

# **TOWARDS A LOCAL NATURE RECOVERY STRATEGY FOR THE NORTH OF TYNE AREA**

**APRIL 2024**

This document has been prepared by the North of Tyne Local Nature Recovery Strategy Steering Group, which consists of representatives from the following organisations:

Northumberland County Council

Newcastle City Council

North Tyneside Council

North of Tyne Combined Authority

Northumberland National Park Authority

North Pennines National Landscape

North Northumberland Coast National Landscape

Berwickshire and Northumberland Marine Nature Partnership

Northumberland Wildlife Trust

Natural England

Environment Agency

Forestry Commission

The purpose of the document is threefold. Firstly, it summarises the process for preparing Local Nature Recovery Strategies (LNRSs) as set out in the [statutory guidance](#) published by the Department for Environment, Food and Rural Affairs (DEFRA). Secondly, it sets out the approach that will be followed to prepare the LNRS for the North of Tyne area. And thirdly, it initiates a technical consultation with nature recovery “experts” to validate the building blocks (as set out in steps 1 and 3 of the prescribed process) for the subsequent preparation of the North of Tyne LNRS.

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## Introduction

1. Local nature recovery strategies (LNRSs) are a system of spatial strategies for nature and environmental improvement required by law under the Environment Act 2021. Each strategy must:
  - agree priorities for nature's recovery
  - map the most valuable existing areas for nature
  - map specific proposals for creating or improving habitat for nature and wider environmental goals
2. The main purpose of the strategies is to identify locations to create or improve habitat most likely to provide the greatest benefit for nature and the wider environment. The strategies do not force the owners and managers of the land identified to make any changes. Instead, the Government is encouraging action through, for example, opportunities for funding and investment.
3. The Act also establishes two mechanisms to support the delivery of local nature recovery strategies: mandatory biodiversity net gain and a strengthened biodiversity duty on public authorities. As such, the strategies will identify where action to achieve net gain will have the most impact and encourage action in these locations through the way net gain is calculated. All public authorities will also have to have regard to relevant local nature recovery strategies under the strengthened biodiversity duty. As part of this, local planning authorities will have to have regard to these strategies as part of the local planning process.

### Responsible Authorities (RAs)

4. The Secretary of State for the Environment appointed 48 responsible authorities to lead on preparing a LNRS for their area. Together these 48 strategy areas cover the whole of England with no gaps or overlaps.
5. In the North East of England, within the remit of the forthcoming North East Mayoral Combined Authority (NEMCA), three strategy areas have been established as follows:
  - *Durham* – covering the local authority area of Durham, with Durham County Council identified as the Responsible Authority (RA)
  - *North of Tyne* – covering the local authority areas of Newcastle, North Tyneside, and Northumberland with the North of Tyne Combined Authority (NTCA) identified as the RA, albeit having commissioned Northumberland County Council to facilitate the preparation of the LNRS on its behalf
  - *South of Tyne & Wear* – covering the local authority areas of Gateshead, South Tyneside, and Sunderland, with Gateshead Council identified as the RA

Whilst the three processes will adopt an approach specific to that locality, every effort will be made to apply consistent approaches to such things as data analysis and mapping, as well as sharing good practice on consultation and engagement.

6. Responsible Authorities must review and republish their strategies as part of an ongoing cycle which considers what has been achieved and proposes what further work is needed for nature to recover. The stages in this cycle are:
  - *Prepare* - agree priorities, identify 'potential measures' (actions for achieving them) and map suitable locations for carrying them out.
  - *Publish* - finalise the strategy and make it available.
  - *Take action* - local partners work together with landowners and managers to create and enhance habitat for nature and environment and take other biodiversity-positive actions.
  - *Review* - recognise what actions have been delivered, including those not identified in the current strategy.
  - *Update* - revisit priorities, potential measures, and suitable locations, to reflect progress and changing circumstances to ensure the strategy remains relevant and ambitious.
  - *Republish* - finalise the updated strategy and make it available
7. Responsible Authorities should contribute to the delivery of their strategy as well as leading its preparation. However, they are not solely responsible for delivering the strategy. This should be a shared effort with public, private, and voluntary sector partners all playing a role.

### Working with local partners

8. Under the regulations, RAs must work together with partners when preparing their strategy. This aims to:
  - provide a single vision for nature recovery and the use of nature-based solutions that all interested parties have been able to contribute to and work towards
  - build and strengthen local partnerships that will be important for carrying out the strategies as well as preparing them
  - involve the people who own and manage the land, and the people who take regulatory decisions, so they can contribute to what action is being proposed, where and why
9. This engagement should therefore involve a wide range of groups, including:
  - supporting authorities within the strategy area (in the case of the North of Tyne area, this refers to Newcastle City Council, North Tyneside Council, Natural England, and Northumberland National Park Authority) and neighbouring RAs

- Government organisations, such as the Environment Agency, Forestry Commission and National Highways
  - environmental charities
  - landowners and managers
  - businesses
  - local groups and communities
10. In so doing, RAs need to apply the following principles:
- transparency – be able to show how partner contributions have been considered, how decisions have been made, and what the basis for them is
  - inclusivity – enable everyone with an interest to be involved where possible clear
  - communication – avoid using technical terms that may not be understood by partners and end users
11. By working with local partners in this way, the strategies produced will be technically sound and evidence based. They will also benefit from local knowledge and have the support from partners to help achieve successful delivery.

## Process for preparing a LNRS

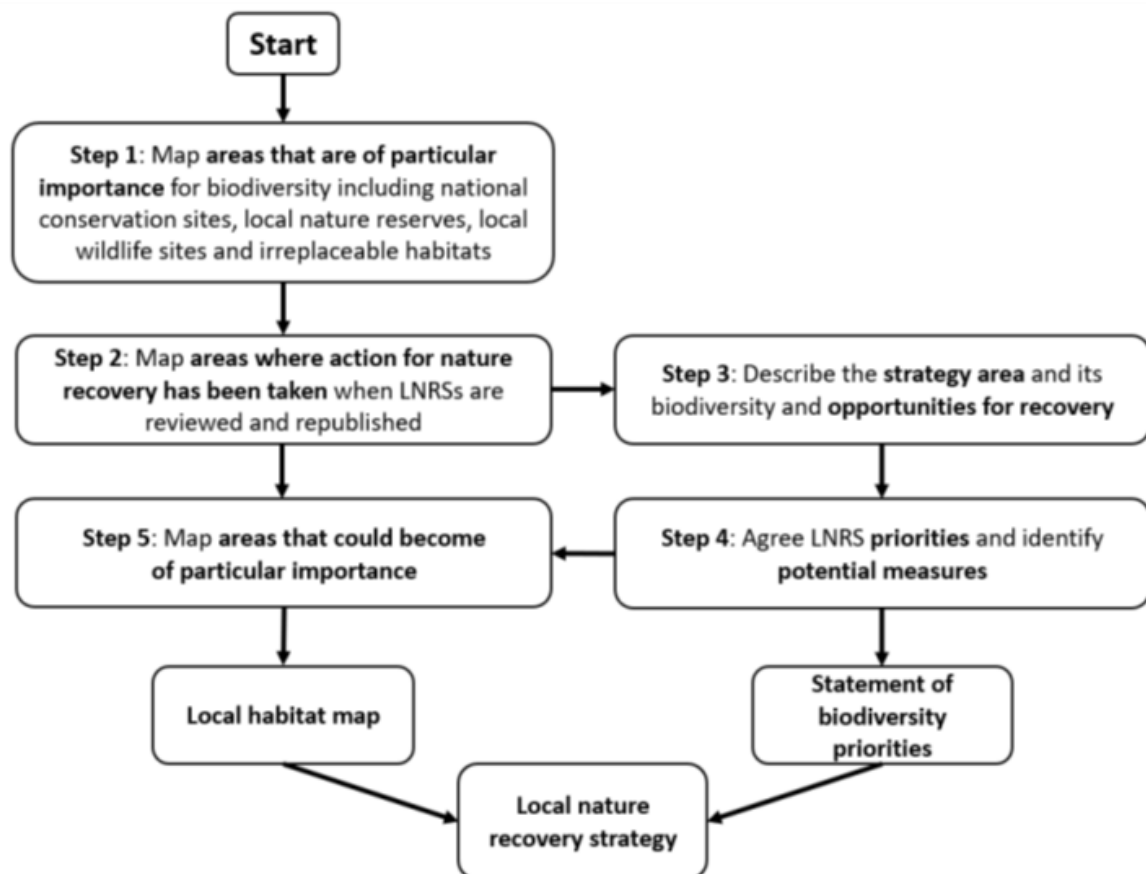
12. By law, each local nature recovery strategy must include a statement of biodiversity priorities and a local habitat map.
13. The purpose of the written statement of biodiversity priorities is to draw together existing information on the state of nature and the environment in the strategy area, to agree what the strategy is trying to achieve and to identify practical actions that could achieve them. As such, it must include:
- a description of the strategy area and its biodiversity
  - a description of the opportunities for recovering or enhancing biodiversity in the strategy area
  - the priorities for recovering or enhancing biodiversity (considering the contribution that this can also make to other environmental benefits)
  - proposals as to potential measures relating to those priorities
14. The purpose of the local habitat map is to provide a clear visual way for groups and individuals to understand the areas which are or could become of particular importance for biodiversity and the environment to target nature recovery action. As such, it must identify:
- national conservation sites in the strategy area



- local nature reserves in the strategy area
- other areas in the strategy area which in the opinion of the responsible authority are, or could become, of particular importance for biodiversity; or are areas where the recovery or enhancement of biodiversity could make a particular contribution to other environmental benefits.

15. The Government statutory guidance makes it clear that RAs should prepare their strategy in an iterative way so that the statement of biodiversity priorities and local habitat map work closely together. To do this, RAs must follow a set order of steps as outlined in the diagram below. Steps 1 and 2 will form part of the local habitat map. They will also provide important information for steps 3 and 4 which together form the statement of biodiversity priorities. The information written in step 4 is needed for step 5 which completes the local habitat map.

*Figure 1 - the key steps in the production of an LNRS, taken from page 8 of the Statutory Guidance published by DEFRA in March 2023*



### Map areas of particular importance for biodiversity (Step 1)

16. As outlined in the previous section, every local habitat map must identify all national conservation sites and local nature reserves. They must also identify “other areas in the strategy area which in the opinion of the RA are of particular importance for biodiversity”.

17. However, to help the integration of LNRSs with other environmental and land use policies, RAs have to take a consistent approach to identifying the other areas of particular importance for biodiversity in their local habitat map. As such, at this stage in the process, only the following should be included:
- all existing local wildlife sites – areas identified at a local level for their biodiversity value, which are granted protection from inappropriate development or change of use
  - areas of irreplaceable habitat that are difficult to recreate such as ancient woodland, blanket bog, and coastal sand dunes – further regulations are awaited to establish a clear legal definition of ‘irreplaceable habitat’, with the definition set out in the National Planning Policy Framework to be used in the meantime
  - other areas identified by the Secretary of State as being of particular importance.
18. So, to be clear, RAs should not map any other areas not referenced above as being of particular importance for biodiversity at this stage in the process.
19. This is not to suggest that other areas are not of importance for biodiversity as part of the subsequent process. If an RA believes that additional areas require protection due to their particular importance, they should discuss making those areas local wildlife sites with the relevant local planning authority.

### **Map areas where nature recovery action has been taken (Step 2)**

20. As this is the first LNRS for the North of Tyne area, this step does not apply until such time as the LNRS is reviewed. The Defra Secretary of State will tell Responsible Authorities when they must review and republish their local nature recovery strategies. This will be every 3 to 10 years.

### **Describe the strategy areas and its biodiversity (Step 3)**

21. As outlined in the previous section, each statement of biodiversity priorities must include a description of the strategy area and its biodiversity, and a description of the opportunities for recovering or enhancing biodiversity, in terms of habitats and species, in the strategy area. The purpose of this is to inform setting priorities for recovering or enhancing biodiversity and environmental improvement within the strategy area.
22. To do this, RAs should consider:
- the range of habitats in the strategy area and their general distribution – especially priority habitats. They should also include habitats of local importance, including ones that support scarce or declining species
  - how this distribution and extent of habitats has changed in recent decades, including habitats that may have been lost entirely from the strategy area

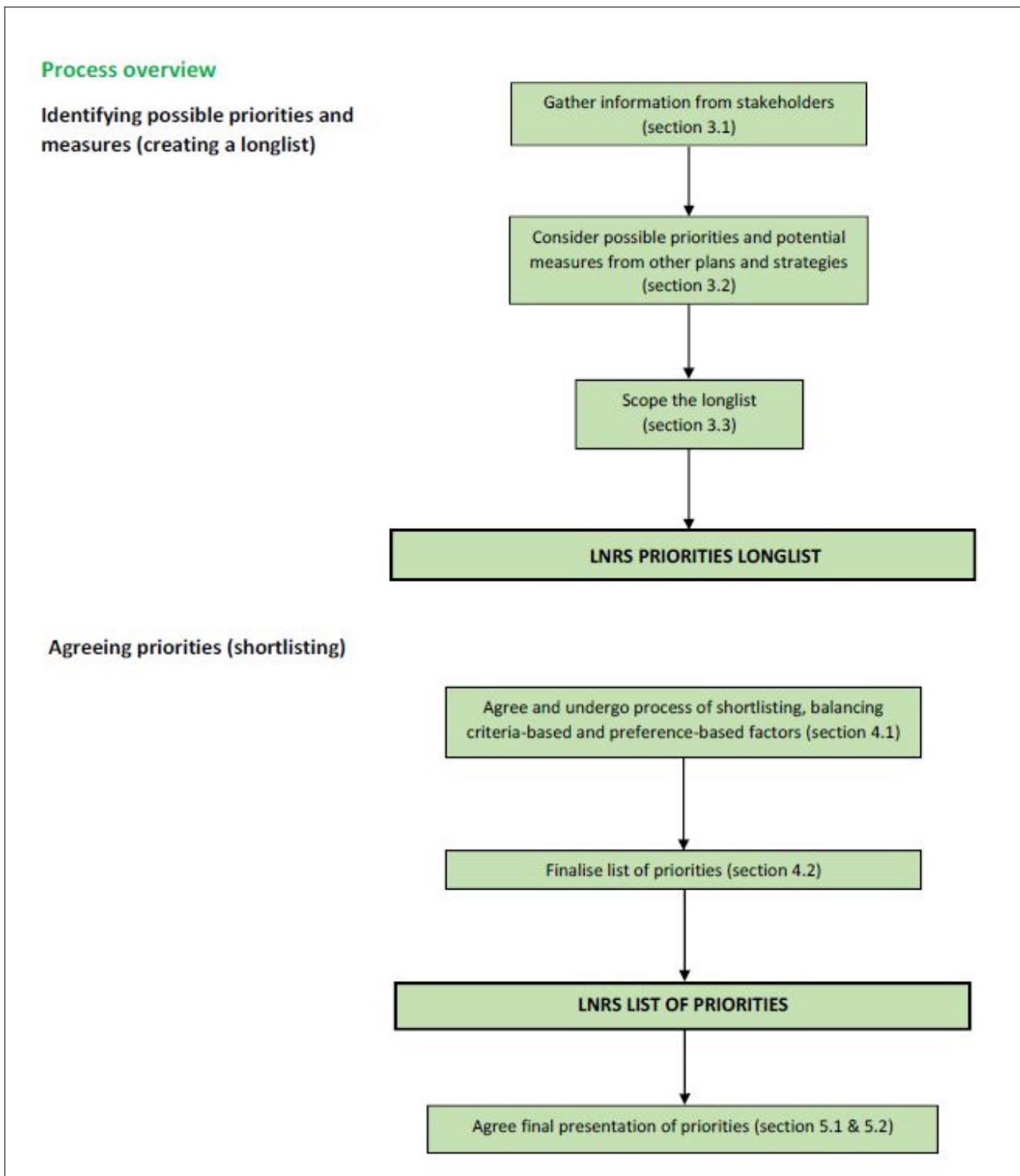
- the species or groups of species for which the strategy area is, or could feasibly be, of national importance
  - anticipated future pressures likely to influence species or the extent, distribution, or quality of different habitat types – including recognising the impact of climate change scenarios and anticipated new developments, including house building and infrastructure.
  - wider environmental issues affecting part or all of the strategy area which changes in land use or management could help to address – for example improvements to the water environment, flood risk management, or climate mitigation and adaptation.
23. When describing the strategy area, RAs may find it helpful to recognise sub-areas that have similar topography, geology, and soil type. These characteristics will heavily influence where different habitats and land management can be supported. However, RAs should avoid suggesting specific locations where they could recover or enhance biodiversity in their statement of biodiversity priorities. They should only identify locations in the local habitat map as set out in step 1. If assessing potential opportunities leads to proposals for specific locations, they should note and use these to inform the later stages of preparing the strategy.
24. When describing the strategy area, responsible authorities should draw on other relevant spatial plans. This should include local plans, or environmental plans such as river basin management plans and related plans for water management. This will avoid duplicating effort and help integrate the activities that each plan is promoting into the strategy.
25. RAs are also encouraged to involve partner organisations when preparing the description as this is likely to offer good engagement opportunities before critical decision-making steps later in the preparation of the strategy.
26. Having undertaken this assessment, the Biodiversity Statement should seek to identify:
- the existing or potential habitats considered to be either locally or nationally important and the practicality of improving existing areas' condition, or creating new areas of these habitats
  - the existing or potential species (or groups of species) in the area that the strategy could make a particular contribution to enhancing or recovering and assess the practicality of creating or enhancing habitats to support this.

#### **Agreeing nature recovery priorities and identifying potential measures (Step 4)**

27. Each LNRS must ultimately set out 'the priorities, in terms of habitats and species, for recovering or enhancing biodiversity (taking into account the contribution that recovering or enhancing biodiversity can also make to other environmental benefits)'.

28. These should be based on the assessment of ‘opportunities’ outlined at paragraph 22 above. However, as the priorities identified by every LNRS needs to reflect local circumstances, local partners can still suggest additional habitats and species that they consider important at this stage. The guidance outlines the following process to undertake this.

*Figure 2 - Extract from page 4 of “Identifying and agreeing priorities and potential measures within LNRSs: Advice for Responsible Authorities” Nov 2023*



29. In undertaking this task of prioritisation, RAs need to first create a longlist of

suggestions. The starting point for this is the Biodiversity Statement which has defined the threats to and opportunities for nature recovery drawn from existing plans and strategies, and from engaging directly with locally active organisations and individuals.

30. The next task is to narrow this longlist down to a shortlist of priorities that the RA considers critical for the strategy to address. Priorities can include where action within the strategy area could positively affect neighbouring areas. The process to achieving this must be transparent and evidence-based with there being a clear and shared understanding as to the criteria considered in defining the priorities.
31. The outcome should be a manageable number of agreed priorities for the strategy that reflect a balance of suggestions from local partners and support national environmental objectives.
32. Each statement of biodiversity priorities must also include “proposals as to the potential measures relating to those priorities”. These are the practical actions that, if taken, would make positive contributions to delivering the priorities agreed with local partners. The identifying of potential measures should take account of environmental projects that are already underway or planned with the aim of improving efficiency and achieving better environmental outcomes.
33. There is clearly a close relationship between these two required elements. The statutory guidance, therefore, acknowledges that RAs may wish to develop them at the same time.

#### **Map areas that could be of particular importance (Step 5)**

34. In the final stage, RAs need to map areas which they believe ‘could become of particular importance for biodiversity’ or ‘where the recovery or enhancement of biodiversity could make a particular contribution to other environmental benefits. These areas are collectively referred to as ‘areas that could become of particular importance’. They are where the RA and local partners propose that effort should be concentrated to restore habitat, to achieve the most for biodiversity and the wider environment.
35. This mapping should build on the distribution of existing habitats and the areas of particular importance for biodiversity, identified at step 1. This will allow for the joining up or expanding of existing habits to establish larger, more resilient networks of high-quality habitat across the landscape. Areas mapped could range in size, from narrow linear features like proposed hedgerow locations, to much larger landscape-scale changes.
36. In undertaking this task RAs need to be ambitious in proposing change but also realistic in the need to concentrate effort where it will have most benefit. Indiscriminate or widespread mapping of areas that could become of particular

importance will not aid targeting of available resources. The proportion of each strategy area mapped for its potential importance will likely vary considerably depending on factors like the extent of existing designations and other constraints on land use.

37. The statutory guidance also confirms that the final map should also:
- include any areas identified by the Secretary of State as being of particular importance for their contribution to the national network for nature recovery
  - actively seek to target areas that could become of particular importance inside the Green Belt
  - look for areas that could become of particular importance near to people's homes to improve public access to nature, biodiversity, and environmental benefits
  - reflect the significance of National Parks and National Landscapes in contributing to nature recovery
  - give specific consideration to defence interests before proposing potential measures on or near land managed by the Ministry of Defence
  - consider, as some potential measures may result in replacing one habitat type with another, to what extent the coverage of different habitat types might change
38. Regardless, the final map will inevitably have areas of "white space", which is not mapped as being - or could become - of particular importance. However, the LNRS can include potential measures in their statement of biodiversity priorities that could be used widely across the strategy area. For example, sowing native nectar-rich wildflowers, creating ponds, or planting native hedgerows.

## Species recovery

39. The national guidance refers more often to habitats. This is because habitat types give a helpful indication of an area's general environmental characteristics including which species it is likely to support and what environmental benefits it may provide. Nonetheless each LNRS must describe opportunities, set priorities, and propose potential measures for the recovery and enhancement of species.
40. Given this, the Government has issued separate guidance setting out an approach to help RAs achieve this goal in a consistent way. The approach, which essentially runs in parallel with above approach focused on habitats, involves two broad stages.

### Species: Stage one

41. The goal of stage one is to create a 'LNRS species longlist'. This can be used to subsequently inform the 'description of the strategy area and its biodiversity' and 'description of opportunities for recovering or enhancing biodiversity' in the statement

of biodiversity priorities (at LNRS step 3). The box overleaf details a set of criteria for RAs to consider in compiling this longlist.

42. In total, there are roughly 2,000 species in England which meet these criteria. RAs should use local species data to isolate and focus on the species meeting these criteria which are geographically and ecologically relevant to the strategy area. These locally relevant species will make up the majority of the LNRS species longlist. The criteria are gradated in terms of their relative importance for LNRS, allowing RAs and their local partners to exercise local judgment over the content of their longlist (and consequent priorities list).

### **Criteria for considering species within a LNRS**

#### *Critical to consider*

- Any native species<sup>1</sup> which have been assessed as Red List Threatened against IUCN criteria<sup>2</sup>
- Any native species which have not been formally assessed against IUCN Red List criteria but where strong evidence is provided to show that they would meet the criteria for Threatened status (note: such species may fall into the category of ‘other species of local significance’ inputted by stakeholders – see section 4.3 below)
- Any native species considered to be nationally extinct that re-establish themselves or are rediscovered

#### *Important to consider*

- Any native species which have been assessed as Red List Near Threatened against IUCN criteria
- Any native species which NE suggest as suitable candidates for conservation translocation, or any native species already subject to translocation efforts (aligning with Reintroductions and other conservation translocations: code and guidance for England) that, on NE’s advice, need to be scaled up to maximise success

43. Once the species meeting the criteria which are relevant to the strategy area, RAs are encouraged to gather views from their local partners, wider species stakeholders, and, if they wish, the wider local public on whether any other species of local significance should be included within the LNRS species longlist.
44. RAs are also encouraged to identify current local pressures, in addition to anticipated future pressures, that affect or are likely to affect the species on the longlist. As well as feeding into the strategy area description, this will support identification of species priorities in stage two of this process.

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<sup>1</sup> ‘Native species’ means any species which naturally occur or have in the past naturally occurred in England and include regularly occurring migratory species (breeding and non-breeding), natural colonists (species that have arrived in England of their own accord and have become established), and species that have been reintroduced in England following past extinctions.

<sup>2</sup> That is, species which have been assigned to Vulnerable (VU), Endangered (EN), or Critically Endangered (CR) categories in approved GB IUCN Red Lists.

## Species: Stage two

45. The goal of stage two is to create a 'LNRS species priorities list'. This will contain the individual species and groups of species (assemblages) that the LNRS will focus on supporting. These species priorities can be integrated into the wider pool of 'priorities for recovering or enhancing biodiversity' set out in the statement of biodiversity priorities (at LNRS step 4).
46. The national guidance on species recovery sets out that this prioritisation should take place in 3 parts, as follows:
  - Part 1 focuses on identifying the species on the longlist which LNRS can best support. These will be appropriate candidates for the species priorities list and involves assigning species on the longlist to different categories on the basis of their recovery needs.
  - Part 2 involves organising the candidate species identified in part 1 into 'habitat-based assemblages' (where possible). These are groups of species which share habitat requirements, are likely to benefit from the same recovery measures, and can therefore be addressed collectively in the LNRS rather than individually.
  - Part 3 involves selecting from this pool of potential priorities a combination of assemblages and individual species to form the species priorities list. This list must be short and manageable.
47. Once the species priorities list is created, proposed potential measures for each priority on the list need to be defined. These potential measures describe the practical actions that, if taken, would contribute to the recovery or enhancement of the priority species or assemblage in question. These potential measures for species can be incorporated into the wider pool of 'proposals as to potential measures' set out in the statement of biodiversity priorities (step 4). Subsequently, RAs will need to map out suitable locations for carrying out these measures on the local habitat map (step 5).
48. Consistent with the wider LNRS process, RAs are advised to undertake proactive planning to identify local stakeholders (and regional / national stakeholders, where appropriate) who should, or could feasibly be involved in preparing and delivering the species aspects of the LNRS.

## Approach proposed for the North of Tyne

49. The statutory guidance has clearly highlighted that RAs must work together with partners when preparing their strategy. In meeting this requirement, the inclusive approach proposed for the North of Tyne LNRS falls into 4 distinct but inter-linked layers of engagement, specifically targeted at different audiences.



50. The first of these relates to **strategic collaboration** to drive the LNRS process through the work of a **dedicated Steering Group** made up of representatives from the constituent local authorities, the area's Designated Landscapes, the Defra family of agencies, the Northumberland Wildlife Trust, and the Berwickshire and Northumberland Marine Nature Partnership. This Steering Group will meet every two months and where required establish task and finish groups to deliver certain activities.
51. The second relates to **gathering technical insight** from those people and organisations that can provide expert advice and data and habitats and species; own pre-existing species plans and strategies that can be drawn upon; and/or are involved in pre-existing nature recovery projects relevant to the strategy area; and as such represent potential delivery partners. Initially, this engagement will focus on validating the content of the draft Biodiversity Statement produced and contributing to the longlist of priorities for both habitats and species. Those involved in this engagement will form an "**expert**" **Reference Forum** that the Steering Group will subsequently keep informed and involved throughout the preparation of the LNRS.
52. The third relates to **facilitating open discussions** with all those with an interest in the land, the sea, and their local area. This will include farmers, land managers, and landowners; developers and place-based businesses; and community and voluntary organisations, including town and parish councils. This engagement will take the form of **landscape-scale conversations** to help translate the longlist of priorities into a manageable shortlist with associated potential measures for their enhancement.
53. The final engagement layer will take the form of a **statutory consultation** whereby the draft LNRS is widely circulated to all stakeholders, including the public, for final comment. Akin to other statutory planning documents, all the feedback received from this process will be captured, responded to, and published in tandem with the formal consideration of the final LNRS by the North of Tyne Combined Authority and its constituent local authorities.

### Gathering technical insight

54. The purpose of this document is to initiate the gathering of technical insight from those people and organisations with a knowledge of biodiversity within the North of Tyne through their understanding of habitats and/or species.
55. To this end, it seeks to:
  - explain our approach to mapping habitats to ensure compliance with step 1 and step 5
  - seek views and validate the content of the draft Biodiversity Statement as part of step 3
  - showcase the longlist of species currently prevalent across the region
  - outline the approach proposed for the suite of landscape-scale conversations to

inform the habitat and species prioritisation process as part of step 4

## StoryMap

56. The North of Tyne's stage 1 mapping is available online as a [StoryMap](#).
57. Step 1 is the first step in a longer, iterative process and provides a stable foundation on which to plan for nature. It isn't a designation or recognition process. The advantage of the map being online is that it can be readily amended and added to as new data sets are issued and the LNRS process evolves. It also recognises the significant size of the area and allows the user to zoom in and out to achieve different levels of spatial detail.
58. As referenced above, each LNRS is constrained as to what the map at step 1 can include. So, consistent with the statutory guidance, the StoryMap currently only shows:
  - national and internationally designated sites
  - local sites
  - irreplaceable habitat according to the definition set out in the Biodiversity Gain Requirements (Irreplaceable Habitat) Regulations 2024<sup>3</sup>
59. Given this, at this stage, the StoryMap is simply titled, "Map of designated sites and irreplaceable habitats" as opposed to "Areas of Particular Importance for Biodiversity (APIBs)" as set out in the guidance. This is to accurately reflect what the map illustrates and thereby avoid the need for long explanations and footnotes as to what "particular importance" means.
60. The statutory basis of the LNRS stops at the mean low water mark. For the North of Tyne LNRS, the decision has been taken to include a marine area<sup>4</sup> (defined in the footnote below), whilst recognising that this material will have the status of non-statutory advice. In this document we will call this a "marine protected area". In order to maintain a distinction of the additional part beyond mean low water, the StoryMap [collection](#) includes a section on marine mapping. There is also a section illustrating a more local interpretation of irreplaceable habitats, pending the publication of the awaited Government context.
61. Within this context, it should be noted that a revised Ancient Woodland map is due out in Summer 2024, and the England Peat Map is to be issued in Spring 2025. Further work is also being undertaken to refresh the Local Sites database. The

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<sup>3</sup> During 2024 it is anticipated that there will be a Government consultation on a clearer definition of "irreplaceable habitat". The StoryMap will subsequently be updated to reflect any changes. The habitats are listed on gov.uk <https://www.gov.uk/guidance/irreplaceable-habitats>

<sup>4</sup> a combination of a) three Marine Conservation Zones (MCZs), b) the Berwickshire & North Northumberland Coast Special Area of Conservation (SAC), c) three coastal Special Protection Areas (SPAs) and d) a small additional area to meet Tynemouth pier and into the Tyne estuary.

StoryMap will continue to be updated to reflect any such changes up until the formal approval of the final LNRS.

62. As set out in the statutory guidance, the final step in an LNRS is step 5 where the mapping further identifies:
- Locations where potential measures are proposed; areas where the recovery or enhancement of biodiversity could make a particular contribution to environmental benefits,
  - Areas that are or Could become of particular importance for Biodiversity (ACB).

On this basis, the outputs from steps 1 and 5 are combined to create the “local habitat map”, which in turn sits alongside the “statement of biodiversity priorities” to form the overall LNRS.

63. Stage 5 will identify locations to enhance or recover nature. The level of spatial detail that will apply will be informed by the integrated work generated from steps 3 and 4 in the process. The aim of the final map will be to steer effort to restore habitat, to achieve for biodiversity and for the wider environment. Its purpose is to provide a clear way for everybody to understand the areas to target action, all the while mindful that most of the land is privately owned and managed.
64. In some places it will be about understanding better the condition of sites mapped in step 1, or about improving the condition of these already designated sites. In other places it could be about applying the “Lawton” principles of “bigger, better, more joined”.
65. After publication, all the mapping will be “frozen” until the LNRS is reviewed. Natural England will be drawing together the information from all 48 LNRSs into a national “map of maps”.

### **Draft Biodiversity Statement**

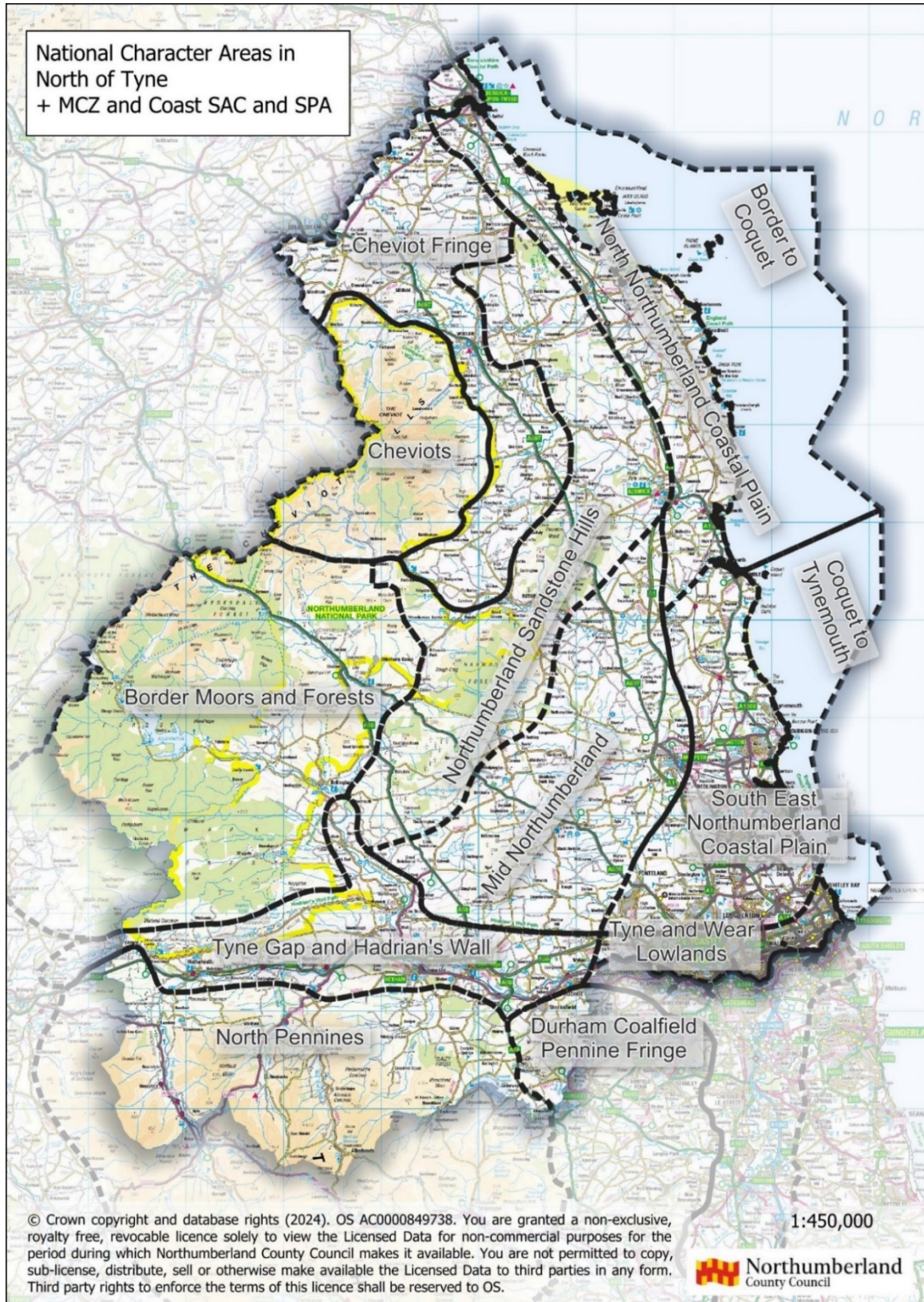
66. The North of Tyne’s stage 3 description of the area’s biodiversity is attached below as a Draft Biodiversity Statement and can also be downloaded from [Northumberland County Council - Local Nature Recovery Strategy](#).
67. This step, consistent with step 1, focuses on providing a baseline, for the LNRS area, of the prevailing habitats and key species associated with those habitats, It also provides an initial outline of the threats to and opportunities for nature recovery within each of those habitats. As such, the Statement is a building block within the LNRS process to prompt discussion from a common understanding of the current pattern of biodiversity, as opposed to a draft LNRS.
68. In fulfilling this role, the Statement uses the National Character Areas (NCAs) as the basis for describing the prevailing habitats and species within the area. NCAs are areas that share similar landscape characteristics that have been defined by Natural

England based on a combination of landscape, biodiversity, geodiversity, and economic activity. There are 159 across England and they follow natural, rather than administrative, boundaries.

69. For each one, Natural England has produced a profile to help inform decision-making within the places they relate to. Each profile includes a description of the natural and cultural features that shape our landscapes, how the landscape has changed over time, the current key drivers for ongoing change, and a broad analysis of each area's characteristics and ecosystem services. They therefore represent a sound basis upon which to describe the biodiversity of an area.
70. As the map overleaf illustrates, there are 11 NCAs of relevance to the North of Tyne area; 5 of which lie wholly within the strategy area (NCAs can also be viewed interactively [here](#) or [at the end of our stage 1 StoryMap](#)), with the remaining 6 crossing into neighbouring areas, as follows:
- *Border Moors and Forests* – part
  - *Cheviots*
  - *Cheviot Fringe*
  - *North Northumberland Coastal Plain* – part
  - *Northumberland Sandstone Hills*
  - *Mid Northumberland*
  - *Tyne Gap & Hadrian's Wall* – part
  - *North Pennines* – part
  - *South East Northumberland Coastal Plain*
  - *Tyne and Wear Lowlands* – part
  - *Durham Coalfield Pennine Fringe* – part
71. As set out above, the statutory guidance makes it clear that LNRSs should reflect the boundaries of the relevant local authorities, which normally extends to the low water mark, although it can extend further around river estuaries. However, it also recognises that LNRSs should link to marine spatial planning.
72. Given the significance of the marine environment to the North of Tyne, the draft Biodiversity Statement includes a *North Northumberland Marine Protected Area* and the *Coquet to Tyne Marine Protected Area* within its scope. This approach will be continued throughout the LNRS process albeit recognising that any potential measures identified to address marine priorities will be non-statutory in status.
73. After a brief overview, the draft Biodiversity Statement provides an overarching description of each of the NCAs and marine protected areas within the North of Tyne, before going on to provide a synopsis of the habitats and key species prevailing within each. It should be noted that the native species listed in the Statement are those that are considered important within the context of each NCA. This differs from the longlist of species outlined below which relates to those native species within the region that are classified as threatened or near threatened. Finally, an initial

indication as to the threats to and opportunities for nature recovery in each NCA is outlined.

Map 1 - the National Character Areas (NCAs) in North of Tyne, the Marine Conservation Zones (MCZ), the Coast Special Area of Conservation (SAC) and Special Protection Area (SPA)



74. It should be noted that in accordance with the statutory guidance, the draft Biodiversity Statement does not include any references to specific locations below the NCA/marine protected zones geography. Consistent with this, there is also no reference to current or recent biodiversity initiatives or projects, or to individual organisations or agencies.

with nature recovery responsibilities. Any such detail will be picked up, as appropriate, in subsequent phases of the process.

75. Nonetheless, the draft Biodiversity Statement is a critical building block in the development of the LNRS. As such, it is important that the technical content is as accurate and consistent as possible whilst recognising that the document is providing a summary narrative of the current biodiversity within each NCA and marine protected area.

76. Given this, a suite of consultation forms (see below) has been created – one for each NCA/marine protected area – to facilitate the ready input of any proposed amendments to its technical content, with the aim of:

- validating that the sections setting out the “description”, “habitats”, and “key species” presents an agreed baseline of the biodiversity prevalent across the North of Tyne; and
- supplementing the sections setting out the “threats to nature recovery” and “opportunities for nature recovery” to define the long list of potential priorities to be discussed for prioritisation as part of the next phase in the process (step 4)

77. All completed consultation forms should be submitted by Friday 24 May 2024.

[Border Moors & Forests](#)

[Tyne Gap and Hadrian's Wall](#)

[Cheviots](#)

[South East Northumberland Coastal Plain](#)

[Cheviot Fringe](#)

**Generic**

[Durham Coalfield Plain](#)

[General / cross areas \(Habitats\)](#)

[Mid Northumberland](#)

[General / cross-areas \(Species\)](#)

[North Northumberland Coastal Plain](#)

**Marine**

[North Pennines](#)

[North Northumberland marine protected area \(Scottish Border to Alnmouth\)](#)

[Northumberland Sandstone Hills](#)

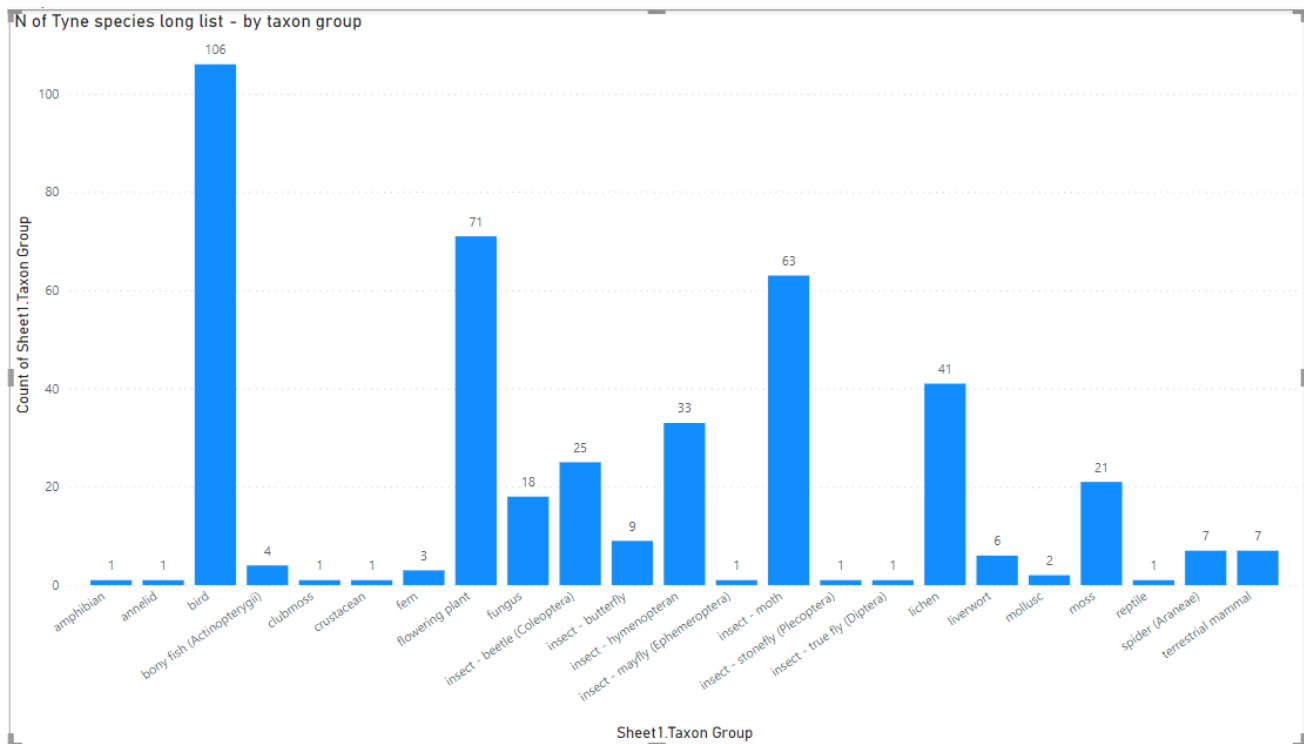
[Tyne & Wear Lowlands](#)

[Coquet to Tyne marine protected area \(Alnmouth to Tyne Estuary\)](#)

## Species Longlist

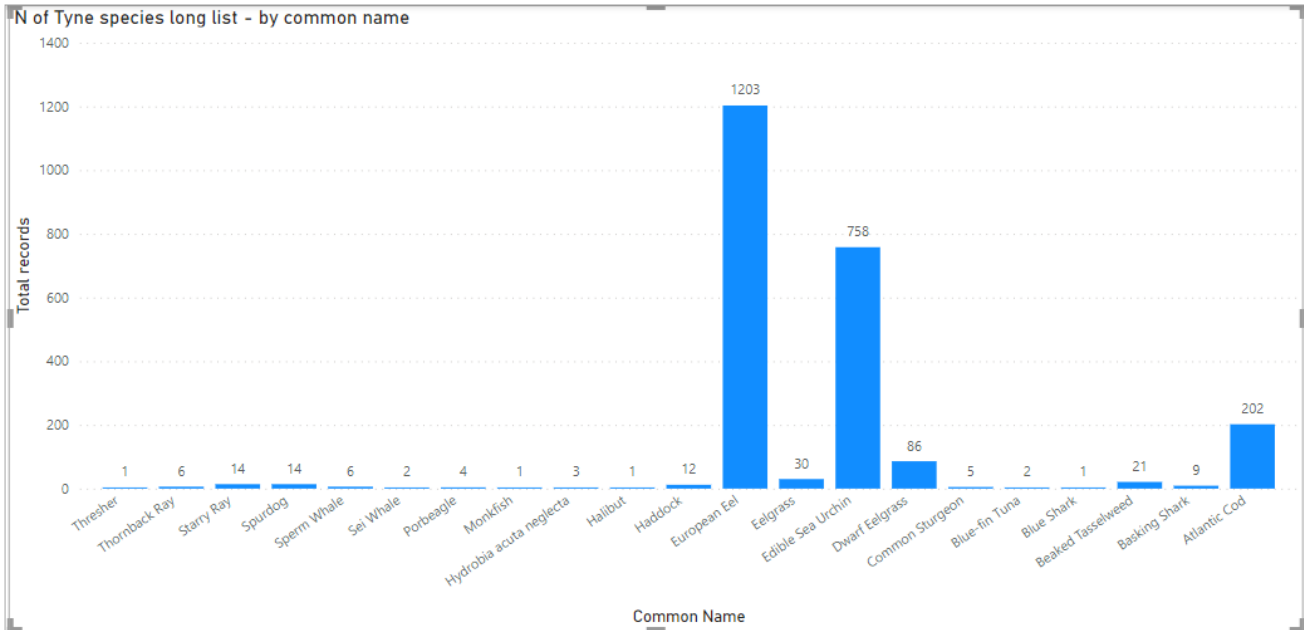
78. Based on the criteria set out in the Government advice to RAs, a [species longlist](#) has been generated for the North East region (extending to Tees Valley) by the North East Environmental Records Information Centre (ERIC) from data sources supplied by Natural England.
79. The rationale for undertaking this task at a regional level is to ensure consistency of approach across the 4 constituent LNRS processes, attract input from national species recording processes, and avoid consultation fatigue for local recording processes which tend to be configured to a regional footprint.
80. The listing of native threatened or near threatened species prevalent within the region extends to 424 within 24 taxonomic groups. The graph below provides a breakdown of this by taxonomy group, with birds (106); flowering plants (71), moths (63), lichen (41), hymenopteran (33), beetles (25), moss (21), fungus (18) and butterflies (9) accounting for over 90% of the list.

*Figure 3 - graph summarising the taxonomic groups in the species longlist*



81. A [marine species longlist](#) has also been generated, in recognition that the North of Tyne wants to consider marine nature recovery within its LNRS, albeit recognising that will be non-statutory in status. The equivalent species list for marine species is 21 species across 6 taxonomic groups. This apparent smaller list suggests a data under-reporting issue or a data gap. The equivalent graph illustrating this breakdown is shown below with eel, sea urchin, and Atlantic cod accounting for 90% of this list.

Figure 4 - graph summarising the species in the marine species longlist



82. At this stage in the process, views are being sought for the North of Tyne area – via this dedicated [species consultation form](#). The primary purpose of the consultation is to:

- define which of those species on the longlist are at particular risk of not having their threats and/or opportunities fully considered via a habitat-based set of conversations as part of step 4

with views also being sought on:

- whether any threatened or near-threatened species have been omitted from the longlist – any proposed additions need to be supported by the relevant evidence to confirm its eligibility for inclusion - and could potentially include those threatened or non-threatened “vagrant” species that are now frequenting our area more regularly due to changing migration patterns
- whether any species are on the current list that shouldn’t be there
- whether the restriction of any invasive non-native species (INNS) should be considered as part of the subsequent prioritisation phase in the LNRS process – and if so, which ones – to protect the interests of native species on the longlist
- which native species should be considered – consistent with Defra’s current code and good practice guidance – for reintroduction or other conservation translocation to the North of Tyne area as part of our wider approach to nature recovery

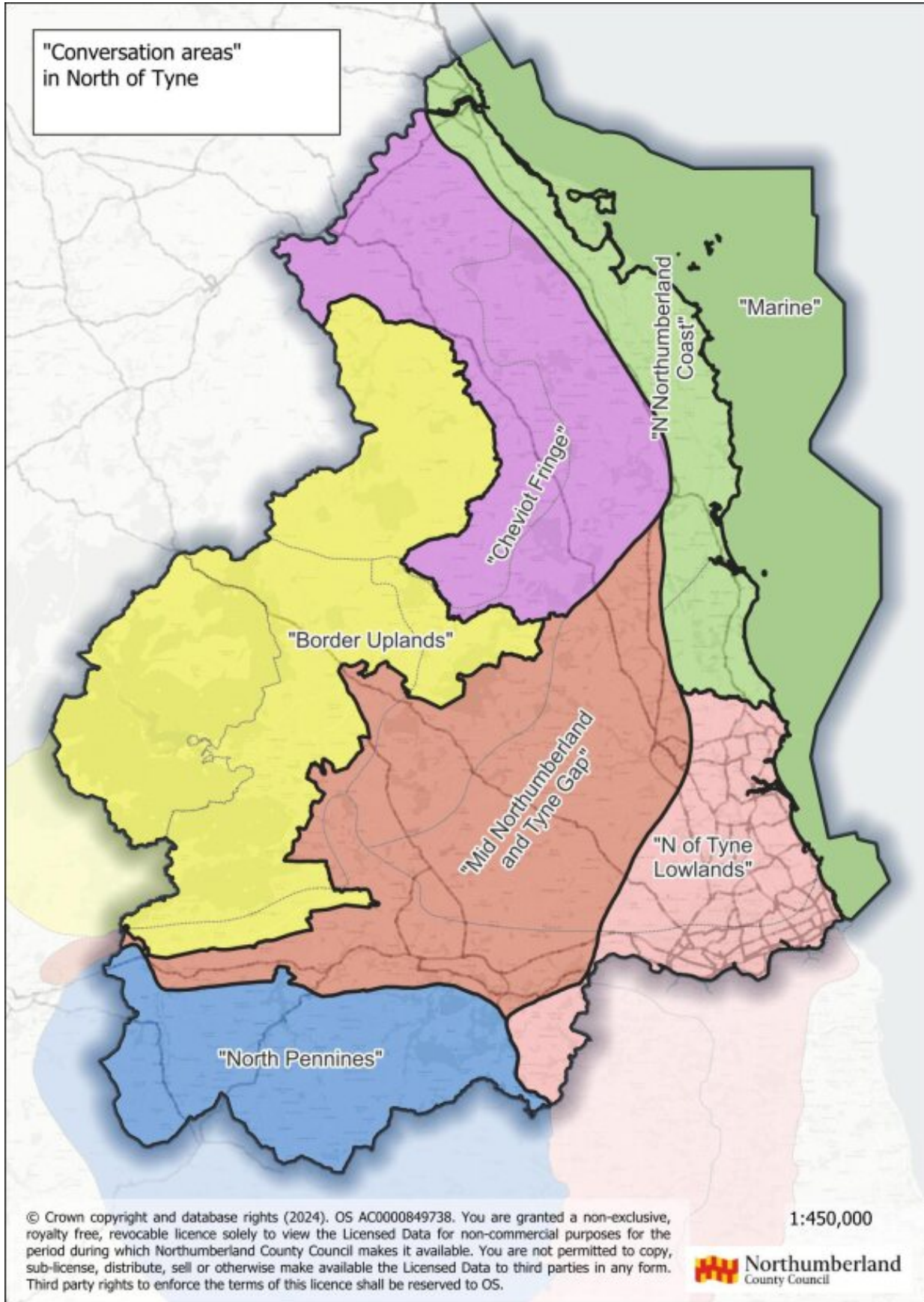
83. All completed species consultation forms should be submitted by Friday 24 May 2024.



## Facilitating open discussions

84. The core phase of the LNRS process is step 4 which takes all the largely factual information gathered in steps 1 and 3 to consider the longlist of nature recovery priorities and the potential measures to address them. The ultimate aim is to define a manageable shortlist of priorities and agreeing the associated actions that the LNRS will focus on. This prioritisation also must take account of the wider implications for the environment, land and marine management, and development.
85. As such, this step requires proactive and constructive dialogue across all those with an interest in the future of our land and marine assets to accelerate the further expansion and improvement of the habitats and species of significance to our geography – whilst also supporting the commercial sustainability of farming, forestry, and fishing; and accommodating new housing and industry as planned.
86. Given the variety of habitats within, topography of, and population distribution across the North of Tyne area, a single LNRS-wide engagement process would be challenging and probably not provide the depth and richness of discussion required to achieve widespread ownership of the subsequent nature recovery priorities and associated potential measures.
87. The intention, therefore, is to hold a series of bespoke conversations within sub-areas that are broadly recognisable as coherent landscapes with their own distinct set of circumstances, issues, and opportunities.
88. The seven areas that will form the basis of these landscape-scale conversations (see map overleaf [or interactive online mapping as part of our StoryMap collection](#)), are as follows:
  - “*Cheviot Fringe*” – Cheviot Fringe and north part of Northumberland Sandstone Hills NCAs
  - “*North Northumberland Coast*” – North Northumberland Coastal Plain and north part of South East Northumberland
  - “*Mid Northumberland and Tyne Gap*” – south part of Northumberland Sandstone Hills, Mid Northumberland, and Tyne Gap and Hadrian’s Wall NCAs
  - “*North Pennines*” – North Pennines NCA
  - “*North of Tyne Lowlands*” – south part of South East Northumberland Coastal Plain, Tyne and Wear Lowlands, and Durham Coalfield Pennine Fringe NCAs
  - “*Marine*” – North Northumberland and Coquet to Tyne marine protected areas
  - “*Border Uplands*” – Border Moors and Forests and Cheviots NCAs

Map 2 – The "conversation areas" in North of Tyne



89. Within each landscape, a designated organisation with a knowledge of that area will facilitate and coordinate the conversations over a period of at least 3 months. So, for example, the North Northumberland Coast National Landscape will perform this role in the “North Northumberland” landscape. This will allow the use of existing engagement forums and events within that area to be optimised, supplemented as required by additional dedicated sessions. Nonetheless, standard approaches to capture the feedback generated for each conversation will be put in place to ensure consistency across the North of Tyne geography.
90. Each conversation will be prompted by a tailored nature recovery brochure that will include the following:
- an outline as to the purpose and role of the LNRS
  - an annotated StoryMap of the habitats within the area
  - a listing of the threatened or near threatened species within the area
  - the longlist of priorities as identified in the Biodiversity Statement following the technical consultation, together with proposed measures associated with each
  - the criteria, consistent with Government advice (awaited), that will be applied to prioritise this long list to a short list
  - an outline as to the anticipated funding mechanisms that will help deliver the LNRS
  - details of how to engage in the engagement process
91. It should be noted that these areas are “constructs” to promote discussion and dialogue. As such, their boundaries are no more than a guide to help make the conversations as relevant as possible to the prevailing nature recovery issues. Stakeholders will therefore not be limited as to which conversations they wish to participate in. Equally, the final LNRS document will reflect the priority habitats and species across the North of Tyne area and not these geographies.
92. More details on the programme of landscape conversations will be circulated in due course, and following the outcome of the technical consultation outlined above.

## Broad timeline for preparing the LNRS

<b>Time period</b>	<b>Detailed steps</b>
March to May 2024	Undertake the technical consultation with those people and organisations with a knowledge of biodiversity within the area and thereby establish an “expert” reference forum as a basis for gathering technical insight throughout the LNRS preparation process
June to October 2024	Facilitate open discussions with all those with an interest in the land and their local area through a suite bespoke landscape-scale conversations within the area
November to February 2025	Prepare a draft of the North of Tyne LNRS following consideration of all the feedback generated from the technical consultations and landscape-scale conversations
March to April 2025	Undertake the formal consultation of the draft North of Tyne LNRS recognising its status as a statutory document
June 2025	Consider the final LNRS for approval having considered the feedback from the formal consultation

## Introduction to the Biodiversity Statement

The North of Tyne region, encompassing Northumberland, Newcastle upon Tyne, and North Tyneside, is broadly a region of two halves: a low-lying coastal plain in the east extending up some of the larger river valleys, and an upland chain of generally rolling hills to the west.

The uplands to the west, and the lower lying but still characteristically upland Sandstone Hills, are dominated by heathland and peatland habitats as well as swathes of upland acid grassland and forestry plantation. Northumberland contains some of the UK's best peatland habitat in areas such as the Border Mires. These areas are dominated by livestock farming, in addition to forestry.

The valleys in the North Pennines, and those of the North Tyne and Coquet, are important for their remaining species-rich hay meadow habitat. Lowland equivalents are restricted to a few small relicts scattered across the region.

Upland broadleaved woodland is largely restricted to river valleys and small areas within the forested landscape, including newly planted zones. The river valleys of the Coquet, Wansbeck and Blyth are the main remains of this habitat in more lowland districts. Important fragments also remain in the deep denes leading to the Tyne in Newcastle. Overall, Ancient Woodland accounts for just 1% of the area. Northumberland does, however, contain the largest area of man-made commercial forestry in England.

The lower lying parts of the region are largely dominated by farming, often quite intensively and arable in nature and the remaining semi-natural habitats are often relicts of formerly larger areas. Along the coast, dune complexes and some of the less modified estuaries provide valuable semi-natural habitat and offshore islands are extremely valuable for their seabird breeding colonies.

As well as the Border Mires, important habitats for the region include Whin Grassland, which is found along Hadrian's Wall, in a section around Bavington, and then again on the coast around Bamburgh and Lindisfarne. Calaminarian grasslands are found along the South Tyne and some of its tributaries, and the Tyne.

Few lowland peatland sites remain, but highly altered remnants exist at Prestwick Carr and in north Northumberland.

Important brownfield sites occur in the southeast of the region, often the result of reclamation and restoration of former colliery sites. These areas can be important for species-rich grassland habitat as well as associated species such as dingy skipper and bee orchid.

Species of particular importance within Northumberland include roseate terns nesting on Coquet Island; freshwater pearl mussels on the Rede and North Tyne; White clawed

crayfish in the Wansbeck; and large heath butterfly on peatlands.

Northumberland also remains one of England's last strongholds for the red squirrel and pine marten have colonised the west via the Scottish Borders. Newcastle contains an important nesting site for kittiwake, part of the furthest inland colony in the world. Important sites for the Tyne variant of dune helleborine occur in Northumberland and Newcastle. The region is important in the English context for the populations of coralroot orchid and the endemic Lindisfarne helleborine. Some of the most important populations of breeding waders in England are found on rushy pastures in West Northumberland, including curlew lapwing and redshank. Our local rivers are important for species such as otter and fish species such as lampreys, salmon, and trout.

National Character Areas (NCA) have been used to define characteristic landscapes in the area and the North of Tyne area is split into nine main NCAs. As the map on page 21 illustrates, 5 of these NCAs also cross into neighbouring regions.

## North Northumberland Coastal Plain

### Description

A narrow, low-lying coastal strip that stretches from the Scottish border to the River Coquet. The coast is of national and international conservation importance and is therefore covered by multiple statutory designations including SSSI, SAC, MCZ, and SPA.

Three major rivers meander across the coastal plain to the sea: the Tweed, joined by the Till, flows into the sea at Berwick-upon-Tweed; the Aln flows into the sea at Alnmouth; and the Coquet, which meanders along the southern boundary of the area. The northern end of the character area overlies the Fell Sandstone aquifer, which provides drinking water to some of Northumberland.

The farmed landscape is predominantly large, open arable fields dominated by cereal cropping, and some permanent pasture for beef cattle and sheep. There is some remnant semi-natural grassland in the valleys and coastal fringes. The area has a long history of mineral extraction including whinstone, sandstone and limestone quarrying, with opencast coalmining to the south-west of Berwick-upon-Tweed.

As much of the area is devoted to arable cropping, semi-natural habitats are generally limited. Much of the coastal fringe and foreshore are renowned for their range of natural habitats. Dune complexes are found from Lindisfarne southwards. Whin outcrops, with their unique flora, also occur along the coast and inland. Sandstone cliffs to the north support extensive areas of coastal grassland. At Newham Fen, species-rich fen vegetation has developed along with areas of reedbed and carr woodland. Intertidal and

offshore islands will be covered by the Coastal descriptions<sup>5</sup>.

## Habitats

Dune complexes are found along length of this area, characterised by a single dune ridge system in the north and south, while between Lindisfarne and Bamburgh more extensive multiple dune ridge systems occur. The dunes in this area support good populations of bloody cranesbill, which is the county flower of Northumberland. On Holy Island the dunes and seasonally flooded slacks support petalwort and the endemic Lindisfarne helleborine with stands of marsh helleborine also present. Coral-root orchid is also found in the dune slack areas. This area is a stronghold for dark green fritillary and grayling butterfly.

Whin outcrops, with their unique flora, occur along the coast and a short distance inland, including at Spindlestone Heughs SSSI, Cragmill Hill LWS, and Chapel, Chesters and Sunnyside Hills & Crag LWS. The thin soils over this hard igneous rock carry short, tufted clumps of wild chives, the taller stems of crow garlic, the rare hairy stonework, and bright flowers of maiden pink. Most of these areas are small and associated with the Whin Sill or quartz dolerite dykes on Lindisfarne. The Whin Sill outcrops also support good lichen communities, such as the nationally important species *Pyrrhospora rubiginans* and *Peltigera neckeri* at Brada Hill Quarry LWS.

Other important grasslands in the area include Tommy the Millers Field LWS, an area of mixed grassland with pepper saxifrage, and Littlemill Quarry LWS, which supports limestone grassland. At Ratcheugh Crag and Pepper Moor LWS, further limestone grassland is found, supporting fairy flax and wild thyme, amongst other species. Small areas of other unimproved grassland communities are scattered through the farmed environment, such as the calcareous grassland at Oxford Ponds LWS. Sandstone cliffs to the north around Berwick-upon-Tweed support extensive areas of coastal grassland.

At Newham Fen, species-rich fen vegetation, including reintroduced greater water parsnip, has developed. There is an abundance of tussocks of black bog-rush, which provide habitat for grass of Parnassus and round-leaved wintergreen. Along with the fen, areas of reedbed and carr woodland occur. Uncommon woodland species include herb-Paris.

Very little in the way of ancient woodland habitat remains within the North Northumberland Coastal Plain. The largest example, Hagg Wood at Ellingham, is largely replanted. Smaller examples are found along the banks of the Coquet, notably at Houndean Mill Wood LWS, where mature oak dominates the canopy with rowan, ash, sycamore, and hazel also present. Elsewhere, remnant ancient woodland is noted at Low Letham Wood, Swineclose Wood and Cushat Wood.

Farmland birds such as lapwing, grey partridge, yellow wagtail, and tree sparrow are

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<sup>5</sup> Note, all the offshore islands in Northumberland are part of the statutory LNRS, as they are above mean high water, even though the text appears within the marine sections.

found in the area, particularly around Seahouses. These form part of a nationally important assemblage of arable birds present in this landscape.

### Key Species

This area is particularly noteworthy for the bird populations that it supports. Little tern breed on the beach and at Long Nanny is the largest mainland colony of Arctic terns. Wintering waders such as turnstone, purple sandpiper, redshank, curlew, and lapwing make use of the coast with some also utilising nearby farmland.

Overwintering populations of Pale-bellied brent geese use the areas around Lindisfarne including the adjacent farmland. Pink-footed geese also use this area as well as areas further south. The agricultural landscape supports nationally important farmland birds.

The rivers of this area support a number of key species, including otter, salmonids, and white-clawed crayfish. Ponds support great crested newt.

The dunes support plants such as purple milk vetch as well as those found specifically on Lindisfarne.

Red squirrel occur in this area in wooded areas.

### Threats to Nature Recovery

Agricultural run-off leads to the pollution of rivers and streams, which impacts the river ecosystem as well as the coastal areas. The zone feeding into the Lindisfarne SPA is particularly vulnerable to the effects of nutrient enrichment.

Inappropriate grazing regimes, often an absence of grazing, on key grasslands, including whin grassland and dune areas, threatens sward diversity and impacts the wider ecosystem as a result.

Numerous invasive non-native species threaten our native ecosystems, but of particular concern in this area is the incursion of signal crayfish, which threaten the native crayfish population. Piri-piri burr is a threat to dune habitats. Although sea buckthorn is largely under control it could re-emerge as a threat in the future.

Coastal erosion, which is accelerating with climate change, will lead to the disruption of coastal ecosystems and their balanced functions without managed retreat.

Disturbance from increasing numbers of visitors, often with dogs, is a threat to wintering and breeding shorebirds.

Highly Pathogenic Avian Influenza (avian flu) outbreaks have become more vigorous in recent years. This has been a particular issue for seabirds, notably guillemots, terns,



kittiwakes, large gulls, and puffins.

### Opportunities for Nature Recovery

Coastal realignment and habitat creation in appropriate areas could help with mitigating the impacts of climate change, primarily coastal flooding, and create valuable intertidal habitat.

Arable reversion, where appropriate, could allow the expansion of key habitats like fen or woodland. Creation of well-managed species-rich hedgerows, with margins and small areas of scrub would provide important linkage between the fragmented habitats.

Improving buffers on arable land to help reduce agricultural run-off into watercourses, this could be achieved through agri-environment schemes or schemes such as Biodiversity Net Gain. Woodland creation would lead to a reduction in fertiliser use and thus improve water quality.

The linkage of native woodland will create wildlife corridors and extend the habitat available for wildlife. New woodland creation is a significant opportunity, particularly in river corridors to link existing habitat. Wet woodland would also be beneficial in riparian areas.

## North Northumberland marine protected area

### Description

The North Northumberland marine protected area extends from the Scottish Border to Alnmouth. It largely comprises the English section of Berwickshire and North Northumberland Coast Special Area of Conservation (SAC) but also takes in the Farne Islands National Nature Reserve (NNR) and the intertidal areas of the Lindisfarne Special Protection Area (SPA), Tweed Estuary SAC, the Aln Estuary Marine Conservation Zone (MCZ) and the northern half of the Berwick to St Mary's MCZ.

The North Northumberland coast is one of the most important marine areas in Europe and supports a range of tidal and sub-tidal habitats and their associated species. The coast here attracts an increasing number of visitors and recreational sea-users. The area is still actively fished, both recreationally and commercially. Shellfish, such as crab and lobster, form an important part of the local commercial fishery.

### Habitats

The rocky reefs of the Northumberland coast provide some of the most diverse habitats in the North Sea and include areas of intertidal rocky shore, cobbles, vertical rock walls, horizontal ledges, broken bedrock, and boulder fields. Most of this rocky reef is found in

the subtidal zone below the low water mark and encompass a wide variety of shapes and forms, which provide a foundation for seaweeds and other marine organisms to colonise. These areas support an abundance of life and provide important sources of food for coastal birds. The intertidal zone typically supports molluscs such as periwinkles, limpets and mussel, and brown seaweeds such as wrack. In the lower end of shore echinoderms such as the common sun star, *crustacea* such as the squat lobster, molluscs, small fish and prawns are often found.

Sea caves are associated with areas of reef and include tunnels or caverns in the intertidal and subtidal zones. They vary in size from only a few metres to more extensive systems, which may extend hundreds of metres into the rock. They are typically colonised by encrusting animals but can also support shade-tolerant algae near the entrance. The intertidal and submerged sea caves of north Northumberland are home to an incredible diversity of marine life including corals, sea squirts, red encrusting algae, hydroids, and anemones. The shelter provided by these caves is an important part of the reef ecosystem. Intertidal caves can be found in the sandstone cliffs to the north of Berwick, in the limestone at Howick, and on the north side of Lindisfarne. Submerged sea caves, tunnels and arches occur in the volcanic rock off the Farne Islands.

Intertidal sand and mudflats can be found around Lindisfarne and on the estuaries of the Rivers Aln and Tweed. Fenham Flats, Ross Sands, Budle Bay and the coast adjacent to northern Holy Island form the most extensive area of intertidal sand and mud in North East England<sup>6</sup>. These support one of the largest intertidal beds of narrow-leaved seagrass and dwarf seagrass on the east coast of the UK. There is also a diverse collection of animals living within the sediment, with large beds of the blue mussel on the surface. Once established, these mussel beds provide a sub-habitat for a host of other small plants and animals, which in turn are a rich food source for larger marine predators such as fish, birds, and crustacea.

Subtidal sands, muds and other habitats cover large areas of the seabed. They are an important part of the marine ecosystem and support a diversity of life including anemones, polychaete worms, and bivalves. Such areas can be important spawning grounds for fish such as sandeel and sprat which in turn form the food resource used by the internationally significant populations of breeding seabirds which use this part of the coast.

Inlets and bays are a characteristic of the North Northumberland marine protected area. These are relatively shallow, and experience more sheltered conditions compared to the open coast. They often comprise complexes of interdependent subtidal and intertidal sandy habitats that are used extensively by feeding birds and other marine creatures. Budle Bay, Beadnell Bay and Embleton Bay together form one of the most extensive areas of sand flats between the Firth of Forth and the Wash. They contain some of the richest communities of crustaceans, polychaete worms and bivalves in the Northeast of England with extensive areas of clean sand supporting dense populations of the heart

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<sup>6</sup> Note, all the areas above mean high water are part of the Statutory LNRS, even though some of the text appears in this marine section.

urchin and razor clams.

## Key Species

Grey seals are present within the North Northumberland Coast in internationally significant numbers. They forage in the open sea and return regularly to haul out on land where they rest, moult and breed. The Farne Islands support a population of approximately 4000 individuals, with around 1000 pups produced each year, providing 3% of the annual pup production for the UK. Access to undisturbed pupping areas is a key requirement. Grey seals also use relatively inaccessible rocky beaches on Coquet Island, south of Alnmouth, and the sand flats of Lindisfarne for breeding and hauling out, while the onshore waters of the whole of the coast are used as a passageway between colonies. Other marine mammals present include bottlenose dolphin and white-beaked dolphin.

The North Northumberland Coast supports internationally significant populations of breeding seabirds. These include puffin, guillemot, Arctic tern, common tern, sandwich tern, and little tern. The main seabird breeding areas in North Northumberland are found on the Farne Islands, Lindisfarne, and the Long Nanny tern colony on Beadnell Bay. The inshore waters around these colonies are used to hunt for prey such as sandeel, which feed both the adult birds and their chicks. The Farne Islands also supports a nationally significant population of breeding eider.

Intertidal habitats are used as feeding grounds for wintering waterfowl and waders. Key species include pale-bellied brent goose which feeds on seagrass beds at Lindisfarne, redshank, sanderling, turnstone, and purple sandpiper. The latter is a rocky shore specialist and can be found feeding or roosting at locations such as Stag Rocks at Bamburgh. Eider winter across the inshore waters, harbours, and estuaries of the Northumberland coast.

Migratory fish such as salmon and trout are found in coastal waters as part of their life cycle. Lamprey pass through the Tweed estuary on their way to spawn in the upstream river. Sandeel are key prey items for many of the species of seabird which breed on the North Northumberland coast. Shellfish such as lobster and brown crab are important commercial species locally.

## Threats to Nature Recovery

Diffuse pollution remains an issue for coastal waters with intertidal habitats, such as the mudflats on Budle Bay and around Lindisfarne, suffering from problems caused by excess nutrients.

Human disturbance from coastal recreation and other activities can impact on breeding and wintering birds, leading to reduced survival or productivity and the avoidance of certain areas. Marine mammals can also be affected by disturbance, particularly at seal

haul out sites.

The North Northumberland coast currently has a low incidence of marine invasive non-native species but the introduction of these remains a significant threat to the health of marine habitats and ecosystems.

The creation of new coastal infrastructure, and the management of existing infrastructure, has the potential to impact on the marine environment through direct loss of habitats, alterations to habitat structure, changes to coastal processes and water movement, and disturbance to species.

Plastic pollution and marine litter cause a hazard to marine life through ingestion and entanglement. Sources of plastic pollution include local littering from beach visitors and 'ghost gear' from the fishing industry. Plastic items may often also originate many miles inland and find their way to the coast through waterways and the domestic sewage system.

Climate change remains a significant threat to marine and coastal habitats and to breeding seabirds. Habitat losses are predicted through sea-level rise and coastal squeeze, and changes in species distribution (including the distribution of key prey species) may alter because of increased sea temperature.

Since winter 2021/2022, Highly Pathogenic Avian Influenza (avian flu) outbreaks have become more vigorous, and tens of thousands of birds are thought to have died. This has been a particular issue for seabirds, notably guillemots, terns, kittiwakes, large gulls and puffins. At the Farne Islands alone, just under 10,000 dead birds have been collected by National Trust rangers.

### Opportunities for Nature Recovery

There is potential to restore, expand and create new areas of habitats such as saltmarsh, mudflat seagrass beds, kelp, and native oyster beds. Areas with potential for habitat creation and restoration have been mapped by organisations such as the MMO and Environment Agency and more work is planned locally to refine this. As well as providing new areas for wildlife, habitat creation can mitigate against the impacts of climate change (such as coastal flooding) and act as 'Blue Carbon' reserves through the sequestration and storage of atmospheric carbon dioxide.

Habitat creation and restoration within wider river catchments can help to reduce the impacts of diffuse pollution on the inshore marine environment.

An eco-engineering approach can be used on new and existing coastal infrastructure to increase its value as wildlife and promote colonisation by marine organisms.

New coastal infrastructure can be designed to incorporate biosecurity measures to reduce

the likelihood of introduction of invasive non-native species, for example by providing washdown facilities for boats or creating areas of marinas or ports, which can be rapidly quarantined if required.

Additional artificial roosting sites can be created for coastal birds. Habitat suitable for breeding shorebirds can be created or improved through management interventions delivered through initiatives such as Space for Shorebirds.

## Cheviot Fringe

### Description

The majority of the Cheviot Fringe is a narrow corridor of lowland plains. The eastern edge rises gently, whilst the western edge rises smoothly and steeply above those plains. The western edge falls with the boundary of Northumberland National Park.

This lowland landscape is dissected by three major river systems, all radiating from the Cheviot Hills. The rivers Coquet and Aln in the south flow eastwards. The River Breamish/Till flows east before meandering northwards, where it is joined by the waters of the River Glen and flows into the Tweed. These rivers all drain upland moors and respond quickly to rainfall, leading to occasional flooding. The eastern edge of the area overlies a significant proportion of the Fell Sandstone aquifer, which provides much of the public water supply for this part of Northumberland.

Land use includes agriculture, with mixed farmland combining pasture and meadows for livestock with arable. To the south, the farmland is enclosed by hedgerows with many broadleaved trees. To the western edge, the predominant land use is sheep farming. There are also small, coniferous woodland blocks, with deciduous woodland more prevalent along the banks of the many meandering rivers and streams. Sand and gravel are quarried and exported from the river valleys.

Within the Cheviot Fringe, semi-natural habitats are limited to small woodlands and riparian habitats, including grazing marsh, with recent habitat creations of grazing marsh in the north of the area. This area also contains historic lowland bogs, which have mostly been lost under agricultural improvements.

### Habitats

The rolling landscape around the Ford and Etal Estate is notable for its relict ice age kettle holes, which have formed into a complex of fens and raised bogs such as Ford Moss. This internationally important mire is a lens of peat surrounded by farmland to the north and a heather dominated ridge to the south. The mire has a naturalised Scots pine woodland fringing the south and birch in other drier parts of the mire. The wetter areas are dominated by heather with sphagnum mosses in wetter hollows. Cranberry and cross-

leaved heath are found in wetter areas with bog myrtle present in stands across the site. Remnants of lowland acid grassland can also be found in this area.

Where the area abuts the Cheviots and the Sandstone Hills, outliers of upland heath and blanket bog occur. These are largely heather dominated with cross-leaved heath present in less well-drained areas. Around Ford Moss, chickweed wintergreen is present on the junction between bog woodland and heath. An area of lowland heath occurs near Whittington. Wet woodlands are particularly associated with the River Till and upland oak and ash woodlands with the River Coquet.

Small fragments of wetland habitat have survived amongst the farmed environment. At Kippiehill Woods, Campfield Fen is important for rare and scarce flora, including blunt-flowered rush, and has been designated as an LWS for this interest. Nearby Campfield Kettle Hole and Barelees Pond are both designated as SSSI for their fen and pond habitats.

Former sand and gravel quarries have created some new habitat around Powburn and Millfield, the former providing open water lakes that are used by a range of waterfowl and are surrounded by planted broadleaved woodland and areas of unimproved grassland. At Millfield, wet pasture has been created.

Broadleaved woodlands are largely restricted to the steep valley sides such as the Roddam Burn, in other places woodlands are more mixed with a proportion of conifers. Woodlands along the steep banks of the Till and parts of the Tweed form examples of such woodlands. The Allers and Lilburn Valley Junipers SSSI is an area of juniper and ancient alder woodland. Parts of Crawley and Lincombe denes are recorded in the Ancient Woodland Inventory and designated as a LWS. The valley sides of the River Coquet are designated as SSSI for their ancient woodland habitats.

A large part of the River Tweed SAC and Tweed Catchment Rivers SSSIs lie within the Cheviot Fringe area. The River Tweed supports internationally important populations of lampreys and salmonids, as well as populations of otter and water crowfoots. The riverside shingle and sands of the Till Riverbanks SSSI support scarce *Bembidion* beetle species, as well as other rare invertebrates. It also has good bird populations, including common sandpiper and kingfisher.

### Key Species

The rivers Coquet and Tweed support internationally important populations of salmonids and lampreys. The waterbodies of this area also support otter and water vole.

The lowland raised bogs support breeding wader assemblages, including declining and priority species.

Juniper is a key species in this area.

Red squirrel utilise the conifer blocks, and internationally important farmland birds are associated with the agricultural landscape.

### Threats to Nature Recovery

Agricultural run-off is leading to the pollution of river habitats, whilst grazing pressures by livestock is causing bank erosion.

Invasive species such as signal crayfish and giant hogweed are issues on the Till.

Peatland degradation is occurring as a result of poor land-management practices, including overgrazing, drainage and burning.

### Opportunities for Nature Recovery

The Cheviot Fringe area has areas where flood plain restoration and wet grassland creation would be beneficial.

There is opportunity for woodland creation, as well as restoration and augmentation of existing woodland.

Small gains of natural habitat can be valuable in a relatively intensive arable area such as this. Arable reversion, where appropriate, to neutral or other grassland is one such avenue to take.

The Northumberland Peat Partnership is working to identify areas where peatland restoration is required, and to secure funding to implement restoration projects.

Agri-environment schemes, such as countryside stewardship, could be used to fund changes in land management practices that benefit biodiversity. This is particularly relevant over peatlands, or on agricultural land.

## Cheviots

### Description

The Cheviots are part of the wild upland chain of Northumberland moors; no settlements and few buildings making it one of the most remote areas of England. This area forms the northern section of the Northumberland National Park.

Distinctive white-faced Cheviot sheep, Northumberland Blackface sheep and wild goats graze the moorland plateaux, which are managed as grouse moors in places. There are a diminishing number of large conifer plantations on the upper slopes, and smaller blocks of

conifers planted as shelterbelts and for military training purposes to the south. On the lower slopes and in the valleys, more productive pastures and meadows are present. Grazing is by sheep, with some beef cattle on the more sheltered lower ground.

This area contains the headwaters of the rivers Till and Coquet. These rivers provide important water supplies but respond quickly to rainfall and therefore have a high propensity to cause downstream flooding. Steep-sided valleys with fast-flowing burns radiate from the Cheviots, and support relict semi-natural broadleaved woodland, gorse scrub, wet flushes, and species-rich meadows.

The Cheviots are an extensive rolling plateau of semi-natural grass moor and heather moorland; rounded hilltops characterised by mixed areas of heathland, blanket bog and extensive white grassland interrupted by distinctive tors. The slopes are largely treeless, with broadleaved woodland confined to the narrow valleys. Rare arctic-alpine flora are supported on the crags and spring features. The Cheviots also support an excellent example of a typical upland breeding bird community.

### Habitats

The lower valley slopes are characterised by bracken, grassland, and areas of woodland comprised mainly of alder and downy birch. Higher on the valley sides there are extensive areas of ling heather and bilberry, cross-leaved heath, and mat-grass. The high summit plateau supports a montane heath with bilberry, crowberry, stiff sedge, and an abundance of lichens of the genus *Cladonia*, including reindeer moss at its only known English locality, as well as Iceland moss. In sheltered gullies there are stands of bilberry heath with hard fern, broad buckler-fern and dwarf cornel which indicates the influence of late snow-lie on the vegetation.

Blanket bog developed mainly on the high ridges is dominated by hare's-tail cottongrass and heather with much bilberry, cowberry and in places crowberry. On Cheviot summit, the blanket bog also supports the rare bog bilberry whilst cloudberry is widespread and locally abundant.

At the Bizzle and Hen Hole in The Cheviot SSSI, outcrops of base-rich rock within cliffs of predominantly acidic rock give rise to a contrasting association of plants including several uncommon species such as alpine saw-wort, alpine scurvygrass, roseroot, limestone bedstraw and brittle bladder-fern. Tall herbs such as globeflower, common valerian and wood cranesbill occur more widely on ungrazed ledges with base rich soils, while parsley fern occurs commonly on acidic screes. Starry saxifrage grows along many mossy springs and seepages where chickweed willowherb, alpine willowherb and, rarely, hairy stonecrop are found on higher ground.

The area contains limited areas of enclosed land for farming but some of the upland hay meadows are of international importance, represented by Barrow Burn Meadows, with species such as wood cranesbill, pignut and lady's mantles present. This is an important



and rare habitat found in upland farmland. Other grasslands of importance are found on the andesite larva with species such as wild thyme, mountain pansy and maiden pink characteristic of these.

Although little remaining ancient semi-natural woodland remains except for the College Valley Woodlands SSSI, there are some new native woodland plantations that have been created over the last 20 years. Small fragments of woodlands vary from wet and lowland deciduous woodlands on the valley bottoms, to upland oak woodlands that form in cloughs on the valley sides especially in rocky situations.

The upper reaches of the River Coquet and feeder streams to the Till and Tweed rise and flow through this area. These represent good examples of dynamic river processes, with very good connections to floodplains. A few base-rich flushes can be found in the upper reaches of the tributaries and the rivers themselves are important for salmonids and species such as lamprey. Water crowfoots are found on the Coquet, and river jelly lichen is also an important species on its upper reaches.

### Key Species

The upland habitats of the area have in the past supported black grouse, but numbers have fallen to virtually none. Breeding waders including curlew, snipe, lapwing and on higher ground golden plover and dunlin are present as well as raptors such as hen harrier, merlin, short-eared owl, and goshawk. Ring ouzel are still present breeding in cleughs together with still good populations of whinchat, stonechat, wheatear, and mountain bumblebee.

Red squirrels are associated with woodland, particularly the conifer blocks.

Important grasslands support rare flora and plant communities, and arctic-alpine flora grows within the scree slopes.

The Tweed catchment including the Till tributaries is designated SAC for water crowfoot, otters, salmon and lampreys.

### Threats to Nature Recovery

The major threat to blanket bog from new drainage and afforestation is now largely historic, but there is a risk that further peatland degradation could still occur through existing drainage and continued burning, overgrazing, and overcutting. This management on peaty soils of any depth can lead to dwarf shrub and bog habitats that lack structural diversity and the ability to form intricate mosaics with wetlands and scrub, important for many species. Peatland degradation may still occur where the replanting of productive conifer crops on peatland sites takes place and bogs can also be threatened by the regeneration of mainly non-native self-set conifer seedlings arising from nearby

plantations. This is a continued risk across the whole character area, which will need ongoing attention.

Climate change presents numerous threats to habitats and species alike, and as global temperatures rise the risk of wildfire will increase, threatening heathlands, grasslands, dry peaty soils, conifer plantations and associated species. Water tables will drop in summer months and temperatures will rise in watercourses lacking shade, putting species under stress. Through climate change we should also expect to see a redistribution of species, with species preferring cooler climates moving north, so the potential loss of some north of Tyne species moving to Scotland but the introduction of more southerly species into the area.

Nitrogen deposition and excess accumulation is also having a detrimental effect upon habitats and species and is accepted as one of the main drivers of biodiversity change.

Inappropriate woodland planting or the natural regeneration of self-set seedlings could encroach onto important open habitat for species such as curlew and other waders, which could lead to further declines in wader populations through loss of habitat and increased predator numbers. Often these grassland habitats have no designations or wildlife protections, so tree planting and management needs to take this into account for this suite of species.

Release and feeding of non-native gamebirds near or on sensitive sites threaten reptile populations and invertebrates.

Invasive non-native species threaten our native wildlife, particularly grey squirrels carrying squirrelpox that threatens the native red squirrels. American mink which predate water vole and a range of other wildlife, and signal crayfish, which threaten our native white-clawed crayfish and quality of river habitats. Other threats include piri piri burr and Himalayan balsam.

Native broadleaved woodland creation and opportunities for woodland regeneration are often checked by the large number of roe deer present in the area and potentially by a lack of co-ordinated deer management.

Over-stocking with sheep (set-stocking) suppresses wildflower diversity in grassland and heathlands. A lack of nature-focussed road verge management means that most verges are in floristic decline.

Rapid storm run-off events can affect water quality and cause erosion adding silt in water courses from soil loss in farmed and afforested catchments which can affect invertebrates and spawning grounds for fish. Some watercourses suffer from nutrient enrichment from agricultural run-off and increasing summer temperatures is leading to dangerously high water temperatures which affect salmonids and other native fish for which the Tweed catchment is designated.

## Opportunities for Nature Recovery

There is ample opportunity for peatland restoration, including grip and gully blocking, the restoration of afforested peat where this is viable to do so, and the removal of self-seeded conifer species. Previous removals at Threestoneburn woodland and Freddon Hill have shown this is possible and there are opportunities at Uswayford to restore peat and create broadleaved woodland in a mosaic with conifer forest. Agri-environment schemes are one option for funding peatland restoration and can incentivise other changes to management practices that will benefit biodiversity, including to heathland and acid-grassland habitats. The formation of the Northumberland Peat Partnership will aim to secure funding, undertake initial surveys, and deliver restoration works.

There is also opportunity to create native woodlands and restore and augment existing woodland in areas that are currently lacking in cover. Less than 1% of the upland Northumberland has ancient semi-natural woodland. The bracken dominated hillsides provide particularly good areas for this woodland creation.

Pine marten have recently colonised parts of Kielder Forest, which benefits the species, but also offers the potential for a breeding population to expand to Kidland forest and elsewhere. There is potential for a step change in red squirrel conservation due to the recognised effect of pine marten on grey squirrel.

There are a few relict hay meadows with the potential for restoration and looking at other habitats such as verges to create a grassland network into the Cheviot Fringes.

Wilder management of areas such as the Collage Valley provide the opportunities for improved upland mosaics of habitat and benefits to a range of species.

## Northumberland Sandstone Hills

### Description

The Northumberland Sandstone Hills are an arc of hills characterised by generally level tops, north-west facing scarp slopes and craggy outcrops. The wide valleys of the Coquet and Aln rivers pierce this arc of hills, flowing east. The rivers Font and Wansbeck arise in the Northumberland Sandstone Hills and also flow east. The Coquet, Wansbeck, and Font rivers, and the Fell Sandstone Aquifer, part of which underlies the north-western tip of the character area, provide water supply for much of Northumberland,

Heather and grass moorland provide rough grazing of primarily sheep, with limited cattle, on the upper slopes and broad tops of the ridges. A small number of upland estates manage land for red grouse. The chain of moorland is interrupted by a number of extensive conifer plantations. On the lower slopes and valley bottoms improved pasture dominates with some cropping, often broken up by coniferous shelterbelts and blocks.

Quarries are now largely disused.

The moorlands comprise diverse mosaics of dry and wet heath, mires, blanket bog, fens, flushes, acid and calcareous grasslands and waterbodies. Notable areas of ancient semi-natural woodland occur on steeper slopes below the scarp face, along incised burns and on the dip slopes. Nationally important relict stands of juniper are found in a few locations.

## Habitats

The fell sandstone characterises this swathe of Northumberland and provides for a line of hills with crags and intensive areas of heath habitat with pockets of peatland. In the northern end, Holburn Moss is an area of deep peat categorised as a lowland raised mire although more similar to intermediate but constrained mires found at higher altitudes. The moss has some characteristic bog species though is at the drier end of mire habitat.

Important peatland is found more extensively at the southern end of the area with some extensive blanket bogs as well as deeper lenses of peat. Important sites range from SSSI to LWS to no designation. Some of the best examples include the Simonside Hills at Boddle and Caudhole mosses, around Steng Moss and Ottercops, and outlying smaller bogs at sites like Aid Moss and as far south as Folly Moss. Most sites are characterised by typical mire species such as cranberry, cross-leaved heath, bog asphodel and round leaved sundew.

Higher altitude sites have bog rosemary and at Folly Moss is an outlier of white-beaked sedge while dwarf birch has been found on a site near Ridsdale. Large heath is found on many of the mire sites, particularly at the southern end of the area, but also at Holburn Moss.

As with other sites the Simonside Hills SSSI and Bewick and Beanley Moors SSSI have some extensive examples of heathland vegetation, including ling heather, cowberry, crowberry, bell heather, and cow wheat. They also have several rare and important species, e.g., Wilson's filmy fern, cloudberry, and dwarf cornel. In damper areas of 'flush' and mires, heather combines with purple moorgrass and bog myrtle. These mires are important examples of sphagnum bog, exhibiting some of the characteristics of species composition found in the Border Mires. Harbottle Moors is another important area of heathland which is beginning to show natural regeneration of birch species and rowan.

Oak species and juniper woodland can be found at Holystone, both in the North Wood and Burn areas. More birch dominated woodlands can be found around Grassless and Billsmoor Park. These contain wetter woodland areas with alder and willow species. Other ancient-semi natural woodland in the area is often fragmented and constrained to gills of tributary streams.

Calcareous and tufa forming springs as well as associated fens are important in this area, particularly to the south. Good examples can be found around Elsdon with Mill Burn and

Benshaw Moor having particularly good examples. These have an unusual associated flora including bogbean, broad-leaved cottongrass, grass of Parnassus and a range of sedges. Fragrant and early marsh orchids are also present. The fens associated with these springs are often good for small pearl-bordered fritillary with sites around Sweethope, Ottercops and Elsdon being particularly good.

The mid reaches of the Coquet show dynamic processes in the river channel with the connections to its floodplains retained. This leads to some areas with very good examples of fen habitat.

### Key Species

The upland habitats support an important assemblage of breeding waders and moorland species such as red grouse, whinchat, stonechat, and wheatear, as well as uncommon butterfly and bumblebee species such as large heath, small pearl bordered, mountain bumblebee and moss carder bee. Raptors such as hen harrier, merlin, peregrine utilise the moors and crags.

Important relict stands of juniper occur in this area.

The rivers of this area support salmonids, otters, white-clawed crayfish, and water vole.

Red squirrel occur mostly within the conifer blocks. Pine marten are potentially present and ready to expand.

### Threats to Nature Recovery

The major threat to blanket bog from new drainage and afforestation is now largely historic, but here is a risk that further peatland degradation could occur through existing drainage, and continued burning, overgrazing and overcutting. This management on peaty soils of any depth can lead to dwarf shrub and bog habitats that lack structural diversity and the ability to form intricate mosaics with wetlands and scrub, important for many species. Bogs are also threatened by the regeneration of mainly non-native conifer seedlings from surrounding plantations. Some work has been carried out on the Simonside Hills SAC and other surrounding bogs, this is a continued risk across the whole character area, which will need continued attention.

Climate change presents numerous threats to habitats and species alike, and as global temperatures rise the risk of wildfire will increase, threatening heathlands, grasslands, dry peaty soils, conifer plantations and associated species. Water tables will drop in summer months and temperatures will rise in watercourses lacking shade, putting species under stress. Through climate change we should also expect to see a redistribution of species, with species preferring cooler climates moving north, so the potential loss of some north of Tyne species moving to Scotland but the introduction of more southerly species into the area.

Nitrogen deposition and excess accumulation is also having a detrimental effect upon habitats and species and is accepted as one of the main drivers of biodiversity change.

Inappropriate woodland planting or the natural regeneration of self-set seedlings could also encroach onto important open habitat for species such as Curlew and other waders, which, due to a subsequent increase in predators, would lead to further declines in wader populations. Often these grassland habitats have no designations or wildlife protections, so tree planting and management needs to take this into account for this suite of species.

Release and feeding of non-native gamebirds near or on sensitive sites threaten reptile populations and invertebrates.

Invasive non-native species threaten our native wildlife, particularly grey squirrels carrying squirrelpox that threatens the native red squirrels. American mink which predate water vole and a range of other wildlife, and signal crayfish, which threaten our native white-clawed crayfish and quality of river habitats. Other threats include pirri pirri bur and Himalayan balsam.

Native broadleaved woodland creation and opportunities for woodland regeneration are often checked by the large number of roe deer present in the area and potentially by a lack of co-ordinated deer management.

Over-stocking with sheep (set-stocking) suppresses wildflower diversity in grassland and heathlands. A lack of nature-focussed road verge management means that most verges are in floristic decline.

Rapid storm run-off events can affect water quality and cause erosion adding silt in water courses from soil loss in farmed and afforested catchments which can affect invertebrates and spawning grounds for fish. Some watercourses suffer from nutrient enrichment from agricultural run-off and increasing summer temperatures is leading to dangerously high water temperatures which affect salmonids and other native fish. Some of this character area is in the River Coquet SSSI which has seen algal blooms.

### Opportunities for Nature Recovery

There is ample opportunity for peatland restoration, including grip and gully blocking, the restoration of afforested peat where this is viable to do so, and the removal of self-seeded conifer species. Previous removals within Harwood and Holystone Forests have showed this is possible and there are opportunities to restore peat and create broadleaved woodland in a mosaic with conifer forest, blanket bog and heathland in Harwood and other plantations. Agri-environment schemes are one option for funding peatland restoration and can incentivise other changes to management practices that will benefit biodiversity, including to heathland and acid-grassland habitats. The formation of the new Northumberland Peat Partnership will aim to secure funding, undertake initial surveys and

deliver restoration works.

There is also opportunity to create native woodlands and restore and augment existing woodland in areas that are currently lacking in cover. Less than 1% of upland Northumberland has ancient semi-natural woodland but the Grasslees Valley and surrounding areas including Simonside Hills does have some good existing areas that could be linked. The bracken dominated hillsides provide particularly good areas for this woodland creation.

Pine marten have recently colonised parts of Kielder Forest, which benefits the species, but also offers the potential for a breeding population to expand to other areas. There is potential for a step change in red squirrel conservation due to the recognised effect of pine marten on grey squirrel.

There are a few relict hay meadows with the potential for restoration and looking at other habitats such as verges to create grassland corridors.

## Border Moors & Forests

### Description

The Border Moors and Forests area consists of a generally rolling upland plateau intersected by the valleys of the North Tyne and Rede. The area is dominated by tracts of conifer forest to the west and south, and grazed moorland in the north-east. There are two large water bodies in the area, Kielder and Catcleugh, both artificial water supply reservoirs. The highest points in the area are the ridge of hills that form the borders with Cumbria and Scotland.

Land use in the area is dominated by forestry, livestock grazing (particularly sheep), and military training along the northern edge. There is some upland management of heather moorland by burning, and areas of relatively recently planted broadleaved woodland.

The tributaries of the North Tyne and Rede are largely upland in character, joining rivers that broaden and meander through their valleys. The upland streams tend to be prone to spate conditions and the waters are coloured brown through the erosion of upland peaty soils.

The Border Moors and Forests include an exceptional range and extent of mires including upland blanket bog, raised bog and intermediate bogs. Prior to the creation of Kielder Forest, their extent was much greater. Upland heathland is present throughout the area but tends to be more prevalent in the drier north-east. Ancient semi-natural woodland is largely restricted to valley sides. Species-rich grasslands such as upland hay meadows are relatively scarce but include some internationally important examples.

The area is sparsely populated, and this helped result in the extensive planting of large forests during the 20<sup>th</sup> century. At almost 60,000ha Kielder Forest is the largest in England. Large areas of open ground and natural habitat remain within the forest boundary such as the upland areas of Kielderhead and Kielder Western Moors and relicts of ancient woodland as well newer native woodland particularly along stream valleys.

## Habitats

The mires within the Border Moors and Forests NCA are of international importance and form part of what was once, prior to afforestation, the largest continuous tract of blanket bog across Northern England. Peatland restoration has been ongoing for over 50 years on the Border Mires and has included blocking drainage and removing trees. They are important for their extent and exceptional quality, the transitions between blanket bog, raised bog and various kinds of fen, including valley fen and flushes, and the range of topographic situations in which these mires can occur. They support an exceptional range of bog-mosses (Sphagnum moss) and sedges. Although much of the land has been afforested, significant areas of the original bog remain throughout the forested expanse.

The mires show considerable variation across the area. The eastern and higher altitude Kielderhead and Emblehope Moors areas, for example, typically comprise extensive and continuous blanket mire dominated by ling heather and hare's-tail cotton grass with scattered bog mosses. Where the water table is higher, bog-mosses become the dominant vegetation among deergrass and cross-leaved heath. Cloudberry is characteristic of these high bogs.

In west Northumberland (and into east Cumbria) the lower altitude Butterburn Flow and adjacent mires are a complex of more scattered sites that comprise both raised mires formed in basins and intermediate mires on wetter higher ground, which are transitional to blanket bog. These have a very high cover of bog-mosses with scattered sedges and dwarf shrubs including cranberry and bog rosemary. Typically, the surface of the bogs has a patterning of hollows and ridges with different species exploiting these microhabitats.

There are also a range of other characteristic mire types including base-rich and base-poor valley fens, springs and flushes. The valley fens which support species that require more water movement than the rain-fed blanket mires including marsh cinquefoil, bogbean and common sedge. Vegetation that requires mineral-rich flushing, often from calcareous rocks, are also an important feature associated with these mire complexes and include a range of typical lime-loving bryophytes and other plants including sedges such as dioecious sedge, lesser clubmoss, and butterwort. Such communities are also found elsewhere on sloping ground in the NCA.

Important examples of ancient semi-natural woodland are present in the NCA. Sections associated with narrow river valleys and gorges of the River Irthing on the Cumbria border, Houxyty and Warks Burn and around Hareshaw Linn, feeding into the



North Tyne. Smaller relicts also occur in areas such as the Tasset Burn and scattered locations around Kielder Forest. These are typically diverse woodlands, reflecting the varied underlying geologies that the watercourses cut through, and often include cliffs and rocky outcrops.

Oak-birch woodland typically occurs on the drier acidic soils of the upper slopes of the woods where greater wood-rush can dominate the woodland floor with deeper soils supporting hazel and a richer ground flora of wood sorrel and ferns. Deeper and richer soils are dominated by ash, sessile oak, downy birch, some remnant wych elm and hazel and a species-rich ground flora including ramsons and dog's mercury. Wetter areas are dominated by alder woodland often with other trees including bird cherry and a ground flora that can include marsh hawk's-beard and bugle.

Some of the woodlands in the NCA are nationally important for lichens, mosses and liverworts associated with the cool, damp, and unpolluted air of western Britain. These include relicts of ancient woodland in Redesdale at Dead Wood, and the SSSIs at Hesleyside and Hareshaw Linn.

Nationally important upland hay meadows are present in the NCA particularly in the valley of the North Tyne. These are variable in species composition depending on the nature of individual fields but are always diverse and typically support grasses such as sweet vernal grass and crested dog's-tail with herbs including melancholy thistle, wood cranesbill, pignut, and lady's mantles. These grasslands typically include flushed ground which can support communities described below.

Important examples of species-rich grassland are also present, and these can include meadows managed for hay. These are very variable and can be dominated by a range of rushes, sedges, and grasses where flushed, including purple moor-grass and jointed rush. Devil's-bit scabious, globeflower, northern hawk's-beard and northern marsh-orchid are typically present, often on steep banks or the crests of slopes. Drier ground can support heath-grass, burnet saxifrage and zigzag clover.

Water flows of the two main rivers, the Tyne and Rede, are moderated by upstream reservoirs but both are particularly important for freshwater pearl mussels.

The crags of this area support good lichen communities. At Muckle Samuel's Crags LWS, a nationally recognised community of lichen (50-60 species) is found, including the nationally rare *Bryoria nadvornikiana* and the nationally scarce *Cladonia cocifera*.

### Key Species

Upland habitats like blanket bog, heathland and mire support an assemblage of rare plants such as greater sundew, white beaked sedge and butterflies including large heath and bumblebees such as mountain bumblebee, as well as black grouse, breeding waders and raptors including hen harrier.

The wetland and waterway habitats support species like otter, water vole, salmonids, white-clawed crayfish, and freshwater pearl mussel. Osprey has been a recent arrival back into the area and successfully utilise nesting platforms around Kielder Forest, over 100 ospreys have fledged since they arrived back.

Important farmland bird species are associated with the agricultural landscape which lies around the fringes of the afforested areas.

Red squirrels utilise the vast tracts of conifer plantation, Kielder Forest provides for the largest population of any forest in England. The habitat offers a degree of protection from grey squirrels and squirrel pox disease. Pine martens are also found within the forest alongside other species such as goshawk.

### Threats to Nature Recovery

The major threat to blanket bog from new drainage and afforestation is now largely historic, but there is a risk that further peatland degradation could still occur through existing drainage and continued burning, overgrazing and overcutting. This management on peaty soils of any depth can lead to dwarf shrub and bog habitats that lack structural diversity and the ability to form intricate mosaics with wetlands and scrub, important for many species. Peatland degradation will still occur where the replanting of productive conifer crops on peatland sites takes place and bogs are also threatened by the regeneration of mainly non-native self-set conifer seedlings arising from nearby plantations. Lots of work on designated sites such as the Border Mires and other bogs has taken place, but this is a continued risk across the whole character area, which will need ongoing attention.

Climate change presents numerous threats to habitats and species alike, and as global temperatures rise the risk of wildfire will increase, threatening heathlands, grasslands, dry peaty soils, conifer plantations and associated species. Water tables will drop in summer months and temperatures will rise in watercourses lacking shade, putting species under stress. Through climate change we should also expect to see a redistribution of species, with species preferring cooler climates moving north, so the potential loss of some north of Tyne species moving to Scotland but the introduction of more southerly species into the area.

Nitrogen deposition and excess accumulation is also having a detrimental effect upon habitats and species and is accepted as one of the main drivers of biodiversity change.

Inappropriate woodland planting or the natural regeneration of self-set seedlings could also encroach onto important open habitat for species such as Curlew and other waders, which, due to a subsequent increase in predators, would lead to further declines in wader populations. Often these grassland habitats have no designations or wildlife protections, so tree planting and management needs to take this into account for this suite of species.

Release and feeding of non-native gamebirds near or on sensitive sites threaten reptile populations and invertebrates.

Invasive non-native species threaten our native wildlife, particularly grey squirrels carrying squirrelpox that threatens the native red squirrels. American mink which predate water vole and a range of other wildlife, and signal crayfish, which threaten our native white-clawed crayfish and quality of river habitats. Other threats include piri piri burr and Himalayan balsam.

Native broadleaved woodland creation and opportunities for woodland regeneration are often checked by the large number of roe deer present in the area, and potentially by a lack of co-ordinated deer management.

Over-stocking with sheep (set-stocking) suppresses wildflower diversity in grassland and heathlands. A lack of nature-focussed road verge management means that most verges are in floristic decline.

Some watercourses suffer from nutrient enrichment from agricultural run-off and increasing summer temperatures is leading to dangerously high-water temperatures which affect salmonids and other native fish. Silt in water courses from soil loss and run-off in farmed and afforested catchments will affect freshwater pearl mussels and invertebrates.

### Opportunities for Nature Recovery

There is ample opportunity for peatland restoration, including grip and gully blocking, the restoration of afforested peat where this is viable to do so, and the removal of self-seeded conifer species. Agri-environment schemes are one option for funding peatland restoration and can incentivise other changes to management practices that will benefit biodiversity, including to heathland and acid-grassland habitats. The formation of the new Northumberland Peat Partnership will aim to secure funding, undertake initial surveys, and deliver restoration works.

Following on from decades of successful partnership working to restore the Border Mires by the Border Mires Partnership, there is further scope to improve habitats such as lag zones, which have had less focus than raised mire or blanket bog due to their smaller size.

The large scale of the publicly owned forest estate provides further opportunity for management at landscape scale including the change to consider introductions of species appropriate for the area. Existing native woodland planting in Kielder is ongoing, with the opportunity to establish a network of broadleaved corridors, and as productive afforested sites are felled more areas are being restructured to include open space or open native broadleaved woodland, enhancing riparian zones, creating wildlife corridors and softened forestry edges suiting species such as nightjar and black grouse. There are further opportunities through a strategic approach to afforestation and restocking in the area.

Restoration of riparian habitat in Kielder Forest has enabled the reintroduction of water voles; expansion of this work to carry out wider water vole reintroductions along the North Tyne would be beneficial. This can only be done if effective American mink monitoring and control is carried out.

Pine marten have recently colonised Kielder Forest, which benefits the species, but also offers the potential for a breeding population to expand throughout Northumberland and Cumbria. There is potential for a step change in red squirrel conservation due to the recognised effect of pine marten on grey squirrel.

The presence of the salmonid hatchery at Kielder provides opportunities for conservation of these species, as well as ongoing work on freshwater pearl mussels aimed at appropriate reintroductions.

Changes in farming practices in large upland areas such as Kielderhead and Whitelee Moor NNRs, alongside further work along the principles adopted on the Kielder Wildwood project and peatland restoration, should enable nature recovery in these large upland areas.

Past pressures have had some lasting impacts to the rivers of this area, e.g., the over-deepening of the Rede. This had led to changes in flow and flow dynamics and signifies the need for targeted restoration where required.

## Mid Northumberland

### Description

This intermediate upland fringe plateau comprises a series of ridges and river valleys in the north, opening out into a broader, flatter landform in the south and east, and is a transitional landscape between the hills of the west, the Tyne Valley to the south, and the coastal plains to the east.

The rivers Coquet, Wansbeck, Font, Blyth, and Pont all flow east out of the area to the coastal plain. In the south-west, small tributaries of the North Tyne flow south and west to join the Tyne. The flashiness of the Coquet in response to high rainfall can cause flooding in mid Northumberland. A few large reservoirs and ornamental lakes provide distinctive areas of open water, otherwise uncommon in Northumberland.

Small coniferous blocks can be found on the open farmland to the south. Arable and cattle farming are predominant on the lower land, where fields are enclosed by hedgerows; at higher altitude sheep-farming and fodder crops are characteristic, and large fields are generally enclosed by stone walls. There are major active hard rock quarries, and some small building stone quarries.

Much of the woodland is found along the river valleys and stream sides. Other semi-natural habitats are only found in small patches across the NCA. The most notable site is Longhorsley Moor which retains an important remnant of lowland heath. Both upland and lowland calcareous grassland patches are found in the area along limestone outcrops.

## Habitats

Broadleaved woodland, mainly mixed oak woodlands, is found along the river valleys and stream sides. In these areas, such as the Coquet and Wansbeck valleys, alder trees are common. The low proportion of tree cover across the area as a whole means that these areas are very important for supporting populations of a number of bird and bat species.

Other semi-natural habitats are only found in small patches across the NCA. The most notable site is Longhorsley Moor SSSI which retains an important remnant of lowland heath, and is a mosaic of ling heather, bracken, acid grassland and gorse communities with areas of birch dominated woodland.

Shaftoe Crags LGS is a small remnant fragment of upland habitat, where bracken, heather, rushes, and sedges dominate the crags. The crags also support good epiphytic lichen flora, including the uncommon *Lasallia pustulata*.

Both upland and lowland calcareous grassland patches are found in the area along limestone outcrops in the landscape, notably at Ryal.

A small number of species-rich hay meadow grassland exists in pockets around this area, with a notable example at Smallburn LWS. Whin Sill outcrops provide for patches of Whin grassland, especially around Great Bavington and Gunnerton Nick. Barrasford Quarry LWS and Divet Hills and Clay Walls LWS are also designated for their Whin Sill grassland outcrops.

Other species-rich grassland is largely restricted to fragments in a wider farmed landscape, and most are undesignated though have potential for improvement.

Wetland habitat is rare in Mid Northumberland. At Benbridge Bog LWS, fen habitat sits around the edge of a small area of alder and willow carr. Waterbodies in the area include reservoirs such as Hallington and Whittle Dene, and small lakes such as Capheaton and Rayburn. These sites support good numbers of breeding wildfowl and other wetland species, such as black-necked grebe. They also support unusual plant species like slender-leaved pondweed.

A major part of the Wansbeck is in the area, which has good sinuous form in its upper reaches. This river is particularly important for its population of white-clawed crayfish, which is considered the longest and densest population in the UK in the country. Upper sections of the Blyth and its tributaries also contain white-clawed crayfish, although

invasive non-native signal crayfish are now present in this catchment.

### Key Species

The numerous rivers that pass through this area support several key species, including white-clawed crayfish and salmonids. The ponds support nationally important breeding birds like black-necked grebe, and also great crested newts.

Red squirrels utilise both the native broadleaved woodland and the conifer plantations.

### Threats to Nature Recovery

Numerous invasive non-native species threaten our native ecosystems, but of particular concern in this area is the incursion of signal crayfish, which threaten the native crayfish population.

Agricultural run-off leads to the pollution of rivers and streams, which impacts the river ecosystems.

Inappropriate grazing regimes on key grasslands threatens sward diversity and impacts the wider ecosystem as a result.

Water transfers from the Tyne to Whittle Dene via the Pont can provide vectors for movement of invasive species between catchments.

Signal crayfish, or crayfish plague, being transferred into the Wansbeck catchment is an ongoing threat to the white-clawed crayfish population and overall river quality.

### Opportunities for Nature Recovery

Longhorsley Moor is one of the last remaining relicts of lowland heathland in Northumberland and would benefit from restoration works to restore the site to its original extent.

There are remnants of lowland grassland habitat across the area, and opportunity exists to restore or recreate more of this habitat, particularly among the intensive farmland in the lower reaches. At the floodplains, wet grassland creation would be beneficial for a host of species, including breeding and wintering waders.

There is significant opportunity for woodland creation in this area, focussed in the areas identified as low sensitivity such as improved grassland where woodland creation would bring a significant gain for biodiversity as well as a range of other environmental benefits such as carbon sequestration, flood risk mitigation and improved water quality. There are also opportunities to improve the management of and expand the small proportion of existing woodland in this area. In wetter areas, this could be delivered via the creation of

wet woodlands. Well managed species-rich hedgerows, both restored and newly planted, could also provide an important link between woodlands.

River restoration works, particularly to the Blyth and Pont, where they have been subject to degradation through land drainage and have been significantly straightened and deepened in places. Better floodplain management, natural flood management schemes and the creation of natural flood storage areas will recreate or enhance habitats and benefit a number of species and boost connectivity.

Agri-environment schemes exist to incentivise changes in land management practices that will benefit nature across.

## South East Northumberland Coastal Plain

### Description

South East Northumberland Coastal Plain features a wide, low-lying coastal plain with widespread urban and industrial development. Sweeping sandy beaches and rocky headlands remain with sand dunes behind. These habitats lie within a largely developed coast, along with mudflats and salt marshes in river estuaries. The major rivers of Blyth, Coquet and Wansbeck meander across the landscape from west to east, often flowing through steeply incised wooded river valleys.

Opencast coalmining was a major feature of much of this area, and early restoration of sites has created tracts of relatively featureless agricultural land with strips of plantation. Large, open arable fields are interspersed with pastures on the reclaimed soils.

This area has a rich history of mineral extraction, resulting in frequent areas of open water and wetland in areas of mining subsidence and as features within restored landscapes. There is limited woodland cover, with broadleaved woods on steeper valley sides and within estate parkland, and prominent blocks of mixed and coniferous woodland on reclaimed mining sites. Fragments of lowland heath, bog and fen can be found inland. Wind-blown sand forms a long line of dunes along the coast, and saline lagoons are found behind the dunes around Druridge Bay.

The southern part of this area becomes more built up, particularly the south and east. Within Newcastle and North Tyneside, the open spaces are increasingly dominated by brownfield sites or areas used for golf or other recreation.

### Habitats

This area extends from the estuary of the Coquet to Newcastle and North Tyneside. The area below mean high water and the offshore islands are described as part of the Coquet

to Tyne marine protected area<sup>7</sup>.

Wind-blown sand forms a long line of dunes along the coast, most notably at Druridge Bay but also in sections around Seaton Sluice and Blyth. Examples of embryonic, mobile, and fixed dunes are all found. Examples of dune slacks are found in places such as Hadston Links and support a number of wetland species. Saline lagoons are found behind the sand dunes around Druridge Bay. More stable dune grasslands contain species such as dyer's greenweed and lesser butterfly orchid.

One of the most significant natural habitats in the area is the lowland raised bog and associated fen and wetland habitats at Prestwick Carr SNCI. Fen also occurs at Clark's Bog near Morpeth, and at Pegwhistle Fen LWS, on the Pegwhistle Burn. The latter supports globeflower, northern marsh-orchid, marsh valerian and bogbean.

Extensive areas of reedbed are found at East Chevington with smaller sections on all the other Druridge Bay nature reserves. These reedbeds provide critical habitat for nationally important breeding birds such as marsh harrier and bearded tit. Another important extent of reedbed is at Gosforth Park (parts SSSI & LWS).

Subsidence ponds and associated wetlands, a direct impact of mining, are a prominent feature of the landscape and include long established ponds (such as Holywell Pond SSSI and Big Waters SSSI) and newly forming areas such as Coneygarth Pond LWS. Within developed areas, landscape and amenity ponds and lakes also have an important role to play and support important populations of species such as great crested newt.

Wet grassland occurs within this area, notably at Druridge Pools and Potland Burn. This habitat is also important for a number of breeding nationally important bird species, e.g., lapwing. Species-rich neutral grassland occurs at Willowburn Pasture and Hawthorn Cottage Pasture SSSIs, and at Potland Burn LWS. Fragments of lowland heath and meadow are located at Arcot Hall, Gosforth Park (SSSI/LWS), Havannah Pit LWS and Newbiggin-by-the-Sea.

The River Coquet along the northern border of the area is an SSSI for a variety of interests including its vegetation, use by birds, aquatic invertebrates, and migratory fish. Together with the Blyth and the Wansbeck, these rivers are particularly significant for their use by otters, water voles, and the native white clawed crayfish, all of which are important species nationally.

Ancient Semi-Natural Woodlands, and other native woodlands, are found along the river valleys of the Coquet, Blyth, Pont, and Wansbeck. The Coquet valley has several woodlands that are long established, relatively unmodified by planting and retain semi-natural plant communities. There are few such woodlands now remaining in Northumberland, and most are confined to steep river valleys, as along the Coquet below Rothbury. Much of the woodland immediately adjacent to the river is characterised by

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<sup>7</sup> Note, all the off-shore islands in Northumberland are part of the statutory LNRS, as they are above mean high water.



alder, occasionally associated with ash or willow species. The wetter woodlands of this area are an important refuge for willow tit. Red squirrels are found in many of the woodlands.

### Key Species

The lowland wetlands of this area are important for breeding and wintering wildfowl and waders. The rivers, streams and waterbodies support otter, water vole, white-clawed crayfish, and great crested newt.

The agricultural landscape supports breeding farmland birds, and brownfield sites support dingy skipper butterfly.

Red squirrel utilise the woodlands of this area.

The woodland corridors and waterbodies are important to a number of bat species.

Gosforth Park Nature Reserve contains the second largest colony of coralroot orchids in England, and the only known extant population of water voles in Newcastle or North Tyneside.

### Threats to Nature Recovery

Pollution from agricultural run-off can affect the water quality of rivers and streams, which impacts on the riverine ecosystems. The main pollutants are chemicals and silt, the latter is a particular problem in autumn after heavy rain.

Invasive non-native species, like signal crayfish in adjacent rivers to the Wansbeck, and Himalayan balsam on the riverbanks, threaten our native flora and fauna.

Unstable ex-opencast soils are vulnerable to loss and the restoration often contains deep straight ditches making them prone to erosion.

There is significant housing and industrial development pressure within this area, particularly in the south and east.

Constraints to habitat creation exist around Newcastle Airport.

Since winter 2021/2022, Highly Pathogenic Avian Influenza (avian flu) outbreaks have become more vigorous, and tens of thousands of birds are thought to have died. This has been a particular issue for seabirds, notably guillemots, terns, kittiwakes, large gulls and puffins.

## Opportunities for Nature Recovery

Wet grassland creation and restoration around flood plains and in coastal areas.

Lowland neutral grassland creation can be achieved to provide room for wildlife amongst the agricultural land uses in this area.

Opportunities for further reedbed creation. Areas of former opencast workings where large ponds have been created could be ideal for reedbed expansion.

Woodland restoration and/or creation. Linking existing woodlands with native planting would have most value, along with the creation of wet woodlands around flood plains. The southern part of this area is within the North East Community Forest. There is significant opportunity here for new woodland creation to deliver biodiversity and a range of other environmental and social benefits. Similar woodland creation opportunities existing in the rest of this area on land that it currently of low biodiversity value to deliver biodiversity and a range of other environmental benefits.

Pond creation to expand the distribution of great crested newts is already happening through the District Level Licencing scheme but could be expanded in future to create better links across the area.

Opportunities within the urban area to expand and improve green infrastructure, with bird and bat structures built into new development. Transport corridors, if managed/created with wildlife in mind, can provide valuable linkage.

Flood risk management in this area can be done in a way that enhances nature.

Agri-environment schemes, and the introduction of Biodiversity Net Gain, both provide excellent financial incentive for landowners to change their land management practices in order to benefit biodiversity. Biodiversity Net Gain is particularly applicable as this area, given the development pressures.

## Coquet to Tyne marine protected area

### Description

The Coquet to Tyne marine protected area extends from Alnmouth down to the southern boundary of North Tyneside at the Tyne Estuary. It largely comprises the Northumberland section of the Coquet to St Mary's Marine Conservation Zone (MCZ) together with the estuaries of the Blyth, the Wansbeck, and the Tyne. This area also includes the Coquet Island Special Protection Area (SPA), parts of the Northumbria Coast and the Northumberland Marine SPA, and the southern half of the Berwick to St Mary's MCZ. In addition to its wildlife interest, the coast contains important geological exposures of Coal

Measures strata and of Quaternary peat.

This zone contains a nationally important mosaic rock, sand, and mud habitats and internationally significant breeding and feeding locations for coastal birds. The coast in this area is more urban and industrial in character than that to the north and is adjacent to centres of population in South East Northumberland and Tyne & Wear. The area is well used for coastal recreation and water sports and is still actively fished, both recreationally and commercially. Shellfish, such as crab and European lobster, form an important part of the local commercial fishery. There is growing renewable industry located at Blyth, which includes offshore wind development.

## Habitats

The habitats of the Coquet to Tyne marine protected area are characterised by a range of rock and sediment types. Rock habitats range from examples of rocky shore in the intertidal zone through to permanently submerged areas of reef in deeper water. The marine life that these areas support vary depending on their exposure to waves, tides, and currents.

Intertidal areas of rock and boulder support molluscs such as periwinkles and limpets and brown seaweeds such as bladder wrack. Rockpools are common in the intertidal zone. Also found here are intertidal under boulder communities which provide a refuge to creatures such as sea squirts, sea mats, sponges, seaslugs, and brittlestars. Beds of kelp can be found where rock continues into the shallow sea. These provide shelter for an array of species, including juvenile fish. In deeper waters the kelp disappears as daylight becomes weaker and gives way to animals such as sponges, anemones, crabs, lobsters, and sea squirts.

Rocky areas of shore are frequently backed by areas of sea-cliff which are used by breeding seabirds such as kittiwake and fulmar.

Sediment habitats are found in both the inter-tidal and sub-tidal areas and are made up of various mixtures of sands, gravels, pebbles, and mud. These are important for the marine animals that they support, which include worms, bivalves, starfish and urchins, anemones, sea fans, sea mats, and fish such as sandeels and flounder. The types of animals found are influenced by environmental factors such as sediment composition, water depth, tides, and currents.

## Key Species

The Coquet Island SPA holds internationally significant populations of breeding seabirds, most notably holding the largest colony of roseate tern in Britain. Other important seabirds which breed on the island<sup>8</sup> include Arctic tern, common tern, sandwich tern, puffin, and

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<sup>8</sup> Note, all the off-shore islands in Northumberland are part of the statutory LNRS, as they are above mean high water

eider. These birds rely on the adjacent area of sea for food for themselves and their chicks. In late summer, following breeding, roseate tern use other parts of the coast such as St Mary's Island to gather and feed prior to their migration.

Coquet Island is one of the most important breeding sites for eider on the English coast. Eider winter along the Northumberland coast in nationally significant numbers. The Coquet to Tyne marine protected area is also important for wintering waders, who feed on rocky shores and other intertidal areas. Significant coastal waders include purple sandpiper and turnstone, which may be found roosting or feeding on artificial coastal structures such as piers.

The coastal waters in this area are used by white-beaked dolphin and sighting of bottlenose dolphin have increased in recent years. Grey seal can also be found within the Coquet to Tyne marine protected area, although their main breeding locations are found in north Northumberland.

Migratory fish such as salmon and trout are found in coastal waters as part of their live cycle. Shellfish such as lobster and brown crab are important commercial species locally. This section of the coast also provides spawning or nursery areas for fish species such as for cod, plaice, and sandeel species.

The subtidal habitats in this area support a diverse range of marine invertebrates. Notable species include the Arctic cushion star and the sea spider.

### Threats to Nature Recovery

Human disturbance from coastal recreation and other activities can impact on breeding and wintering birds, leading to reduced survival or productivity and the avoidance of certain areas. Recreational activities are a major source of disturbance on the coast and are likely to be exacerbated by high levels of new housing development.

The creation of new coastal infrastructure, and the management of existing infrastructure, has the potential to impact on the marine environment through direct loss of habitats, alterations to habitat structure, changes to coastal processes and water movement, and disturbance to species.

There remains legacy of historic industries and infrastructure, for example through water quality issues caused by former mine workings or through hard structures such as the Wansbeck Barrage. The former landfill site at Lynemouth is actively eroding into the sea and is subject to remedial action.

Diffuse pollution remains an issue for coastal waters with intertidal habitats such as mudflat suffering from problems caused by excess nutrients.

There is an increasing use of tyres as bait aggregation devices on areas of intertidal

sediments. The full impact of these is still being assessed but there may be issues of habitat loss, changes to water flow, impacts on water quality, and of disturbance.

This section of coast currently has a low incidence of marine invasive non-native species but the introduction of these remains a significant threat to the health of marine habitats and ecosystems.

Climate change remains a significant threat to marine and coastal habitats and to breeding seabirds. Habitat losses are predicted through sea-level rise and coastal squeeze, and changes in species distribution (including the distribution of key prey species) may alter because of increased sea temperature.

Plastic pollution and marine litter cause a hazard to marine life through ingestion and entanglement. Sources of plastic pollution include local littering from beach visitors and 'ghost gear' from the fishing industry. Many plastic items may also originate miles inland and find their way to the coast through waterways and the domestic sewage system.

Since winter 2021/2022, Highly Pathogenic Avian Influenza (avian flu) outbreaks have become more vigorous, and tens of thousands of birds are thought to have died. This has been a particular issue for seabirds, notably guillemots, terns, kittiwakes, large gulls and puffins. At Coquet Island, more than half of the roseate tern population was lost to the disease in 2022.

High nutrient loading in estuaries and lack of intertidal habitat such as saltmarsh and littoral mud reduces the amount of carbon and nutrient processing/fixing required for habitats to be ecologically functional and supply associated ecosystem services.

### Opportunities for Nature Recovery

There is potential to restore, expand and create new areas of habitats such as saltmarsh, mudflat seagrass beds, kelp, and native oyster beds. Areas with potential for habitat creation and restoration have been mapped by organisations such as the MMO and Environment Agency and more work is taking place locally to refine this. As well as providing new areas for wildlife, habitat creation can mitigate against the impacts of climate change (such as coastal flooding) and act as 'Blue Carbon' reserves through the sequestration and storage of atmospheric carbon dioxide.

Additional artificial roosting sites can be created for coastal birds. Habitat suitable for breeding shorebirds can be created or improved through management interventions delivered through initiatives such as Space for Shorebirds.

Habitat creation and restoration within wider river catchments can help to reduce the impacts of diffuse pollution and historic mine-water pollution on the inshore marine environment.

An eco-engineering approach can be used on new and existing coastal infrastructure to increase its value as wildlife and promote colonisation by marine organisms.

New coastal infrastructure can be designed to incorporate biosecurity measures to reduce the likelihood of introduction of invasive non-native species, for example by providing washdown facilities for boats or creating areas of marinas or ports, which can be rapidly quarantined if required.

# Tyne Gap & Hadrian's Wall

## Description

This narrow, distinctive corridor running east-west is centred on the River Tyne and separates the uplands of the North Pennines from the Border Moors and Forests and the Northumberland Sandstone Hills. To the north-west of the Tyne, flood plains give rise to steep valley sides and the classic hilly landscape associated with Hadrian's Wall country.

The River Tyne and its tributaries flow west to east down the valley and are an important source of drinking water. Water levels are maintained by a water transfer system which captures and diverts water from the adjoining uplands. Downstream, flooding, and diffuse pollution can occur during periods of heavy rainfall.

In the upland areas, cattle, and sheep graze large areas of rough pasture. In the valley, farmland is dominated by arable fields and intensively grazed pasture. Blocks of conifer plantation are found throughout. There are a small number of active quarries, mainly used for sand and gravel extraction.

Broadleaved woodlands are generally limited to the steep slopes of the river valleys. On the higher land, there are extensive coverings of peat where this character area bounds the Border Moors and Forests NCA. Smaller, constrained mires have formed in hollows between the limestone, sandstone, and whin ridges. Wetter mires often occur at lower levels where they are fed by run-off and water collection. Rush-pasture occurs in a mosaic of grassland and is attractive to breeding waders.

Natural waterbodies (glacial loughs) have formed in several hollows in the ridged landscape and provide breeding and wintering areas for wildfowl. The whin sill outcrops support specialised flora, and near the South Tyne, rare riverine calamarian grasslands are of national interest.

## Habitats

Along the valley of the River Tyne, including the lower stretches of the Rivers North and South Tyne, much of this area is farmland. To the north and south the area extends up the valley sides to the area around Hadrian's Wall on the north and flank of the North Pennines to the south.

Broadleaved woodlands are generally limited to the steep slopes of the river valleys, in particular the North Tyne but also in smaller tributaries such as the Haltwhistle Burn and Honeycrook Burn. To the east, Whittle Dene (LWS) and Horsley wood are mixed woodlands, designated as ancient woodland sites. Most of the woods comprise both sessile and pedunculate oak but associated species in the upland areas include birch species, hazel, rowan, and bird cherry. In the lower reaches, ash is more common and

introduced sycamore a frequent coloniser. Alder is typical of the upland woods on the stream sides. The range of bird species supported by these woodlands includes pied flycatcher, redstart, wood warbler and tree pipit. At the eastern end of the area woodlands around Prudhoe are dominated by oak with birch and invasive Norway and Sycamore.

On the higher land mire and bogs form lenses of peat in wet hollows, with the dominant vegetation being bog-mosses, ling heather and cross-leaved heath. Wetter mires include sites like Muckle Moss NNR, and other mires immediately north and south of Hadrian's wall, such as Fozy and Hangingshields Rigg mosses. On the mires where there are shallower peat deposits that have been managed or disturbed, purple moor grass dominates. Several upland bird species are supported by blanket bog or mire, notably raptors and waders and nationally rare invertebrates including flies, spiders and beetles are associated with blanket mire and bog pools. Large heath is found on many of these bogs.

Some heathland areas occur, often close to the areas of mire, particularly around Muckle Moss and Hadrian's Wall but also on land south of Hexham. Grass moorland swards are usually species-poor and purple moor grass, mat grass, bents and fescues are the dominant grass species, and these occur in more upland areas outside the heath habitats.

Rush pasture is important in the area, principally for the breeding birds that it supports. It occurs as a mosaic of acid and neutral, wet, and dry semi-improved grassland as enclosed land around settlements and farms on the lower hills and in valley bottoms. It is often grazed by cattle and sheep, at varying densities. Characteristic species include bents, fescues and crested dog's-tail, with wetter areas containing various sedges, rushes, moor grass and tufted hair grass. The structure of the sward is attractive to breeding waders including redshank, lapwing, curlew, and snipe. If unimproved, and containing areas of wet flushes, rush pasture supports large invertebrate populations, an important food resource for waders and black grouse chicks.

There is a series of mostly shallow loughs around Hadrian's Wall including Greenlee, Broomlee, Grindon and Crag Loughs. They are of international importance for their wetland interest, being predominantly open water and characterised by associated habitats including reedswamp, fen and basin mire. They also support aquatic invertebrates and lower plant species, providing breeding and wintering areas for wildfowl such as whooper swan, goldeneye, teal and wigeon.

The Whin Sill outcrops to the northeast of the area forming a series of rugged, undulating escarpments. Vegetation on these thin soils supports specialised flora often occurring as a mosaic with species characteristic of calcareous grassland. Some species found on the exposures are long-stalked cranesbill, hairy stonecrop, and maiden pink, with thyme and common rockrose.

Calaminarian grassland is found in pockets along the Tyne and South Tyne in places such as Beltingham. These habitats are home to unusual species including alpine penny-



cross, spring sandwort, mountain pansy and thrift. In more wooded areas dune helleborine is found.

Species-rich meadows are uncommon in this area, with South Close Field, near Riding Mill, one of the better examples. The meadow contains common grassland species such as pignut, autumn hawkbit and oxeye daisy but has a very high species diversity.

The Spetchells, near Prudhoe, provides a unique grassland habitat. These post-industrial chalk mounds give rise to chalk grasslands, which are a valuable habitat. This site supports a good assemblage of butterfly species, including dingy skipper.

The area is defined by the Tyne and the lower stretches of its tributaries. These waterways support threatened species such as otter, water vole and freshwater pearl-mussel, with white-clawed crayfish in some of the loughs and adjacent streams. Bird species such as dipper, goosander also make use of the rivers and burns, They show a distinctive zonation from wild upland streams to wide, slow-moving meandering river with abundant aquatic and bankside vegetation.

### Key Species

The upland habitats of the Tyne Gap & Hadrian's Wall support good assemblages of birds including black grouse, breeding waders, and raptors. The riverine grasslands provide habitat for breeding and wintering wildfowl and waders. Important farmland birds are associated with the farmed environment.

The rivers, streams and waterbodies support salmonids, water voles, freshwater pearl-mussels, white-clawed crayfish, river jelly lichen and osprey.

The glacial loughs are important for aquatic flora, including pondweed and stonewort species.

The last known population of hazel dormice in Northumberland was recorded at Briarwood Banks/Allen Banks woodland, straddling the boundary between the North Pennines and Tyne Gap & Hadrian's Wall NCAs. The status of this population is currently unknown.

The bog habitats support large heath butterfly, and Northumberland is an important stronghold for this species nationally.

Waxcap and related grassland fungi are found along the Roman Wall grasslands, some sites supporting nationally and internationally significant assemblages of species.

## Threats to Nature Recovery

The major threat to blanket bog from new drainage and afforestation is now largely historic, but there is a risk that further peatland degradation could still occur through existing drainage and continued burning, overgrazing and overcutting. This management on peaty soils of any depth can lead to dwarf shrub and bog habitats that lack structural diversity and the ability to form intricate mosaics with wetlands and scrub, important for many species. Peatland degradation will still occur where the replanting of productive conifer crops on peatland sites takes place and bogs are also threatened by the regeneration of mainly non-native self-set conifer seedlings arising from nearby plantations. Some work has been carried out close to the edge of Wark forest, this is a continued risk across the whole character area, which will need ongoing attention.

Climate change presents numerous threats to habitats and species alike, and as global temperatures rise the risk of wildfire will increase, threatening heathlands, grasslands, dry peaty soils, conifer plantations and associated species. Water tables will drop in summer months and temperatures will rise in watercourses lacking shade, putting species under stress. Through climate change we should also expect to see a redistribution of species, with species preferring cooler climates moving north, so the potential loss of some north of Tyne species moving to Scotland but the introduction of more southerly species into the area.

Nitrogen deposition and excess accumulation is also having a detrimental effect upon habitats and species and is accepted as one of the main drivers of biodiversity change.

Agricultural run-off is polluting rivers and streams, which impacts the riverine ecosystem.

Inappropriate woodland planting or the natural regeneration of self-set seedlings could also encroach onto important open habitat for species such as waxcaps, Curlew and other waders, which, due to a subsequent increase in predators, would lead to further declines in wader populations. Often these grassland habitats have no designations or wildlife protections, so tree planting and management needs to take this into account for this suite of species.

Invasive non-native species have the potential to endanger native species, particularly signal crayfish, which threaten our native, white-clawed crayfish. Himalayan balsam is widespread along the Tyne and South Tyne and cotoneaster threatens the unique grassland habitat on the Spetchells. Giant hogweed is also present along the Tyne.

Rapid storm run-off events can affect water quality and cause erosion adding silt from soil loss in farmed and afforested catchments. This can affect invertebrates and spawning grounds for fish and also add nutrients such as nitrogen and phosphorus into watercourses and the Roman Wall Loughs affecting the aquatic and marginal plants.

## Opportunities for Nature Recovery

There are opportunities for peatland restoration, including grip and gully blocking, and removal of self-seeded conifer species. The formation of the new Northumberland Peat Partnership will aim to secure funding and deliver restoration works.

Woodland restoration/creation, in the appropriate areas, would be beneficial, particularly to link up existing blocks of native habitat and provide wildlife corridors, or to create wet woodland on flood plains. The main woodland creation opportunities are in the lower lying areas and cleughs, in particular in the areas that have been identified as low sensitivity for waders and species-rich grassland.

Opportunity to improve the quality of the loughs through wider catchment works, including addressing pollution and investigating re-naturalisation of inflows and out flows.

Conservation measures, including reinforcement/reintroduction, for the benefit of hazel dormice, to maintain the presence of this species in the region.

## North Pennines

### Description

The North Pennines NCA within Northumberland, at the northern end of the Pennines, forms a distinct area of upland moorland plateaux divided by broad dales.

The moorlands are largely managed for sheep grazing and grouse shooting. Livestock also graze the extensive areas of grass moorland, allotment, and pasture on the hillsides. Across the broad dales, sheep and cattle are reared on in-bye pastures and meadows.

The western half of the area is characterised by some of the highest and most exposed moorland summits in England. Several major rivers rise in this upland block including the South Tyne, East and West Allen rivers, Devil's Water and the Derwent. Most of the area is designated as a National Landscape.

The North Pennines NCA is highly designated, including SSSIs, the North Pennines Moor Special Protection Area (designated for breeding golden plover, hen harrier, merlin and peregrine) and SACs (three of which ARE partly or wholly in Northumberland). Around half of the Northumberland portion of the NCA is designated.

### Habitats

The higher moorland plateaux in the west are dominated by blanket bog (by definition on the deep peat soils) with vegetation dominated by bog mosses cotton grasses and dwarf shrubs including heather/ling and cross-leaved heath. Where peat soils are shallower, on

the fringes of blanket bog and on the ridges of the eastern Pennines, the habitat is predominantly upland heath. Wet variants of heath share similar vegetation to blanket bog and drier examples are dominated by dwarf shrubs (e.g., heathers, bilberry, cowberry and western gorse). Grass moorland is also common on shallow peat soils, often derived from heathland through overgrazing. This, and the conifer blocks planted on peatland, could be considered restorable heathland habitat.

Limestone grassland, species-rich acid grassland, flushes and mires are some of the rarer and more restricted habitats which exist in a mosaic with these larger moorland habitats.

Below the moorland line lies an extensive field system of 'in-bye' pasture or allotment ground with varying degrees of cover by soft rush. Where the cover is just right these allotments are key breeding habitat for the in-bye suite of wading birds (curlew, lapwing, redshank and snipe), and feeding habitat for black grouse and ring ouzel. The nationally and internationally significant populations of these birds are recognised in the many SSSI designations in the North Pennines, but this important land for breeding waders often lies outside of any designation, neither is it listed on Natural England's Priority Habitat Inventory (PHI).

Tree cover is generally sparse standing at about 4% of the area. In places there are coniferous plantations on the moorland ridges. Semi-natural woodland is largely restricted to river banks, along watercourses and minor valleys and gills mainly of the South Tyne, East and West Allens, Devil's Water and Derwent in the middle / upper reaches of the dales. Ash and alder-ash woodlands are found on limestone; oak / birch woodlands on acidic soils. Hedgerow trees are abundant, and the lower dales landscape contains seminatural woodlands in ravines, gorges, scattered farm woodlands, shelter belts and coniferous plantations. Wet woodland occurs on poorly drained or seasonally waterlogged soils, often along streams and flushes, in peaty hollows, and as successional habitat on fens and bogs.

The support for and persistence of traditional farming methods has meant the preservation of many species-rich upland hay meadows, often containing rare and local species including wood cranesbill, globeflower, marsh hawksbeard and rarer species of lady's mantles. Over 40% of all the UK's upland hay meadows (and a large proportion of Northumberland's) are in the North Pennines NCA. These meadows can also be good nesting and feeding sites for priority bird species like grey partridge, black grouse, and curlew.

Most streams and rivers in the Northumberland part of the NCA are free from hard engineering and are home to otter, water vole, brown trout, and Atlantic salmon. The birdlife of our rivers includes dipper, common sandpiper, kingfisher, and grey wagtail, with goosander where woodland provides opportunities for nesting.

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

grasslands. The headwaters of rivers and streams are particularly important wildlife habitats and support species not found in other parts of river systems.

Calaminarian grasslands occur on river gravels and spoil heaps where pollution from mining has occurred. They are short sward grasslands with heavy metal tolerant plants and lichens, including species such as spring sandwort, mountain pansy, dune helleborine and alpine pennycress. Good examples exist on the South Tyne at Williamston and at Whitesykes & Bentyfield mine, and on the Allen at Plankey Mill.

### Key Species

The North Pennine Moor SPA is designated for the key moorland bird species - hen harrier, peregrine, merlin, and golden plover.

Other species of conservation concern inhabiting the moorland fringe and in-bye pasture include whinchat, skylark, short-eared owl, ring ouzel, black grouse, and the in-bye suite of wading birds – curlew, lapwing, redshank and snipe. The North Pennines is the most important breeding area in England for these listed species.

Ancient semi natural woodlands are important for the oak woodland bird assemblage including wood warbler, redstart and pied flycatcher, and red squirrel is associated with wooded valleys of the South Tyne, Derwent and Allens.

The headwaters of the North Pennines have been discovered to be a key location in England for water vole, and North Pennine rivers and streams are important spawning grounds for trout and Atlantic salmon and breeding sites for dipper, common sandpiper, and grey wagtail.

Slow worm, common lizard and adder are all less well understood but are thought to be widespread if sparsely distributed.

Notable invertebrates include the moss carder and bilberry bumblebees which use moorland/ species-rich grassland mosaics and hay meadows, large heath butterfly associated with blanket bog mosaics, small pearl-bordered fritillary associated with sheltered fen/marsh habitats, and violet oil beetle which uses flower-rich areas of heathlands and woodland edge.

The last known population of hazel dormice in Northumberland was recorded at Briarwood Banks/Allen Banks. The status of this population is currently unknown.

At Whitfield St John Churchyard LWS, the church and boundary walls and gravestones support a rich lichen community. Species include rock nail lichen and *Thelocarpon coccosporum*, both of which are nationally rare. Rock nail lichen occurs here and at one other site in Britain, whilst *T.coccosporum* is only recorded here.

## Threats to Nature Recovery

The major threat to blanket bog from drainage and afforestation is now largely historic, but climate change and nitrogen deposition provide major challenges to the survival of the most sensitive species and habitats in our blanket bog/heathland mosaics.

Rotational burning or cutting on peat of any depth along with inappropriate grazing regimes means that heathlands lack structural diversity and the ability to form intricate mosaics with wetlands and scrub, important for many species.

The establishment of scrub, wood pasture and woodland, in appropriate places, is threatened by a lack of co-ordinated deer management.

Release and feeding of non-native gamebirds near or on sensitive sites threaten reptile populations.

Land tenure is complex and can lead to tensions between landowners, tenants and commoners over the rewards/costs of nature recovery payments and lead to unintended consequences.

A lack of alignment between nature recovery objectives and some agri-environment payments leads to a lack of joined up advice. Higher payments for improvement of low-quality landscapes and lower payments for conservation of nature-rich landscapes can lead to perverse incentives and unintended consequences for nature.

Over-stocking with sheep (set-stocking) suppresses wildflower diversity in grassland and heath. Lack of nature-focussed road verge management means that most are in floristic decline.

Some watercourses suffer from nutrient enrichment from agricultural run-off and increasing summer temperatures is leading to dangerously high water temperatures.

Historic mining continues to have impacts on water quality for rivers and tributaries in the NCA.

Invasive non-native species (INNS) endanger our natural ecosystems. Headwater catchments are a priority to be kept clear of INNS. Current threats include piri piri burr, Himalayan balsam, non-native crayfish, and American mink.

Raptor persecution still threatens the survival of already endangered species.

## Opportunities for Nature Recovery

Although there has been considerable progress to restore hydrology on our peatlands there remains much to be done.

Upland heath requires changes to management (no rotational burning, minimal burning and cutting, and new stock grazing regimes) to increase structural diversity and introduce more dynamic habitat mosaics.

A more wooded landscape (wood pasture, scrub and scattered trees) in places where it will have minimal impact on the in-bye suite of wading birds, and where design is sensitive to other priority species and habitats, is a big opportunity to join up woodlands and trees in a way which benefits scrub and woodland species and diversifies upland habitat mosaics.

An increased focus on improving conditions for the in-bye suite of wading birds including keeping key areas open, rewetting, and rush management is important in a national context.

There are opportunities to reconnect watercourses with their floodplains, even quite high up, through techniques such as using woody debris. The introduction of beavers may also be an opportunity to assist this process given appropriate risk assessment and compensation schemes, and trees and scrub are required to help reduce dangerously high water temperatures.

There are opportunities for restoration and enhancement of species-rich upland hay meadows and other grassland habitats such as road verges. Regenerative pasture management has great potential to improve above and below ground biodiversity through sward diversification and rotational grazing management.

Constructive collaboration between conservation groups and progressive shooting estates could lead to an end to raptor persecution.

A number of species would benefit from targeted conservation measures. These include adder, which is under-recorded and at risk, and hazel dormice present only at Allen Banks.

## Tyne and Wear Lowlands

### Description

A relatively small portion of the Tyne and Wear Lowlands National Character Area (NCA) lies to the north of the Tyne. It is an area of gently undulating or rolling land, incised by the valleys of the Tyne and its tributaries. It is densely populated and heavily influenced by urban settlement, industry, and infrastructure. Outside the settlements, there are small remaining stretches of agricultural land.

The undulating land and broad valleys of the Tyne and Wear Lowlands are underlain almost entirely by Coal Measures rocks of Upper Carboniferous age. Mineral extraction has played a considerable role in the area and the legacy of coal mining remains evident

in the landscape, although much restoration has occurred in recent years. Spoil heaps have been restored to pastures, mixed/coniferous plantations, amenity ponds and accessible green spaces such as country parks. As the settlements within the NCA have expanded, semi-natural habitats have become fragmented.

Sparse, lowland mixed deciduous woodland is the largest semi-natural habitat. In the east, there is a small coastal area bordering the Tyne as it flows out into the sea. Sandy beaches backed by sea cliffs are found at Tynemouth and there are fragmented intertidal habitats along the Tyne estuary. This habitat supports many wading birds and is important for otters and migratory salmon. Part of the coastline in North Tyneside is designated as SSSI, Special Protection Area (SPA) and Ramsar Wetland of International Importance as it supports nationally important numbers of wintering shore birds. The River Tyne contributes a strong sense of landscape character to the area, and the bridges and surrounding quayside buildings support the largest inland colony of breeding Kittiwakes internationally.

Along the Tyne the tributaries are generally small but cut through deep denes which contain narrow strips of ancient woodland or modified woodland habitat in the case of parks such as Jesmond Dene LWS.

## Habitats

Much of this area is characterised by built up areas of housing, industry and town and city centres with associated road and rail infrastructure. There is little agricultural land in the area except at the far western end where arable and pastureland is interspersed with mixed woodland.

The Tyne estuary is the southern limit of the area and is influenced by tidal conditions as far as Wylam, 14 miles from the coast, and is designated as a Local Wildlife Site along its tidal extent. The tidal estuary has small areas of mudflats and saltmarsh at areas such as Willington Gut, Newburn Riverside and Lemington Gut. The intertidal mud of the River Tyne is used as a feeding area by a range of waders and waterfowl including lapwing, curlew and wigeon.

Pockets of brownfield land exists throughout, particularly along the Tyne. Areas such as Howdon Wetlands LWS, Walker Riverside LWS, and Percy Pit LWS provide habitat for dingy skippers, and some are home to unusual plant species such as bee orchid. The extent of this habitat extends beyond those areas designated as LWS, particularly around Tyne Dock and along the old wagonways.

Two large areas of open space exist in the urban area, The Rising Sun Farm and Country Park LWS (which extends into the South East Northumberland Plain NCA) and Newcastle's Town Moor. Both these sites have areas of short grassland, in part on reclaimed colliery land, which are valuable for species such as skylark. Reclamation woodland also occurs with a mix of native and non-native species.



A particularly notable feature in this area is the dene woodlands. These steep sided valleys contain relict areas of ancient woodland. Some are reasonably intact while others have been modified with introduced species. Notable sites include Jesmond Dene, Sugley Dene, Denton Dene, and Throckley and Walbottle Dene, all designated as Local Wildlife Sites. Other woodland habitat includes Priestclose Wood LWS, and other undesignated woodlands around Prudhoe on the southwest corner of this area.

Across the area are pockets of valuable habitats that exist within the urban environment, some designated such as Marden Quarry LWS and Hallow Hill SSSI (Fen and grassland). While small these should not be underestimated in their value for wildlife within this conurbation.

### Key Species

Otter and kingfisher utilise the Tyne and key tributaries such as the Ouse Burn.

The River Tyne is home to the largest inland colony of breeding kittiwakes in the world, with birds making use of buildings, bridges and other structures on either side of the river as nest sites.

Large areas of open grassland such as the Town Moor and Rising Sun are used by breeding skylark.

Dene woodlands are an important habitat for a number of bat species.

The Tyne estuary is valuable for wintering waders and wildfowl, particularly where there are high tide refuge and roost areas nearby. It is also used by migrating salmon and sea trout. Grey seals are increasingly being reported from within the estuary.

Dingy skipper is found on many of the brownfield sites, such as those around the Tyne Dock and as far inland as Newburn.

Urban gardens provide habitat and linkage for garden birds and mammals such as hedgehogs.

### Threats to Nature Recovery

The main threat in this area is through further development, housing, infrastructure, and industry, although most of the land available for this has already been utilised, urban expansion at the western end could begin to link up smaller settlements and put pressure on existing greenspace.

Pollution, including run off from roads and through misconnections in the large urban area, can result in water quality issues in the tributaries to the Tyne as well as in the river

itself. At the western end agricultural run-off, both nutrients and silt, cause problems for water quality.

The small remaining pockets of suitable habitat for high tide wading bird roosts could be lost.

Maintaining suitable nest sites for the kittiwake colony along the River Tyne is challenging, particularly where human-wildlife conflict arises. e.g., birds nesting above food outlets. This is especially an issue given the maintenance works currently being carried out on the Tyne Bridge, though timings have been planned to minimise impacts to the colony.

Non-native species such as Himalayan balsam and Japanese knotweed are a constant threat while more unusual species coming from adjacent gardens and parks can also threaten native species. There are also potential threats from the introduction and establishment of new non-native invasive species such as Chinese mitten crab.

Wildlife disturbance is a significant problem through recreational pressures on remaining greenspace.

Since winter 2021/2022, Highly Pathogenic Avian Influenza (avian flu) outbreaks have become more vigorous, and tens of thousands of birds are thought to have died. In 2023 an increase in deaths amongst the Tyne kittiwakes has been recorded.

### Opportunities for Nature Recovery

Woodland restoration and/or creation, particularly wet woodland around flood plains. This area is within the North East Community Forest. There is significant opportunity here for new woodland creation to deliver biodiversity and a range of other environmental and social benefits.

Pond creation to expand the distribution of great crested newts.

Opportunities to create areas of more species-rich grassland, including in more urban situations such as sections of greenspace and parks.

Opportunities within the urban area to expand and improve green infrastructure and include bird and bat structures in new developments.

Opportunities for small-scale habitat creation on the Tyne estuary, including through retrofitting of wildlife enhancements to artificial structures.

Flood risk management in this area can be done in a way that enhances nature.

Management of transport corridors with wildlife in mind provides important linkage.

Agri-environment schemes, and the introduction of Biodiversity Net Gain, both provide excellent financial incentive for landowners to change their land management practices in order to benefit biodiversity. Biodiversity Net Gain is particularly applicable as this area, given the development pressures.

## Durham Coalfield Pennine Fringe

### Description

The Durham Coalfield Pennine Fringe National Character Area (NCA) is a transitional landscape between the North Pennines NCA to the west and the Tyne and Wear Lowlands NCA to the east. Only a small portion of this NCA lies in the North of Tyne area bordering the North Pennines to the west and extending to the river Derwent to the south and east.

The area's industrial history has left a strong mark on the landscape: historic coal mining has a strong influence on settlement patterns, culture and infrastructure such as wagonways, and more modern sand and gravel extraction has left its mark on the landscape.

In the North of the Tyne section the landscape is largely mixed pasture and arable land with the deep river valley of the Derwent. Tributaries of the Tyne and Derwent flow through steep sided wooded denes. There are scattered geometric blocks of conifer plantation and shelterbelts across the landscape. Hedges, where they exist are often degraded with relatively few scattered hedgerow trees.

There are few major settlements in this section of the NCA. The southern edges of Prudhoe and Stocksfield are the main centres of population with small, scattered hamlets across the rest of the area.

### Habitats

There are no SSSIs within this part of the NCA

The River Derwent is the main river system in the area

The ancient woodland strips largely confined to the steep sided tributaries of the Derwent and Tyne are probably the most important habitat in this area. Some of these are designated as LWS such as Winney Bank. Many are listed as ancient woodland but the greater proportion are shown as Ancient Replanted woodland. Mere Burn Woods is listed as a LWS for its ancient woodland although it does not appear on the Ancient Woodland Inventory.

Hyons Wood LWS is a reasonably large section of ancient woodland that is not associated with a deep valley and instead sits on a north facing slope to the south of Prudhoe.

There are a few scattered lowland meadows in the south of the area and the Prudhoe Hospital Croquet Lawn is listed as a LWS for its important assemblage of waxcap fungi.

### Key Species

The River Derwent is the main river system in the area and is used by brown trout as well as by otter and kingfisher.

Farmland birds make use of much of this landscape particularly in areas with some appropriate habitat diversity.

Red kites were reintroduced into the Derwent Valley about 20 years ago and are now use this part of the region on a regular basis.

Dingy skipper is found at sites such as Broadoak Quarry at Ebchester

Great crested newt are present in mature and some of the newly created ponds that surround Broadoak quarry as well as on old industrial sites like the former Marley Tile Works.

### Threats to Nature Recovery

Disturbance from recreation and access is ever present in many of the woodland blocks with a multitude of unofficial routes for access including by trail bikes.

Division of ancient woodlands, into small private management blocks, increases the chance for inappropriate management of those areas including inappropriate planting and more intensive management.

Non-native species such as Himalayan balsam and Japanese knotweed are a constant threat particularly along the multitude of burns that cross the area.

### Opportunities for Nature Recovery

Woodland restoration and/or creation, particularly on ancient replanted woodland sites as well as in linking ancient woodland sites together. There is significant opportunity here for new woodland creation to deliver biodiversity and a range of other environmental and social benefits.

Pond creation to expand the distribution of great crested newts.

Opportunities to create areas of more species-rich grassland.

Agri-environment schemes, and the introduction of Biodiversity Net Gain, both provide financial incentive for landowners to change their land management practices in order to benefit biodiversity. Biodiversity Net Gain is particularly applicable as this area, given the development pressures that are present locally.

## Further Reading

There are numerous local strategies and other documents that identify elements of biodiversity, and opportunities and threats therein, for the North of Tyne region. An indicative list of those consulted in the preparation of this biodiversity statement can be found below.

[Management Scheme for the inshore Marine Protected Areas](#)

[Newcastle & North Tyneside Biodiversity Action Plan](#)

[Newcastle City Council Local Plan](#)

[North East Invasive Non-native Species Strategy and Action Plan](#)

[North of Tyne Marine INNS Strategy](#)

[North Pennines AONB Management Plan](#)

[North Tyneside Council Local Plan](#)

[Northumberland Biodiversity Action Plan](#)

[Northumberland Coast AONB Management Plan](#)

[Northumberland County Council Local Plan](#)

[Northumberland National Park Authority Management Plan](#)

[Northumberland National Park Authority Natural Environment Vision](#)

[Tweed Catchment Management Plan](#)

[Tyne Catchment Plan](#)

[Tyne Estuary Partnership](#)

## Species Glossary

This is a glossary of species referred to in the text above, providing the scientific name for clarity. This list is not the long or short list of species to be covered by the LNRS.

Adder	<i>Vipera berus</i>
Alder	<i>Alnus glutinosa</i>
American Mink	<i>Neogale vision</i>
Arctic cushion star	<i>Hippasteria phrygiana</i>
Arctic tern	<i>Sterna paradisaea</i>
Ash	<i>Fraxinus excelsior</i>
Autumn hawkbit	<i>Scorzoneroides autumnalis</i>
Bearded tit	<i>Panurus biarmicus</i>
Bee Orchid	<i>Ophrys apifera</i>
Bird cherry	<i>Prunus padus</i>
Black bog-rush	<i>Schoenus nigricans</i>
Black grouse	<i>Tetrao tetrix</i>
Black-necked grebe	<i>Podiceps nigricollis</i>
Bladder wrack	<i>Fucus vesiculosus</i>
Bloody cranesbill	<i>Geranium sanguinum</i>
Blunt-flowered rush	<i>Juncus subnodulosus</i>
Bog myrtle	<i>Myrica gale</i>
Bog rosemary	<i>Andromeda polifolia</i>
Bogbean	<i>Menyanthes trifoliata</i>
Bottlenose dolphin	<i>Tursiops truncatus</i>
Brown crab	<i>Cancer pagurus</i>
Bugle	<i>Ajuga reptans</i>
Burnet saxifrage	<i>Pimpinella saxifrage</i>
Butterwort	<i>Pinguicula vulgaris</i>
Chickweed wintergreen	<i>Trientalis europaea</i>
Chinese mitten crab	<i>Eriocheir sinensis</i>
Cloudberry	<i>Rubus chamaemorus</i>
Cod	<i>Gadus morhua</i>
Common sandpiper	<i>Actitis hypoleucos</i>
Common Sedge	<i>Carex nigra</i>
Common sun star	<i>Crossaster papposus</i>
Common tern	<i>Sterna hirundo</i>
Coralroot orchid	<i>Corallorhiza trifida</i>
Cranberry	<i>Vaccinium oxycoccus</i>
Crested dog's-tail	<i>Cynosurus cristatus</i>
Cross-leaved heath	<i>Erica tetralix</i>
Crow garlic	<i>Allium vineale</i>
Dark green fritillary	<i>Speyeria aglaja</i>
Deergrass	<i>Trichophorum germanicum</i>
Devil's-bit scabious	<i>Succisa pratensis</i>
Dingy skipper	<i>Erynnis tages</i>
Dioecious sedge	<i>Carex dioica</i>

Dog's mercury	<i>Mercurialis perennis</i>
Downy birch	<i>Betula pubescens</i>
Dune helleborine	<i>Epipactis dunensis</i>
Dwarf seagrass	<i>Zostera noltii</i>
Dyer's greenweed	<i>Genista tinctoria</i>
Eider	<i>Somateria mollissima</i>
European lobster	<i>Homarus gammarus</i>
European river lamprey	<i>Lampetra fluviatilis</i>
Fairy flax	<i>Linum catharticum</i>
Flounder	<i>Platichthys flesus</i>
Freshwater pearl mussel	<i>Margaritifera margaritifera</i>
Fulmar	<i>Fulmarus glacialis</i>
Globeflower	<i>Trollius europaeus</i>
Grass of Parnassus	<i>Parnassia palustris</i>
Great crested newts	<i>Triturus cristatus</i>
Greater water parsnip	<i>Sium latifolium</i>
Greater wood-rush	<i>Luzula sylvatica</i>
Grey partridge	<i>Perdix perdix</i>
Grey seal	<i>Halichoerus grypus</i>
Greyling	<i>Hipparchia semele</i>
Guillemot	<i>Uria aalge</i>
Hare's-tail cotton grass	<i>Eriophorum vaginatum</i>
Hazel	<i>Corylus avellana</i>
Hazel dormouse	<i>Muscardinus avellanarius</i>
Heart urchin	<i>Echinocardium cordatum</i>
Heath-grass	<i>Danthonia decumbens</i>
Hen harrier	<i>Circus cyaneus</i>
Herb Paris	<i>Paris quadrifolia</i>
Himalayan balsam	<i>Impatiens glandulifera</i>
Jointed rush	<i>Juncus articulatus</i>
Juniper	<i>Juniperis communis</i>
Kingfisher	<i>Alcedo atthis</i>
Kittiwake	<i>Rissa tridactyla</i>
Lapwing	<i>Vanellus vanellus</i>
large heath butterfly	<i>Coenonympha tullia</i>
Lesser butterfly orchids	<i>Platanthera bifolia</i>
Lesser clubmoss	<i>Selaginella selaginoides</i>
Limpet	<i>Patella vulgata</i>
Lindisfarne helleborine	<i>Epipactis sancta</i>
Ling	<i>Calluna vulgaris</i>
Little tern	<i>Sternula albifrons</i>
Marsh cinquefoil	<i>Potentilla palustris</i>
Marsh harrier	<i>Circus aeruginosus</i>
Marsh hawk's-beard	<i>Crepis paludosa</i>
Marsh helleborine	<i>Epipactis palustris</i>
Marsh valerian	<i>Valeriana dioca</i>

Melancholy thistle	<i>Cirsium heterophyllum</i>
Mountain bumblebee	<i>Bombus monticola</i>
Mussel	<i>Mytilus edulis</i>
Narrow-leaved seagrass	<i>Zostera angustifolia</i>
Northern hawk's-beard	<i>Crepis mollis</i>
Northern marsh-orchid	<i>Dactylorhiza purpurella</i>
Osprey	<i>Pandion haliaetus</i>
Otter	<i>Lutra lutra</i>
Oxeye daisy	<i>Leucanthemum vulgare</i>
Pale-bellied brent goose	<i>Branta bernicla</i> ssp. <i>hrota</i>
Pepper saxifrage	<i>Silaum silaus</i>
Petalwort	<i>Petallophyllum ralfsii</i>
Pignut	<i>Conopodium majus</i>
Pine marten	<i>Martes martes</i>
Piri piri burr	<i>Acaena novae-zelandiae</i>
Plaice	<i>Pleuronectes platessa</i>
Prawn	<i>Palaemon serratus</i>
Puffin	<i>Fratercula artica</i>
Purple moor-grass	<i>Molinia caerulea</i>
Purple sandpiper	<i>Calidris maritima</i>
Ramsons	<i>Allium ursinum</i>
Red squirrel	<i>Sciurus vulgaris</i>
Razor clam: pod razor	<i>Ensis siliqua</i>
Razor clam: razor shell	<i>Ensis arcuatus</i>
Rock nail lichen	<i>Calicium corynellum</i>
Roseate tern	<i>Sterna dougallii</i>
Round-leaved wintergreen	<i>Pyrola rotundifolia</i>
Rowan	<i>Sorbus aucuparia</i>
Salmon	<i>Salmo salar</i>
Sanderling	<i>Calidris alba</i>
Sandwich tern	<i>Thalasseus sandvicensis</i>
Scots pine	<i>Pinus sylvestris</i>
Sea lamprey	<i>Petromyzon marinus</i>
Sea spider	<i>Copidognathus reticulatus</i>
Sessile Oak	<i>Quercus petraea</i>
Slender-leaved pondweed	<i>Potamogeton filiformis</i>
Soft rush	<i>Juncus effusus</i>
Sprat	<i>Sprattus sprattus</i>
Squat lobster	<i>Galathea squamifera</i>
Sweet vernal grass	<i>Anthoxanthum odoratum</i>
Sycamore	<i>Acer psuedoplatanus</i>
Tree sparrow	<i>Passer montana</i>
Trout	<i>Salmo trutta</i>
Turnstone	<i>Arenaria interpres</i>
Water vole	<i>Arvicola amphibius</i>
White-beaked dolphin	<i>Lagenorhynchus albirostris</i>



White-clawed crayfish	<i>Austropotamobius pallipes</i>
Wigeon	<i>Anas penelope</i>
Wild chives	<i>Allium schoenoprasum</i>
Willow tit	<i>Poecile montana</i>
Wood cranesbill	<i>Geranium sylvaticum</i>
Wood sorrel	<i>Oxalis acetosella</i>
Wych elm	<i>Ulmus glabra</i>
Yellow wagtail	<i>Motacilla flava</i>
Zigzag clover	<i>Trifolium medium</i>