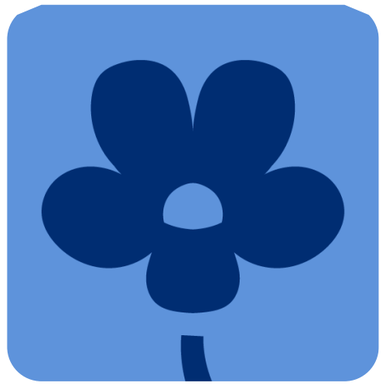
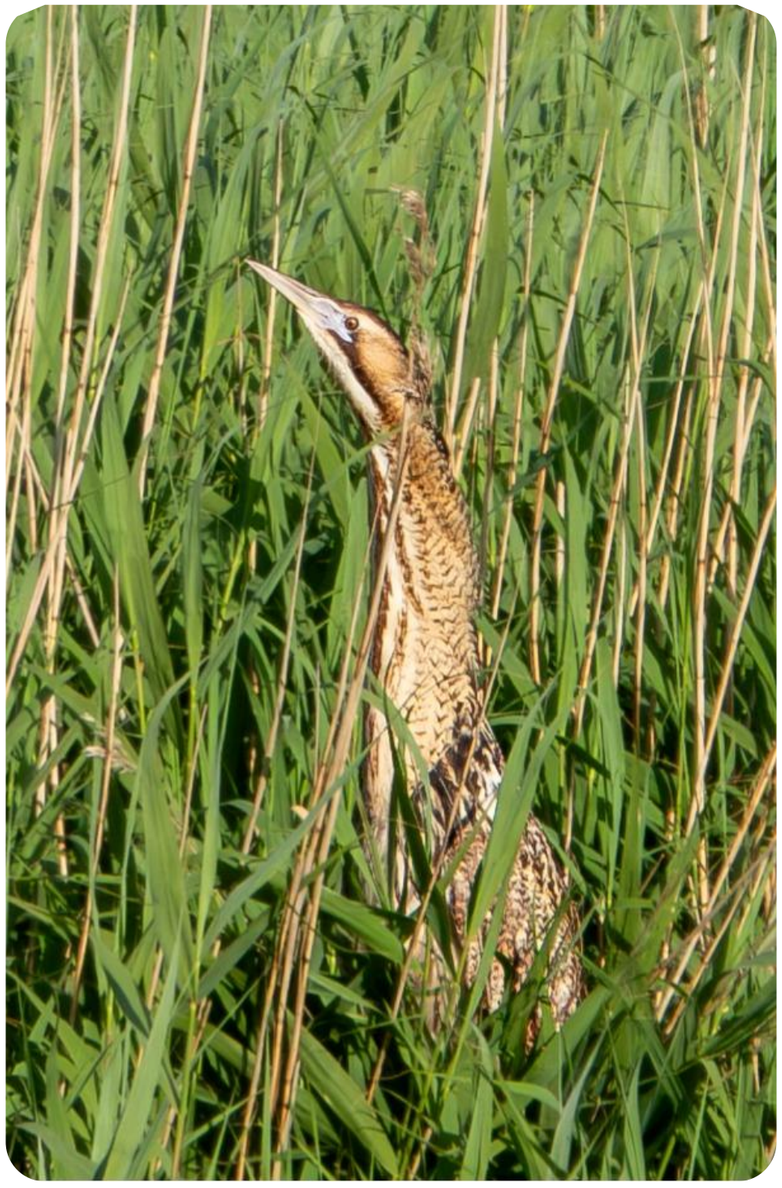
Nature Recovery Plan





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Arnside & Silverdale National Landscape Nature Recovery Plan 2025

Executive Summary

This Nature Recovery Plan sets out the long-term vision and priorities for nature recovery within the Arnside & Silverdale National Landscape alongside steps towards how this can be achieved.

The plan has been developed in response to the 2019 Landscapes Review and subsequent commitment from all National Landscapes to create a focused plan for nature recovery. This plan also sits within the context of the emerging Local Nature Recovery Strategies for Cumbria and Lancashire.

The Arnside & Silverdale National Landscape is an incredibly diverse and nature-rich landscape however, it is recognised that more action is needed to protect and enhance key habitats and species characteristic of the area. This plan sets out in broad terms the current state of nature in the National Landscape alongside considered targets and actions that will support long term recovery and resilience of the diversity of ecosystems within and around the area.

A key focus for delivery of this plan is partnership working based on the Lawton principles of bigger, better and joined. The targets and actions set out in this plan will only be achieved in close collaboration with policy makers, land managers, businesses and local communities.

The objectives and actions for each suite of habitats and relevant priority species are set out in Habitat Plans, each with a series of tables and accompanying maps.

Vision

Arnside & Silverdale National Landscape is a beautiful landscape where nature and people thrive together. The area is internationally important for its rich biodiversity. A distinctive mosaic of high-quality, well-connected habitats hosts diverse and abundant species. The landscape is resilient to the changing climate.

Conserving and enhancing nature is at the heart of managing the land. Nature supports and is supported by a thriving rural economy and vibrant sustainable communities. Challenges and pressures are managed effectively and sensitively through an integrated partnership approach. The status of key species and habitats is well understood, and this evidence informs decision-making.

Nature is highly valued by people who live in, work in, and visit the area. People from all backgrounds are accessing and enjoying incredible wildlife experiences. They are inspired to care for this wildlife-rich landscape and develop a strong connection with nature.

Contents

Habitat Plans

Informing the Plan

This plan is focused on outcomes and how to achieve them, bringing data and evidence from a range of sources to inform effective, practical measures required to realise the vision for the landscape. Targets are informed by the Protected Landscapes Targets and Outcomes Framework[1] (PLTOF). PLTOF Targets aim to meet the Government 25-year Environment Plan outcomes.

Primary sources include those referenced within The 2024 State of the Arnside & Silverdale National Landscape Report:

Online Data Sources	**Other digital data sources provided by organisations/individuals on request**
- Protected Landscapes Targets and Outcomes Framework (PLTOF) - Protected Landscapes Targets and Outcomes Framework - GOV.UK (www.gov.uk) - Open Government Licence (Open GIS mapping Layers) - Open Government Licence (nationalarchives.gov.uk) - Arnside & Silverdale Landscape Seascape character assessment report and evidence - Landscape Seascape Character Assessment - Arnside Silverdale AONB : Arnside Silverdale AONB - Natural England National Character Area database - Morecambe Bay Limestones - National Character Area Profiles (nationalcharacterareas.co.uk) - Natural England Countryside Stewardship Area data 2016 Countryside Stewardship Scheme 2016 Management Areas (England) - data.gov.uk - DEFRA June survey, survey of UK agriculture industry area and operations - Structure of the agricultural industry in England and the UK at June - GOV.UK (www.gov.uk) - Forestry Commission National Forest Inventory (NFI) - Access Forestry Commission datasets - GOV.UK (www.gov.uk) - Forestry Commission Ancient Woodland Inventory (AWI) - Ancient Woodland (England) - data.gov.uk - Woodland Trust ancient and veteran tree database - Woodland Trust Data (arcgis.com) - Natural England SSSI Site search, including SSSI feature condition and citations - Site Search (naturalengland.org.uk) - Natural England Priority Habitats Inventory and Priority Habitats Networks - Priority Habitats Inventory (England) - data.gov.uk - Natural England Peat Soils database - Peaty Soils Location - data.gov.uk - Environment Agency water resources and catchment data - England | Catchment Data Explorer	- National Landscape Data, various and unspecified – Recorded/created and held by Arnside & Silverdale National Landscape, hosted by Lancaster City Council - Local Wildlife Sites, Local Geological Sites, boundaries and features – Reproduced from local authority GIS records, Lancashire County Council, Westmorland & Furness Council. - Nature Reserve Boundaries and areas – reproduced from GIS data supplied by eNGO partners on request at no cost and with no usage limitations. RSPB, The Wildlife Trusts, Woodland Trust, The National Trust, Arnside & Silverdale Landscape Trust. NNR's available on Open Government licence - Bird data, breeding & non-breeding, limited area covering RSPB Leighton Moss and Morecambe Bay reserve and Carnforth/Warton Marsh WeBS sectors – supplied by RSPB on request at no cost and with no usage limitations. - Butterfly Data, UKBMS (UK Butterfly monitoring scheme), limited area including transect records within National Landscape – supplied by Butterfly Conservation on request with no usage limitations. - Plant data – Botanical monitoring data provided on request as part of Arnside and Silverdale Species Recovery programme, supported by The Arnside & Silverdale Landscape Trust. - Geology – British Geological Society surveys, reproduced from data held by Lancaster City Council.

Plan Structure

The Habitat Plans are presented as a series of tables with associated maps, split by habitat groups.

i) Background, PLTOF Target and overall habitat objectives
ii) Table 1 – The current state of the habitat
iii) Table 2 – The actions required for recovery
iv) Map/s – The extent of the habitat and key areas for the associated species and the areas where creation/expansion of the habitat would be ecologically coherent.
v) Case Studies – Examples of local recovery actions and best practice

Where 'Relevant Delivery Partners' are stated in the Actions tables, organisational acronyms are used for brevity. A glossary is included within the Appendix.

Policy Context

In 2018 the Government published 'A Green Future: Our 25 Year Environment Plan for the Future'[1]. The Plan sets out the Government's goals for improving the environment, within a generation, leaving it in a better state than we found it. It includes a commitment to develop a Nature Recovery Network. In turn the 2023 Environmental Improvement Plan[2] sets out a requirement for each local authority to produce a Local Nature Recovery Strategy. The Government is also committed to have 30% of England's terrestrial, inland water and coastal and marine areas being effectively conserved and managed for nature by 2030[3].

Creating a national Nature Recovery Network is a key mechanism for taking action. In 2019 The Landscapes Review[4] outlined the need for National Parks and National Landscapes to be at the heart of this Nature Recovery Network. Following this, the Colchester declaration[5] set out a collective commitment for all National Landscapes to produce their own Nature Recovery Plans (NRP).

This Nature Recovery Plan sets out a focused plan on how we will collectively tackle the nature crisis in and around the Arnside & Silverdale National Landscape. This builds on and develops the key mechanisms and actions for nature recovery already set out in the existing 'AONB Management Plan' 2019-2024[6] - to conserve, enhance and restore the area's characteristic mosaic of habitats and to improve their connectivity. To take targeted action to conserve key species and to improve the understanding of the biodiversity of the area. The NRP will inform the next review of this Management Plan in 2025.

The primary driver for setting spatial objectives within the plan comes from the Protected Landscapes Targets and Outcomes Framework (PLTOF)[7]. The PLTOF has been developed by Natural England and DEFRA in order to deliver Environment Act outcomes within Protected Landscapes and apportion habitats and species targets across the Protected Landscape Network.

[1] DEFRA (2018) *A Green Future: Our 25 Year Plan to Improve the Environment.*
[2] DEFRA (2023) *Environmental Improvement Plan 2023. First revision of the 25 Year Environment Plan.*
[3] Land that is in long term management for nature conservation.
[4] DEFRA (2019) *Landscapes Review: National Parks and AONBs*
[5] NAAONB (2019) *The Colchester Declaration.*
[6] (2019) Arnside & Silverdale AONB Management Plan 2019 – 2024
[7] Protected Landscapes Targets and Outcomes Framework - GOV.UK (www.gov.uk)

The Protected Landscapes Targets and Outcomes Framework (PLTOF) are national targets and split into 3 themes, each with a series of associated targets and reportable indicators: -

- **Thriving plants and wildlife**
- **Mitigating and adapting to climate change**
- **Enhancing Beauty, heritage and engagement with the natural environment**

Thriving Plants and Wildlife

Target 1 - Restore or create more than 250,000 hectares of a range of wildlife-rich habitats within Protected Landscapes, outside protected sites by 2042 (from a 2022 baseline).

NB. the 250k ha total will be split across the whole Protected Landscape network with the target hectarage for Arnside and Silverdale being a proportion of this.

Target 2 - Bring 80% of SSSIs within Protected Landscapes into favourable condition by 2042.

Target 3 - For 60% of SSSIs within Protected Landscapes assessed as having 'actions on track' to achieve favourable condition by 31 January 2028.

Target 4 - Continuing favourable management of all existing priority habitat already in favourable condition outside of SSSIs (from a 2022 baseline) and increasing to include all newly restored or created habitat through agri-environment schemes by 2042.

Target 5 - Ensuring at least 65% to 80% of land managers adopt nature friendly farming on at least 10% to 15% of their land by 2030.

The following indicators will measure progress on the 'thriving plants and wildlife' targets:

- extent of wildlife rich habitat created or restored within Protected Landscapes, outside of protected sites
- percentage of SSSIs within Protected Landscapes in favourable condition
- percentage of SSSIs within Protected Landscapes assessed as having 'actions on track' to achieve favourable condition
- extent of priority habitat within Protected Landscapes, outside of protected sites, in favourable management through agri-environment schemes
- percentage of land managers adopting nature-friendly farming on a percentage of their land

Mitigating and Adapting to Climate Change

Target 6 - Reduce net greenhouse gas emissions in Protected Landscapes to net zero by 2050 relative to 1990 levels.

Target 7 - Restore approximately 130,000 hectares of peat in Protected Landscapes by 2050.

Target 8 - Increase tree canopy and woodland cover (combined) by 3% of total land area in Protected Landscapes by 2050 (from 2022 baseline).

The following indicators will measure progress on the 'mitigating and adapting to climate change' targets:

- the level of greenhouse gas emissions within Protected Landscapes
- extent of peat under restoration in Protected Landscapes
- extent of tree canopy and woodland cover in Protected Landscapes

Enhancing Beauty, heritage and engagement with the natural environment

Target 9 - Improve and promote accessibility to and engagement with Protected Landscapes for all using existing metrics in our Access for All programme.

Target 10 - Decrease the number of nationally designated heritage assets at risk in Protected Landscapes

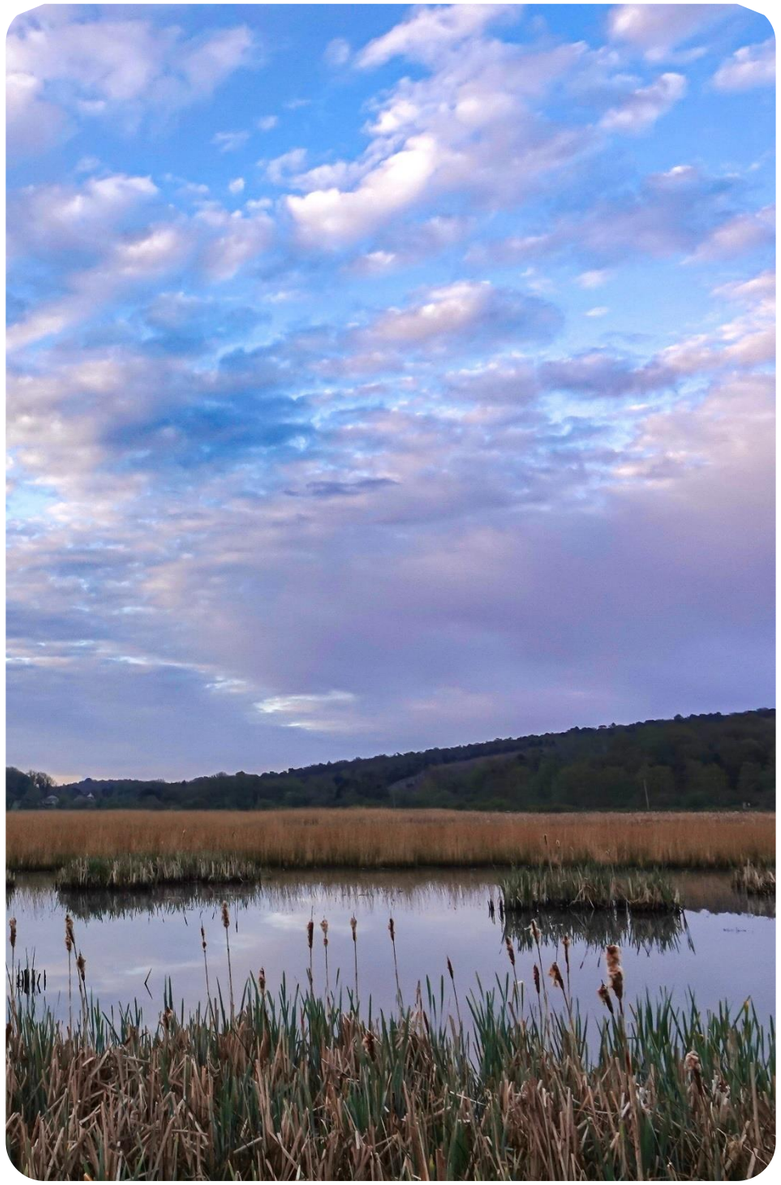
The following indicators will measure progress on the 'enhancing beauty, heritage and engagement' targets:

- improve and promote accessibility to and engagement with Protected Landscapes for all using existing metrics in our Access for All programme:
- metres of accessible path as a percentage of total path
- number of accessible toilets and rest stops
- number of disability accessible parking spaces
- number of accessible gates and gaps
- number of visits and volunteer days facilitated by new equipment
- number of schools engaged (primary and secondary) both inside and outside the Protected Landscape boundary
- number of volunteer days
- number of accessible or easy access routes for which wayfinding has been created or improved
- policies in place to ensure Protected Landscapes are taking positive action to widen the diversity of their staff, boards and volunteers
- number and percentage of nationally designated heritage assets in Protected Landscapes to be deemed at risk. To separately cover the categories of:
- scheduled monuments
- registered parks and gardens
- registered battlefields
- listed buildings (grade I or II*)
- protected wreck sites

The Protected Landscapes Targets and Outcomes Framework (PLTOF) sits alongside several other strategic initiatives and plans that support decision making in and around the National Landscape. These include:

- The emerging Local Nature Recovery Strategies (LNRS) for Lancashire and Cumbria. Lancashire County Council and Westmorland and Furness Council are producing area wide strategies. The National Landscape Nature Recovery Plan will feed into and dovetail with these, offering a finer grain of detail, identifying objectives, actions, and targets at a local level.
- Local Authority Local Plans; including the development of a new local plan for the recently created Westmorland and Furness Council and the Local Plan review being undertaken by Lancaster City Council.
- Morecambe Bay Local Nature Partnership. The plan is providing information on priorities and delivery actions that connect with the wider nature recovery network beyond the National Landscape boundary.
- Arnside & Silverdale AONB Development Plan Document[1] is a planning policy document adopted by Lancaster City Council and Westmorland & Furness Council, which sets out the overall planning approach along with dedicated planning policies to conserve and enhance the area.
- North West Marine Plan[2] which provides a strategic approach to planning activities within the English inshore and offshore waters between the Solway Firth and the River Dee. The Plan provides information to help ensure activities contribute to the achievement of sustainable development and optimal use of the marine area's natural capital.
- Green infrastructure framework and principles[3] within – this links to delivery of the National Planning Policy Framework and Nature Recovery Networks by incorporating Green Infrastructure in local plans and new development
- 'Biodiversity Net Gain' (BNG)[4]. This mechanism can deliver more for nature via the land use planning process. All developments must result in a minimum 10% net gain for biodiversity. In places where this isn't possible on the development site, off site developer contributions are made to support biodiversity gains in other places. This plan can help identify places for action.

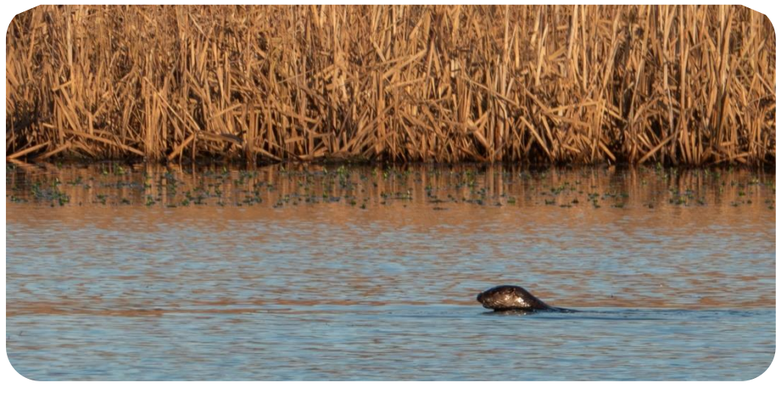
[1] Arnside & Silverdale Area of Outstanding Natural Beauty (AONB) Development Plan Document (DPD) – Adopted Version, 28 March 2019
[2]DEFRA (2021) *North West Inshore and North West Offshore Marine Plan*
[3]Natural England (2023) *Green Infrastructure Principles*
[4]*BNG Provision in planning Environment Act 2021*



Apportionment of targets for Arnside & Silverdale

PLTOF targets are national. Each target has been apportioned between the 44 Protected Landscapes (34 National Landscapes and 10 National Parks). Data has been supplied by Natural England as part of the 2024 PLTOF Data Release.

Target	Year	Current status within A&SNL	Apportioned target
Target 1 – restore/create 250,000ha of priority habitat, outside of protected sites	2042	5237ha of Priority Habitat, 69% of the total Protected Landscape	Restore/create 134ha of priority habitats Restore/create a further 317ha of supporting habitats
Target 2 – 80% of SSSI in favourable condition	2042	119 SSSI features total, 35 features (29.4%) in favourable condition. NB. 43 features currently unrecorded	96 features in favourable condition
Target 3 – 60% of SSSI having 'actions on track' to favourable condition	2028	119 SSSI features total, 5 features (4.2%) with positive 'actions on track'	72 features with positive 'actions on track'
Target 4 – favourable management of all priority habitat outside of SSSI	2042	5237ha of Priority Habitat. No available data on condition of Priority Habitats	5237ha of Priority Habitat plus Target 1 apportionment
Target 5 – Minimum of 65% of land managers adopt 'nature friendly farming' on minimum of 10% of land	2030	3215ha of 'farmed' land[1], 1900ha (61%) of which is under an Agri-Environment Scheme (AES)	Minimum 2090ha (65%) under AES
Target 6 – Reduce greenhouse gas emission to net zero	2050	No data available	No data available
Target 7 – Restore 130,000ha of peat	2050	948ha of Peat soils, 435ha (45%) of which is compatible wetland priority habitat	Restore/create 60ha of compatible priority wetland habitat
Target 8 – Increase woodland canopy cover by 3%	2050	1782ha woodland, 49% of the total terrestrial area	Restore/create 134ha of supporting habitat
Target 9 – Accessibility and Engagement	-	See reportable metrics for Access for All programme	Delivery of existing Access for All programme
Target 10 – Decrease number of nationally designated heritage assets at risk	-	4 Scheduled monuments within the NL, 3 are defined as 'at risk'	Zero Scheduled monuments 'at risk' by 2042.



Mechanisms for Delivery

There are four key factors that will need to be in place to support the delivery of nature recovery within the National Landscape.

Funding

It is recognised that land management which promotes nature recovery has additional capital and revenue cost implications, and long-term funding will be required to deliver nature recovery at scale. A variety of funding streams and mechanism are available that could directly support delivery of nature positive management. Due to the complexity of funding and the varying availability and requirements of grant applications, bids and longer term agreements/covenants, each must be assessed at a programme/project level rather than a plan level. A brief list of potential funding sources could include:

- ELMS/CS-HT or other future Agri-environment schemes
- FiPL or similar
- Biodiversity Net Gain (BNG)
- Carbon credits
- Charitable grant funding
- Conservation covenants

The National Landscape Unit will work with partners to help others secure funding in line with the plan.

Collaboration

As previously mentioned, collaborative working will be key to delivering the nature recovery ambitions in this plan – landowners, farmers, local authorities, conservation organisations and communities all need to be engaged with delivering nature recovery, it is not something the National Landscape team can do alone.

Several mechanisms already exist, within and across the boundaries of the area, that will continue to support this way of working e.g. farmer networks, community groups, the Local Nature Partnership (LNP), River catchment partnerships. The development of the Cumbria and Lancashire LNRSs and potential Super National Nature Reserve will further embed a landscape scale collaborative approach to nature recovery.

Monitoring and data

Regular habitat condition monitoring and clear species monitoring priorities are needed to understand the trajectory of nature recovery. At present a number of monitoring programmes are in place via conservation organisations or local enthusiasts. This needs better coordination and clearer prioritisation to create meaningful data that can be used to review and support more robust management decisions to promote nature recovery.

A better understanding of climate change impacts on species and habitat distribution within the area (particularly flowering plants and invertebrates) will also help with management planning for climate resilience and to focus future survey priorities.

Connecting people and nature

Another key mechanism for supporting delivery of this NRP is re-connecting people with nature.

Many of the habitat and species outcomes in this plan rely on people wanting to actively support nature recovery. This relies on people having the knowledge and ability to make decisions with nature in mind.

This can be achieved through providing innovative education and experiences that celebrate and connect people to the nature of the area e.g. working with local schools and land managers, providing volunteering opportunities, putting on events and promoting nature-based tourism activities.

Monitoring

Regular habitat condition monitoring and clear species monitoring priorities are needed to understand the trajectory of nature recovery. At present several monitoring programmes are in place via statutory bodies, Conservation organisations and/or local enthusiasts. The current level of environmental monitoring taking place is greater than the majority of other Protected landscapes, primarily as a result of having a large number of designated sites and significant areas of land within eNGO ownership.

Current Environmental Monitoring Programmes

Monitoring Programme	Extent	Description	Responsible Partner
Natural England SSSI Condition assessment	Covers all SSSI sites	NE have a statutory duty to monitor condition of all designated SSSI. Monitoring methodology is guided by Common Standards Monitoring[1] (CSM) and is specific to each type of designated feature. The monitoring cycle is usually every 6 years although exceptions can apply for habitats with greater or lesser sensitivity to change. The resulting monitoring data is publicly available and published online through the Natural England sites viewer and DEFRA Magic mapping portal[2]. Individual SSSI site data links are included within the appendix.	NE
Local Wildlife Site condition monitoring	Covers all Biological Heritage Sites (Lancashire) and County Wildlife Sites (Cumbria) NB. Where SSSI overlaps LWS, the SSSI condition is used.	Locally designated sites are monitored by the relevant local authority. Methodology is dependant on the features included within the individual site citation. Good practice is to use a modified version of the SSSI CSM guidance. Monitoring of Local wildlife sites is less consistent, and the quality of data can vary. A&SNL commissioned walkover surveys of all local sites in 2016. Targeted condition surveys are due to be undertaken in 2024/25.	LA, A&SNL
Baseline Environmental Survey (BEHTA)	Relevant farm/holding	BEHTA (and previous FEP) surveys are a required part of the application for Agri-environment grant schemes. BEHTA is a rapid priority habitats and species survey undertaken before the scheme application. Results are an indication of priority habitat extent and broadscale condition. BEHTA surveys are a primary data source in the development of the Natural England Priority Habitats Inventory (PHI) dataset. As BEHTA surveys are commissioned by the grant scheme applicant the condition data is not readily available although habitat type and extent is included within the PHI.	NE, PL
Natural England Priority Habitats Inventory (PHI) – Extent only	All priority habitats	Natural England undertake routine updates to the PHI from a range of sources including BEHTA surveys, aerial imagery and additions by request.	NE
Environment Agency water catchment monitoring	Covers all defined river catchments.	EA undertake regular monitoring of multiple indicators of water quality at a catchment level. Data is publicly available through the EA Catchment data explorer[3]. Individual catchment data links are included within the appendix.	EA

[1] Common Standards Monitoring guidance | JNCC - Adviser to Government on Nature Conservation
[2] MAGIC
[3] England | Catchment Data Explorer

Monitoring Programme	Extent	Description	Responsible Partner
RSPB Annual Reserves Monitoring (ARM)	RSPB reserves and occasionally adjacent sites under agreement with landowner.	ARM monitoring is bespoke to each RSPB reserve and outlined within the respective reserves management plan. ARM predominately monitors breeding birds and habitat extent and quality although may include in-depth or unique single-species surveys eg. Bittern monitoring undertake at RSPB Leighton Moss. RSPB share local data within the National Landscape Partnership on a request and restricted use basis.	RSPB
UK butterfly monitoring survey (UKBMS)	22 transects are routinely recorded across the NL area.	UKBMS is a large scale, long running butterfly survey operated by Butterfly Conservation. Surveys are repeated transects covering a range of priority grassland, woodland and wetland sites within the landscape. Surveys are performed by a range of volunteers and eNGO staff. Results are recorded online through the UKBMS portal and available on request.	BC
Wetland Bird Survey (WeBS)	2 coastal sectors covering the landscape area	WeBS is a long running coastal bird survey operated by British Trust for Ornithology (BTO). Survey method is a single visit bird count once per month August to April over high tide, usually on a Sunday. The survey covers coastal sites and aims to record indicative population data on utilisation of coastal sites by non-breeding waders and waterfowl. Surveys are undertaken by eNGO staff and volunteers.	BTO, RSPB
Arnside & Silverdale Species Recovery Programme	Whole landscape area	The Species recovery programme was started in 2022/23 to improve botanical monitoring within the area. A suite of 50 scarce, unique and/or characteristic plant species are surveyed for by volunteers. The project is led by the Bittern Community Interest Company (BCIC) and supported by A&SNL. Data is held by BCCIC, submitted to the relevant local record centres and shared on request.	BCCIC, A&SNL
NL Meadow surveys	15 meadows and grassland sites across the National Landscape	Grasslands included in the original meadow makers and subsequent grassland restoration projects. Annual or bi-annual survey carried out June – July.	A&SNL
Ad-hoc public record submissions to online data portals; eg. iNaturalist, Birdtrack, NBN etc.	Whole landscape area	There are a large number of active amateur naturalists regularly recording within the area. These records are often submitted through web portals with iNaturalist and Birdtrack being the most frequently used. Survey effort is not consistent and for the most part records are presence/absence. Records are searchable to varying resolutions, from exact location to tetrad and/or 1km square.	Public

Proposed Environmental Monitoring Programmes

Proposed Monitoring Programme	Extent	Description	Responsible Partner
Breeding Wader & Saltmarsh Condition surveys	Saltmarsh, CFGM and areas identified as being suitable for wetland habitat	Modified O'Brien and Smith[1] lowland breeding wader survey covering all saltmarsh areas and (if resource allows) all suitable CFGM. Surveys should be undertaken at least every 3 years and where possible, data on productivity, clutch size, brood survival and associated habitat condition should be recorded. Surveys commissioned by Natural England and undertaken by RSPB in 2016 covering all Morecambe Bay SSSI saltmarsh units may be used as a baseline. Repeat survey over a limited area are planned for 2025.	NE, RSPB, BTO, A&SNL
Hawfinch population survey	Priority deciduous woodland, priority on Ancient Woodland areas	Intent is to gain an indicative breeding population survey across the landscape. As Hawfinch are cryptic and monitoring is difficult there may be an option to undertake a hybrid survey combining acoustic remote monitoring alongside conventional tape lure/look and see surveys. Suggest consulting with Lancaster university over remote monitoring options.	RSPB, BTO, NE, A&SNL
Hedgerow survey	Whole Landscape	Repeat of the 2012 Arnside & Silverdale Hedgerow survey. Utilise newly developed CEH Hedgerow map layers to target surveys.	A&SNL
Deer survey	Whole Landscape	Working through the existing Deer management group, develop appropriate proposals for a landscape-wide deer monitoring methodology. Option to utilise new technology, such as Thermal Drones to monitor deer numbers and activity. Thermal drone monitoring has been utilised successfully elsewhere.	Deer management group members
Hazel Dormouse monitoring	Gaitbarrows NNR and adjacent sites.	Continue monitoring programme developed as part of Cumbria BOOM project to assess long-term establishment and success of reintroductions.	NE, RSPB, NT
Urban amenity greenspace surveys	Public greenspace within villages eg. pitches, village greens etc.	Basic broadscale habitats survey (BEHTA/Phase 1 or similar) to ascertain ecological value of public amenity greenspace.	LPC
Grassland survey	Whole landscape	Basic broadscale habitat survey of all grassland. More detailed botanical (and fungi and potentially invertebrate) survey of grassland showing potential for restoration or sensitive management.	A&SNL, NE
Orchard survey	Whole landscape	Identify, map and basic condition assessment of small orchards not currently shown on the Priority Habitats Inventory (PHI).	A&SNL, NE
Wood Pasture survey	Whole landscape	Identify, map and basic condition assessment of Wood Pasture not currently shown on the PHI. Option to replicate established methodology used for Wood Pasture surveys undertaken in Cumbria on behalf of Natural England in 2024.	A&SNL, NE
Ancient and Veteran Tree Surveys	Whole landscape	Encourage greater use of the Woodland Trust Ancient Tree monitoring scheme. Option to recruit, train and support volunteers to actively survey for ancient and veteran trees within the landscape as part of a casual volunteering offer.	A&SNL, WT, FC

[1] Waders.pdf

SSSI Condition Data

Links to Natural England Designated Sites viewer

SSSI	Condition/Feature link
Silverdale Golf Course	Site feature condition (naturalengland.org.uk)
Hale Moss Caves	Site feature condition (naturalengland.org.uk)
Morecambe Bay	Site feature condition (naturalengland.org.uk)
Jack Scout	Site feature condition (naturalengland.org.uk)
Hawes Water	Site feature condition (naturalengland.org.uk)
Marble Quarry and Hale Fell	Site feature condition (naturalengland.org.uk)
Cringlebarrow and Deepdale	Site feature condition (naturalengland.org.uk)
Underlaid Wood	Site feature condition (naturalengland.org.uk)
Arnside Knott	Site feature condition (naturalengland.org.uk)
Thrang Wood	Site feature condition (naturalengland.org.uk)
Eaves Wood	Site feature condition (naturalengland.org.uk)
Coldwell Farm Pasture	Site feature condition (naturalengland.org.uk)
Middlebarrow	Site feature condition (naturalengland.org.uk)
Gait Barrows	Site feature condition (naturalengland.org.uk)
Leighton Moss	Site feature condition (naturalengland.org.uk)
Warton Crag	Site feature condition (naturalengland.org.uk)
Trowbarrow Quarry	Site feature condition (naturalengland.org.uk)
Far Arnside	Site feature condition (naturalengland.org.uk)
Thrang End and Yealand Hall Allotment	Site feature condition (naturalengland.org.uk)

Water Catchment Condition Data

Links to Environment Agency Catchment Explorer Toolkit

Catchment	Overall Ecological Status	Link
Leighton Beck	Bad	Leighton Beck | Catchment Data Explorer | Catchment Data Explorer
Leighton Moss and the Pool	Moderate	Leighton Moss and The Pool | Catchment Data Explorer | Catchment Data Explorer
Bela	Good	Bela | Catchment Data Explorer | Catchment Data Explorer
Holme Beck	Good	Holme Beck | Catchment Data Explorer | Catchment Data Explorer
Keer	Moderate	Keer | Catchment Data Explorer | Catchment Data Explorer
Lower Keer	Moderate	Keer - Lower | Catchment Data Explorer | Catchment Data Explorer

Glossary of Organisational Acronyms

Acronym	Organisation
LA	Local Authorities – Lancaster City Council and/or Westmorland and Furness Council
LPC	Local Parish Council – Silverdale, Warton, Beetham, Arnside and Yealand respectively
PL	Private Landowners (i.e independent landowners and managers)
NE	Natural England
EA	Environment Agency
MMO	Marine Management Organisation
A&SNL	Arnside & Silverdale National Landscape (Team)
FC	Forestry Commission
NFU	National Farmers Union
CWT	Cumbria Wildlife Trust
LWT	Lancashire Wildlife Trust
LRT	Lune Rivers Trust
BC	Butterfly Conservation
NW-IFCA	Northwest Inshore Fisheries Conservation Authority
RSPB	Royal Society for the Protection of Birds
UU	United Utilities
WT	Woodland Trust
HE	Historic England
TLT	Arnside & Silverdale Landscape Trust
BCIC	Bittern Community Interest Company

Marine & Coastal

Mudflats and saltmarshes cover almost 40% of the Landscape area. These wild and often inaccessible habitats are constantly changing and the species which rely on them have evolved to exploit this dynamic shifting of tides and seasons.

A massive diversity of invertebrates, bivalves, fish and plankton supports up to 200,000 migratory wading birds and wildfowl each autumn and winter.

What does success look like?

Intertidal areas are left to function naturally and coastal movements resulting from climate change are sustainably mitigated.

Dynamic saltmarsh habitats are well managed through appropriate grazing management and natural processes to support key plant species alongside undisturbed feeding, roosting and nesting areas for wading birds.

Nesting and roosting areas across coastal habitats have minimal disturbance from human activities at key times of year.

Marine & Coastal Objectives

- Maintain/improve quality and extent of high value saline influenced habitats within the NL.
- Significantly reduce grazing pressure on grazed saltmarsh within the NL. Seek a shift change in management from heavily sheep grazed marshes to ungrazed or (very) lightly cattle/pony grazed marshes.
- Seek to progress managed retreat/coastal realignment and regulated tidal exchange projects within the NL to re-naturalise the 'hard' coast and mitigate climate change.
- Manage for a more flexible and dynamic coast. Increase successional dynamism of saltmarsh habitats. Seek interventions to promote accretion and early stage 'pioneer' marsh and shingle habitats.
- Restore Hydrology and wet features on saltmarshes to reverse damage caused by historic drainage and increase resilience to climate change impacts.
- Reduce anthropogenic impacts on coastal habitats and species; seek to significantly reduce recreational disturbance pressure on winter high tide roosts and coastal breeding birds.

2042 Target (PLTOF)

- Restore/create 6ha of priority saline-influenced wetland habitat within the NL.

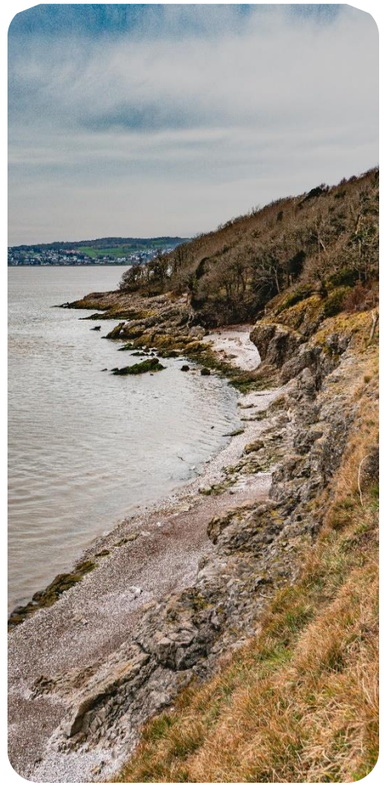
Threats and Pressures

Climate Change	- Increasing rainfall and high winds, stronger storm surges, sea level rise, higher tides and waves leading to saltwater incursion into freshwater, changes to rates of deposition and erosion are all impacting marine and coastal habitats. - Increases in temperature leading to droughts, low flows in rivers/streams, and drying of wetlands. - Changes in seasonality and temperatures leading to changes in the distribution of species, especially those that are found in and around the area on the edge of their range. Some species could decline, new species could colonise.
Pollution, INNS	- Nutrient enrichment from diffuse pollution from inorganic fertiliser/slurry/manure, point pollution from private sewage works and air borne pollution from agriculture and traffic is harming habitats and species - Microplastics from both terrestrial and marine sources. Microplastic sources can be international and have long lasting impacts. - Invasive non-native species
Development	- Engineered coastal defences and coastal rail infrastructure. - Development of marine renewables such as tidal barrages and/or supporting infrastructure eg. cable landfalls
People	- Recreational disturbance of roosting and breeding birds across coastal sites. Risks from walers and dogs, water sports, recreational and commercial fisheries. - Over-grazing of saltmarshes by livestock. SSSI feature assessment has highlighted the impacts of sheep grazing on both sward structure for breeding birds and invertebrate assemblages and its role in exacerbating erosion at the marsh edge. - Increased visitor pressure from increased tourism.
Finance	- Uncertainty around public grants in the future. Agri-environment schemes tend to be complex and support from Natural England can be limited, especially for mid-tier schemes and SFI which form the largest proportion of uptake. - Private finance, through mechanisms such as Biodiversity net gain (BNG), carbon offsetting or corporate partnerships are in their infancy and not currently available to the majority of small to medium landowners.

Marine & Coastal Habitats

State of Nature

Feature	Description	Condition
Intertidal muds and sands	The National Landscape includes 2475ha of intertidal areas, a third of the whole landscape. The intertidal area is highly dynamic, subject to frequent tidal and riverine sediment movements and depositions. There is an abundance and diversity of fish and marine invertebrates from bivalves, marine worms, crustaceans and planktonic organisms. Each has complex, interlinked lifecycles and experiences seasonal and annual changes. This abundance of marine life supports the internationally important bird populations for which the area of designated SPA/SSSI. Limited commercial fishing takes places within the NL, mostly hand gathering for cockles. Commercial and recreational fisheries are managed by NW-IFCA and Environment agency (migratory species)	SSSI condition assessments of the designated habitat features are either 'favourable' or showing as not recorded[1]. The habitat is highly dynamic and extensive monitoring is difficult. Wintering bird populations are used as a proxy for habitat condition. Water quality condition provided by the Environment Agency categorises the intertidal Kent estuary[2] as 'Bad ecological status', failing on phytoplankton and toxic contamination.
Non-breeding (wintering) waders and wildfowl	Morecambe Bay is primarily designated SSSI/SPA for the assemblage of over 200,000 individual wintering waders and wildfowl. Large (20k+) populations of wintering Knot, Dunlin, Redshank and Oystercatcher are present in the bay between September and March. The intertidal areas of the NL support the majority of designated species with notable feeding areas on Warton Sands, Keer Banks and the Kent channel off Blackstones Point. Established high-tide roosts occur on Warton Marsh, Carnforth Slag tips in the south with smaller sub-roosts further north at Silverdale Cove and Far Arnside.	Non-breeding birds are routinely recorded as part of the long-running BTO Wetland Bird Survey (WeBS). There have been no recent species WeBS alerts reported in the period 2019-2024. SSSI condition assessments of the designated bird species features are all 'favourable'[1] with the exception of Grey Plover, a species rarely recorded within the NL. It should be noted that several of the SSSI feature condition assessments are out of date, having missed the 6 year reporting cycle defined in the SSSI Common Standard Monitoring (CSM) guidelines. Recreational disturbance of roosts during winter is considered a significant issue, particularly at Warton Marsh and Carnforth Slag tips. The issue of recreational disturbance has been widely researched and informed, evidenced suggestions exist for mitigation although implementation is complex and resource intensive. For further information see the 2015 Morecambe Bay Bird Disturbance and Access Management report produced by Footprint Ecology[1]



[1] Site feature condition (naturalengland.org.uk)
[1] KENT | Catchment Data Explorer | Catchment Data Explorer

Feature	Description	Condition
Saltmarshes	The area of coastal saltmarsh is approximately 379ha. The largest areas are at Warton Marsh to the SW and Hazelslack Marsh on the Kent Channel. Smaller areas of Marsh occur at New Barns, Blackstone Point, Silverdale Shore and Sandside. Both Sandside and Silverdale are recent depositions of lower-mid marsh and are still accreting. Warton is in an erosion phase and dominated by mid-upper and upper-mid festuca/couch marsh. Warton is sheep-grazed over the majority of the area. Hazelslack has shown improvements over recent years where cattle grazing has been introduced. The landscape contains an approx. 12ha of post-industrial mosaic habitat on Warton marsh. The area was historically tipped with ironworks waste and now forms a proxy for vegetated coastal shingle, a supporting habitat for saltmarshes in the area. Although small, this area has previously been important for specialised coastal breeding species Ringed plover.	Warton Marsh SSSI unit is listed as 'unfavourable', with overgrazing, modified hydrology and recreational disturbance given as primary reasons for poor condition. The post-industrial mosaic (slag tips) habitat to the south of Warton Marsh is included in this assessment. Hazelslack SSSI is improving following interventions through CS in 2022/23. Early results show improvements in structure and diversity. Silverdale, Sandside and New Barns are ungrazed and botanically and structurally in quite good condition however recreational pressure is high and limiting the value of the marshes, particularly for birds.
Redshank (breeding)	Redshank are a saltmarsh specialist and as a species have seen significant declines over the previous 50 years. They require a complex mosaic of ungrazed or lightly grazed mid-upper and upper saltmarsh vegetation, pools, creeks and channels to support breeding and natal stages. The species is highly susceptible to disturbance from people and dogs and high grazing pressure (sheep). Due to cryptic nesting behaviour, the species can be relatively resilient to mammalian predation providing the habitat is in good condition and provides suitable cover for nests and chicks. Climate change impacts (wet springs, summer droughts) have reduced the quality of breeding and natal feeding habitat nationally.	Breeding Redshank populations have declined significantly within the wider Morecambe Bay estuary. In a 2016 survey Warton marsh accounted for more than 50% of the total Redshank breeding population within Morecambe Bay. The habitat is far from ideal due to sheep grazing pressure and recreational pressure is unsustainable. Recent interventions at Hazelslack marsh to introduce targeted extensive cattle grazing have produced a small increase in breeding pairs however this increase is minor compared to the historic decline in the species. Breeding pairs within the NL are estimated at 20-30 based on monitoring at RSPB Leighton Moss and Morecambe Bay Reserve. Peak count in 2016 was 52 pairs over the NL area[1]. Productivity is expected to be very low although monitoring effort is limited.
Avocet (breeding)	Avocet have seen a significant increase in population and range across the UK over the last 30 years. They favour upper marsh and saline lagoons, usually with a larger shingle and vegetated strandline component. They exploit more dynamic coastal habitats and tend to favour the transitional areas between coastal and terrestrial wetlands. Breeding avocet within the NL are restricted to a single site on Warton Inner Marsh, part of RSPB Leighton Moss. Populations are broadly stable with between 15-30 pairs most years. Productivity is variable and the species is very susceptible to nest inundation and washout early season. Predation and natural habitat succession are also risks.	Avocet populations are broadly stable. Success is dependent on ongoing annual management (including predator controls) by RSPB of the breeding site at Inner Marsh. Due to the lack of suitable alternative habitats elsewhere in the NL, opportunities for an increase in range and population of Avocet is limited without active habitat creation projects. Due to the species ecology, dynamic early successional wetlands can be adopted by Avocet fairly quickly and with a good chance of success.

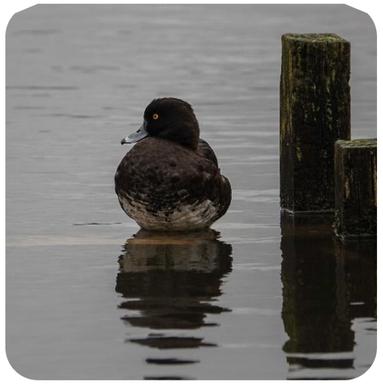
[1] Site feature condition (naturalengland.org.uk)
[1] Liley et al. - 2015 - Morecambe Bay Bird Disturbance and Access Manageme.pdf (footprint-ecology.org)

Marine & Coastal Habitats

Actions

Feature	What does it need?	#	Actions	Category	Delivery Partner/s
Intertidal muds and sands	Allow and encourage dynamic natural functioning of the entire estuary	M1	Advocate a low intervention approach and challenge any large engineering interventions/projects intended to prevent or restrict natural functioning eg. Large scale tidal energy infrastructure, land reclamation or construction of new hard sea defences.	Development control, engagement and advocacy	EA, NE, MMO, LA
	Accommodate and sustainably mitigate long-term sea-level rise and climate change impacts	M2	Implement Shoreline Management Plans. Support regular review and update of SMP's.	Policy and planning	EA, LA
		M3	Identify further opportunities within the NL for natural coastal management projects eg. Regulated tidal exchange, managed realignment, beneficial use of dredging (BUDs) and saltmarsh creation.	Policy and planning	EA, NE, A&SNL
	High water quality from terrestrial and riverine sources	M4	Ensure farms within the National Landscape have diffuse pollution mitigation measures in place and yard infrastructure (slurry & FYM storage, yard surfacing, rainwater goods, animal barns/sheds etc.) are in good condition and their operation is not causing diffuse pollution within the catchment.	Farm advice and support	NE, NFU, A&SNL
		M5	Ensure domestic and commercial sewerage provision and treatment is, at minimum meeting national standards and where possible seek improvements to grey water and sewerage treatment/management. Eg. Enhanced package treatment within Silverdale to replace older septic tank systems.	Development control, Engagement and advocacy	EA, UU
	Elimination and removal of marine micro-plastics and/or other marine waste	M6	Public engagement and advocacy to increase awareness of marine plastics and reduce local sources of marine plastics eg. through successful engagement projects such as 'Love my beach'.	Engagement and advocacy	MBP, A&SNL, UU
		M7	Pro-active litter picking on the coast and encourage reporting of large marine litter/waste/pollution incidents to Marine Management Organisation and Environment Agency.	Volunteering, engagement and advocacy	MBP, A&SNL, LPC, LA
Non-breeding (wintering) waders and wildfowl	Abundant invertebrate prey	M8	None specific, expect cumulative benefits from other actions listed.	-	-
	Low or no disturbance (commercial or recreational) to intertidal foraging areas	M9	Review Natural England Morecambe Bay bird foraging areas mapping and update if required. Consider protection of priority foraging areas from intertidal fisheries disturbance through NW-IFCA bylaw.	Policy and planning	NE, NW-IFCA
		M10	Provide spatial guidance to recreational visitors and ensure awareness of coastal open access exemptions (s25/s26 CROW) through the England Coast Path. Monitor usage and compliance and seek enforcement action if required	Engagement and advocacy	NE, LA, A&SNL
	Safe, secure and undisturbed roost sites over high tide	M11	Implement mitigation measures outlined in the Morecambe Bay recreational disturbance report 2016[1] (Footprint Ecology).	Land Management, Volunteering	NE, LA, MBP, RSPB, A&SNL
		M12	Review and update the 2012 Morecambe Bay Roost report (P Marsh, J Roberts). Identify significant roost sites within the NL and assess disturbance impacts and risks, including projected losses of existing roost sites as a result of sea level rise due to climate change.	Science and research	NE, MBP, RSPB
		M13	Implement practical, effective measures to restore/create secure, undisturbed high tide roost sites by fully restricting access to specific areas of coast. These measures should be physical eg. soft barriers such as ditches or hard barriers such as fencing on saltmarshes, beaches or coastal rocky areas.	Land Management	NE, LA, RSPB, PL
	Safe, secure and undisturbed supplementary terrestrial feeding areas	M14	Assess Natural England SPA Functionally linked land (FLL) data within the NL. Use FLL to inform identification of significant terrestrial feeding areas within the NL and assess disturbance impacts and risks.	Science and research	NE

Feature	What does it need?	#	Actions	Category	Delivery Partner/s
Saltmarshes	Improve botanical diversity through naturalised grazing/cutting management which complements the evolutionary strategy of plant species.	M15	Assess current botanical diversity of marshes within the NL.	Science and research	NE, A&SNL
		M16	Change grazing regimes on saltmarshes so that management is focussed on environmental outcomes rather than agricultural operations. Grazing levels should be low enough to allow saltmarsh plants to flower and set seed.	Land Management, Farm advice and support	NE, A&SNL, RSPB, PL
		M17	Investigate options for dynamic management e.g. short intervals of heavy mob grazing over areas of saltmarsh at 3-5 year intervals in order to mimic natural movements of large herbivores in the pre-agricultural landscape in which species of conservation importance evolved to exploit eg. saltmarsh pioneer plants species (aster, orache, purslane etc.) and birds such as Redshank. For ungrazed sites, investigate options for mechanical interventions that produce similar results e.g turf stripping, mowing and scarification.	Land Management, Science and research	NE, A&SNL, RSPB, PL
		M18	Introduce seed/plugs into saltmarsh to reintroduce missing or suppressed plant species	Land Management	NE, A&SNL, RSPB, PL
	Improve hydrological functioning of marshes, encourage naturalised creek, pool and pan formation, movement and succession.	M19	Assess marshes for historic modification and anthropogenic change (eg. land drainage, turf cutting, reclamation, landfill etc.) to inform restoration measures	Science and research	NE
		M20	Encourage water retention on areas of upper-mid Marsh throughout spring/summer through selective creek blocking and bunding. Create new naturalised channels, creeks and pools to mimic natural successional processes and create new early pioneer saltmarsh habitats. Aim to maintain stable salinity profiles in created features by regulating tidal exchange.	Land Management	NE, RSPB
	Improve representation of zonation across the marsh by facilitating upper-marsh freshwater transitions and pioneer marsh development in areas where missing.	M21	In areas where upper marsh transitions are limited by landward infrastructure (eg. hard sea defences), create areas of higher marsh within low-quality mid-marsh areas. Arisings from creek and pool creation can be reworked into low bunds and berms to create upper marsh zonations.	Land Management	NE, RSPB, EA
		M22	Identify and implement opportunities for natural coastal management projects eg. Regulated tidal exchange, managed realignment and saltmarsh creation. Favour projects which create/manage habitats that current have poor representation eg. transitional brackish upper marsh and freshwater wetland areas and/or early succession pioneer marshes.	Policy and planning, Land Management	NE, EA



Feature	What does it need?	#	Actions	Category	Delivery Partner/s
Redshank	Improve habitat structure and extent for breeding Redshank. Manage for a diverse, tussocky medium-tall sward with abundant creeks, pools and pans that remain wet through spring and early summer.	M23	Change grazing regimes on saltmarshes so that management is focussed on environmental outcomes rather than agricultural operations. (In addition to actions in M16) Grazing levels should be tailored to meet habitat objectives for apex saltmarsh species, specifically breeding Redshank. Cattle Grazing is preferred over sheep. The RSPB Redshank Recovery Plan recommends in order of preference: (1) No spring grazing, (2) Rotational grazing with upper marsh ungrazed during incubation period and (3) Very low cattle grazing (less than 0.1 LU/ha) during the incubation period.	Land Management, Farm advice and support	NE, RSPB, PL
		M24	Improve hydrological functioning of marsh to increase foraging opportunities for Redshank within a nesting territory (as described above)	Land Management	NE, PL
	Improve availability of natal feeding habitat and invertebrate prey sources.	M25	Improve habitat quality and extent as described above (M16 - M22)	Land Management	NE, PL
		M26	Ensure use of anti-parasitic (ivermectin etc.) in livestock is highly targeted and best practice is followed. Remove any livestock undergoing treatment from the area so that the anti-parasitic do not persist in dung.	Farm advice and support	NE, PL
	Eliminate recreational disturbance of marshes during the breeding season.	M27	Implement practical, effective measures to restore/create secure, undisturbed breeding sites by fully restricting access to specific areas of coast. These measures should be physical eg. soft barriers such as ditches or hard barriers such as fencing on saltmarshes, beaches or coastal rocky areas.	Land Management	NE, PL, MBP, A&SNL
	Reduce mammalian predator pressure to sustainable levels on saltmarshes	M28	Assess and implement effective predator control on marshes, specifically targeting foxes.	Land Management	NE, PL, RSPB
	Improved species recording	M29	Undertake targeted breeding wader surveys on saltmarshes and suitable lowland wet grassland, CFGM and mire/fen habitats within the landscape. Where possible, survey for productivity and include information on habitat condition.	Science and research	RSPB, A&SNL
Avocet	Maintain/Improve habitat quality for breeding avocet. Manage for a network of shallow saline, brackish and/or freshwater lagoons with frequent small nesting islands with short vegetation, frequent bare ground cover and high % edge length to open water ratio	M30	Continue to manage the core breeding area (Inner Marsh, RSPB Leighton Moss and Morecambe Bay) proactively for Avocet. Maintain a network of saline lagoons with frequent nesting islands in a state of early succession.	Land Management	RSPB
		M31	Create potential new sites for breeding Avocet as part of identifying and implementing opportunities for natural coastal management projects eg. Regulated tidal exchange, managed realignment, beneficial use of dredgings and saltmarsh creation as described above.	Policy and planning, Land Management	NE, EA, RSPB, A&SNL
		M32	Add value to associated NFM and/or wetland creation projects that show potential to create freshwater sites suitable for breeding Avocet (see section on wetlands)	Policy and planning	NE, EA
	Improve availability of natal feeding habitat and invertebrate prey sources.	M25	Improve habitat quality and extent as described above (M16 - M22)	Land Management	NE, PL
		M26	Described above	Farm advice and support	NE, PL
	Eliminate recreational disturbance	M27	Described above	Land Management	NE, LA, RSPB, PL
	Reduce mammalian predator pressure	M28	Described above	Land Management	PL, RSPB

Marine & Coastal Opportunities

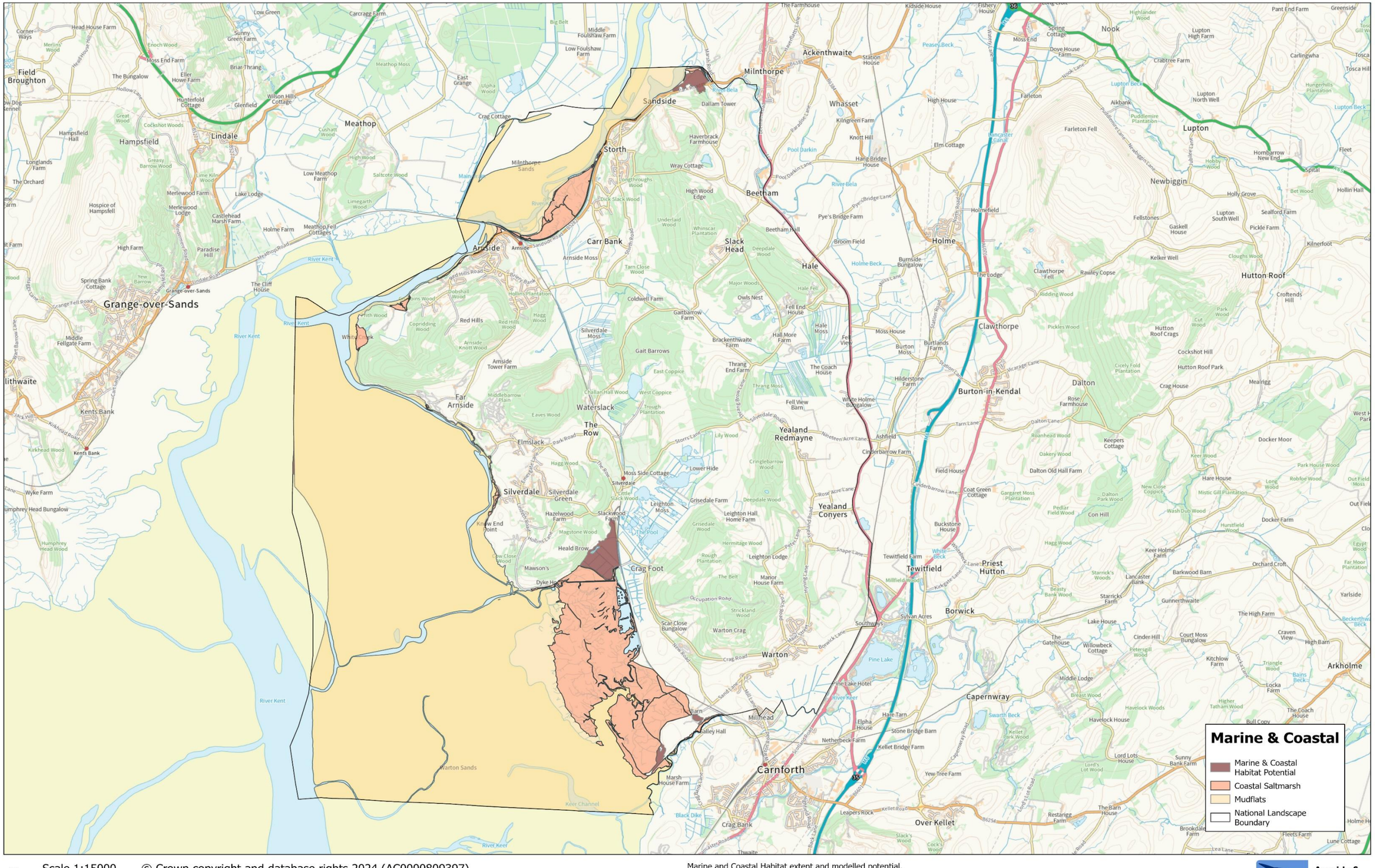
Marine & Coastal – Map layers

The areas identified are ecologically coherent locations in which to meet the Nature Recovery Objectives. The areas identified show potential opportunities and are in no way commitments to delivery of actions.

Coastal saltmarsh (pink)
Extent of coastal saltmarsh, taken from Natural England Priority Habitats Inventory (PHI). NB. As saltmarsh is a highly dynamic habitat the spatial accuracy of this layer is variable. The landward boundary extent is high confidence and can be considered accurate however the seaward boundary is more indicative and subject to variation.

Mudflats (beige)
Extent of intertidal mudflats taken from Nautral England Priority Habitat Inventory. Layer has been modified to fit within the NL boundary and has been partially merged with littoral sediment habitats included within the 'no main habitat but additional habitats present' layer included within the PHI.

Marine & Coastal Habitat potential (dark pink)
These areas have been identified as having good potential for creation of coastal habitats. The areas have been drafted using Natural England Priority Habitats Network mapping[1], Environment Agency Flood Zone[1] Modelling and Peat Soils[1] mapping to isolate areas at risk of tidal flooding.



Marine and Coastal Habitat extent and modelled potential.
Areas identified using Natural England Priority Habitats Network dataset, Environment Agency Flood zone dataset and Natural England Peaty Soils dataset.

Arnside & Silverdale Nature Recovery Plan - September 2024

Arnside & Silverdale National Landscape

Marine & Coastal Case Studies

Edenbrook, Crag Bank

In 2021 restoration works began on a 10ha parcel of low-lying semi-improved grassland south of the River Keer, just outside of the National Landscape boundary. The fields were historically reclaimed saltmarsh and situated behind an embanked seawall constructed around 1900.

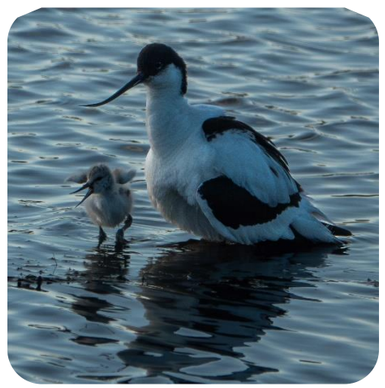
The landowners, supported by RSPB and the A&SNL Team developed plans to create a small saline-influenced transitional wetland, suitable for breeding and wintering wading birds and waterfowl. The intention was to raise water levels and restore the paleo-features within the field; remnants of the historic saltmarsh and riverine habitats present before land reclamation 100+ years ago.

The project included several stages and has been supported through a mid-tier Countryside Stewardship scheme, FiPL grants and funding from RSPB's NW Shorebirds project.

Works have included:

- Creation of a ditch to separate domestic and highways surface water drainage from the field drainage.
- Creation of a raised earth bund adjacent to the new ditch to allow water to be perched in the field.
- Further surface bunding to segment paleo-channel features and hold water within natural hollows and depressions.
- Modification of field drains and installation of a pair of pipe culverts to control water levels within the fields and allow a seasonal 'draw down' of water levels if required.
- Introduction of extensive cattle grazing in late summer to improve sward structure
- Hedgelaying and boundary works including installing hedgerow nesting boxes to support the small tree sparrow colony on site.

Since restoration works began; the land has seen a rapid and significant increase in the numbers of birds utilising the site. Skylark and meadow pipit are now regular breeders during spring and the small Tree sparrow colony is increasing in population and productivity. The newly flooded paleochannels and wet features are utilised by hundreds of Redshank, godwit and Curlew over passage periods and throughout winter. The site is used by dozens of Snipe as a winter roost and Barn owl and Hobby are frequent visitors to site.



Trees, Woodlands & Hedgerows

Woodland covers approximately 43% of the terrestrial landscape area. The majority of this is upland mixed ash woods (NVC W9 and W13), the calcareous substrate and light shade of this woodland type is generally characterised with a species-rich ground flora. Much of this habitat will also be ancient woodland, as defined by over 400 years of near-continuous woodland cover.

The woodlands in the landscape form part of a much larger network of limestone ash woods across South Cumbria and support a range of scarce and notable species. There are 300km of hedgerows within the landscape, making up historic field boundaries that have not significantly altered in hundreds of years.

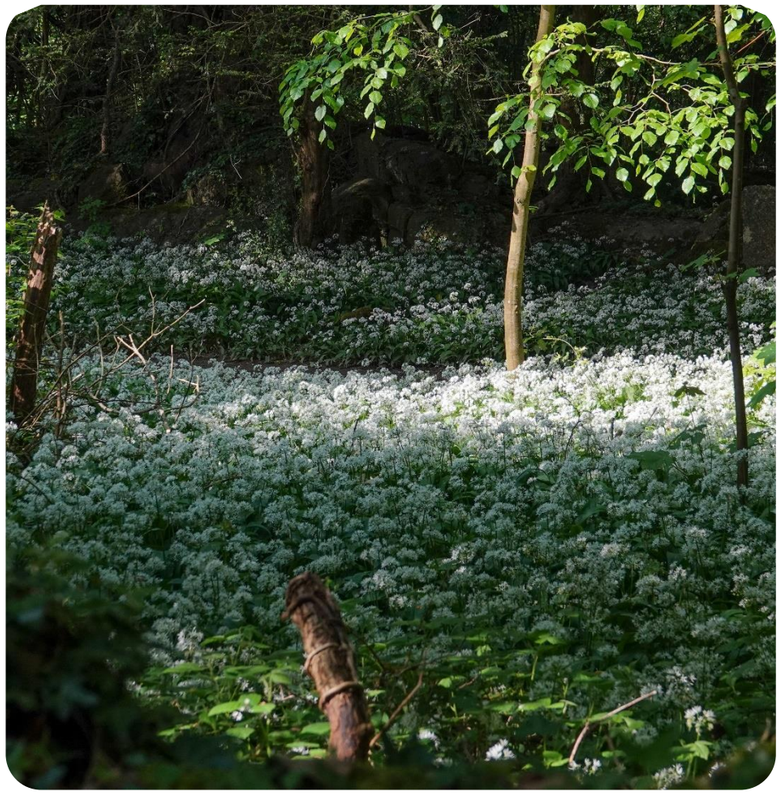
What does success look like?

Woodlands will be composed of the full range of naturally occurring broad-leaved species of mixed age and structure. There will be a rich biodiversity of ground flora, invertebrates, fungi and woodland animals including breeding birds and dormice. There will be numerous open glades and rides of species rich grassland and bare limestone outcrops with natural transitions from woodland to scrub and open areas.

Much of the area has a long history of grazing. This has created a characteristic parkland landscape of open grown trees, numerous patches of scrub and significant areas of good quality semi-improved and species-rich grassland. Within these areas carefully balanced grazing should continue to enhance the ecological features of Parkland habitat.

There is a network of sustainably managed wide hedgerows, boundary and in-field trees that act as corridors and steppingstones connecting woodland habitats. Ancient and veteran trees will remain in the landscape. These wildlife corridors criss-cross the landscape, providing shelter for wildlife and livestock, and in some cases slowing the flow of water.

Woodlands are valued for the full range of benefits they provide society including carbon storage, flood management and biodiversity.



Trees, Woodlands & Hedgerow Objectives

- Maintain/improve quality and extent of high value native woodland and historic parkland within the landscape
- Increase overall extent of associated woodland habitats including coppice, scrub, wood pasture, hedgerows and compatible mosaic habitats. Focus on creating/enhancing ecologically coherent buffers, corridors and islands as part of a wider woodland network.
- Maintain and improve woodland connectivity for both woodland species and associated limestone grassland species through creation of rides and glades
- Support restocking and recovery following the impact of Ash die-back to improve woodland structure and increase species diversity and resilience to climate change.
- Prevent inappropriate afforestation. Refuse planting on incompatible priority habitats, especially new sites for non-natives and/or commercial timber crops. Reduce total area of non-native forestry and replace with appropriate priority woodland/scrub and mosaic habitats.

2042 Target (PLTOF)

- Create 134ha of supporting woodland habitats (hedgerows, in-field trees, wood pasture, scrub and grassland mosaics etc) within the NL.
- Create/restore 183ha of supporting limestone pavement, scrub and grassland mosaic habitat (rides, glades etc.) within woodland areas within the NL.

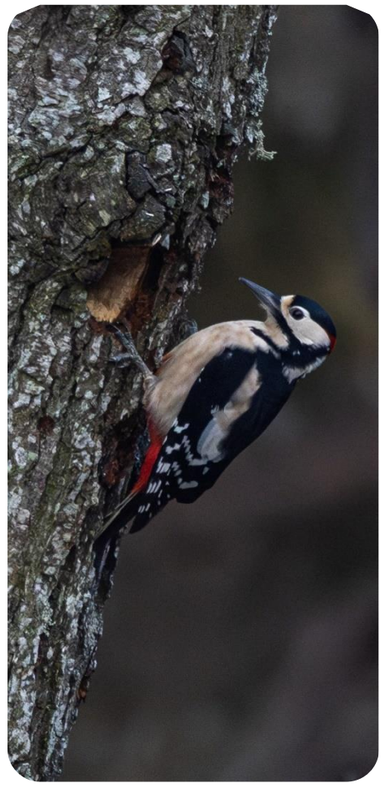
Threats and Pressures

Climate Change	- Increasing rainfall and high winds, stronger and more frequent storms are impacting woodlands - Increases in temperature leading to droughts - Changes in seasonality and temperatures leading to changes in the distribution of species, especially those that are on the edge of their natural range.
Pollution, INNS	- Nutrient enrichment from diffuse pollution from inorganic fertiliser/slurry/manure, point pollution from private sewage works and air borne pollution from agriculture and traffic. - Deer pressure - Invasive non-native species, including Grey Squirrel and released gamebirds (Pheasant) - Disease spread including Ash die-back and phytophthora affecting Juniper.
Development	- Tourism infrastructure development including cabins/lodges in woodland areas - Commercial forestry operations, particularly increases in the scale of timber extraction for firewood
People	- Recreational disturbance of sensitive woodland areas, risk of trampling. - Increased visitor pressure from expanded tourism offer to sites within the landscape. - Reduction/loss of countryside skills locally, particularly in relation to forestry management and artisanal forestry products.
Finance	- Uncertainty around public grants in the future. Woodland grant/agri-environment schemes tend to be complex and support from Natural England and Forestry Commission can be limited, especially for mid-tier schemes which form the largest proportion of uptake. - Private finance, through mechanisms such as Biodiversity net gain (BNG), carbon offsetting or corporate partnerships are in their infancy and not currently available to the majority of small to medium landowners.

Trees, Woodlands & Hedgerows

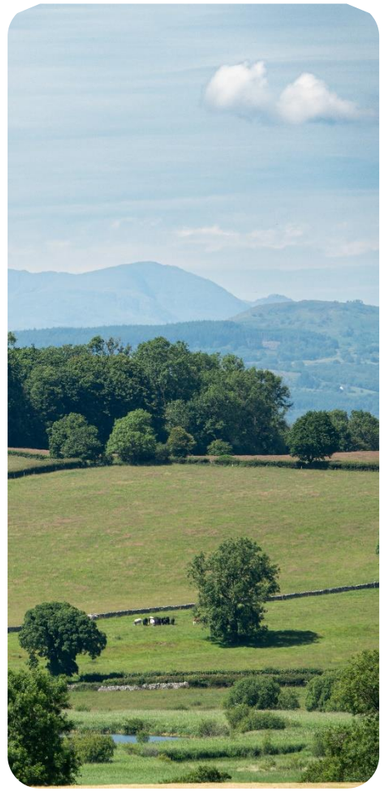
State of Nature

Feature	Description	Condition
W9 Upland Ash Woodland and W13 Yew Woodland over limestone	There are large, contiguous areas of deciduous woodland in the west at Far Arnside and Middlebarrow, Warton and Deepdale to the south and Underlaid and Beetham to the north. The majority include compartments of ancient woodland (or plantation on ancient woodland) and a long history of pro-active management as part of private woodland estates. Several woodlands are notified SSSI (and SAC). The dominant canopy species is Ash, supported by Oak and increasingly, Sycamore. Understory is typically well-developed with remnant and active Hazel, hawthorn and birch coppice evident across the area. W9 woodlands in the area are known for a diverse and well structure ground flora, notable for violet species which support scare species of fritillary butterfly. Good quality W9 woodlands in the area have often been notified as Local Wildlife sites. W13 Yew woodland forms a smaller component and tends to be located over shallower limestone soils and wooded pavement. The W13 yew woodland is quite unique to South Cumbria and has strong links to the landscapes character.	Condition of woodlands within the landscape is generally considered to be good however Ash die-back has had significant impacts and will likely continue to have significant impacts over coming years/decades. Woodland SSSI's in the area have been assessed in favourable or unfavourable recovering condition. High % canopy cover of Sycamore and Beech is sometimes given as a risk for adverse condition[1]. There are limited compartments of non-native plantation across the area, primarily larch. The majority of these have been felled and replaced with native planting although some remain. Historic Beech plantation and natural Beech regen is at risk of suppressing W9 ground flora in some areas. Deer browsing is an issue and in some places is suppressing ground flora and limiting natural regeneration. These sites are often used for pheasant shooting. Land management associated with shooting needs to be managed at appropriate locations and intensity to avoid causing damage to sensitive species and habitats.
Hedgerows	Hedgerows are frequent across the landscape, there has been little change in field boundaries since the first edition OS (1860's). boundaries tend to be a mix of dry stone walls, hedgerows and hedge banks depending on location and soil depth, with walls favoured over shallow soils and hedges on the deeper soils and drumlins around the Yealands. Species tends to be fairly diverse, mostly Hawthorn with Blackthorn, Elder and Hazel being common components. Most hedges have evidence of historic laying although laying is now less often practiced, and flailing is more common.	Condition of hedges is variable across the landscape. There are large, well-structured established hedges with frequent boundary trees and in sympathetic management and long (15-20yr) laying cycles and elsewhere there are narrow single species thorn hedges flailed short and damaged by grazing. A hedgerow audit was carried out in 2010-2012 to assess hedgerow condition. A review of data and possible repeat of the survey would be beneficial. There have been significant increases in hedgelaying and new planting throughout the area in the last 5 years, mostly driven by availability of farm grants.



Feature	Description	Condition
Traditional Orchards	The landscape contains numerous small orchards, mostly associated with farms, smallholdings, larger houses and country houses. The majority of the orchards appear to have been planted for domestic or local use rather than as a commercial operation. These remaining orchards are likely only a proportion of the more extensive historic network of orchards across the area. Where orchards still exist there is most often a historic precedence. Orchards are typically mixed and often contain scarce varieties, some of which are endemic to the area.	Orchard condition is variable and difficult to quantify due to size, location and ownership. Where interventions have been made through AES and/or FiPL early results are positive and appropriate management is in place. There is limited understanding of the full extent of historic or restorable orchards, particularly smaller domestic orchards or farm orchards for non-commercial use.
Historic Parkland	There are 2 areas of formal planned historic parkland within the landscape associated with Leighton Hall and Dallam Hall. Dallam Deer Park, recognised by Historic England as historic parkland[1] covers an area of approx. 75ha south and east of the Hall adjacent to the River Bela. The park retains a number of high value parkland historic features including a large avenue of mature limes, roundels and notable veteran trees. The park is grazed by fallow deer and sheep. Leighton Hall is smaller and more agrarian in parkland style, with mature in-field trees, hedges and avenue planting. The park is set within a 'bowl' surrounded by native woodland. There are several smaller areas with relict parkland features, including 'The Park' in Silverdale, the pasture surrounding Beetham Hall and fragments around Challan Hall, notable for specimen (often non-native) trees.	The historic parkland at Dallam Hall and Leighton Hall are generally considered to be in good condition in that both retain the majority of historic planned form including structural character and built infrastructure. Successional planting is practiced for in-field trees, historic boundaries are maintained, and grazing levels are broadly appropriate for the style and form of the parkland. Ash dieback has impacted parkland areas with several large individual veterans affected. The smaller and less frequent relict areas of parkland are more variable. Some have seen agricultural intensification whereas others have become scrubbed over and transitioned into secondary woodland. There is little data on the extent or condition of historic parkland landscapes outside of the two estates which retain a managed parkland.
Wood pasture	Arnside and Silverdale has a long history of woodland grazing so the definition of 'wood pasture' is quite flexible. In this context, wood pasture can be defined as semi-improved and/or semi-species rich grassland with 5-25% canopy cover, usually of open-grown mature/veteran in-field trees at a density of 10-100 stems per ha. This is separate from the complex limestone grassland/scrub and woodland mosaic type habitats included within the limestone grassland section	Wood pasture is not separated within the Natural England Priority Habitats dataset so the exact extent and quantity cannot be easily defined. Surveys are in progress and updated data for Cumbrian sites is expected in 2026. For sites to be considered to be in good condition, they would need to have mature trees being maintained in good condition, a good scrub layer, rich ground flora, deadwood retained, and some recruitment of a new generation of trees and scrub.
Hazel Dormouse	Hazel Dormouse are a primarily nocturnal rodent of dense, well-structured woodlands. Populations are in decline nationally and distribution is restricted to South-West England, Wales, South Cumbria and the Lake District. Between 2019 and 2023 PTES (People's Trust for Endangered Species,) Natural England and the Cumbria BOOM (Back on Our Map) project reintroduced 70 captive bred Hazel dormice into two sites within Arnside and Silverdale, Gaitbarrows NNR (Natural England) and Eaves Wood (National Trust). A further 10 dormice were introduced to Gait Barrows by PTES and Natural England in 2024.	Monitoring of the success of the reintroduction is ongoing. The early results show reproduction and dispersal rates similar to other successful dormouse re-introduction projects across the country. Box adoption rates at Gaibarrows within the first 2 years of release have been notably higher than other projects. The lack of difference between pre and post release adult average weights has shown that food supply is adequate, and population health appears stable. Project monitoring is ongoing but early results at Gaitbarrows are promising with a healthy number of dormice using boxes and the species dispersing across the NNR and to adjacent sites.

[1] DALLAM TOWER, Beetham - 1000664 | Historic England



Red Squirrel	Red squirrel has seen significant declines across the UK over the previous century. The decline is well publicized and primarily a result of grey squirrel introduction. Arnside & Silverdale retained a population of red squirrel until relatively recently with the species considered functionally extinct locally by the early 2000's. The landscape has ideal habitat in places and generally good levels of woodland connectivity. The woodlands are also relatively well-separated from other woodlands, likely why the isolated population survived for such a long time. Reintroduction efforts elsewhere have had success and a similar reintroduction may be appropriate for the landscape.	The red squirrel population in the area is effectively zero and without significant intervention is highly unlikely to recover. Pro-active measures to eradicate greys as a first step to species re-introduction are taking place however the resource and consistency of the measures is variable. There have been occasional sightings of reds across the area, in Milnthorpe and in 2024, Silverdale. Although encouraging these scarce records are unlikely to be indicative of a major recolonisation without further support. Pine Marten are thought to be beneficial for red squirrels because they control numbers of greys. There is an active Pine Marten reintroduction project in South Cumbria.
Hawfinch	Hawfinch are a large, seed eating finch associated with ancient broadleaf woodland sites. They are scarce in the UK with a population estimated at approx. 1000 pairs[1]. Their elusive habits make surveying difficult and the evidence base for Hawfinch is relatively poor. The population range within the UK is limited to areas with a high % woodland cover (particularly ancient woodland) and good connectivity between woodland areas. The species requires a high diversity of fruit and seed bearing tree species to provide forage throughout the year and large, veteran broadleaves for nesting. The species favours oak, hornbeam, cherry, sweet chestnut and beech. Hawfinch are resident breeders in the UK and appear to have relatively low mobility (less than 100km range) and high site fidelity so require stability and diversity in habitat within areas where they occur.	The population in Arnside & Silverdale (and within South Cumbria) has seen increased monitoring effort by RSPB, BTO and Natural England although a baseline local population has not been established. More research is needed into the species locally to assess condition and better target conservation interventions and management. As Hawfinch favour ground feeding of larger tree seeds in autumn/early winter it has been theorised locally that gamebird release (Pheasant), particularly within or adjacent to ancient woodland is resulting in competition for forage.
Lancaster Whitebeam	Lancaster Whitebeam *Sorbus aria lancastriensis* is an endemic UK whitebeam species with a highly restricted range. The species only occurs on coastal limestones around Morecambe Bay with a smaller satellite population in North Wales.	There has been focused survey effort in the area to identify and map individual trees. The most recent data shows 224 mapped individuals across the area. Distribution favours to cliff edges, escarpments, pavements and shallow limestone soils around Far Arnside, Arnside Knot and Eaves Wood. The overall condition of the population is difficult to quantify. Some records include data on individual trees although this is not extensive. Further surveys are required to develop a more informed assessment of species condition. Generally speaking, the species is a scarce local endemic and pro-active measures are needed to safeguard the population and encourage recovery and expansion into (presumed) former range within Arnside & Silverdale and the wider South Cumbria area
Netted Carpet Moth	Netted Carpet is a scarce and highly localised moth species. Population distribution within the UK is limited to small areas in NW England in Cumbria and north Lancashire. The species is dependant on Touch-me-not balsam as the sole larval foodplant and so colonies are highly dependent on the extent and condition of touch-me-not balsam stands. The core colony site is within Hyning Scout wood, managed by the Woodland Trust and supported by local partnership organisations and volunteers. Pro-active management for the touch-me-not balsam stands is ongoing.	The core colony site within Hyning Scout wood is actively monitored by local moth recorders. Adult catches have ranged between 2 – 20 individuals since 2010 although remain present on site. Larvae counts have fluctuated more severely with up to 300 found in some years versus less than 20 in others. Generally the colony is present and surviving but considered to be at significant risk of collapse without continued pro-active interventions. Measures to increase the colony are complex and would likely require a bespoke recovery plan.

Trees, Woodlands & Hedgerows

Actions

Feature	What does it need?	#	Actions	Category	Delivery Partner/s
W9 Upland Ash Woodland and W13 Yew Woodland over limestone	Sustainable Woodland Management indicators (UK Forestry Standards[1]) achieved across the whole landscape	W1	Ensure a minimum of 90% of woodlands by area are managed to the UK Forestry standard (UKFS) and have a Forestry Commission approved management plan in place.	Policy and planning, Forestry advice and support	FC
		W2	Retain a proportion of standing and fallen deadwood in accordance with UKFS. During felling and/or thinning operations, this proportion should be at least 10% and ideally greater. Storm damaged trees should be retained as deadwood unless they pose a safety risk.	Policy and planning	FC
	Respond appropriately to widespread Ash dieback within the landscape, following Forestry Commission guidance[1].	W3	Ensure guidance is followed in relation to Ash dieback. Encourage use of practical advice produced by competent organisations such as The Tree Council ADB Guide for Tree Owners[1]. Where trees need to be felled at scale, develop coherent long-term restocking and regeneration plans that prioritise restoration of woodland structure, native species diversity and future resilience of woodland habitats.	Forestry advice and support	FC, PL
	Maintain sustainable deer populations within the Landscape	W4	Support the existing Burton/Kendal deer management working group. Support Forestry Commission as the group facilitator to develop a greater understanding of local deer management issues and increase participation of the group by partners, stakeholders and other interested parties.	Policy and planning	FC, NE, PL, RSPB, A&SNL
		W5	Inform cull numbers primarily by ecological objectives opposed to sporting interests.	Policy and planning	FC, NE, PL, RSPB, A&SNL
		W6	Utilise new technology eg. thermal drones to support deer monitoring within the landscape.	Science and research	FC, NE, PL, RSPB, A&SNL
		W7	Explore options to improve local markets for deer products (Vension, hides etc.). Encourage development of a local sustainable economy of deer products from within the landscape.	Policy and planning, Engagement and advocacy	LPC, PL, A&SNL
		W8	Support the use of deer management options (currently WS1[1]) within Agri-environment/woodland grant schemes	Forestry advice and support	FC, NE, PL
	Maintain existing rotation of Hazel coppice where historically practiced	W9	Support existing coppice management and provide access to funding to support coppice management	Forestry advice and support	FC, NE, A&SNL
	Increase overall area of coppice management across the landscape in suitable areas.	W10	Identify areas of historic coppice within woodlands and, where appropriate reinstate coppice management. Locations should also be informed by limestone grassland connectivity.	Land Management, Forestry advice and support	FC, NE, A&SNL
		W11	Introduce small-scale coppice regimes in secondary semi-natural woodland. Target woodlands with uniform age-height structure and limited species diversity eg areas with dominant Sycamore and/or Beech canopy or plantation on ancient woodland sites.	Land Management	FC, NE, A&SNL
		W12	Encourage local organisations to manage coppice for sustainable local wood products and wood fuels. Expand and develop existing initiatives such as Silverdale Woodbank and The Coppice Co-op.	Engagement and advocacy	LPC, PL, A&SNL

[1] The UK Forestry Standard (publishing.service.gov.uk)
[1] Managing ash dieback in England - GOV.UK (www.gov.uk)
[1] Tree-Council-Ash-dieback-tree-owners-guide-FINAL.pdf
[1] WS1: Deer control and management - GOV.UK

Feature	What does it need?	#	Actions	Category	Delivery Partner/s
W9 Upland Ash Woodland and W13 Yew Woodland over limestone (continued)	Increase number of rides and glades with a focus on connectivity of limestone grassland habitats	W13	Identify potential links between existing and potential limestone grassland sites through woodland areas. Utilise Natural England Priority Habitats Network modelling data to inform the creation of ecologically coherent ride and glade networks.	Science and research	FC, NE, A&SNL
	Identification and management of veteran trees within woodlands	W14	Build on the existing Ancient Tree Inventory (ATI) developed and managed by Woodland Trust to better identify and monitor the numbers and conditions of ancient and veteran trees within the landscape.	Science and research	WT, FC, NE, A&SNL
		W15	Support individual veteran tree management where appropriate eg. thinning around notable veterans within woodland, deer protection measures, compaction mitigation for veterans within parkland habitats and/or adjacent to roads, appropriate tree surgery for veterans within villages and gardens etc.	Land Management, Forestry advice and support	FC, NE, A&SNL
		W16	Support notification of new Tree protection orders (TPO's) and enforcement of existing TPO's.	Policy and planning	LA, LPC, A&SNL
	Removal of historic non-native conifer plantations	W17	Identification of remaining non-native plantation in the area and areas of homogenous native plantation (Beech)	Science and research	FC
		W18	Develop and deliver felling and restocking plans for non-native plantation areas. Consider low-density restocking to create successional scrub habitats, allow ground flora development and encourage natural regeneration.	Forestry advice and support	FC, NE
	Improve local commercial opportunities for sustainable woodland products	W19	Support local woodfuels/charcoal operations and support opportunities for wider marketing and sale of local wood products	Engagement and advocacy	LPC, PL, A&SNL
	Sustainable gamebird management	W20	Explore opportunities for research into local impacts of gamebird release, particularly on Ancient Woodland habitats, priority species (flora and fauna) and associated limestone pavement and grassland mosaic habitats	Science and research	NE
		W21	Ensure compliance with relevant gamebird release general licence (GL43) in relation to gamebird release within buffer zones of Special Areas of Conservation (SACs). Encourage sustainable gamebird management practices within the landscape and explore opportunities for biodiversity improvements as part of gamebird management eg. through targeted predator control.	Land Management	PL, NE

Feature	What does it need?	#	Actions	Category	Delivery Partner/s
Hedgerows	Updated assessment of extent and condition of hedgerows within the Landscape.	W22	Revisit and review the 2012 AONB Hedgerow surveys. Considering repeating the surveys to update the evidence base of hedgerow extent and condition across the landscape.	Science and research	A&SNL
	Increase extent of high value hedges being traditionally laid rather than flailed.	W23	Improve local awareness and knowledge of hedgelaying and promote hedgelaying to landowners through events eg. Arnside & Silverdale hedgelaying competition	Engagement and advocacy	A&SNL, PL
		W24	Provide access to funding to support hedgelaying through agri-environment schemes, farming in protected landscape schemes and their successors schemes.	Farm advice and support	NE, A&SNL, PL
		W25	Where flailing takes place, practice incremental cutting management to encourage flowering of thorn species and delay cutting until mid-November (rather than 1st September) to prevent disturbance to Dormice and improve fruit availability for other small mammals and passerines.		
	Increase overall extent of hedges by planting new hedges, focusing on the restoration of historic field boundaries and connectivity with adjacent hedges/woodlands	W26	Identification of 'lost' field boundaries by assessing historic maps	Science and research	A&SNL
		W27	Plant new hedges, either to replace existing fenced boundaries or restore former historic boundaries. Where new boundaries are being created they should be coherent within the landscape and existing field layout. New hedges should be diverse and well-structured; double planted (or triple) and including at least 7 species overall. No single species should make up more than 50% of the hedge. In-hedge trees should be included within the mix and allowed to grow above the hedge and form crowns.	Land Management	NE, A&SNL, PL
	Protect hedges from sheep damage, removing the understory and structure.	W28	Stock fencing of hedges within sheep-grazed areas	Land Management	PL
	Where appropriate, practice non-intervention management on hedges.	W29	Practice non-intervention management, i.e allow the hedge to grow out, widen and thicken naturally to increase the area and complexity of scrubby 'edge' habitats.	Land Management	PL
Traditional Orchards	Increase the condition and extent of traditionally managed orchards within the landscape	W30	Identify historic 'lost' orchards within the landscape and develop restoration proposals for lost orchards.	Science and research	A&SNL
		W31	Create new orchards within the 'Woodland Opportunity Areas' shown in the NRP maps. New orchards should be of traditional form and contain a diverse variety of local heritage fruit and nut varieties.	Land Management, Farm advice and support	A&SNL, NE, PL
		W32	Support existing traditional orchard management and provide access to funding and technical expertise to support traditional management. Encourage successional restocking of older orchards and conservation of heritage varieties through pro-active grafting and propagation of heritage varieties.	Land Management, Farm advice and support	A&SNL, NE, NT, PL
		W33	Improve local awareness and knowledge of traditional orchards and promote orchard keeping to landowners and the public through events eg. the Arnside & Silverdale Apple day	Engagement and advocacy	A&SNL, PL
	Improve local commercial opportunities for orchard products	W34	Support local semi-commercial seasonal orchard product operations and support opportunities for wider marketing and sale of local orchard products. Where possible, support diversification efforts to add value to orchard products.	Engagement and advocacy	A&SNL, PL, LPC, NFU



Feature	What does it need?	#	Actions	Category	Delivery Partner/s
Historic Parkland	Maintain and enhance historic parkland within the landscape, taking a balanced approach between heritage value, biodiversity and amenity	W35	Support the development and delivery of bespoke parkland management plans for Dallam Hall Deer Park and Leighton Park.	Policy and planning	A&SNL, PL, HE, NE
	Respond appropriately to widespread Ash dieback within the landscape, following Forestry Commission guidance[1].	W36	Ensure guidance is followed in relation to Ash dieback	Forestry advice and support	FC, PL
		W37	Develop appropriate succession planting plans for mature/veteran Ash within parkland settings. Replacement trees should retain a similar form within the parkland. Large, open grown species such as Oak, Beech, Lime are most suitable although non-native specimen trees such as Sweet Chestnut, Plane, Copper Beech, Continental Elm or exotic conifers etc. may also be suitable if appropriate and already present within existing parkland species mix.	Land Management, Forestry advice and support	A&SNL, PL, HE, NE
	Identify and Restore 'lost' parkland within the landscape eg. relict parkland now under management more focused on agricultural production.	W38	Identify and record historic parkland utilising historic maps, records and expertise of Landscape historians. Develop restoration proposals for lost parkland.	Science and research, Policy and planning	A&SNL, PL, HE, NE
Wood pasture	Assess extent of wood pasture within the landscape.	W39	Identify and record areas of wood pasture, defined as semi-improved or semi-species rich pasture, grazed historically by livestock or deer with between 5-25% canopy cover provided by open-grown native trees, often mature or veteran. Habitat may retain 'parkland' type features and/or show indications of historic tree planting or tree works (pollards etc).	Science and research	NE, A&SNL
	Increase overall extent of wood pasture within the landscape, encourage uptake of management approaches to increase in-field and boundary tree cover.	W40	Create new areas of wood pasture within the 'Wood pasture and scrub potential' areas shown in the NRP maps. New wood pasture should focus on encouraging connectivity between adjacent woodland areas. Species mix should be highly diverse and consider opportunities for agroforestry approaches. Where possible, scrub species should be integrated into planting plans to improve structure.	Land Management, Forestry advice and support, Farm advice and support	NE, A&SNL
		W41	Create new areas of scrub on field edges and corners and allow development of gradual scrub transitions between woodland and grassland to improve the structure and overall length of woodland edge habitats.	Land Management, Forestry advice and support, Farm advice and support	FC, NE, PL
		W42	Improve local landowner knowledge of managing wood pasture as part of a sustainable livestock business through events, workshops and facilitation of visits to successful wood pasture project sites and/or associated agroforestry operations.	Engagement and advocacy, Farm advice and support	NE, NFU, PL
		W43	Improve support for appropriate tree planting on farmed pasture by streamlining the process of tree planting and removing obstacles in terms of project management and implementation of planting schemes. Support models used by The Woodland Trust to plan, supply, plant and protect trees using volunteers on farmed land, reducing the cost and time required by landowners.	Land Management	WT, A&SNL
		W44	Protect local progeny of tree stock, particularly of locally notable species (Lancaster Whitebeam) through propagation of seed harvested within the landscape. Support small-scale tree nursery operations by NL team and local partners to supply some of the more specialist species found within the landscape eg. Juniper, Whitebeam, Elm etc.	Land Management	WT, A&SNL, NT
Hazel Dormouse	Continued monitoring the status of the re-introduced population	W45	Support ongoing monitoring at the Gaitbarrows release site and surrounding woodland areas to assess establishment success of the re-introduced population.	Science and research	NE
	Maintain and enhance habitat, focus on creating/managing woodland structure for contiguous canopy and dense, complex understory with abundant seed/nut species.	W46	Maintain/increase area of Hazel coppice within the landscape, focusing initially within 2km of the Gaitbarrows release site.	Land Management	FC, NE, RSPB, WT, A&SNL
		W47	Support improvements to diversity and complexity of woodland structure in semi-natural secondary woodland. Improve age/height diversity through selective felling and encourage development of ground flora and understory through pro-active deer management (exclusion fencing, deer control etc.)	Land Management	FC, NE, RSPB, WT, A&SNL

Feature	What does it need?	#	Actions	Category	Delivery Partner/s
Hazel Dormouse (continued)	Maintain and enhance habitat, focus on creating/managing woodland structure for contiguous canopy and dense, complex understory with abundant seed/nut species.	W48	Improve forage availability across the season by improving species diversity with targeted planting following thinning, particularly in Sycamore dominated secondary woodland. Ideal forage species include Hazel, Hawthorn, Oak and flowering scrub species such as Bramble and Honeysuckle.	Land Management	FC, NE, RSPB, WT, A&SNL
		W49	Improve woodland connectivity, aiming to create routes of continuous cover formed of well-managed hedgerows, scrub and lines of trees between areas of contiguous woodland.	Land Management	NE, A&SNL
		W50	Ensure targeted species management requirements are accounted for in relevant Nature Reserve & associated Land Management plans	Land Management, Policy & Planning	A&SNL, NE, LT, CWT, LWT, WT, RSPB, NT, PL
Red Squirrel	Eradication of invasive Grey Squirrel from the area	W51	Support the local Westmorland Red Squirrel group in developing and delivering a long-term sustainable strategy for the eradication of Grey Squirrel in the area to increase the likelihood of a successful recolonisation by Red Squirrel.	Engagement and advocacy, Policy & Planning	FC, NE
		W55	Ensure grey eradication utilises a partnership approach and both landowner stakeholders and public stakeholders are informed of eradication proposals and given opportunities to consult on proposals.	Engagement and advocacy	FC, NE, PL
		W53	Investigate use of new and emerging control measures for grey squirrel such as contraceptive bait. Advocate for Arnside & Silverdale to be included in future trials of new control measures.	Science and research	FC, NE, PL
		W54	Support the inclusion of Grey Squirrel management options (currently option WS3[1]) within Agri-environment/woodland grant schemes	Forestry advice and support	FC, NE, PL
		W55	Monitor progress of the South Cumbria Pine Marten re-introduction project and if appropriate, explore opportunities for sites within Arnside & Silverdale to take part in the Pine Marten release.	Land Management	NE, FC, PL
Hawfinch	Assess population status within the area	W56	Undertake bespoke, targeted Hawfinch surveys in the landscape and attempt to record a baseline breeding population. Explore options for introducing ringing projects and investigate remote monitoring of the species using new technologies eg. remote audio/video recording of hawfinch.	Science and research	RSPB, NT
	Maintain and enhance woodland habitat, focus on improving forage availability and managing future veteran trees as nesting sites.	W57	Increase species diversity within existing woodlands to include greater numbers and diversity of flowing and fruiting species suitable as Hawfinch forage trees. Design re-planting efforts following Ash-dieback to improve woodlands for Hawfinch. Preferred tree species include Hornbeam, Oak, Elm, Beech, Cherry in addition to orchard fruit trees, notably stonefruits such as Damson.	Land Management	FC, NE, RSPB, WT, A&SNL
		W58	Create new orchards (see above)	Land Management	A&SNL, NE, PL
		W59	Appropriate management of veteran trees within woodland and parkland across the landscape (see above)	Land Management	A&SNL, NE, PL
		W60	Ensure targeted species management requirements are accounted for in relevant Nature Reserve & associated Land Management plans	Land Management, Policy & Planning	A&SNL, NE, LT, CWT, LWT, WT, RSPB, NT, PL

[1] WS3: Squirrel control and management - GOV.UK

Feature	What does it need?	#	Actions	Category	Delivery Partner/s
Lancaster Whitebeam	Assess population status within the landscape	W61	Continue targeted surveys for Lancaster Whitebeam within the landscape, building on data gathered as part of the Species Recovery programme. Include data on individual condition assess overall health of the population.	Science and research	A&SNL, NE, PL
	Maintain/restore existing populations.	W62	Ensure targeted species management requirements are accounted for in relevant Nature Reserve & associated Land Management plans.	Policy and planning	A&SNL, NE, LT, CWT, LWT, WT, RSPB, NT, PL
		W63	Where possible, undertake targeted woodland/scrub management to reduce competition on individual whitebeam and remove threats to individual trees.	Land Management	A&SNL, NE, LT, CWT, LWT, WT, RSPB, NT, PL
		W64	Reduce sycamore and cotoneaster dominance on suitable rocky limestone cliffs, escarpments etc to create space for natural regeneration.	Land Management	A&SNL, NE, LT, CWT, LWT, WT, RSPB, NT, PL
		W65	Consider appropriate protection measures (tubes, stakes, support etc.) for self-seeded wild saplings to increase survivability.	Land Management	A&SNL, NE, LT, CWT, LWT, WT, RSPB, NT, PL
	Enhance and expand species distribution on suitable sites within the landscape.	W66	Harvest viable seed from healthy donor trees and locally propagate whitebeam stock for planting elsewhere in the landscape. Target sites with high suitability for the species eg. cliffs, screes, former quarries and wooded pavement.	Land Management	A&SNL
Netted Carpet Moth	Maintain/enhance wet woodland areas suitable for larval foodplants	W67	Increase ground disturbance and expose bare ground around existing stands of touch-me-not balsam within colony site to encourage growth and germination.	Land Management	BC, A&SNL PL
		W68	Ensure targeted species management requirements are accounted for in relevant Nature Reserve & associated Land Management plans	Policy and planning, Land Management	BC, RSPB, NE, A&SNL, PL
	Improve local species recording, reporting and data analysis	W69	Continue to support and where possible, increase survey efforts for butterfly and moth species across the landscape through the UKBMS. Compare local records against national trends to identify local changes and/or impacts of management.	Science and Research	BC, RSPB, NE, A&SNL, CWT
	Increase number and availability of larval foodplants at current and former colony sites.	W70	Introduce species specific larval foodplant plugs into suitable sites. If possible, locally source seed and propagate to maintain genetic progeny and increase chance of establishment.	Land Management	BC, A&SNL, NE, RSPB

Trees, Woodlands & Hedgerows Opportunities

Trees, Woodlands and Hedgerows – Map layers

The areas identified are ecologically coherent locations in which to meet the Nature Recovery Objectives. The areas identified show potential opportunities and are in no way commitments to delivery of actions.

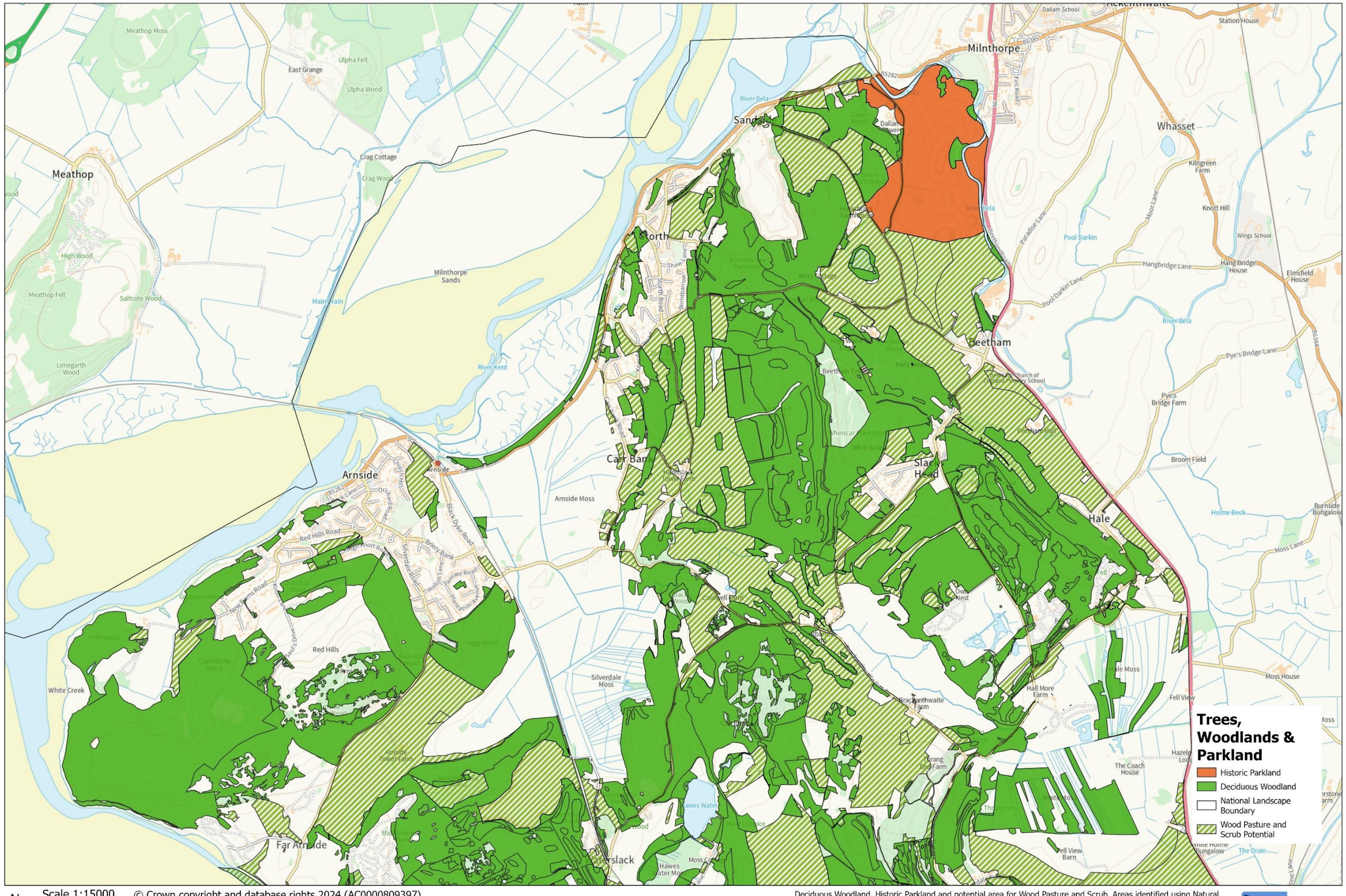
Historic Parkland (Soild Orange)
Describes existing area of Historic Parkland, taken from a modified and updated Natural England Wood Pasture and Parkland[1] dataset, produced during development of the Biodiversity Action Plan (BAP).

Deciduous Woodland (Medium green)
Describes area of Deciduous Woodland, taken from the Natural England Priority Habitats Inventory.

Wood Pasture and Scrub Potential (Green Hatch)
This area has been identified as being suitable for improving connectivity of woodland by creating wood pasture, scrub, edge and other supporting woodland habitats such as hedgerows and in-field trees. Area has been calculated using Natural England Priority Habitats Network[2] mapping and National Forest Inventory[3] (NFI) combined with peat and soils[4] data to exclude unsuitable areas. Remaining areas are considered suitable for associated woodland habitats. Project-level ground nesting bird surveys will likely be required to further inform associated woodland habitat areas.

Hedgerows (Linear dark green, 2nd set of maps)
Shows extent of hedgerows, based on data provided by UK Centre for Ecology & Hydrology (CEH). Extent is described from AI analysis of aerial imagery. There are several areas where vegetated ditches, tall reed and willow scrub and field margins in the shadow of dry stone walls and/or dry stone walls partially covered by vegetation have been mapped as hedges. This dataset is still in development and should be considered indicative of hedgerow extent rather than absolute.

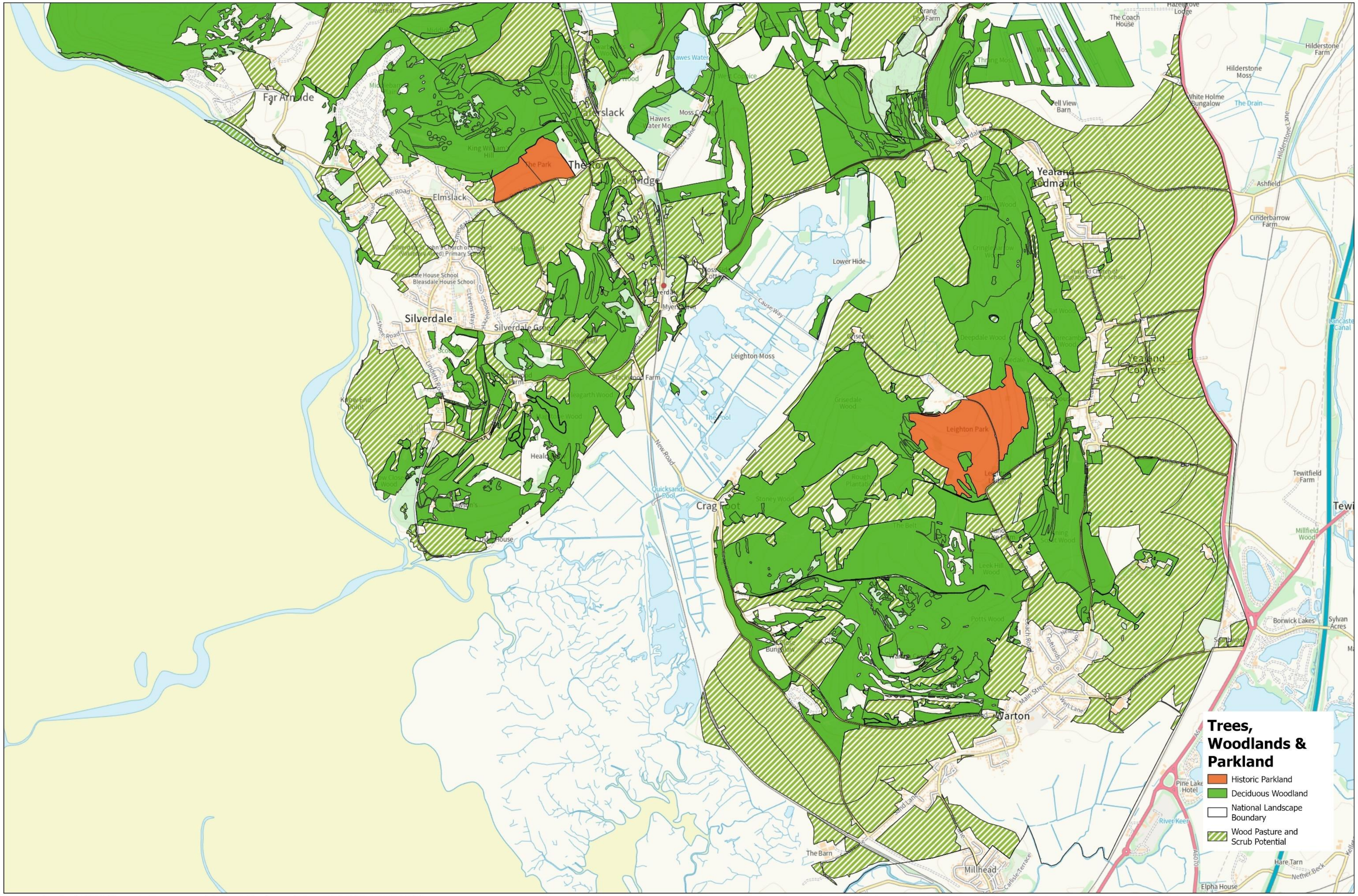
[1] Wood Pasture and Parkland (England) - data.gov.uk
[2] Habitat Networks (England) - data.gov.uk
[3] Forestry Commission (arcgis.com)
[4] Peaty Soils Location - data.gov.uk



Deciduous Woodland, Historic Parkland and potential area for Wood Pasture and Scrub. Areas identified using Natural England Priority Habitats Inventory (PHI), National Forest Inventory (NFI) and Wood Pasture and Parkland Biodiversity Action Plan (BAP) layers

Arnside & Silverdale Nature Recovery Plan - September 2024

Arnside & Silverdale National Landscape


Trees, Woodlands & Parkland
Historic Parkland
Deciduous Woodland
National Landscape Boundary
Wood Pasture and Scrub Potential
Far Arnside
Elmslack
Silverdale
Silverdale Green
Leighton Moss
Lower Hide
Leighton Park
The Park
Yealand Redmayne
Yealand Conyers
Crag Foot
Warton
Millhead
Borwick Lakes
Hilderstone Farm
Hilderstone Moss
Ashfield
Cinderbarrow Farm
Tewitfield Farm
Millfield Wood
Pine Lake Hotel
The Coach House
White Holme Bungalow
The Drain
Hawes Water
Potts Wood
The Barn
Elpha House
Hare Tarn
Sylvan Acres

N

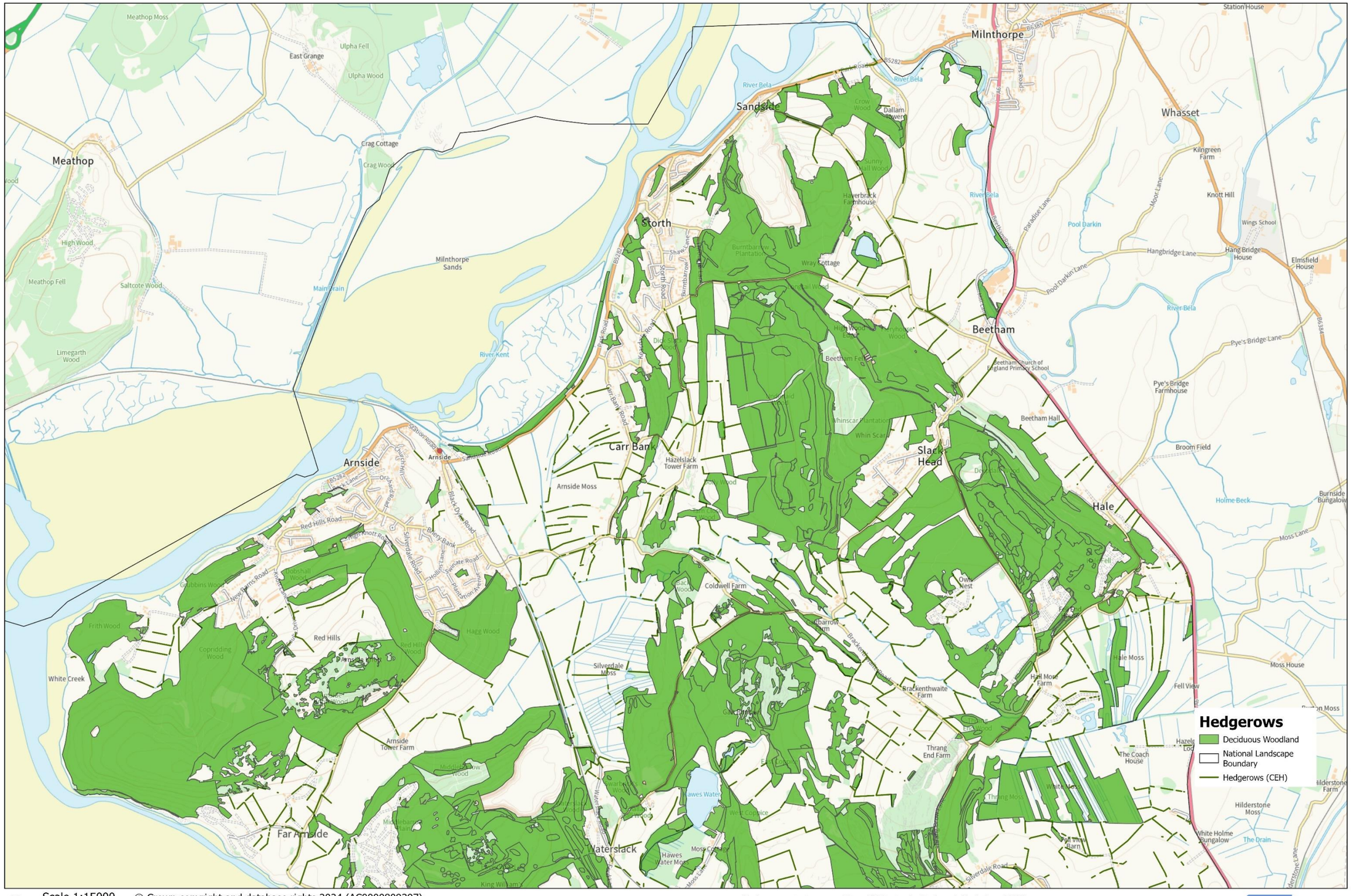
Scale 1:15000

0 0.35 0.7 1.4 2.1 2.8 Kilometers

Deciduous Woodland, Historic Parkland and potential area for Wood Pasture and Scrub. Areas identified using Natural England Priority Habitats Inventory (PHI), National Forest Inventory (NFI) and Wood Pasture and Parkland Biodiversity Action Plan (BAP) layers

Arnside & Silverdale Nature Recovery Plan - September 2024

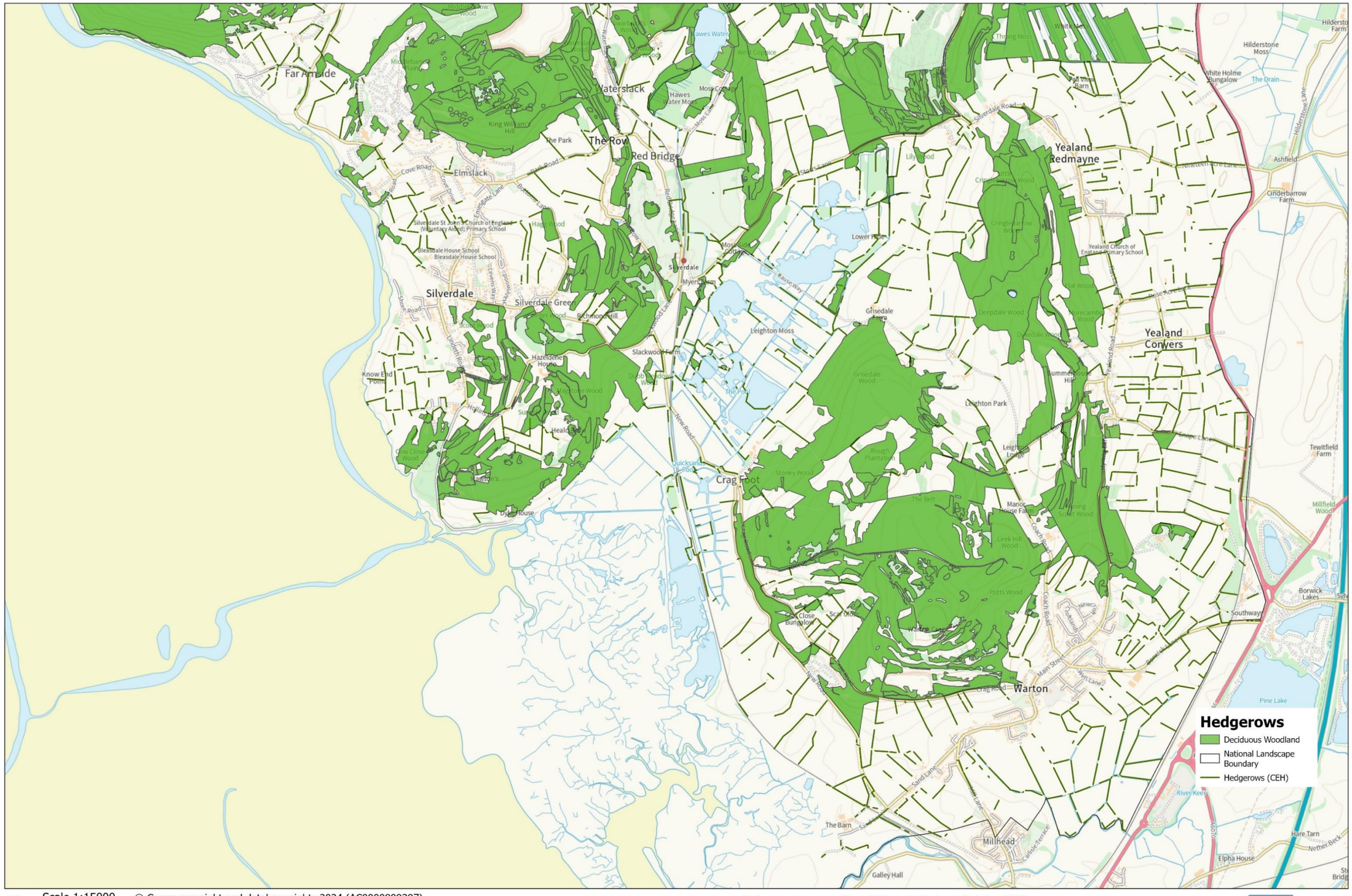
Arnside & Silverdale National Landscape



Hedgerow extent. sourced from UK Centre for Ecology & Hydrology (CEH).

Arnside & Silverdale Nature Recovery Plan - September 2024

Arnside & Silverdale National Landscape



Hedgerow extent. sourced from UK Centre for Ecology & Hydrology (CEH).

Arnside & Silverdale Nature Recovery Plan - September 2024

Arnside & Silverdale National Landscape

Trees, Woodlands & Hedgerows

Case Studies

Hyning Scout Wood – Netted Carpet Moth

Hyning Scout is an 20.8ha block of native woodland over limestone with areas of exposed limestone pavement between the villages of Warton and Yealand. The western half is recognised as PAW (plantation on Ancient Woodland) with the remaining area being secondary semi-natural woodland. The entire woodland is designated a Local Wildlife Site (LWS). The site is owned by the Woodland Trust and is managed in line with an FC approved Management Plan. Primary focus for management is naturalised non-intervention.

Notable for a range of scarce woodland flora associated with limestone pavements, the site also contains the only remaining Lancashire colony of Netted Carpet Moth. The moth is completely reliant on Touch-me-not-balsam as it's larval food plant. Balsam is an annual and favours damp open glades within the woodland, it grows rapidly and exploits gaps in the canopy created by felled and fallen trees, coppice and ground disturbance.

Works to monitor and secure the colony of Netted carpet Moth in the wood has been ongoing since the late 2000's, primarily led by volunteers and supported by Woodland Trust, management has focused on re-introducing coppice management around existing stands of balsam, mechanical ground disturbance of open areas and bramble control. Balsam monitoring, larvae surveys and Moth trap monitoring is carried out annually. Results are mixed and although works have shown some positive results in terms of Balsam health, the plants are often outcompeted and stands reduce in size and condition within a few years. Moth counts peaked in 2013 with 300 larvae recorded, falling to less than 20 by 2024. The moth colony is not considered secure long-term. It is likely that external factors, primarily climate change is the most significant issue for the colony. This same decline can unfortunately be seen across invertebrate populations nationally.

Photo credit – Brian Hancock

Trees, Woodlands & Hedgerows

Case Studies

Gaitbarrows NNR – Hazel Dormouse

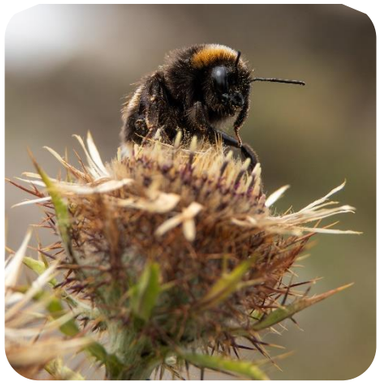
Between 2019 and 2023 PTES (People's Trust for Endangered Species) and the Cumbria BOOM (Back on Our Map) project reintroduced 70 captive bred Hazel dormice into two sites within Arnside and Silverdale, Gaitbarrows NNR (Natural England) and Eaves Wood (National Trust). A further 10 dormice were introduced to Gait Barrows by PTES and Natural England in 2024. The BOOM project was a multi-partnership reintroduction programme, aiming to recover and reintroduce populations of scarce and/or locally extinct mammals and plant species. The programme was led by University of Cumbria and involved a range of local and national academic organisations, statutory organisations, eNGO's and Zoos.

The reintroduction at Gaitbarrows involved extensive site surveys and installation of 250 dormouse nesting boxes across the reserve. The dormice had been quarantined in breeding zoos (Paignton Zoo and the Zoological Society of London) and delivered to site by PTES. The reintroduction was a 'soft release' with dormice being introduced to the woodland in cages on site with adequate food and water for 10 days to allow the dormice to become accustomed to the habitat. After 10 days health checks were carried out by licenced eNGO staff and volunteers and the cages opened. Dormice could come and go as they wished but food and water were still provided by volunteers until the dormice were self sustaining.

Monitoring was conducted by a mix of eNGO staff and trained project volunteers with a combination of nest box checks and footprint tunnel surveys using approved methodology. Surveys were monthly from April to November when Dormice are expected to be active. Results were aggregated and mapped. This monitoring will continue and data fed back to the National Dormouse Monitoring Project for at least 10 years to ascertain the success of the reintroduction and full establishment of a new, viable population. The early results show reproduction and dispersal rates similar to other successful dormouse re-introduction projects across the country. Box adoption rates at Gaibarrows within the first 2 years of release have been notably higher than other projects. The lack of difference between pre and post release adult average weights has shown that food supply is adequate, and population health appears stable. Project monitoring is ongoing but early results at Gaitbarrows are promising with a healthy number of dormice using boxes and the species dispersing across the NNR and to adjacent sites.

Photo Credit – Jim Tuner / Natural England / A&SNL

Limestone Grasslands, Meadows, Pavement & Open Mosaic



2.4% of the area is classed as priority grassland, with grasslands as a habitat covering a total of 30% of the terrestrial landscape. Species rich calcareous grassland and meadows are a key component of the habitat mosaic and vital for the floral and invertebrate diversity present. Significant areas of grassland are also managed for food production, and it is important to recognise a need for balance. Healthy soils are a key component for supporting nature and farming.

60% of all UK butterfly species are found in the area. Most targeted woodland, pavement and grassland management within the landscape currently focuses on the localised populations of Pearl Bordered Fritillary, Small Pearl Bordered Fritillary and Duke of Burgundy.

What does success look like?

A mosaic of well managed connected grasslands is present with a wide diversity of key plant and invertebrate species recorded. Butterflies and pollinating invertebrates are easily able to disperse across the landscape. Populations of notable and rare butterflies are present in numbers that provide maximum resilience to climate changes.

Healthy soils are indicated by the presence of a variety of fungi, invertebrates and indicative plant species.

Mosaic habitats are a diverse mix of limestone grassland, scrub, pavement and woodland unique to the area. These habitats are dynamic, often lightly grazed by hardy cattle and retain a semi-open structure with a mix of open grassland, complex scrub, woodland glades, cliffs and pavements

There are more hay meadows and species rich pastures being grazed by a variety of livestock including native sheep and cattle breeds. Grazing and cutting regimes allow for breeding birds and flowering of key species to support long term healthy populations.

Beyond the farmland other areas of grassland like roadside verges, village greens, cemeteries and school grounds provide ‘mini-meadows’ and steppingstones for species across the area.

Limestone Grasslands, Meadows, Pavement & Open Mosaic Objectives

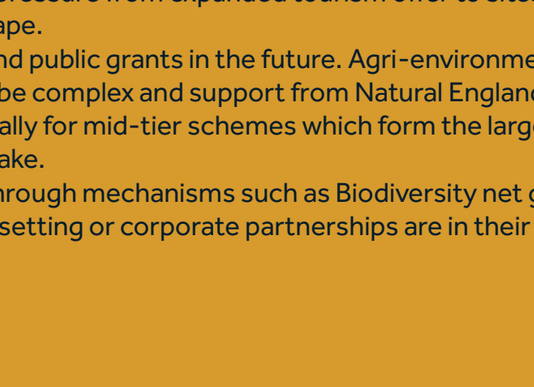
- Maintain/improve quality and extent of high value limestone grassland, meadows, pavements and limestone open mosaic habitats within the landscape
- Increase overall extent of species rich limestone grassland and associated limestone scrub and open pavement habitats. Focus on creating/enhancing ecologically coherent buffers, corridors and islands as part of a wider limestone grassland and mosaic network.
- Maintain and improve connectivity for both woodland species and associated limestone grassland species through creation of rides and glades within adjacent/associated woodland and scrub areas.
- Increase overall extent of farmed grasslands managed as low input, species rich hay meadows. Reintroduce suitable plant species where needed.
- Encourage extensive conservation grazing management using smaller native breeds of sheep and cattle.

2042 Target (PLTOF)

- Create/restore 74ha of priority limestone grassland, limestone scrub mosaic and lowland meadow habitats within the NL
- Create/restore 183ha of supporting limestone pavement, scrub and grassland mosaic habitat (rides, glades etc.) within existing woodland areas within the NL.

Threats and Pressures

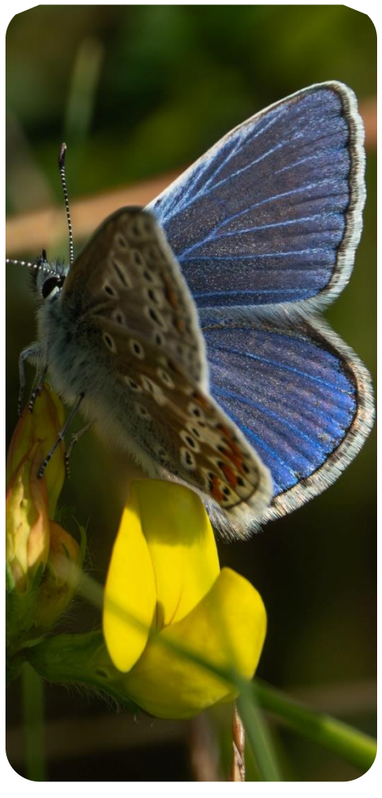
Climate Change	- Increasing rainfall and high winds, stronger and more frequent storms are impacting grasslands - Increases in temperature leading to droughts - Changes in seasonality and temperatures leading to changes in the distribution of species, especially those that are found in and around the area on the edge of their range. Some species could decline, new species could colonise.
Pollution, INNS	- Nutrient enrichment from diffuse pollution from inorganic fertiliser/slurry/manure, point pollution from private sewage works and airborne pollution from agriculture and traffic is harming habitats and species - Invasive non-native species, particularly cotoneaster on areas of limestone pavements, cliffs and scree - Disease spread including Ash die-back and phytophthora affecting Juniper.
Development	- Tourism infrastructure development including cabins/lodges - Agricultural intensification and loss of restorable good quality semi-improved grasslands to more intensive production
People	- Recreational disturbance of sensitive grassland and pavement areas, risk of trampling. - Increased visitor pressure from expanded tourism offer to sites within the landscape.
Finance	- Uncertainty around public grants in the future. Agri-environment schemes tend to be complex and support from Natural England can be limited, especially for mid-tier schemes which form the largest proportion of uptake. - Private finance, through mechanisms such as Biodiversity net gain (BNG), carbon offsetting or corporate partnerships are in their infancy



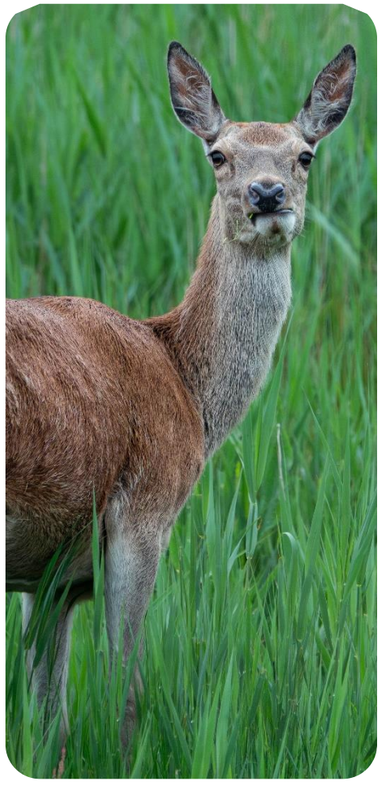
Limestone Grasslands, Meadows & Mosaic

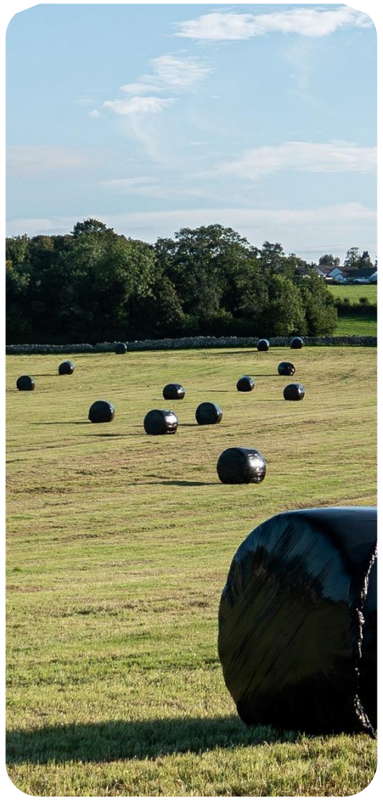
State of Nature

Feature	Description	Condition
Species-rich limestone grassland Mosaic, CG9	Refers to unimproved open and semi-open grassland habitats over limestone, soils are usually shallow and free draining with low fertility. They often occur in a naturalised mosaic with associated scattered scrub and trees, exposed limestone pavement and occasionally patches of more acidic grassland/dwarf shrub heath in loess (sand) deposits formed in depressions between limestone ridges. The habitat is highly linked with its geology. The distribution within Arnside & Silverdale is fragmented and the remaining limestone grassland a remnant of a much larger limestone grassland/scrub mosaic that existed prior to agricultural intensification. Plant species are diverse and in some cases endemic to the habitat. The ground flora is typified by finer grasses and lower growing, recumbent or spreading herbs. Typical species include: blue moor grass, wild thyme, wild marjoram, limestone bedstraw, rock rose, carline thistle, violet spp, trefoils and vetches and a range of orchids. The habitat supports diverse populations of specialist butterflies and other invertebrates.	Almost without exception the remaining high quality species-rich limestone grassland within the landscape is restricted to Nature Reserves or other areas primarily managed for conservation of the habitat. The largest contiguous areas of limestone grassland mosaic are on Arnside Knot and Heathwaite and in the south on Warton Crag. Within nature reserves and conservation areas, condition of the habitat is generally good and is under proactive management, often through a mix of extensive cattle grazing and scrub cutting, however increasing vigor of scrub and bramble is a threat. Scrub management is often only possible due to the support of AES funding or similar. Similar species composition occurs in former quarry sites such as Trowbarrow and at Warton Crag. Both are in good condition and proactively managed. There are scattered remnant limestone grasslands elsewhere in the landscape and similar species composition occurs within open woodland edges and within the network of rides and glades through the area, notably around prominent surface limestone and pavement. Semi-improved pasture across the area tends to retain infrequent limestone grassland indicators, particularly where the soils are shallow and/or the land has been permanent pasture for several decades. Habitat recovery is often possible in these areas but is limited by productive land management practices.



Feature	Description	Condition
Limestone pavements and grassland/ scrub mosaic	Limestone pavement, grassland, scrub and woodland mosaics are a complex and dynamic habitat. They contain fragments of open limestone grassland described above with open pavement, scrub and scattered woodland. Woodlands can form a significant part of the mosaic and are described within the woodlands section above. Open pavement describes exposed karstic limestone with emergent vegetation growing in grykes and fissures in the rock. Vegetation is highly specialised and includes a range of scarce ferns and mosses alongside more typical limestone grassland species, seeded into windblown soils caught in gaps and depressions in the rock itself. Low growing, shallow rooted scrub and tree species are frequent with Yew and Juniper being notable species. Secondary to the 'true' pavement, similar species compositions are found on glacial screes and within former quarry workings which mimic the naturalised pavement habitats. Management aims to maintain a balance of successional stages within the mosaic, from open grassland and pavement through to mature woodland and developed ground flora including patches of bracken and mixed scrub suitable for invertebrates. Management is by extensive grazing with hardy cattle combined with vegetation cutting and forced reversion to earlier successional stages.	These diverse pavement, grassland and scrub mosaics are mostly restricted to Nature reserves, with extensive areas at Gaitbarrows NNR, Warton Crag LNR and on Arnside Knott. All are proactively managed to maintain/enhance the dynamism and range of successional habitats of the mosaic. Several SSSI within the area are notified for the scarce vascular plant assemblages and invertebrate assemblages associated with the limestone grassland/pavement and scrub mosaics. Butterfly populations are used as a proxy for mosaic habitat condition. Local declines are, for the most part in line with national trends. Scarce species such as Duke of Burgundy, Northern Brown Argus and various Fritillary retain a stronghold in the area but have suffered in recent years, primarily due to poor weather exacerbated by climate change. Expansion of INNS species, particularly cotoneaster spp. risks reducing condition of open pavement habitats. Measures to control cotoneaster are ongoing but require significant ongoing resource to manage.





Feature	Description	Condition
Lowland species rich meadows and pastures	Refers to species-rich open grasslands, which historically were managed primarily for hay production. Hay meadows are part of a traditional agricultural landscape, field sizes are small and tend to be bound by dry stone walls, mature hedges and/or hedge banks. Fertility is low to moderate and hay meadows have historically been subject to low level agricultural improvement, either through drainage and/or applications of organic manures. Soil type varies and generally speaking, hay meadow management can suit most grassland types. Species mix is diverse and varies with soil type. Within Arnside & Silverdale; neutral herb species including yellow rattle, black knapweed, oxeye daisy, self heal, vetches, red clover, common spotted orchid etc are present and are often supported by species more typical of limestone grasslands such as betony, field scabious, lady's bedstraw, limestone bedstraw etc There are only a few remaining traditional hay meadows and species rich neutral pasture although there have been significant efforts to restore/create hay meadows through AES, FiPL and Green Recovery 'Meadow Makers' project. In hay meadows, livestock are typically excluded from late March or early April, and the grass and associated herbs are allowed to grow tall until they are harvested by mowing; usually in June or early July for commercial purposes, or in late July - September for nature conservation purposes. Removal of the crop is essential to prevent nutrient enrichment, and the timing should allow flowering plants to flower and set seed before they are cut. After cutting, the aftermath growth is grazed by livestock. Only relatively low levels of fertiliser are typically applied to the field, traditionally using just farmyard manure. Similar vegetation is found in pastures where traditional breed cattle graze from late July or August, or low levels of summer livestock grazing still allow a large proportion of the plants to flower and set seed. Hardy cattle breeds are able to consume the rougher herbage at the end of the growing season which most commercial breeds of sheep or cattle are unable to cope with. Pasture management is generally better for invertebrates by producing a patchier, tussocky and varied sward, with a more gradual transition from tall to short grassland in the summer rather than the sudden impact caused by mowing. Managing species-rich pastures by grazing throughout the year will create a varied structure over the summer, from short-sward to taller tussocks and rush. This patchy sward will benefit breeding birds, which require a variety of sward heights for different parts of their life cycle. Cutting the vegetation early in the year for hay or silage can prevent or disrupt nesting. Restoration methods are well understood, but take time and patience to implement through to full restoration. It is imperative that suitable seed is used, ideally harvested from a local 'donor site'	There are very few 'old' hay meadows within the landscape, the majority having been lost to agricultural intensification post-war and replaced by semi-improved pasture and improved dairy pasture and silage production. A number of hay meadows and species rich neutral grassland sites have been restored and/or are under sympathetic management, either by nature conservation organisations or as part of lower input farm holdings, however species rich neutral grasslands are still not widespread across the landscape. The grasslands that do exist are generally in good condition and are being sympathetically managed however are not considered secure in perpetuity. AES funding or similar is seen as highly important for ensuring the retention and conservation of these habitats.

Feature	Description	Condition
Spiked Speedwell	Spiked speedwell is a native perennial herb of hard base rocks, particularly cliffs, ledges and pavements or outcrops. It is theorised to be a relic of late-glacial 'steppe-tundra' vegetation and so the species is intolerant of shade, competition and grazing. Management requires maintenance of suitable growing conditions; including a short sward, minimal vegetative competition and prevention of rabbit browsing during the growing/flowering season. Colonies with restricted access such as clefts and gaps on cliffs and ledges are most suitable however, open grassland with very shallow soils and frequent rocky outcrops do suit the species.	Within Arnside & Silverdale the primary remaining colony is within Heathwaite, managed by the National Trust. Due to the ecology of the species and intolerance of agricultural inputs it is almost exclusively restricted to nature reserves. The species was included in the Cumbria BOOM (Back on our Map) project and subject to a local expansion and reintroduction programme between 2018 and 2023. Early results show the reintroduction to two sites within the species former range to be successful. Further monitoring is required to measure establishment and longer-term success.
Green-winged Orchid	Green-winged orchid is a short orchid of unimproved meadows, pastures and coastal grassland and occasionally open woodland and scrub. It favours base soils with an open aspect and requires relationship with symbiotic mycorrhizal fungi in the soil for successful germination. It requires ancient grassland sites with little or no history of application with artificial fertilizers, herbicides or fungicides. As the species only occurs on unimproved grasslands, management focuses around creating ideal sward conditions through targeted sheep and cattle grazing and mechanical control of scrub encroachment.	Green-winged Orchid occurs on several unimproved grassland sites across the landscape however is most numerous on The Lots, an of enclosed pastures in Silverdale owned by The National Trust. Annual monitoring has taken place since 2004. Records show a marked increase from c1000 stems in 2004 to 12677 stems in 2023. As with Spiked Speedwell, Green-winged Orchid were included in the Cumbria BOOM project. The species was cultivated at RHS Kew with seed taken from The Lots in Silverdale. Reintroduction took place at four sites within the landscape in 2021 however none of the plants survived longer than 6 months. Although a technical failure, the research value of the reintroduction has been significant and will likely inform future work.
Duke of Burgundy	Duke of Burgundy is a small butterfly of scrubby grassland and woodland clearings over chalks and limestone. The species has declined by 36% in the last 50 years and has become highly localised within the UK with remaining colonies only found on the south Cumbria Limestones and Chalk downs in central southern England. The species favours species-rich unimproved limestone grasslands and scrub/open woodland mosaics. The larval foodplants are cowslip and primroses. Management is aimed at improving structure and suitability of limestone mosaic habitat and providing an abundance of larval foodplants, either through introduction or complementary management eg. coppice, ride and glade management. As with the majority of UK butterfly species, some of the key drivers of decline are related to climate change and more frequent unpredictable weather conditions. Practical management measures may buffer populations and increase resilience to climate change but are unlikely to result in large scale population restoration or enhancement.	Significant works have taken place for Duke of Burgundy at a number of sites across the landscape. Gaitbarrows NNR in particular has seen extensive work for the species. Interventions have included scrub works, creation of glades and rides and plug planting of larval foodplant Primula species.

Feature	Description	Condition
Pearl Bordered Fritillary	An early-flying fritillary species, mostly associated with open woodland, coppice, scattered scrub and bracken habitats. Larval foodplants are violet species and adults require an abundance of spring flowering nectaring species such as Bugle. The species has a western bias with populations in Western Scotland, South Cumbria and Devon/Cornwall. The species has declined significantly in both population and range over the previous 50 years. As described above for Duke of Burgundy, some of the key drivers of decline are climate change and unpredictable weather.	Pearl Bordered Fritillary are still recorded in low numbers within the landscape as part of the UK Butterfly monitoring scheme (UKBMS). The most recent 5-year average was 8 individuals in total over the 22 transects with a peak year count of 20.
Northern Brown Argus	A less numerous relative of the commoner Brown Argus. The most southerly extent of the Northern Brown's range is across North Lancashire and South Cumbria. The species favours calcareous grasslands but will utilise other free-draining sites with appropriate plant species. The typical larval foodplant is Rock-rose although cranesbills are sometimes used. Management on limestone sites usually involves maintaining open, unimproved grassland with an abundance of foodplants, often through a combination of grazing and cutting.	Northern Brown Argus are relatively well recorded within the area with a 5-year average of 72 individuals.
Glow-worm	Glow worm *lampyris noctiluca* are beetles which exhibit bioluminescence as part of mating behaviours. The species prefers unimproved limestone grasslands and open scrub habitats, often with small areas of bare ground and/or exposed rock and scree. The larvae feeds on small snails. Adults are most active during June and July when the nocturnal 'glow' of females aims to attracts flying males. Light pollution is known to be a factor in glow worm decline[1], causing interruptions in female ability to attract males. More general issues facing invertebrates are also likely to be having an effect, including climate change, habitat loss, scrub encroachment and presence/use of anti-parasitics in livestock on grazed grasslands.	There are a number of good quality anecdotal records for glowworm within the area, with known populations on Arnside Knott and within Trowbarrow Quarry. There have been no formal surveys for the species with the majority of records being incidentals by individual recorders, submitted to local data centres, NBN, iNaturalist etc.
Ants (Yellow Meadow Ant, Red Wood Ant)	Ants are ecosystem engineers, creating a range of habitat niches and recycling nutrients. Both Yellow Meadow and Red Wood Ant are important components within grassland, woodland, scrub and mosaic habitats. Both species build anthills, creating bare ground and reworking soil. They co-exist with aphids, which they 'farm' for Honeydew, a sugar-rich excretion produced by aphids from feeding on plant sap. Ants are particularly susceptible to habitat loss, fragmentation, disturbance, temperature and changes to seasonality in a similar pattern seen with other invertebrates.	Ant species are not consistently recorded in the landscape. Records supplied to NBN via iRecord show occurrences of Red Wood Ant around Gaitbarrows, Arnside Knot and Deepdale Woods. Yellow Meadow Ant are recorded around Arnside Knot (Heathwaite), Heald Brow and Yealand Allotments. Status and condition of colonies is not known

[1] Low levels of light pollution may block the ability of male glow-worms (Lampyris noctiluca L.) to locate females | Journal of Insect Conservation

Limestone Grasslands, Meadows & Mosaic

Actions

Feature	What does it need?	#	Actions	Category	Delivery Partner/s
Species-rich limestone grassland Mosaic, CG9	Maintain existing areas of high quality limestone grassland mosaic across the landscape.	L1	Support development/delivery of bespoke nature reserve management plans targeting management/maintenance/enhancement of limestone grassland habitats.	Policy and planning, Land Management	NE, RSPB, LWT, A&SNL, NT, TLT
		L2	Support and develop partnership working to share best practice, skills and resources across the network of limestone grassland sites e.g. Warton Crag Advisory Group, Super NNR proposals, Farming and Land management group.	Policy and planning	NE, RSPB, LWT, A&SNL, NT, TLT
		L3	Survey or access recent survey data for all SSSI and Country Wildlife or Biological Heritage sites to understand the current condition. Work with land managers to agree or understand management requirements for continued positive management or necessary management for restoration		
		L4	Pro-actively monitor and manage scrub ingress on limestone grassland sites. Support measures to control scrub development with a focus on Bramble and INNS scrub species such as Cotoneaster and Buddleia.	Land Management	NE, RSPB, LWT, A&SNL, NT, TLT
	Increase overall extent of limestone grassland habitat through restoration/reversion of suitable semi-improved and improved grassland sites	L5	Identify and map suitable grassland sites outside of the priority habitats network with potential for restoration. Consider soil type, soil depth, drainage and aspect.	Science and Research	NE, NT, A&SNL
		L6	Restore new areas of limestone grassland through appropriate grazing and potential introduction of seed/plugs. Restoration should be staged, and efforts should be taken to reduce residual fertility and restore natural soil conditions.	Land Management	NE, NT, A&SNL, PL
	Improved connectivity of existing limestone grassland through creation/enhancement of woodland rides and glades linking existing grassland areas	L7	Identify woodland areas through which rides and glades could be created/improved to better link limestone grasslands.	Science and Research	NE, NT, A&SNL, WT, FC, PL
		L8	Create/enhance networks of rides and glades to better connect limestone grasslands. Aim to create contiguous semi-open, lightly shaded corridors between grassland areas through a combination of thinning and felling. Maintain open areas with cutting and targeted cattle grazing. Utilise 'no-fence' systems for fine scale targeting of grazing on sensitive habitats.	Land Management	NE, NT, A&SNL, WT, FC, RSPB, LWT, PL
	Maintain genetic progeny within the area by, in so far as is reasonable harvesting seed and cultivating scarce limestone grassland species within the landscape	L9	Support and develop local wildflower nurseries utilising locally sourced seed to provide seed/plugs for new grassland sites and to bolster populations on existing grassland, pavement and mosaic sites.	Land Management	A&SNL, PL
Limestone pavements and grassland/scrub mosaic	Maintain existing areas of high-quality limestone pavement and grassland/scrub mosaic within the network of Nature Reserves across the landscape	L10	Support development of management plans and partnership working as above.	Policy and planning, Land Management	NE, RSPB, LWT, A&SNL, NT, TLT
		L11	Pro-actively monitor and manage scrub ingress on limestone pavement sites. Support measures to control scrub development with a focus on Bramble and INNS scrub species such as Cotoneaster and Buddleia.	Land Management	NE, RSPB, LWT, A&SNL, NT, TLT
		L12	Support and develop local plant and invertebrate monitoring schemes to assess changes in habitat condition and appeal and identify specific species management issues and opportunities.	Science and Research,	NE, RSPB, LWT, A&SNL, NT, BC

Feature	What does it need?	#	Actions	Category	Delivery Partner/s
Limestone pavements and grassland/scrub mosaic	Increase area of limestone pavement specifically managed for biodiversity features as part of a limestone habitat mosaic	L13	Enforce limestone pavement orders in place to prevent degradation of limestone pavement areas.	Policy and planning	LA
		L14	Identify areas of exposed limestone pavement, particularly within open grassland and/or secondary semi-natural woodland settings that are not currently under sympathetic management and/or where emergent, specialist limestone pavement vegetation is being supressed by grazing.	Science and Research, Land Management	NE, A&SNL
		L15	Support and develop management measures to restore former (and current) limestone quarry sites. Aim to create a proxy for natural limestone pavement within a grassland and scrub mosaic. Utilise best practice developed locally at sites such as Trowbarrow Quarry LNR	Policy and planning, Land Management	NE, A&SNL, PL
Lowland species rich meadows and pastures	Maintain extent and quality of existing species rich lowland meadows and pasture	L16	Survey or access recent survey data for all SSSI and Country Wildlife or Biological Heritage sites to understand the current condition. Work with land managers to agree or understand management requirements for continued positive management or necessary management for restoration	Science and research, Farm advice and support	A&SNL, CWT, CBDC, LCC
		L17	Continue support of landowners/managers to retain species-rich hay meadows and pasture through monitoring, advice and funding support. Where required, support infrastructure improvements to facilitate haymaking, conservation grazing and/or other required management of species-rich meadow and pasture.	Land Management, Farm advice and support	NE, A&SNL
		L18	Supplement existing restored meadows and pasture with further introductions of seed/plugs, specifically targeting scarce species eg. Green Winged Orchid, Spiked Speedwell or invertebrate food plants eg. Cowslip, primrose and violet species.	Land Management	NE, A&SNL, TLT, NT, PL
		L19	Increase public awareness of the importance and value of traditional hay meadows and pasture through events, interpretation and access management.	Engagement & Advocacy	A&SNL
		L20	Support and explore local supply chain opportunities for species-rich hay, both for restoration (payment of the crop either as green hay or brush harvested seed) and fodder.	Policy and planning, Engagement and advocacy	PL, NT
		L21	Create a directory of contractors who specialise in using smaller versions of tractors and mowers for sites which are not accessible to the typical machinery used on farms today. This will facilitate management such as grass cutting and removal of arisings on sites where nutrient levels need to be maintained at a low level.	Policy and planning	A&SNL, CWT
	Increase overall extent of area managed as species rich lowland meadow and pasture	L22	Identify and map suitable grassland sites outside of the priority habitats network with potential for restoration. Consider soil type, soil depth, drainage and aspect. Seed/plug mixes should reflect PH, hydrology and fertility of restoration site.	Science and Research	NE, A&SNL, NT, PL
		L23	Work with farmers and landowners to restore meadows and pasture through available funding schemes. Greatest opportunities are likely to come from motivated and well-informed landowners and managers. Support eventual transition towards restoration of species-rich grassland through use of low-input grassland management in the interim.	Farm advice and support Land management	PL, NE, A&SNL
		L24	Restore new areas of species-rich meadow and pasture through introduction of seed/plugs and appropriate cutting and/or grazing. Restoration should be staged, and efforts should be taken to reduce residual fertility and restore natural soil conditions.	Land Management	NE, A&SNL, NT, PL
		L25	Create a map and directory of green hay donors and donor sites that can provide the seed source to support grassland restoration projects.	Policy and planning	A&SNL, CWT
Spiked Speedwell	Maintain current extent and condition of Spiked speedwell	L26	Continue monitoring efforts as part of the Cumbria BOOM project legacy. Where possible, replicate survey intensity and coverage to provide longer-term data around species establishment, growth and survival.	Science and Research	NE, A&SNL, NT, PL
		L27	Ensure targeted species management requirements are accounted for in relevant Nature Reserve & associated Land Management plans	Policy and planning, Land Management	NE, RSPB, LWT, A&SNL, NT, TLT
	Increase range and distribution of Spiked speedwell	L28	Consider further re-introductions and translocations of Spiked speedwell to suitable sites locally using best practice developed as part of the Cumbria BOOM Project. Specific guidance is provided in the relevant BOOM species report (British Ecological Society – Spiked Speedwell)	Land Management	NE, RSPB, LWT, A&SNL, NT, TLT

Feature	What does it need?	#	Actions	Category	Delivery Partner/s
Green-winged Orchid	Maintain current extent and condition of Green-winged orchid	L29	Continue monitoring efforts as part of the Cumbria BOOM project legacy and/or continuation of long-term surveys such as at The Lots in Silverdale. Where possible, replicate survey intensity and coverage to provide longer-term data around species establishment, growth and survival.	Science and Research	NE, RSPB, LWT, A&SNL, NT, TLT
		L30	Ensure targeted species management requirements are accounted for in relevant Nature Reserve management plans and recognised in any AES prescriptions for sites outside reserves	Policy and planning, Land Management	NE, RSPB, LWT, A&SNL, NT, TLT
	Increase range and distribution of Green-winged Orchid	L31	Consider further re-introductions and translocations of Green-winged Orchid to suitable sites locally using best practice developed as part of the Cumbria BOOM Project. Specific guidance is provided in the relevant BOOM species report (British Ecological Society – Green-winged Orchid)	Land Management	NE, RSPB, LWT, A&SNL, NT, TLT
Duke of Burgundy, Pearl Bordered Fritillary, Northern Brown Argus	Maintain/enhance the species rich limestone grassland mosaic.	L32	See actions listed above for species-rich limestone grassland mosaic, limestone pavements and grassland/scrub mosaic	Land Management	NE, RSPB, LWT, A&SNL, NT, TLT
		L33	Ensure targeted species management requirements are accounted for in relevant Nature Reserve & associated Land Management plans	Policy and planning, Land Management	NE, RSPB, LWT, A&SNL, NT, TLT
	Improve local species recording, reporting and data analysis	L34	Continue to support and where possible, increase survey efforts for butterfly and moth species across the landscape through the UKBMS. Compare local records against national trends to identify local changes and/or impacts of management.	Science and Research	BC, A&SNL, PL, RSPB, NT, LWT
	Increase number and availability of larval foodplants at current and former colony sites.	L35	Introduce species specific larval foodplant plugs into suitable sites. If possible, locally source seed and propagate to maintain genetic progeny and increase chance of establishment.	Land Management	BC, A&SNL, PL, RSPB, NT, LWT
Glow-worm	Assess population status within the landscape	L36	Investigate historic records and anecdotal evidence of Glow-worm activity across the landscape. Target field surveys on areas of good quality unimproved limestone grassland, scrub and pavement with historic presence of Glow-worm. Review other sites and undertake field surveys based on species habitat presence.	Science and Research	A&SNL, NT, NE, LWT
	Maintain/enhance the species rich limestone grassland mosaic.	L37	See actions listed above for species-rich limestone grassland mosaic, limestone pavements and grassland/scrub mosaic	Land Management	NE, RSPB, LWT, A&SNL, NT, TLT
		L38	Ensure targeted species management requirements are accounted for in relevant Nature Reserve & associated Land Management plans	Policy and planning, Land Management	NE, RSPB, LWT, A&SNL, NT, TLT
	Reduce levels of artificial light pollution, especially within 2km of known sites	L39	Raise awareness of the detrimental impacts of light pollution, particularly for nocturnal mammals and invertebrates and Glow-worm through existing education and events offer.	Engagement and advocacy	NE, RSPB, LWT, A&SNL, NT, TLT
		L40	Ensure new (and existing) development adheres to the 2023 Cumbia Good Lighting Guide Technical Advice Note[1], produced by Friends of The Lake District (FLD) as part of the Dark Skies Cumbria Project.	Policy and planning	NE, LA, A&SNL
Ants (Yellow Meadow Ant, Red Wood Ant)	Maintain/enhance the species rich limestone grassland mosaic.	L41	See actions listed above for species-rich limestone grassland mosaic, limestone pavements and grassland/scrub mosaic.	Land Management	NE, RSPB, LWT, A&SNL, NT, TLT
		L42	Ensure targeted species management requirements are accounted for in relevant Nature Reserve & associated Land Management plans	Policy and planning, Land Management	NE, RSPB, LWT, A&SNL, NT, TLT
	Improve local species recording, reporting and data analysis	L43	Continue to support and where possible, increase survey efforts for ant species across the landscape. Compare local records against national trends to identify local changes and/or impacts of management.	Science and Research	BC, A&SNL, PL, RSPB, NT, LWT

[1] Light Policy and Guidance | Friends of the Lake District

Limestone Grasslands, Meadows & Mosaic Opportunities

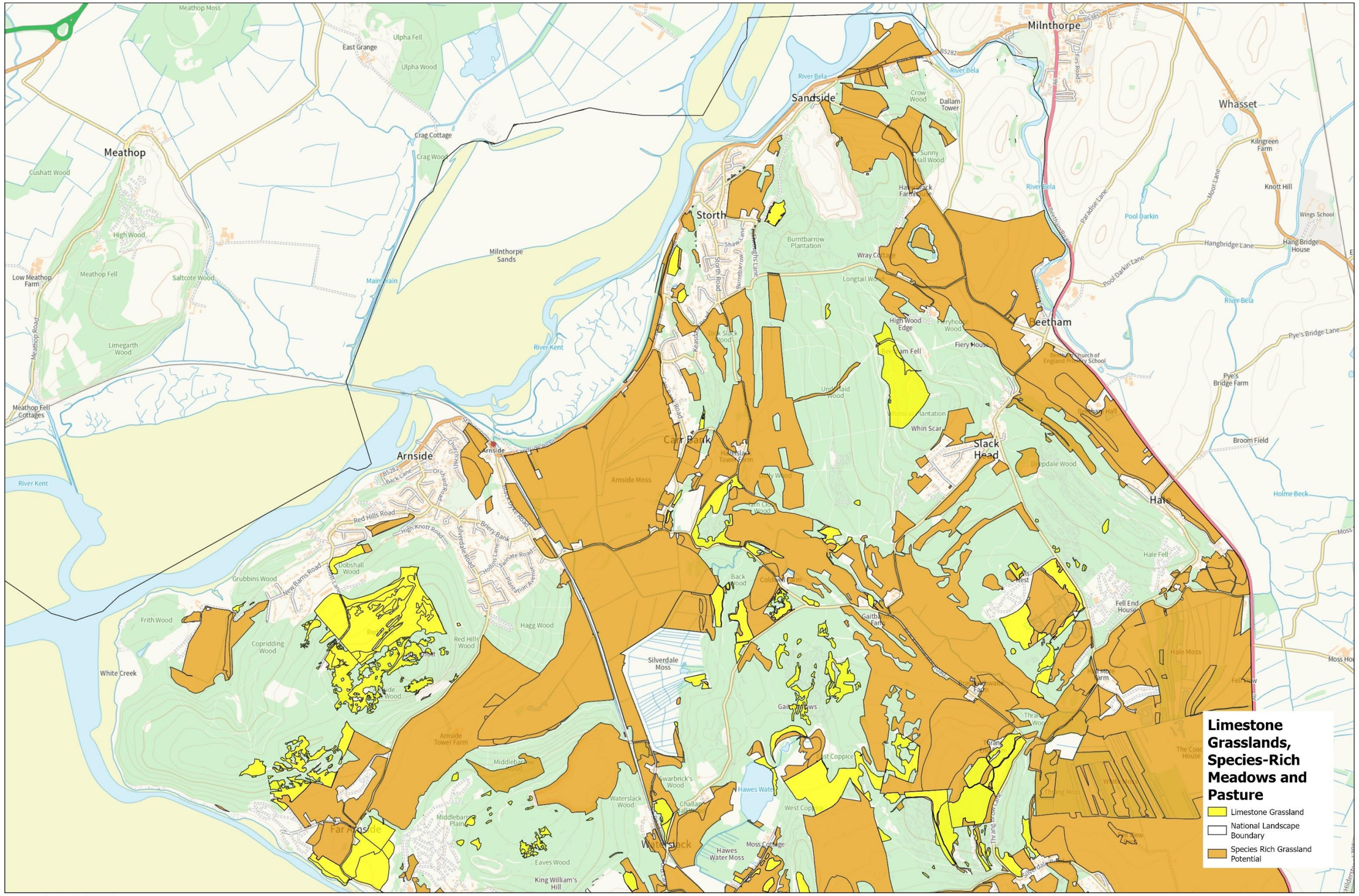
Limestone grasslands, Meadows and Mosaic – Map layers

The areas identified are ecologically coherent locations in which to meet the Nature Recovery Objectives. The areas identified show potential opportunities and are in no way commitments to delivery of actions.

Limestone Grassland (Bright Yellow)
Describes combined area of calcareous (limestone) grassland and Lowland Meadow, taken from the Natural England Priority Habitats Inventory[1] (PHI).

Species Rich Grassland Potential (Orange)
This area has been identified as being potentially suitable for the restoration/creation of species rich grassland habitats. The area may be suitable for a range of semi-natural grasslands, from limestone grassland/pavement and scrub mosaic, traditional hay meadows or species-rich neutral pasture depending on location, soil type and depth and hydrology. Areas identified using Natural England Priority Habitats Network mapping (PHN), BGS (British Geological Society) bedrock and superficial deposit mapping.

[1] Habitat Networks (England) - data.gov.uk



N

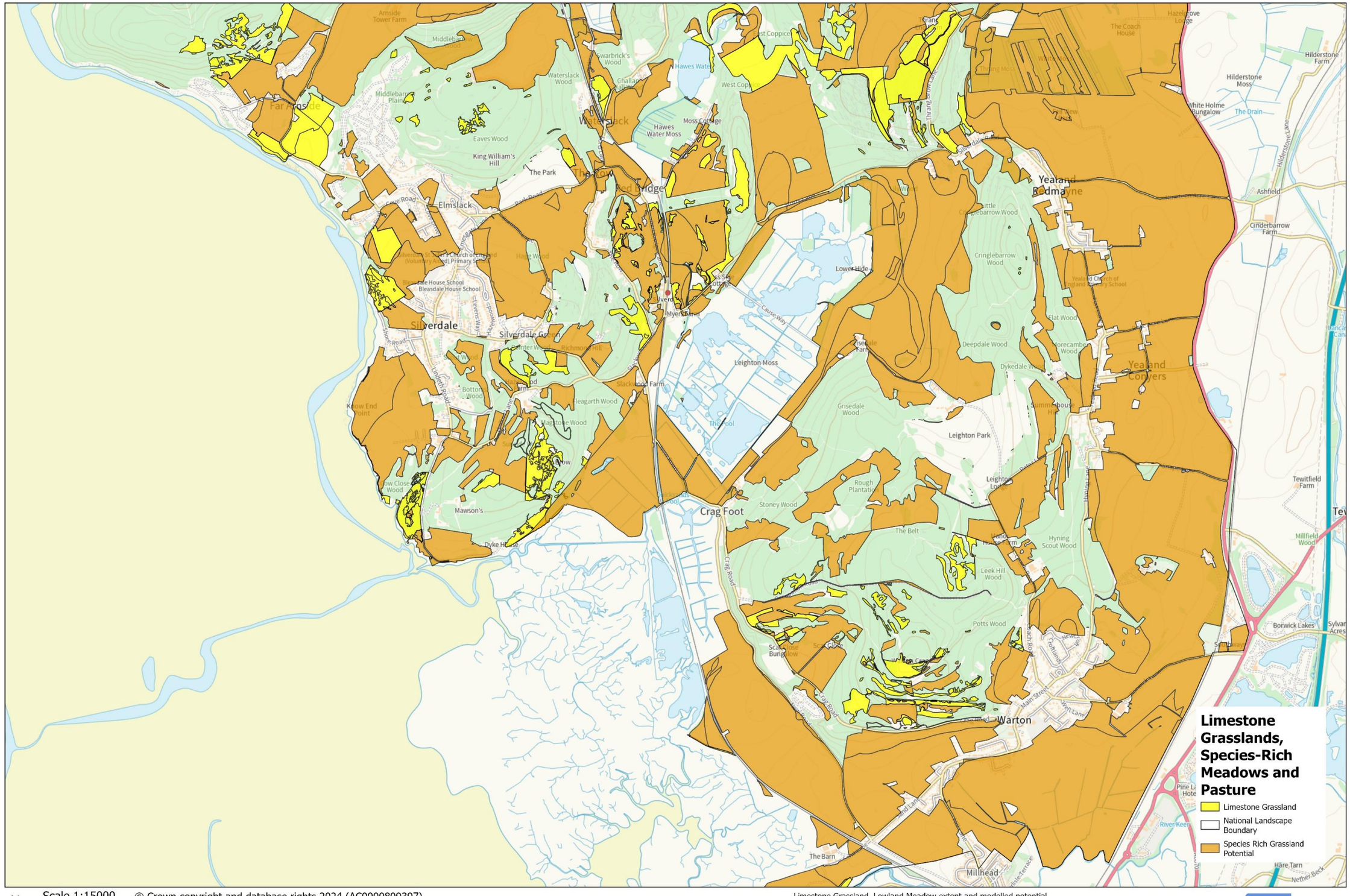
Scale 1:15000 © Crown copyright and database rights 2024 (AC0000809397)

0 0.35 0.7 1.4 2.1 2.8 Kilometers

Limestone Grassland, Lowland Meadow extent and modelled potential
Areas identified using Natural England Priority Habitats Network dataset, Natural England Peaty Soils dataset and British Geology Society (BGS) Bedrock and superficial deposits datasets

Arnside & Silverdale Nature Recovery Plan - September 2024

Arnside & Silverdale National Landscape



Limestone Grassland, Lowland Meadow extent and modelled potential
Areas identified using Natural England Priority Habitats Network dataset, Natural England Peaty Soils dataset and British Geology Society (BGS) Bedrock and superficial deposits datasets

Arnside & Silverdale Nature Recovery Plan - September 2024

Arnside & Silverdale National Landscape

Limestone Grassland habitats within Woodland

Opportunities

Limestone grassland habitat network within woodland areas– Map layers

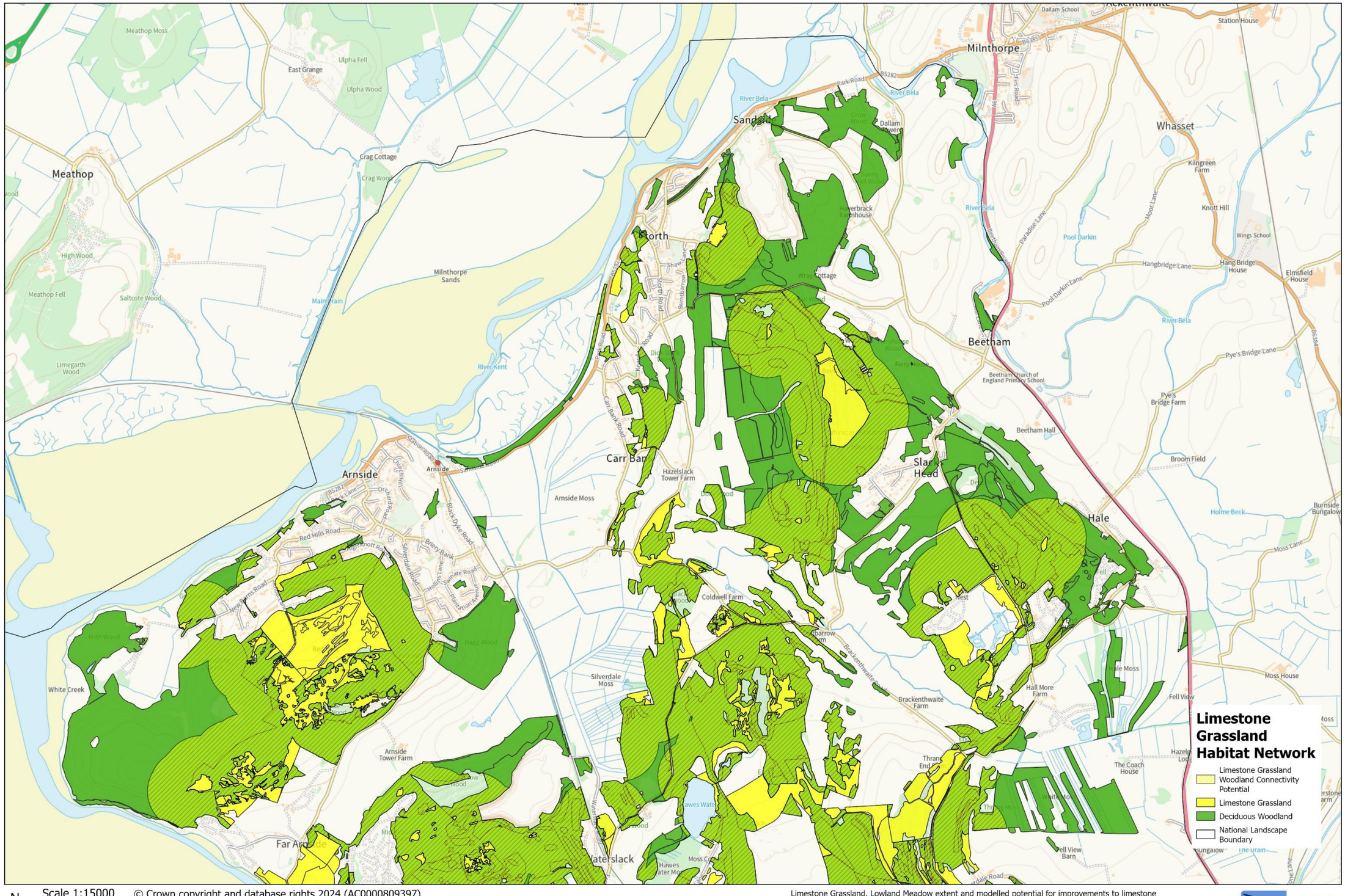
The areas identified are ecologically coherent locations in which to meet the Nature Recovery Objectives. The areas identified show potential opportunities and are in no way commitments to delivery of actions.

Limestone Grassland (Bright Yellow)
Describes combined area of calcareous (limestone) grassland and Lowland Meadow, taken from the Natural England Priority Habitats Inventory[1] (PHI).

Deciduous Woodland (Green)
Describes are of existing woodland, taken from Natural England Priority Habitats Inventory

Limestone Grassland Woodland Connectivity Potential (Yellow hatch over green)
This area has been identified as suitable for increasing the connectivity of limestone habitats, specifically within woodland areas i.e creating open space and reducing canopy shading to allow movement of limestone grassland species (particularly butterflies) along a network of woodland rides and glades. Area has been identified using a 250m buffer of priority limestone grassland habitats, clipped to intersecting woodland polygons.

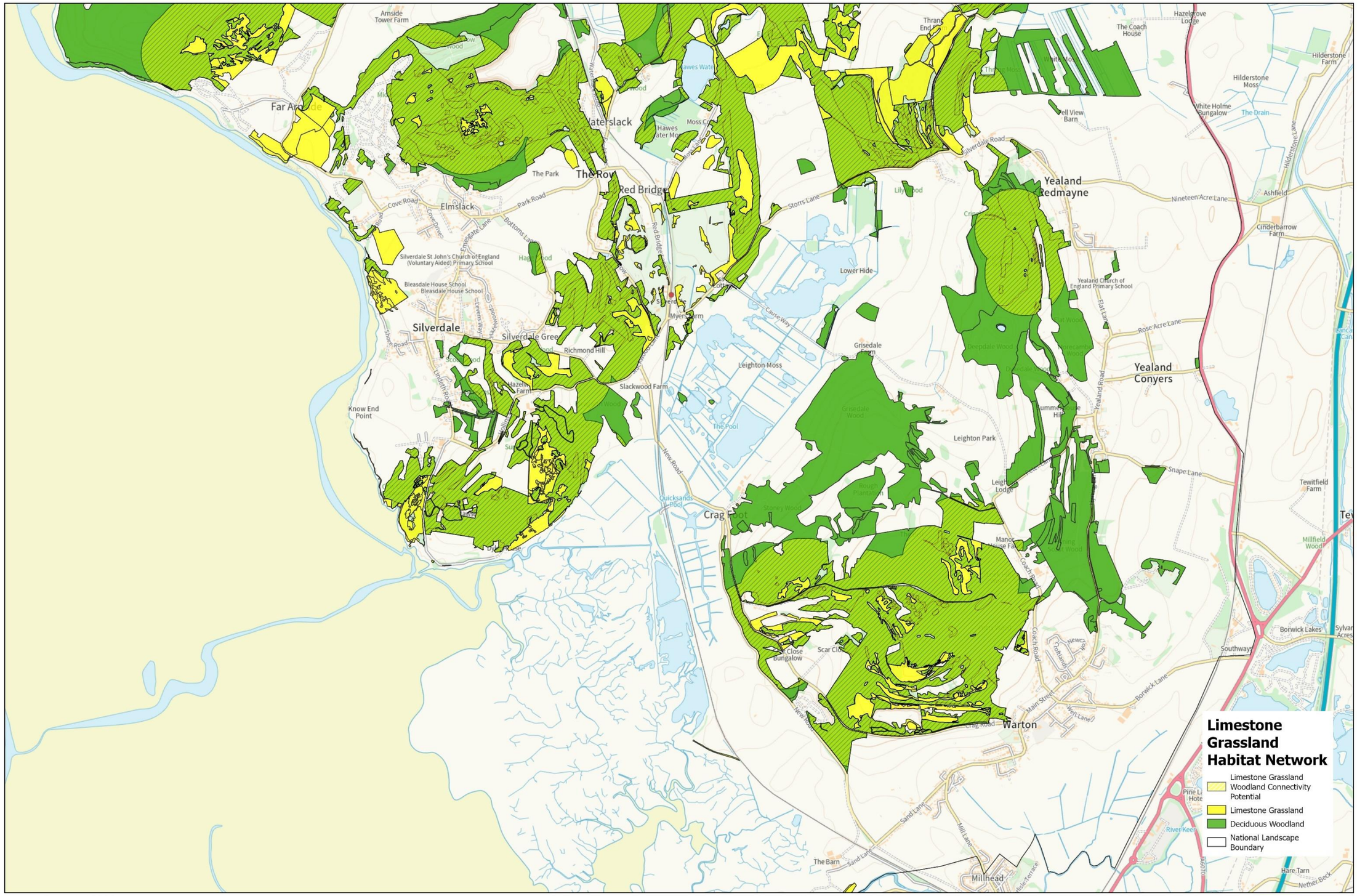
[1] Habitat Networks (England) - data.gov.uk



Limestone Grassland, Lowland Meadow extent and modelled potential for improvements to limestone grasslands, pavements and scrub mosaic habitats within existing woodland areas.
Areas identified using Natural England Priority Habitats Network dataset, National Forest Inventory dataset

Arnside & Silverdale Nature Recovery Plan - September 2024

Arnside & Silverdale National Landscape



Limestone Grassland, Lowland Meadow extent and modelled potential for improvements to limestone grasslands, pavements and scrub mosaic habitats within existing woodland areas.
Areas identified using Natural England Priority Habitats Network dataset, National Forest Inventory dataset

Arnside & Silverdale Nature Recovery Plan - September 2024

Arnside & Silverdale National Landscape

Limestone Grasslands, Meadows & Mosaic

Case Study

Coldwell Meadow - Meadow management and enhancement

Coldwell Meadow is a 1.6ha field adjacent to Gait Barrows NNR. It is part of a wider 'Coldwell Horseshoe' reserve which is a suite of limestone grassland and meadows which link Natural England managed Gait Barrow and RSPB managed Challan Hall/Back Wood.

It was purchased in 2013 by the Landscape Trust and since then, the Trust have been working to increase the botanical species diversity of the meadow, alongside Morecambe Bay Grazing Company.

The meadow was entered into a Higher Level Stewardship (HLS) agreement in 2013 for which the primary aim for Coldwell Meadow was to restore towards species rich grassland, with supplementary payments to manage as a hay-meadow.

Initially, the field was diverse in grass species, however there were very few herbs. This began to change with the feeding of herb-rich hay to the cattle which were grazing the after-math over winter. After two to three years, yellow rattle was surveyed in low numbers, and this has increased year-on-year, decreasing the vigour of the grass sward and allowing space for more herb species.

Coldwell meadow was included the Plantlife led 'Meadow Makers' Green Recovery Fund Project which took place in 2020/21, in which Arnside & Silverdale National Landscape were a partner. As part of the project, 500 plug plants were planted by volunteers to introduce species which hadn't yet established through the hay strewing method. The plugs were grown by the National Landscape from locally harvested seed, and a precursor to the establishment of the Growing Station.

Also as part of this project, Coldwell meadow was used as a donor site for other meadows which were beginning their restoration journey. Target species for harvesting were yellow rattle, red clover, plantain and hawkbit. The seeds were collected using a brush-harvester, pulled by a quad bike. This method ensures that the grass crop is still available, and the Landscape Trust were paid for the seed.

Two botanical transects have been carried out by Landscape Trust volunteers, supported by ecologists, each July since the field was purchased, and these are showing a steady increase in the number of positive indicator species which are growing in the field.

Photo Credit – A&SNL

Freshwater Wetlands & Peatlands

Wetland covers around 500ha of the National Landscape area including reedbed, fen and wet grassland as well as numerous ponds, springs and watercourses. The landscape contains the largest contiguous reedbed in northwest England at Leighton Moss and areas of rare marl fen at Gaitbarrows NNR.

Wetlands have been lost on a huge scale over the previous century, primarily due to the agricultural value of the underlying peat soils. The extent of good quality wetland habitat available has declined and with it the connectivity and specialist suite of species which are supported.

What does success look like?

The landscape contains a rich diversity of high-quality fens, reedbeds, open water and transitional wetland habitats in ecologically coherent locations. Where peat soils exist they are restored to compatible wetland habitats that sequester carbon, provide flood protection and support scarce wetland plants, birds and invertebrates.

Where peat soils are farmed, agricultural drainage is actively managed to retain a high water table and keep peat layers saturated. Ditches are wide rather than deep and profiled to allow development of wetland fringe vegetation and act as corridors to network adjacent wetland habitats. Wet grassland and supporting habitats suitable for ground nesting wading birds and wintering waders and wildfowl (Curlew) are proactively managed for a short/medium tussocky sward and retain temporary surface water features in pools, scrapes, footdrains suitable for feeding. Predator populations are monitored and sustainably managed to protect ground nesting bird species.

Freshwater Wetlands & Peatlands Objectives

- Maintain/improve quality and extent of high value freshwater wetlands, notably the complex of reedbed, fen and open water forming part of RSPB Leighton moss and Morecambe Bay Nature reserve.
- Increase overall extent of high value freshwater and water-compatible habitats. Focus on the creation/restoration of new wetlands on peat soils and restoration of hydrological functioning on historically cut-over peat moss at Arnside Moss and Hale Moss.
- Maintain and improve wetland connectivity for wetland species, especially European Eel by maintaining/improving natural and built watercourses and removing barriers to fish passage. Where possible, allow natural watercourses to function within their floodplain, removing or re-engineering bank structures, canalised sections and culverts.
- Improve water quality and severely reduce diffuse pollution risk from agricultural and urban sources through sustainable wastewater and sewerage interventions.
- Encourage wetter farming and support transitions to systems of wetter farming on low-lying, reclaimed farmland and farmland over peat soils.

2042 Target (PLTOF)

- Create/restore 54ha of priority freshwater wetland habitats over peaty soils within the NL.

Threats & Pressures

Climate Change	- Increasing rainfall and high winds, stronger and more frequent storms are impacting wetlands - Increases in temperature leading to droughts - Changes in seasonality and temperatures leading to changes in the distribution of species, especially those that are found in and around the area on the edge of their range. Some species could decline, new species could colonise.
Pollution, INNS	- Nutrient enrichment from diffuse pollution from inorganic fertiliser/slurry/manure, point pollution from private sewage works and airborne pollution from agriculture and traffic is harming habitats and species - Invasive non-native species
Development	- Agricultural intensification, increased land drainage pressure and loss of restorable good quality semi-improved grasslands and CFGM to more intensive production. - Perception of increased flood risk from wetland creation/restoration, especially to adjacent land.
People	- Recreational disturbance of sensitive grassland areas, particularly those suitable for ground-nesting birds, risk of trampling. - Increased visitor pressure from expanded tourism offer to sites within the landscape. - Reduction/loss of countryside skills locally, particularly in relation to conservation grazing management
Finance	- Uncertainty around public grants in the future. Agri-environment schemes tend to be complex and support from Natural England can be limited, especially for mid-tier schemes which form the largest proportion of uptake. - Private finance, through mechanisms such as Biodiversity net gain (BNG), carbon offsetting or corporate partnerships are in their infancy and not currently available to the majority of small to medium landowners.

Freshwater Wetlands & Peatlands

State of Nature

Feature	Description	Condition
Reedbed	Describes wetland habitats dominated by common reed *phragmites australis.* Reedbeds are a mid-successional stage between open water and wet woodland characterised by reed growth in shallow, slow moving freshwater. Repeated years reed growth and dieback will form loose, wet organic soils and develop initially into wetland scrub and eventually carr woodland. Reedbed, although generally homogeneous and of relatively little ecological diversity supports a range of scarce specialist species, notably Bittern, Bearded tit and (in the UK) Marsh harrier. Arnside & Silverdale NL holds the largest contiguous reedbed in Northwest England at RSPB Leighton Moss. The reedbed is approx. 110ha and proactively managed by mechanical cutting to maintain it at a range of successional stages and encourage dynamism. A pair of satellite sites at Silverdale Moss and Barrow Scout were restored to reedbed between 2004-2008 and total 70ha.	Reedbed in the landscape exists primarily through pro-active interventions by RSPB to manage areas for breeding Bittern. Although management is complex and resource intensive the results have been significant with 5 (or 6) breeding Bittern territories reported in 2023. As reedbed areas are managed within nature reserves for the primary purpose of nature conservation, condition is generally very good. However, there are several risks against continued good condition of the habitat; notably water quality, deer pressure and climate change.
Open water and Lowland fen	Describes lowland herb-rich fen and open freshwater. Fen is typically neutral or slightly base open grassland with a high water table with some seasonal variability. The habitat is herb-rich and suits a range of herbs tolerant to wet conditions. Sward structure is generally tall and tussocky, often with scattered willow or Alder scrub. Fen exists mostly as a transitional habitat, between grassland and open water or on the fringes of reedbeds. Open freshwater in the area is limited to a few naturalised small marl lakes at Gaitbarrows NNR and a series of meres within the large reedbed at Leighton Moss. There are scattered small spring ponds and well holes throughout the area along with artificial ponds on farms and caravan sites. Fen habitat is scarce with the largest contiguous areas around Hawes water within Gaitbarrows NNR. Fragmented and scattered fen habitat occurs around and within the large areas of reeded at Leighton Moss, Silverdale Moss and Barrow Scout. Fen-type vegetation occurs in certain areas on the low-lying former peat moss areas around Arnside Moss and Hale Moss but is often limited to stream and ditch margins and isolated hollows which remain wet year round. There is widespread evidence of marl overlain peat, particularly around the mosses that are indicative of historic fen habitats in these areas.	Open water areas are in variable condition; the marl lake Hawes water within Gait barrows NNR is listed as favourable[1] in the most recent SSSI condition assessment however is deemed to be at risk of nutrient enrichment. The meres within the Leighton Moss reedbed have issues with water quality although fish populations appear stable with a skew towards more tolerant species such as Tench. Diffuse pollution from the surrounding catchment is thought to be an issue and water quality monitoring is ongoing on site. The condition of small spring and well ponds is variable, with ponds at Woodwell and Bankwell in active conservation management. These natural ponds, although in good condition are isolated and have limited functioning within the larger wetland network. The artificial farm and caravan site ponds, although of some value have issues with water quality and introduced fish stocks.

[1] Site feature condition (naturalengland.org.uk)

Feature	Description	Condition
Rivers and streams	The area is bounded to the north and south by minor rivers, the Bela and Keer and surrounded on the estuarine boundary by the channel of the River Kent as it enters Morecambe Bay. The Bela is a mesotrophic lowland river. The river course within the NL boundary runs east of Dallam Hall Deer Park and forms a primary feature within the park. The Keer runs south of the village of Warton, between Mill head and Carnforth and enters Morecambe Bay to the south of Warton Marshes. Leighton Beck, a small watercourse runs from source at Thrang Moss to the inner Kent estuary at Hazelslack. Leighton beck is the only natural main watercourse wholly within the NL.	The Bela catchment has been assessed by Environment Agency as being in good ecological condition[1]. There is evidence of historic canalisation, particularly through Beetham and running south of Milthorpe village but the river maintains a good range of channel features and interest. Soluble metals are above tolerances but this is common across the UK. The Keer is assessed as being in moderate condition[1] with diffuse pollution, modification and toxic contamination being listed as issues within the catchment. Leighton Beck is assessed as being in Bad ecological condition[1] with high concentrations of phosphates and barriers/restrictions on fish movement due to watercourse modifications and the tidal flaps at Arnside.
Farmland over peat soils (CFGM or wet grassland)	Definitions of Coastal Floodplain Grazing Marsh (CFGM) are varied and can range from improved and relatively ecologically poor, low-lying silage and pasture to more valuable lowland semi-improved and unimproved rush pasture. CFGM is often over peat or peaty-type soils, historically improved, drained by ditch networks and is subject to variable surface flooding and/or seasonal inundation. There is little topographic variation although paleo-features from pre-agricultural landscapes may remain. On former Moss land, fields can be long and narrow as a result of historic peat cutting for fuel. Swards are varied, from seeded rye grass lays managed for silage production to coarser, older wet pasture with some structural variety and patches of rush. Within the landscape, areas of CFGM cover the former lowland raised moss and mire areas around Warton Mires, Hale Moss and White Moss. They also cover the areas of coastal reclaimed and improved land around Arnside Moss and Quaker Stang, south of Leighton Moss.	Generally speaking, the improved and drained productive farmland around Arnside Moss and certain areas around Hale Moss and Quaker Stang are in poor ecological condition. Management focus is on grass production and is a necessity for operation of the farm business models currently in place. Some fragments of semi-improved and unimproved CFGM, particularly around Hale Moss and the former peat cut areas are in better ecological condition. Some parcels retain fragments of fen-type vegetation and less intensive ditch management has resulted in higher water tables and subsequently, better protection of the underlying peat soils. Further assessment is needed to identify good quality CFGM within the Landscape, particularly areas that have higher potential to be reverted to wetland habitats such as fen and reedbed.
Great Bittern	Bittern are a characteristic species within Arnside & Silverdale and is the primary focus of management by the RSPB in the landscape. Bittern require extensive reedbeds with a high % of reed/water interface for feeding. Prey is mostly Eel along with smaller freshwater fish. The species is cryptic, easily disturbed and can be challenging to monitor and manage. RSPB Leighton Moss and Morecambe Bay reserve contains approx. 160ha of reedbed and open water habitat pro-actively managed for Bittern. The large, 100ha Leighton Moss reedbed first established in the 1950's and the two smaller reedbeds at Silverdale Moss and Barrow Scout, approx. 30ha each were created in the early 2000's as part of a larger national recovery effort for the species. Nationally the species is expanding in population and distribution, primarily due to conservation efforts on nature reserves.	See reedbed condition above.

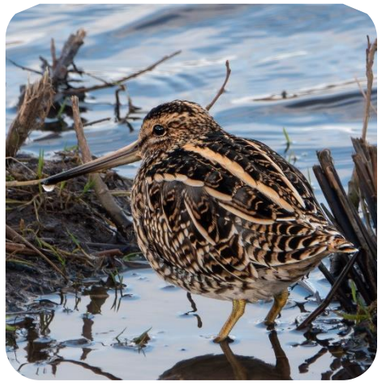
[1] Bela | Catchment Data Explorer | Catchment Data Explorer
[1] Keer - Lower | Catchment Data Explorer | Catchment Data Explorer
[1] Leighton Beck | Catchment Data Explorer | Catchment Data Explorer

Freshwater Wetlands & Peatlands Actions

Feature	What does it need?	#	Actions	Category	Delivery Partner
Reedbeds	Maintain condition and extent of existing reedbeds across the landscape, notably reedbeds forming part of RSPB Leighton Moss and Morecambe Bay reserve	P1	Support development/delivery of bespoke nature reserve management plans targeting management/maintenance/enhancement of reedbeds and associated open water habitats within reedbeds eg. RSPB Leighton Moss and Morecambe Bay.	Policy and planning, Land Management	RSPB, NE
		P2	Implement measures within reedbed to adapt to climate change, specifically interventions that reduce the impacts of droughts and periods of very heavy rainfall e.g creation of further reedbed cells to allow improved attenuation/drainage and fine scale water control within reedbed habitats.	Land Management	RSPB, NE
		P3	Continue targeted species monitoring for Bittern and Bittern prey species (Eel) within reedbeds and associated open water areas.	Science and Research	RSPB, NE
		P4	Continue monitoring and management measure to prevent ingress of Invasive non-native species (INNS) within wetlands. Non-native New Zealand pygmyweed *Crassula helmsii* is a specific risk to reedbed and wetland habitats within the landscape.	Policy and planning, Land Management	RSPB, NE, EA
	Increase overall extent of reedbed habitat within the landscape through creation of new reedbeds on suitable sites.	P5	Identify suitable CFGM and/or other wet grassland sites outside of the priority habitats network with potential for restoration. Consider soil type, soil depth, drainage, water availability and aspect. For reedbed habitats to support priority species Bittern, the creation site should be a minimum of 20ha although smaller reedbeds will still offer biodiversity benefit.	Science and Research	RSPB, NE, A&SNL
		P6	Create new reedbeds in suitable locations. Reedbed creation is complex and may involve large scale groundworks to create areas of shallow freshwater contained within a bunded perimeter. Each site will likely require a bespoke restoration plan. Adequate water supply and fine-scale controls over water levels will be required, exact measures used will depend on site location. Introduce reed as plugs and/or rhizome transplants.	Land Management	RSPB, NE, A&SNL, PL
	Improve wetland networks across the area to better link areas of reedbed.	P7	Create/improve areas of complementary wetland habitat in areas where land use prevents large-scale wetland creation/restoration. Supporting wetland habitats include ponds, well-managed ditches, wet woodland, fen, rush pasture and well-managed wet grassland. Target works on peat soil areas surrounding existing wetland habitats	Land Management	RSPB, NE, A&SNL, PL
	High water quality feeding into wetlands from terrestrial, underground and riverine sources	P8	Ensure farms within the National Landscape have diffuse pollution mitigation measures in place and yard infrastructure (slurry & FYM storage, yard surfacing, rainwater goods, animal barns/sheds etc.) are in good condition and their operation is not causing diffuse pollution within the catchment.	Farm advice and support	NE, NFU, A&SNL, LRT
		P9	Ensure domestic and commercial sewerage provision and treatment is, at minimum meeting national standards and where possible seek improvements to grey water and sewerage treatment/management. Eg. Enhanced package treatment within Silverdale to replace older septic tank systems.	Development control, engagement and advocacy	EA, UU, LRT
Open water and Lowland Fen	Maintain Condition and extent of existing open water and fen across the landscape	P10	Support development/delivery of bespoke nature reserve management plans targeting management/maintenance/enhancement of open water and fen habitats eg. Gaitbrrows NNR	Policy and planning, Land Management	NE, CWT, RSPB, NT
		P11	Identify and assess condition of small areas of fen across the landscape. Due to the scarcity of the habitat even fragments of fen vegetation, especially those formed around limestone springs, seeps and flushes can be ecologically important. Where possible, ensure all fen-vegetation is under sympathetic management.	Science and Research, Land Management	A&SNL, PL
		P12	Assess ecological condition of non-natural ponds across the landscape, including those within an amenity or recreational setting eg. Caravan sites. Where possible, implement measures to improve pond condition and naturalise artificial wetland habitats.	Science and Research, Land Management	A&SNL, PL

Feature	What does it need?	#	Actions	Category	Delivery Partner
Open water and Lowland Fen	Increase overall extent of lowland fen habitat across the landscape	P13	Identify suitable CFGM and/or other wet grassland sites outside of the priority habitats network with potential for restoration. Consider soil type, soil depth, drainage, water availability and aspect. Restorable fen sites can be small and potentially very small. Areas with a reliable source of base water such as limestone seepages and/or springs are most suitable and most likely to succeed.	Science and Research	A&SNL, NE
		P14	Create new fen habitat in suitable locations. As with reedbed, the creation of fen is complex and may involve large scale groundworks to create areas of shallow freshwater and saturated soils contained within a bunded perimeter. Each site will likely require a bespoke restoration plan. Adequate water supply and fine-scale controls over water levels will be required, exact measures used will depend on site location. Introduce fen vegetation as plugs/seed.	Land Management	A&SNL, NE, RSPB, NT, PL
	Improve wetland networks to better link areas of reedbed.	P15	See Reedbed Above	Land Management	RSPB, NE, A&SNL, PL
Rivers and streams	High water quality feeding into wetlands from terrestrial, underground and riverine sources	P16	See Reedbeds above	Land Management	NE, NFU, A&SNL, EA, UU, LRT
	Remove/reduce historical watercourse modification to encourage natural functioning and dynamism	P17	Identify areas of historic watercourse modification (excluding those with heritage value) and develop plans for removal and/or re-engineering that allows for natural watercourse functioning.	Science and Research, Policy and planning	EA, LRT, PL
		P18	Allow better, more frequent connection between the watercourse and floodplain. Consider multi-benefit proposals that increase upstream flood attenuation within the catchment.	Land Management	EA, LRT, PL
	Improved buffering of watercourses on improved and semi-improved grasslands	P19	Where appropriate, plant trees/scrub margins adjacent to watercourses, particularly on improved/semi-improved grassland. Margins should be at least 4m from the bank and ideally 12m to provide a buffer. Ensure riparian planting does not reduce the appeal of adjacent wet grassland/CFGM for ground nesting birds. On CFGM sites, a willow and reed fringe cut every 3-5 years may be more suitable.	Land Management	EA, LRT, PL
		P20	Remove livestock access to watercourses to prevent poaching, compaction and pollution etc.	Land Management	EA, LRT, PL
	Remove/reduce in-stream barriers to fish passage	P21	Identify barriers to fish passage and develop plans for removal and/or re-engineering that allows fish passage, particularly Eel.	Policy and planning, Land Management	EA, LRT, PL

Feature	What does it need?	#	Actions	Category	Delivery Partner
Farmland over peat soils (CFGM or wet grassland)	Restoration to appropriate Priority wetland habitat.	P22	Creation of Open water, lowland fen and/or reedbed as above.	Land Management	PL, RSPB, A&SNL
	Improve suitability of farmland over peat soils for ground-nesting waders eg. Curlew, Lapwing etc.	P23	Assess current breeding wader populations on CFGM across the landscape. Collate existing records and supplement with targeted surveys to identify areas where improvements could be made to sites with existing breeding wader interest.	Science and Research,	RSPB, A&SNL
		P24	Follow species-specific management guidance for breeding waders on suitable CFGM. Exact measures vary by target species but generally will require maintaining surface water through spring/summer and appropriate grazing/cutting management.	Land Management	PL, RSPB, A&SNL
		P25	Ensure use of anti-parasitic (ivermectin etc.) in livestock is highly targeted and best practice is followed. Remove any livestock undergoing treatment from the area so that the anti-parasitic do not persist in dung.	Farm advice and support	NE, PL
		P26	Where breeding waders are present, assess and implement effective predator control, specifically targeting foxes.	Land Management	PL, RSPB
	Raised water levels in peat soils to retain soil carbon	P27	Modify/restrict artificial land drainage so that the water table is close to the surface all year round to keep peat soils saturated and avoid carbon loss through oxidation. Use water control (pipe sluices etc.) within the existing ditch and drainage network to maintain high water levels.	Land Management	PL, NFU
		P28	Support transition to wetter models of farming which may require changes to stock breed, husbandry, machinery etc.	Land Management	PL, NFU
		P29	Maintain continuous soil cover where possible and avoid heavy cultivation methods	Land Management	PL, NFU
Great Bittern	Maintain/enhance and extend reedbed habitats.	P30	See actions above listed for Reedbed.	Land Management	RSPB, NE



Freshwater Wetlands & Peatlands Opportunities

Freshwater wetland and peatlands – Map Layers

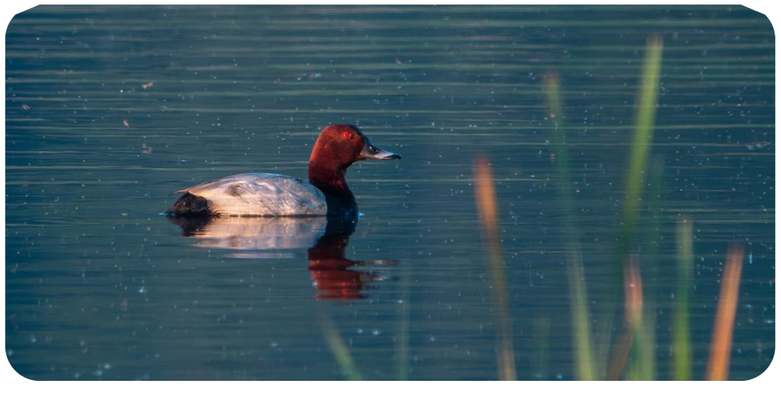
The areas identified are ecologically coherent locations in which to meet the Nature Recovery Objectives. The areas identified show potential opportunities and are in no way commitments to delivery of actions.

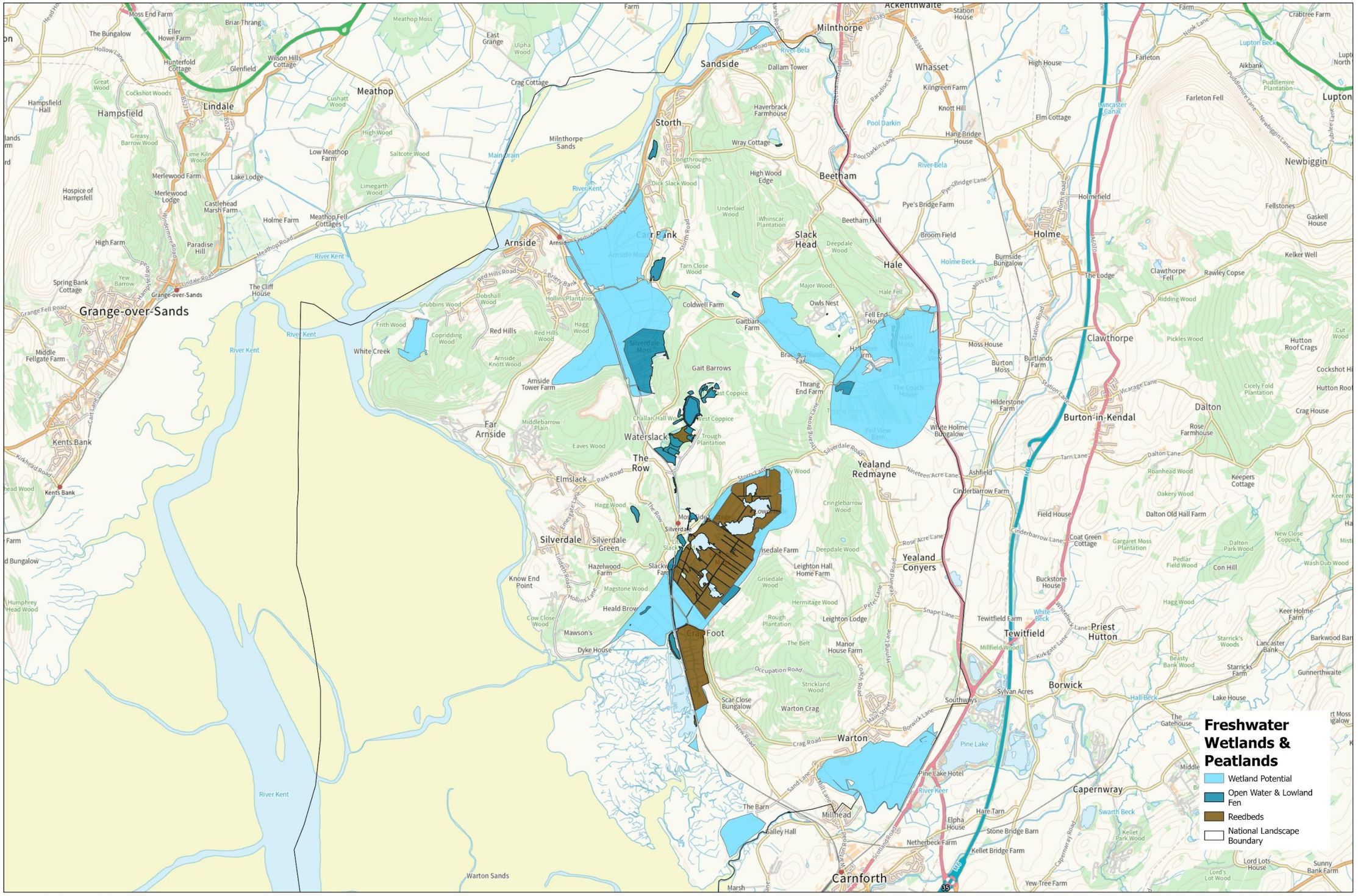
Open water and Lowland fen (blue)
Describes current extent of open water and lowland fen habitats, taken from the Natural England Priority Habitats Inventory (PHI)[1]. Some areas of open water, including ponds and marginal fen are knowingly missing from the map data.

Reedbeds (brown)
Describes current extent of reedbeds, taken from the PHI. Due to the definitions used in the PHI, some smaller areas of reedbed will be included within the fen habitats layer and cannot be easily separated in the maps.

Wetland potential (pale blue)
This area has been identified as being suitable for creation/restoration of wetland habitats. Areas identified using Natural England Peaty Soils locations[1], Environment Agency Flood risk mapping[1] and Nature England PHI Coastal Floodplain and grazing marsh layers (CFGM)

[1] Habitat Networks (England) - data.gov.uk
[1] Peaty Soils Location - data.gov.uk
[1] Flood Map for Planning (Rivers and Sea) - Flood Zone 3 - data.gov.uk





Open water, Fen and Reedbed habitat and modelled potential. Areas identified using Natural England Priority Habitats Inventory (PHI), Natural England Peaty Soils dataset and Environment Agency Flood Risk Mapping.

Arnside & Silverdale Nature Recovery Plan - September 2024

Freshwater Wetlands & Peatlands

Case Study

RSPB Warton Mires – Wet grassland creation

Warton Mires is a 33ha block of low-lying floodplain grassland to the south-east of Warton village, situated between the village and the River Keer. The area contains a deep (>2m) peat basin and is frequently inundated over winter.

The land was acquired by RSPB in 2015, the purchase supported with funding from Lancashire County Council. Between 2015 and 2023, opportunities were explored to develop the site as both a wetland nature reserve and to provide flood defence and alleviation for residential properties on the edge of Warton village, many of which had been badly affected by flooding following Storm Desmond in late 2015.

From 2015 to 2023, whilst project development was ongoing, the site was taken out of agricultural production and subject to light-touch management with low level grazing and annual vegetation cutting. The site responded well with significant increases in invertebrate diversity and populations on site and early indicators of improved floral diversity. The flood alleviation aspects of the project were dropped in 2023 following an internal RSPB review in which the project costs were found to be untenable.

Following this, the wet grassland restoration aspects of the proposal were re-assessed, and design changes were made as part of developing the RSPB Leighton Moss and Morecambe Bay reserve's 2024 Countryside Stewardship agreement.

Plans are underway to continue improvement in habitat quality of the wet grassland areas and suitability of the site for breeding wading birds, notably Lapwing. The project will involve the creation of new wet features; including approx. 5000sqm of scrapes and 7500swm of footdrains and gutters in addition to the modification of existing ditches on site.

Proposals also include the construction of two predator-fenced enclosures on site, creating approximately 20ha of suitable Lapwing nesting habitat free of terrestrial predators, particularly foxes.

Urban & Built Environment

The built environment covers only around 3% (215ha) of the National Landscape area but could play a key role in the connectivity of the habitat mosaic. The settlement character of the four villages within the landscape all offer different opportunities for biodiversity, from the Victorian walled gardens and orchards in Arnside to the stone-built cottages and medieval burgage plots-turned gardens of Warton and Beetham.

What does success look like?

Buildings provide roosting and breeding sites for 'garden' birds (i.e. House Sparrow, Starling) as well as acting as a proxy habitat for cliff and rock nesting species such as Swift. New buildings incorporate wildlife friendly features and associated green spaces. Garden and community green spaces are managed to encourage wildlife and create steppingstones from the urban environment to nature reserves and surrounding farmland.

Objectives;

- Encourage built development (including renovations/remodels of older buildings) to incorporate wildlife friendly features within both the built structure and landscaping
- Utilise urban landscaping such as roadside verges to improve connectivity for pollinators.
- Support measures to increase the wildlife value of private gardens
- Enhance community green spaces to provide more 'wild' areas that improve connectivity of priority habitats across urban areas.
- Increase engagement with communities over their landscape with community green spaces acting as an accessible way to learn about nature and become involved with conservation.

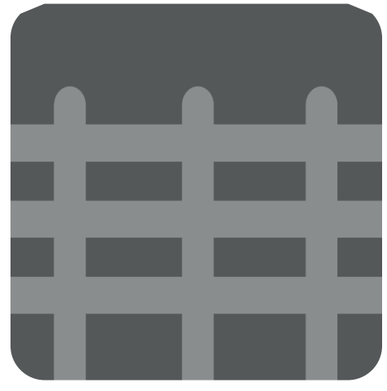
Threats and Pressures

Climate Change	- Increases in temperature leading to droughts, impacting gardens, pitches and amenity grassland. - Changes in seasonality and temperatures leading to changes in the distribution of species, especially those that are found in and around the area on the edge of their range. Some species could decline, new species could colonise.
Pollution, INNS	- Nutrient enrichment from diffuse pollution from private sewage works (septic tanks) and airborne pollution from agriculture and traffic is harming habitats and species - Invasive non-native species, garden escapes and pernicious urban species such as buddleia and crocosmia. - Risk of disease spread from domestic bird feeders eg. trichomonoisis
Development	- Urban development, new housing and preference of utilisation of brownfield sites which may have wildlife value - Renovation of old buildings and removal/destruction of nesting sites for species such as Swift, house sparrow, starling. - Preference for paving, decking, astroturf and hard landscaping within gardens
People	- Increased visitor pressure from expanded tourism offer to sites within the landscape.
Finance	- Reductions in Local authority funding for public greenspace, especially parks, playgrounds etc.

Urban & Built Environment

State of Nature

Feature	Description	Condition
Private Gardens	The majority of the housing stock in the area has some kind of outdoor garden space. Plot size and usage varies hugely; ranging from large houses set within large, landscaped gardens to mid-century bungalows and former local authority housing on reasonably generous plots to pre-1900's cottages with small, enclosed yards.	Condition also varies and it is difficult to provide an overall assessment of the overall value to wildlife within private gardens in the area.
Amenity greenspace	Describes sport pitches, village greens, school fields, golf courses and associated areas that are managed as open, short grassland as a necessity of their use. Sites may include hedged boundaries and open grown trees.	No data exists on value to wildlife of amenity grassland areas locally.
Verges	Describes narrow strips of grass adjacent to roads, paths and car parks, often within public realm ownership and managed as part of Local Authority Highways services.	In 2020 Lancaster City Council developed a verge and grassland management strategy. Within the landscape there are several small areas of wildflower enhanced verges where plugs and seed have been introduced and are managed with a single annual cut in late summer. This is in addition to long grass meadow verges where cutting frequency has been reduced to benefit invertebrates.
Swift	Swift *apus apus* is a long distance migrant which breeds in the UK. Populations nationally have declined significantly over the previous years with a 66% fall in breeding numbers since 1995. The species natural nesting habitat is tree cavities, cliffs and inaccessible scree slopes and boulder fields however they have readily adopted the built environment as a proxy habitat. They favour older, stone-built buildings, often finding cracks into wall or roof cavities in which to nest. Purpose-made swift boxes are also suitable and have been increasingly used to improve nesting opportunities for the species in urban areas.	Extensive monitoring of Swift has taken place within the landscape, led by local recorders[1]. Monitoring is highly detailed and records include exact locations of known nest sites. Data is available on request. Arnside and Silverdale villages have the highest density of nesting swifts with 24 and 29 active sites respectively. Numbers vary from single figure pairs to the larger 'core' sites with 10-15 pairs present. The majority of nests are in older limestone buildings within the villages however purpose built swift boxes have been installed in certain areas and some have been adopted. The nearby towns of Milnthorpe and Carnforth also hold notable populations of urban-nesting Swift. These birds will likely forage within the landscape and are considered to be a functional part of the areas breeding Swift population.



[1] Swift Conservation South Cumbria and North Lancashire - Swifts in the Community

Urban & Built Environment

Actions

Feature	What does it need?	#	Actions	Category	Delivery Partner
Private Gardens	Improved support and awareness of 'wild' gardening	U1	Improve local awareness and knowledge of wild gardening and small-scale biodiversity improvements that can be made in gardens to residents and the wider public through events eg. Open Gardens events etc.	Engagement and advocacy	A&SNL, PL
	Improved monitoring of nature within private gardens	U2	Support and encourage involvement in existing garden wildlife initiatives eg. RSPB Big Garden Birdwatch, RHS Wild About Garden campaign, Hedgehog Street etc.	Engagement and advocacy	A&SNL, PL, RSPB, RHS, LPC
	Increased use of native plants and pollination species in gardens	U3	Continue operation of A&SNL Growing station and the sale of surplus native wildflower plants locally.	Land management	A&SNL
		U4	Consider working with local garden centre businesses to promote the use of native trees/shrubs and wildflowers locally.	Engagement and advocacy	A&SNL, LPC
		U5	Raise awareness of Cotoneaster species as a harmful INNS within the landscape. Support efforts to remove Cotoneaster from private gardens and replace with native hardy shrub species such as blackthorn, buckthorn, elder and box.	Engagement and advocacy	A&SNL, LPC
	Significant reductions in use of garden chemicals	U6	Encourage organic gardening	Engagement and advocacy	PL, LPC
		U7	Reduce use of artificial fertilizers, pesticides herbicides. Target treatment effectively and avoid broad spectrum insecticides	Engagement and advocacy	PL
	Reduce levels of artificial light pollution to benefit nocturnal mammals and invertebrates	U8	Raise awareness of the detrimental impacts of light pollution, particularly for nocturnal mammals and invertebrates through existing education and events offer.	Engagement and advocacy	A&SNL, LPC
		U9	Ensure new (and existing) development adheres to the 2023 Cumbia Good Lighting Guide Technical Advice Note[1], produced by Friends of The Lake District (FLD) as part of the Dark Skies Cumbria Project.	Policy & Planning	A&SNL, LA, LPC
Amenity greenspace	Assess value of amenity greenspace for wildlife	U10	Undertake basic assessment of ecological value of amenity areas and identify any priority habitats present	Science and Research	A&SNL, LPC
	Improve biodiversity value of public amenity greenspace	U11	Develop plans to increase biodiversity value of amenity greenspace without compromising land use. This could include native planting around boundaries, native bulbs, ornamental flower beds utilising high value pollinator plants etc.	Land management	A&SNL, LPC
		U12	On amenity grassland where maintaining short grass is not a requirement, reduce mowing intervals and allow grasses and herbs to flower and set seed. Consider seeding and/or plug planting native mini-meadows in small areas of amenity grassland.	Land management	A&SNL, LPC
		U13	Practice non-intervention management on small areas of amenity greenspace, allowing the development of 'wild' areas with tall grass, native scrub and plants.	Land Management	A&SNL, LPC
Verges	Improve biodiversity value of verges, particularly for pollinators	U14	Maintain current extent and increase total area of verges managed as 'introductory wildflower meadows' as defined within the LCC Grassland Management Strategy[1]	Land management	LA, LPC, A&SNL

[1] Light Policy and Guidance | Friends of the Lake District

Feature	What does it need?	#	Actions	Category	Delivery Partner
Swift	Maintain existing nesting locations.	U15	Identify, monitor and conserve nest locations in buildings being utilised by Swifts. As the species favours cracks in mortar, gaps under eaves and/or loose roof slates etc. any renovations that result in the loss of the nesting site should be replaced with a suitable nesting box as close to the nest site as possible.	Development control, Policy and Planning	LA, LPC, RSPB, A&SNL
	Create new nesting locations	U16	Where Swift are already present, either nesting or frequently foraging nearby, install suitable nesting boxes. New boxes can be integrated into the building (eg. Swift Bricks or fascia boxes) or externally mounted (eg. conventional timber or plastic swift boxes). Several options are available off-the-shelf and there are various methods to install and position new nest boxes[1]. Generally, new boxes should be in clusters of 3 or more, positioned under the building eaves, at least 5m from the ground and have an open but sheltered aspect.	Development control, Policy and planning	LA, LPC, RSPB, A&SNL
	Improve insect prey availability	U17	See Freshwater wetland actions P(X) and Limestone grassland actions L(X)	Land Management	
	Improve public awareness of swifts locally	U18	Improve local awareness and knowledge of Swifts and promote Swift conservation to residents and the wider public through events eg. Swift Streets community events, Local Wildlife Group talks etc.	Engagement and advocacy	LA, LPC, RSPB, A&SNL

Urban & Built Environment Opportunities

Urban and Built Environment Map Layers

NB. The areas identified are locations in which to meet the Nature Recovery Objectives. The areas identified show potential areas for actions and are in no way commitments to delivery of actions.

Built-up areas extent (grey)

Describes extent of built-up areas[1] as defined by The Office of National Statistics (ONS) as part of the National Census dataset. Map data is generated on aggregations of buildings above a specified density and size.