Grey shading indicates a species formerly a Priority Species in the 2020 Trends and Status review)		
Species	**Common Name**	**Taxon**
Apus apus	Swift	bird
Circus cyaneus	Hen Harrier	bird
Delichon urbicum	House Martin	bird
Falco peregrinus	Peregrine	bird
Milvus milvus	Red Kite	bird
Motacilla flava	Yellow Wagtail	bird
Numenius arquata	Curlew	bird
Passer domesticus	House Sparrow	bird
Sturnus vulgaris	Starling	bird
Tetrao tetrix	Black Grouse	bird
Turdus torquatus	Ring Ouzel	bird
Vanellus vanellus	Lapwing	bird
Juniperus communis	Juniper	conifer
Austropotamobius pallipes	White-clawed Crayfish	crustacean
Arabis hirsuta	Hairy Rock-cress	flowering plant
Cypripedium calceolus	Lady's-slipper	flowering plant
Dryas octopetala	Mountain Avens	flowering plant
Gentianella campestris	Field Gentian	flowering plant
Neotinea ustulata	Burnt Orchid	flowering plant
Polygala amarella	Dwarf Milkwort	flowering plant
Salix repens	Creeping Willow	flowering plant
Saxifraga hirculus	Marsh Saxifrage	flowering plant
Aricia artaxerxes	Northern Brown Argus	insect - butterfly
Boloria selene	Small Pearl-bordered Fritillary	insect - butterfly
Adscita statices	The Forester	insect - moth
Entephria flavicinctata	Yellow-ringed Carpet	insect - moth
Perizoma minorata	Heath Rivulet	insect - moth
Photedes captiuncula	Least Minor	insect - moth
Thera cognata	Chestnut-coloured Carpet	insect - moth
Trichopteryx polycommata	Barred-tooth Stripe	insect - moth
Arvicola amphibius	European Water Vole	terrestrial mammal
Muscardinus avellanarius	Hazel Dormouse	terrestrial mammal
Myotis brandtii	Brandt's Bat	terrestrial mammal
Myotis daubentonii	Daubenton's Bat	terrestrial mammal
Myotis mystacinus	Whiskered Bat	terrestrial mammal
Myotis nattereri	Natterer's Bat	terrestrial mammal
Pipistrellus pipistrellus	Common Pipistrelle	terrestrial mammal
Pipistrellus pygmaeus	Soprano Pipistrelle	terrestrial mammal
Plecotus auritus	Brown Long-eared Bat	terrestrial mammal
Sciurus vulgaris	Eurasian Red Squirrel	terrestrial mammal

Category 2 Species – where habitat / site management is sufficient. (Grey shading indicates a species formerly a Priority Species in the 2020 Trends and Status review)		
Species	**Common Name**	**Taxon**
Bufo bufo	Common Toad	amphibian
Lissotriton helveticus	Palmate Newt	amphibian
Lissotriton vulgaris	Smooth Newt	amphibian
Rana temporaria	Common Frog	amphibian
Triturus cristatus	Great Crested Newt	amphibian
Acanthis cabaret	Lesser Redpoll	bird
Alauda arvensis	Skylark	bird
Alcedo atthis	Kingfisher	bird
Anthus trivialis	Tree Pipit	bird
Asio flammeus	Short-eared Owl	bird
Calidris alpina	Dunlin	bird
Charadrius hiaticula	Ringed Plover	bird
Chloris chloris	Greenfinch	bird
Circus aeruginosus	Marsh Harrier	bird
Cuculus canorus	Cuckoo	bird
Emberiza citrinella	Yellowhammer	bird
Emberiza schoeniclus	Reed Bunting	bird
Falco columbarius	Merlin	bird
Lagopus lagopus scotica	Red Grouse (scotica)	bird
Larus argentatus	Herring Gull	bird
Linaria cannabina	Linnet	bird
Linaria flavirostris	Twite	bird
Locustella naevia	Grasshopper Warbler	bird
Muscicapa striata	Spotted Flycatcher	bird
Passer montanus	Tree Sparrow	bird
Perdix perdix	Grey Partridge	bird
Phylloscopus sibilatrix	Wood Warbler	bird
Pluvialis apricaria	Golden Plover	bird
Saxicola rubetra	Whinchat	bird
Scolopax rusticola	Woodcock	bird
Turdus viscivorus	Mistle Thrush	bird
Tyto alba	Barn Owl	bird
Anguilla anguilla	European Eel	bony fish
Cottus gobio	Bullhead	bony fish (Actinopterygii)
Salmo salar	Atlantic Salmon	bony fish (Actinopterygii)
Salmo trutta	Brown/Sea Trout	bony fish (Actinopterygii)
Lampetra fluviatilis	Lamprey	jawless fish (Agnatha)
Lampetra planeri	Brook Lamprey	jawless fish (Agnatha)
Zootoca vivipara	Common Lizard	reptile
Lepus europaeus	Brown Hare	terrestrial mammal
Lutra lutra	Eurasian Otter	terrestrial mammal
Nyctalus noctula	Noctule Bat	terrestrial mammal

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Category 2 Species – where habitat / site management is sufficient. (Grey shading indicates a species formerly a Priority Species in the 2020 Trends and Status review)		
Species	**Common Name**	**Taxon**
Polystichum lonchitis	Holly-fern	fern
Alchemilla glomerulans	Lady's-Mantle	flowering plant
Alchemilla minima	Alchemilla	flowering plant
Alchemilla wichurae	Lady's-Mantle	flowering plant
Anacamptis morio	Green-winged Orchid	flowering plant
Andromeda polifolia	Bog-rosemary	flowering plant
Antennaria dioica	Mountain Everlasting	flowering plant
Arenaria norvegica subsp. anglica	English Sandwort	flowering plant
Bartsia alpina	Alpine Bartsia	flowering plant
Blysmus compressus	Flat-sedge	flowering plant
Botrychium lunaria	Moonwort	flowering plant
Briza media	Quaking-grass	flowering plant
Calamagrostis stricta	Narrow Small-reed	flowering plant
Calluna vulgaris	Heather	flowering plant
Campanula rotundifolia	Harebell	flowering plant
Cardamine impatiens	Narrow-leaved Bitter-cress	flowering plant
Carex diandra	Lesser Tussock-sedge	flowering plant
Carex echinata	Star Sedge	flowering plant
Carex elata	Tufted-sedge	flowering plant
Carex ericetorum	Rare Spring-sedge	flowering plant
Carex flava	Large Yellow-sedge	flowering plant
Carex flava x viridula = C. x alsatica	Sedge	flowering plant
Carex lasiocarpa	Slender Sedge	flowering plant
Carex limosa	Bog-sedge	flowering plant
Carex muricata subsp. muricata	Large-fruited Prickly-sedge	flowering plant
Carex pauciflora	Few-flowered Sedge	flowering plant
Carex pulicaris	Flea Sedge	flowering plant
Carex vesicaria	Bladder-sedge	flowering plant
Carlina vulgaris	Carline Thistle	flowering plant
Cerastium arvense	Field Mouse-ear	flowering plant
Chenopodium bonus-henricus	Good-King-Henry	flowering plant
Cichorium intybus	Chicory	flowering plant
Cirsium heterophyllum	Melancholy Thistle	flowering plant
Clinopodium acinos	Basil Thyme	flowering plant
Coeloglossum viride	Frog Orchid	flowering plant
Corallorhiza trifida	Coralroot Orchid	flowering plant
Crepis mollis	Northern Hawk's-beard	flowering plant
Cruciata laevipes	Crosswort	flowering plant
Daphne mezereum	Mezereon	flowering plant
Drosera rotundifolia	Round-leaved Sundew	flowering plant
Epipactis palustris	Marsh Helleborine	flowering plant

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Category 2 Species – where habitat / site management is sufficient. (Grey shading indicates a species formerly a Priority Species in the 2020 Trends and Status review)		
Species	**Common Name**	**Taxon**
Erica cinerea	Bell Heather	flowering plant
Erica tetralix	Cross-leaved Heath	flowering plant
Eriophorum angustifolium	Common Cottongrass	flowering plant
Euphrasia officinalis subsp. monticola	Euphrasia officinalis subsp. monticola	flowering plant
Gentianella amarella	Autumn Gentian	flowering plant
Gentianella amarella subsp. septentrionalis	Autumn Gentian	flowering plant
Geranium sanguineum	Bloody Crane's-bill	flowering plant
Geranium sylvaticum	Wood Crane's-bill	flowering plant
Hammarbya paludosa	Bog Orchid	flowering plant
Helianthemum nummularium	Common Rock-rose	flowering plant
Hieracium stewartii	Stewart's Hawkweed	flowering plant
Hyacinthoides non-scripta	Bluebell	flowering plant
Jasione montana	Sheep's-bit	flowering plant
Knautia arvensis	Field Scabious	flowering plant
Lathyrus linifolius	Bitter-vetch	flowering plant
Melampyrum pratense	Common Cow-wheat	flowering plant
Meum athamanticum	Spignel	flowering plant
Minuartia hybrida	Fine-leaved Sandwort	flowering plant
Minuartia verna	Spring Sandwort	flowering plant
Myrica gale	Bog-myrtle	flowering plant
Nardus stricta	Mat-grass	flowering plant
Neottia nidus-avis	Bird's-nest Orchid	flowering plant
Ophrys insectifera	Fly Orchid	flowering plant
Oxalis acetosella	Wood-sorrel	flowering plant
Parnassia palustris	Grass-of-Parnassus	flowering plant
Pedicularis palustris	Marsh Lousewort	flowering plant
Pedicularis sylvatica	Lousewort	flowering plant
Pinguicula vulgaris	Common Butterwort	flowering plant
Plantago media	Hoary Plantain	flowering plant
Platanthera bifolia	Lesser Butterfly-orchid	flowering plant
Platanthera chlorantha	Greater Butterfly-orchid	flowering plant
Polygala serpyllifolia	Heath Milkwort	flowering plant
Potentilla erecta	Tormentil	flowering plant
Potentilla palustris	Marsh Cinquefoil	flowering plant
Primula farinosa	Bird's-eye Primrose	flowering plant
Pseudorchis albida	Small-white Orchid	flowering plant
Pyrola minor	Common Wintergreen	flowering plant
Pyrola rotundifolia subsp. rotundifolia	Wintergreen	flowering plant
Sagina nodosa	Knotted Pearlwort	flowering plant
Sanicula europaea	Sanicle	flowering plant

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Category 2 Species – where habitat / site management is sufficient. (Grey shading indicates a species formerly a Priority Species in the 2020 Trends and Status review)		
Species	**Common Name**	**Taxon**
Saxifraga hypnoides	Mossy Saxifrage	flowering plant
Sedum villosum	Hairy Stonecrop	flowering plant
Silene flos-cuculi	Ragged-Robin	flowering plant
Solidago virgaurea	Goldenrod	flowering plant
Sparganium natans	Least Bur-reed	flowering plant
Spergula arvensis	Corn Spurrey	flowering plant
Stachys arvensis	Field Woundwort	flowering plant
Succisa pratensis	Devil's-bit Scabious	flowering plant
Teucrium scordium	Water Germander	flowering plant
Trichophorum alpinum	Cotton Deergrass	flowering plant
Triglochin palustre	Marsh Arrowgrass	flowering plant
Utricularia minor	Lesser Bladderwort	flowering plant
Valeriana dioica	Marsh Valerian	flowering plant
Valeriana officinalis	Common Valerian	flowering plant
Veronica officinalis	Heath Speedwell	flowering plant
Veronica scutellata	Marsh Speedwell	flowering plant
Vicia orobus	Wood Bitter-vetch	flowering plant
Viola canina	Heath Dog-violet	flowering plant
Viola lutea	Mountain Pansy	flowering plant
Viola rupestris x riviniana = V. x burnatii	Violet	flowering plant
Viola tricolor	Wild Pansy	flowering plant
Viola tricolor subsp. tricolor	Pansy	flowering plant

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Category 2 Species – where habitat / site management is sufficient. (Grey shading indicates a species formerly a Priority Species in the 2020 Trends and Status review)		
Species	**Common Name**	**Taxon**
Eubria palustris	*Eubria palustris*	insect - beetle
Hydroporus longicornis	*Hydroporus longicornis*	insect - beetle
Meloe violaceus	Violet Oil-beetle	insect - beetle
Oreodytes davisii	*Oreodytes davisii*	insect - beetle
Coenonympha pamphilus	Small Heath	insect - butterfly
Lasiommata megera	Wall	insect - butterfly
Satyrium w-album	White-letter Hairstreak	insect - butterfly
Agrypnetes crassicornis	*Agrypnetes crassicornis*	insect - caddisfly
Baetis niger	Southern Iron Blue	insect - mayfly
Siphlonurus alternatus	*Siphlonurus alternatus*	insect - mayfly
Acronicta rumicis	Knot Grass	insect - moth
Apamea remissa	Dusky Brocade	insect - moth
Atethmia centrago	Centre-barred Sallow	insect - moth
Celaena haworthii	Haworth's Minor	insect - moth
Ceramica pisi	Broom Moth	insect - moth
Chiasmia clathrata	Latticed Heath	insect - moth
Ecliptopera silaceata	Small Phoenix	insect - moth
Eugnorisma glareosa	Autumnal Rustic	insect - moth
Hepialus humuli	Ghost Moth	insect - moth
Hoplodrina blanda	Rustic	insect - moth
Macaria wauaria	V-moth	insect - moth
Mniotype adusta	Dark Brocade	insect - moth
Orthosia gracilis	Powdered Quaker	insect - moth
Spilosoma lubricipeda	White Ermine	insect - moth
Tholera decimalis	Feathered Gothic	insect - moth
Tyria jacobaeae	Cinnabar	insect - moth
Xestia castanea	Neglected Rustic	insect - moth
Quickella arenaria	Sandbowl Snail	mollusc
Vertigo (Vertigo) geyeri	Geyer's Whorl Snail	mollusc
Vertigo (Vertigo) lilljeborgi	Lilljeborg's Whorl Snail	mollusc

Category 2 Species – where habitat / site management is sufficient. (Grey shading indicates a species formerly a Priority Species in the 2020 Trends and Status review)		
Species	**Common Name**	**Taxon**
Hamatocaulis vernicosus	Varnished Hook-moss	moss
Sphagnum capillifolium	Red Bog-moss	moss
Sphagnum cuspidatum	Feathery Bog-moss	moss
Sphagnum magellanicum	Magellanic Bog-moss	moss
Sphagnum palustre	Blunt-leaved Bog-moss	moss
Sphagnum papillosum	Papillose Bog-moss	moss
Sphagnum recurvum	*Sphagnum recurvum*	moss
Thamnobryum cataractarum	Yorkshire feather-moss	moss
Anaptychia ciliaris subsp. Ciliaris	Eagle's claws	lichen
Bacidia circumspecta	*Bacidia circumspecta*	lichen
Cladonia portentosa	*Cladonia portentosa*	lichen
Gyalecta flotowii	*Gyalecta flotowii*	lichen
Gyalecta ulmi	Elm gyalecta	lichen
Toninia sedifolia	*Toninia sedifolia*	lichen

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Category 3 Species – where there is currently insufficient information to assign to either Category 1 or 2. (Grey shading indicates a species formerly a Priority Species in the 2020 Trends and Status review)		
Species	**Common Name**	**Taxon**
Dryobates minor	Lesser Spotted Woodpecker	bird
Poecile palustris	Marsh Tit	bird
Salvelinus alpinus	Arctic Charr	bony fish (Actinopterygii)
Anguis fragilis	Slow-worm	reptile
Vipera berus	Adder	reptile
Erinaceus europaeus	West European Hedgehog	terrestrial mammal
Mustela putorius	Polecat	terrestrial mammal
Pipistrellus nathusii	Nathusius's Pipistrelle	terrestrial mammal
Lycopodium clavatum	Stag's-horn Clubmoss	clubmoss
Cryptogramma crispa	Parsley Fern	fern
Cystopteris dickieana	Dickie's Bladder-fern	fern
Hymenophyllum wilsonii	Wilson's Filmy-fern	fern
Allium oleraceum	Field Garlic	flowering plant
Alopecurus magellanicus	*Alopecurus magellanicus*	flowering plant
Anthemis arvensis	Corn Chamomile	flowering plant
Baldellia ranunculoides	Lesser Water-plantain	flowering plant
Callitriche palustris	Narrow-fruited Water-starwort	flowering plant
Carum carvi	Caraway	flowering plant
Catabrosa aquatica	Whorl-grass	flowering plant
Centaurea cyanus	Cornflower	flowering plant
Colchicum autumnale	Meadow Saffron	flowering plant
Dactylorhiza traunsteinerioides subsp. francis-drucei	Lapland Marsh-orchid	flowering plant
Euphorbia exigua	Dwarf Spurge	flowering plant
Euphrasia arctica	Eyebright	flowering plant
Euphrasia micrantha	Common Slender Eyebright	flowering plant
Euphrasia nemorosa	Eyebright	flowering plant
Euphrasia officinalis subsp. pratensis	Large-flowered Sticky Eyebright	flowering plant
Euphrasia rostkoviana subsp. rostkoviana	Eyebright	flowering plant
Filago vulgaris	Common Cudweed	flowering plant
Fragaria vesca	Wild Strawberry	flowering plant
Fumaria purpurea	Purple Ramping-fumitory	flowering plant
Galeopsis speciosa	Large-flowered Hemp-nettle	flowering plant
Galium pumilum	Slender Bedstraw	flowering plant
Genista anglica	Petty Whin	flowering plant
Genista tinctoria	Dyer's Greenweed	flowering plant
Glebionis segetum	Corn Marigold	flowering plant
Groenlandia densa	Opposite-leaved Pondweed	flowering plant

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Category 3 Species – where there is currently insufficient information to assign to either Category 1 or 2. (Grey shading indicates a species formerly a Priority Species in the 2020 Trends and Status review)		
Species	**Common Name**	**Taxon**
Gymnocarpium dryopteris	Oak Fern	flowering plant
Hieracium amnicola	Riverside Hawkweed	flowering plant
Hieracium ampliatiforme	Small-flowered Hawkweed	flowering plant
Hieracium caesionigrescens	Linton Falls Hawkweed	flowering plant
Hieracium caesitium	Ribbleshead Hawkweed	flowering plant
Hieracium caledonicum	Rubicund Hawkweed	flowering plant
Hieracium candelabrae	Hawkweed	flowering plant
Hieracium duriceps	Small-headed Hawkweed	flowering plant
Hieracium integratum	Toothless Hawkweed	flowering plant
Hieracium jaculifolium	Javelin-headed Hawkweed	flowering plant
Hieracium mirandum	Remote Hawkweed	flowering plant
Hieracium ornatilorum	Large-flowered Hawkweed	flowering plant
Hieracium piligerum	Brindled Hawkweed	flowering plant
Hieracium prenanthoides	Rough-leaved Hawkweed	flowering plant
Hieracium promontoriale	Humphrey Head Hawkweed	flowering plant
Hieracium reticulatiforme	*Hieracium reticulatiforme*	flowering plant
Hieracium rubiginosum	Hawkweed	flowering plant
Hieracium sanguineum	Hawkweed	flowering plant
Hieracium sinuolatum	Sinuate-toothed Hawkweed	flowering plant
Hydrocotyle vulgaris	Marsh Pennywort	flowering plant
Hypericum montanum	Pale St John's-wort	flowering plant
Juncus compressus	Round-fruited Rush	flowering plant
Lepidium campestre	Field Pepperwort	flowering plant
Linum perenne subsp. anglicum	*Linum perenne subsp. anglicum*	flowering plant
Maianthemum bifolium	May Lily	flowering plant
Mentha arvensis	Corn Mint	flowering plant
Orobanche reticulata	Thistle Broomrape	flowering plant
Persicaria minor	Small Water-pepper	flowering plant
Poa alpina	Alpine Meadow-grass	flowering plant
Potamogeton alpinus	Red Pondweed	flowering plant
Potamogeton gramineus	Various-leaved Pondweed	flowering plant
Potamogeton praelongus	Long-stalked Pondweed	flowering plant
Ranunculus flammula	Lesser Spearwort	flowering plant
Rosa agrestis	Small-leaved Sweet-briar	flowering plant
Ruscus aculeatus	Butcher's-broom	flowering plant
Saussurea alpine	Alpine Saw-wort	flowering plant
Scandix pecten-veneris	Shepherd's-needle	flowering plant
Thamnobryum alopecurum	Fox-tail Feather-moss	moss
Zygodon gracilis	Nowell’s limestone moss	moss
Fossombronia foveolata	Pitted Frillwort	liverwort

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Category 3 Species – where there is currently insufficient information to assign to either Category 1 or 2. (Grey shading indicates a species formerly a Priority Species in the 2020 Trends and Status review)		
Species	**Common Name**	**Taxon**
Andrena tarsata	Tormentil Mining Bee	insect - hymenoptera
Bombus muscorum	Moss Carder Bee	insect - hymenoptera
Nomada roberjeotiana	Tormentil Nomad Bee	insect - hymenoptera
Osmia parietina	Wall Mason Bee	insect - hymenoptera
Agriotes sordidus	*Agriotes sordidus*	insect - beetle
Euryporus picipes	*Euryporus picipes*	insect - beetle
Hydraena flavipes	*Hydraena flavipes*	insect - beetle
Hydraena pulchella	*Hydraena pulchella*	insect - beetle
Hydrocyphon deflexicollis	*Hydrocyphon deflexicollis*	insect - beetle
Hydroporus rufifrons	Oxbow Diving Beetle	insect - beetle
Laccornis oblongus	*Laccornis oblongus*	insect - beetle
Meloe proscarabaeus	Black Oil-beetle	insect - beetle
Nebrioporus depressus	*Nebrioporus depressus*	insect - beetle
Nephus quadrimaculatus	*Nephus quadrimaculatus*	insect - beetle
Prasocuris hannoveriana	a beetle	Insect - beetle
Stictonectes lepidus	*Stictonectes lepidus*	insect - beetle
Synaptus filiformis	Hairy Click Beetle	insect - beetle
Telmatophilus caricis	*Telmatophilus caricis*	insect - beetle
Coenonympha tullia	Large Heath	insect - butterfly
Erynnis tages	Dingy Skipper	insect - butterfly
Hipparchia semele	Grayling	insect - butterfly
Acronicta psi	Grey Dagger	insect - moth
Agrochola lychnidis	Beaded Chestnut	insect - moth
Allophyes oxyacanthae	Green-brindled Crescent	insect - moth
Amphipoea oculea	Ear Moth	insect - moth
Amphipyra tragopoginis	Mouse Moth	insect - moth
Anania funebris	White-spotted sable	Insect - moth
Apamea anceps	Large Nutmeg	insect - moth
Arctia caja	Garden Tiger	insect - moth
Brachylomia viminalis	Minor Shoulder-knot	insect - moth
Caradrina morpheus	Mottled Rustic	insect - moth
Cirrhia icteritia	Sallow	insect - moth
Dasypolia templi	Brindled Ochre	insect - moth
Diarsia rubi	Small Square-spot	insect - moth
Diloba caeruleocephala	Figure of Eight	insect - moth
Ennomos erosaria	September Thorn	insect - moth
Ennomos fuscantaria	Dusky Thorn	insect - moth
Entephria caesiata	Grey Mountain Carpet	insect - moth
Epirrhoe galiata	Galium Carpet	insect - moth
Hemaris tityus	Narrow-bordered Bee Hawk-moth	insect - moth
Hemistola chrysoprasaria	Small Emerald	insect - moth

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Category 3 Species – where there is currently insufficient information to assign to either Category 1 or 2. (Grey shading indicates a species formerly a Priority Species in the 2020 Trends and Status review)		
Species	**Common Name**	**Taxon**
Hydraecia micacea	Rosy Rustic	insect - moth
Leucania comma	Shoulder-striped Wainscot	insect - moth
Litoligia literosa	Rosy Minor	insect - moth
Melanchra persicariae	Dot Moth	insect - moth
Orthonama vittata	Oblique Carpet	insect - moth
Scotopteryx chenopodiata	Shaded Broad-bar	insect - moth
Spilosoma lutea	Buff Ermine	insect - moth
Stilbia anomala	Anomalous	insect - moth
Trichiura crataegi	Pale Eggar	insect - moth
Watsonalla binaria	Oak Hook-tip	insect - moth
Xanthorhoe decoloraria decoloraria	Red Carpet	insect - moth
Xestia agathina	Heath Rustic	insect - moth
Isogenus nubecula	Scarce Yellow Sally	insect - stonefly
Cheilosia chrysocoma	*Cheilosia chrysocoma*	insect - true fly
Cheilosia nebulosa	*Cheilosia nebulosa*	insect - true fly
Cnemacantha muscaria	*Cnemacantha muscaria*	insect - true fly
Dicranomyia magnicauda	*Dicranomyia magnicauda*	insect - true fly
Platyparea discoidea	*Platyparea discoidea*	insect - true fly
Tipula coerulescens	*Tipula coerulescens*	insect - true fly
Triogma trisulcata	*Triogma trisulcata*	insect - true fly
Lithobius (Lithobius) borealis	*Lithobius (Lithobius) borealis*	centipede
Cylindroiulus britannicus	*Cylindroiulus britannicus*	millipede
Monocephalus castaneipes	Broad Groove-head Spider	spider
Saaristoa firma	Triangle Hammock-spider	spider
Semljicola caliginosus	Cloud-living Spider	spider

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Category 3 Species – where there is currently insufficient information to assign to either Category 1 or 2. (Grey shading indicates a species formerly a Priority Species in the 2020 Trends and Status review)		
Species	**Common Name**	**Taxon**
Armillaria ectypa	Marsh Honey Fungus	fungus
Entoloma bloxamii	Big Blue Pinkgill	fungus
Geoglossum atropurpureum	Dark-Purple Earthtongue	fungus
Microglossum olivaceum	Olive Earthtongue	fungus
Rubinoboletus rubinus	Crimson Bolete	fungus
Urocystis primulicola	Bird's-Eye Primrose Smut	fungus
Collema dichotomum	River jelly-lichen	lichen
Collemopsidium caesium	*Collemopsidium caesium*	lichen
Gyalecta foveolaris	*Gyalecta foveolaris*	lichen
Gyalidea subscutellaris	*Gyalidea subscutellaris*	lichen
Lecanora epibryon	*Lecanora epibryon*	lichen
Lecanora handelii	*Lecanora handelii*	lichen
Lempholemma cladodes	*Lempholemma cladodes*	lichen
Megaspora verrucosa	*Megaspora verrucosa*	lichen
Poeltinula cerebrina	*Poeltinula cerebrina*	lichen
Pterygiopsis concordatula	*Pterygiopsis concordatula*	lichen
Pterygiopsis lacustris	*Pterygiopsis lacustris*	lichen
Sclerophora pallida	*Sclerophora pallida*	lichen
Staurothele bacilligera	*Staurothele bacilligera*	lichen
Synalissa ramulosa	*Synalissa ramulosa*	lichen
Varicellaria hemisphaerica	*Varicellaria hemisphaerica*	lichen

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APPENDIX D: How the Species Review was conducted

During the second half of 2022, Yorkshire Dales National Park Authority undertook a review of species of conservation concern known to occur in the National Park. The main purpose was to identify species that should be considered in the context of the new Nature Recovery Plan.

Firstly, a baseline list was drawn up of all the species of 'conservation importance' for which there are recent records in the National Park. This was done by asking each of the three Local Record Centres that hold biological records for Yorkshire Dales National Park (Cumbria; Lancashire, and North & East Yorkshire) to provide information on:

- UK Priority Species (now termed 'Section 41 Species');
- Any species listed in a Red Data Book as Near Threatened, Vulnerable, Endangered or Critically Endangered;
- Any species covered by a recognised regional or national action plan; and
- Any species on Annex I of the Birds Directive.

The lists from each of the records centres were amalgamated into one National Park list. This resulted in a baseline list of species that are present in the Yorkshire Dales National Park and which are considered to be of particular conservation importance.

A sub-group of the Biodiversity Forum was set up to divide this list into three categories in order to determine management priorities, allocating each species to one category:

- 'Category 1 Species' – Species that require bespoke conservation action(s) that are above and beyond generic habitat management of a specific habitat. All species in this category must be capable of being monitored within the National Park;
- 'Category 2 Species' – Species that are known can be protected through adequate management of habitats, and, therefore, do not require additional bespoke action;
- 'Category 3 Species' – Species where there is insufficient information available to determine if it should be categorised as a Category 1 or Category 2 Species.

Selected taxonomic experts were consulted on the list. They were asked if there were species that ought to be included in the baseline list due to their qualifying under the criteria given above. Additionally, the experts were asked for their views on whether any species had been incorrectly categorised. For example, were there any species that ought to be considered to be Category 1 that were listed currently in either of the other categories?

The results of this are that there are 394 species included on a list of species of conservation concern for the National Park. This list is currently broken down into 41 Category 1 Species 189 Category 2 Species, and 164 Category 3 Species (see Appendix C).

In the last 'Trends and Status' review published in 2022 for the National Park, the statuses of 122 'Priority Species' were reported upon. The vast majority of the species

covered in the 2022 report are in the baseline list that has been drawn up for this Plan. Adequate data was lacking on 61 (50%) of those species identified as ‘Priority Species’ in the previous BAP and a high proportion of these are now included in Category 3 of the new list.

By categorising species according to criteria that include consideration of whether bespoke action is needed to conserve them and whether the results of taking action can be monitored, it is intended that this will help identify those species where a real difference can be made and where progress could be readily assessed. This should help future Trends and Status reports to paint a more accurate picture of both the actual status of key populations, and of the success of the work being done to conserve them.

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APPENDIX E: Maps

The Yorkshire Dales National Park Authority habitat maps have been developed using a range of national and local datasets. Some habitats have not been systematically surveyed, notably scrub, wood pasture and parkland, calaminarian grassland, hedgerows and species-rich roadside verges. Even with the range of datasets used, we do not have habitat data for the entire national park, and some of the data we do have may be out of date. **Therefore, these maps are designed to provide a landscape and local level guide, not a site level prescriptive tool.**

Habitat network layers on GIS underlie the habitat mapping. These network layers are mainly taken from mapping produced by Natural England's Habitat Network Model, created by the Habitat Networks Mapping Project Team. The maps have been created to "provide an overview of the distribution of habitat networks with suggestions for future action to enhance biodiversity", and have been created using a bespoke GIS tool. The full guidance document for the Natural England habitat networks can be found at https://magic.defra.gov.uk/Metadata_for_magic/Habitat%20Network%20Mapping%20Guidance.pdf.

The targets in this Plan for new habitat creation have been developed using four GIS layers from Natural England's habitat network modelling (REF): 'Restorable Habitat', 'Habitat Restoration/Creation', 'Fragmentation Action Zone' and 'Network Enhancement Zone 1' (NEZ1). The first three layers show areas where creation and restoration for habitats relevant to that network should be prioritised, while NEZ1 identifies wider areas suitable for new habitat creation. The layers have been processed to take account of existing habitat and overlap between different networks. These layers have been used as the baseline for the maximum area of new habitat that can be created. The habitat-specific difficulty and temporal risk multipliers from the Biodiversity Metric 4.0 (REF) were used as factors to account for the difficulty of and time required for new habitat creation. The resulting numbers were then halved, to produce target figures that are considered realistically achievable.

Woodland targets are not based on either of the above methods, and are taken from the Dales Woodlands Strategy. Targets for freshwater habitats are based on specific datasets, referenced in the summary table in Section 10.

The targets for enhancement of existing habitat have been derived using the condition data from the YDNPA 'Dale by Dale' rolling habitat survey, and Natural England's SSSI condition assessments. Habitats in Condition B or C, or in 'Unfavourable Recovering', 'Unfavourable No Change', or 'Unfavourable Declining' categories were all classed as needing some level of enhancement, and form the baseline for these targets. Again, the habitat-specific difficulty and temporal risk multipliers from the Biodiversity Metric 4.0 were used. The resulting numbers were then halved, to arrive at target figures thought to be realistic.Natural England's Habitat Networks are modelled based on a range of habitat and environmental datasets. The key habitat dataset used is the Priority Habitat Inventory. The modelling outputs are only as accurate as the datasets used to inform it. The Cumbria Habitat Networks were created by submitting additional local data to inform a bespoke modelling output using Natural England's habitat network model. This has not

been replicated for Yorkshire Dales National Park due to restrictions on the use of data collected in the Yorkshire Dales National Park Authority habitat survey. Furthermore, while habitats are mapped individually in the Cumbria LNRS, here the habitats are grouped into networks corresponding with the plan's vision statements.

Data sources:

- Yorkshire Dales National Park Authority Habitat Survey data 2010-2021
- Farm Environment Plan (FEP) surveys
- Yorkshire Wildlife Trust FEP surveys
- National Trust Phase 1 and 2 surveys
- Limestone Country Project
- Priority Habitat Inventory
- Natural England Habitat Networks
- Ancient Woodland Inventory
- Forestry Commission England Woodland Creation Offer (EWCO) Keeping Rivers Cool
- Environment Agency Working with Natural Processes (WWNP) Riparian Woodland Potential
- Environment Agency WWNP Floodplain Reconnection Potential
- Environment Agency River Obstacles

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