



Sussex Local Nature Recovery Strategies

Description of Sussex and its Biodiversity - Threats and Pressures

West Sussex County Council and East Sussex County Council

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Basis of Report

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Executive Summary

West Sussex County Council (WSCC) and East Sussex County Council (ESCC) have been appointed as Responsible Authorities (RAs) for the preparation of Local Nature Recovery Strategies (LNRSs) in Sussex. The ultimate purpose of the LNRSs is to help to identify “priorities for recovering and enhancing biodiversity (taking into account the contribution this can also make to other environmental benefits)”.

This study was commissioned by the Councils in order to provide information to be used in the preparation of the LNRSs. A desk-based study has been undertaken which has reviewed available information sources.

This report presents a description of the following for East Sussex and West Sussex:

- Future pressures likely to influence habitats and species (their extent, distribution and quality) for the West Sussex and East Sussex LNRS areas; and
- Wider environmental issues affecting the geographical areas which changes in land use or management could help to address.

The key future pressures identified in the study which are likely to influence habitats and species (their extent, distribution and quality) for the West Sussex and East Sussex LNRS areas are:

- Climate change: temperature, precipitation;
- Flood risk;
- Coastal squeeze;
- Water resource management and abstraction;
- Development pressure and land use;
- Population increase and recreation pressure; and
- Pollution.

The information reviewed in this study has identified wider environmental issues affecting part or all of the Sussex LNRS areas which changes in land use or management could help to address. These include:

- Regenerative agriculture;
- “Rewilding”/minimal land management;
- Habitat recreation and restoration;
- Species control;
- Flood alleviation; and
- Access to nature.

This study has also identified opportunities for the application of nature-based solutions within Biodiversity Opportunity Areas (BOAs), Nature Improvement Areas and Natural Capital Investment Areas, as well as opportunities for habitat creation and restoration and management of flood risk areas.



The application of nature-based solutions provides solutions to environmental issues such as climate change, flooding and water quality (among others). They also improve biodiversity outcomes by increasing habitat connectivity and diversity across landscapes. Those identified include wetland habitat management, heathland restoration and creation, landowner advisory and agri-environment schemes and ecological networks.

The next step is for the information presented within the report to be used to inform the preparation of the two LNRs for West and East Sussex alongside information collated separately relating to the range of habitats and species in the strategy area and their distribution especially priority habitat and species for which the LNRs areas are or could be of national importance.



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1.0 Introduction

1.1 Background

West Sussex County Council (WSCC) and East Sussex County Council (ESCC) have been appointed as Responsible Authorities (RAs) for the preparation of Local Nature Recovery Strategies (LNRSs) in Sussex. The ultimate purpose of the LNRSs is to help to identify “priorities for recovering and enhancing biodiversity (taking into account the contribution this can also make to other environmental benefits)”.

LNRSs have been brought into force through the Environment (Local Nature Recovery Strategies) (Procedure) Regulations 2023¹. Guidance² has been published by Government to assist RAs in the production of LNRSs. The guidance identifies that a description of Sussex, its biodiversity and natural environment should be developed as an initial stage of the process. The Regulations and guidance suggest that this description should include the following:

Table 1.1: What the Description of Sussex Should Include

1. 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.
2. How this distribution and extent of habitats has changed in recent decades including habitats that may have been lost entirely from the strategy area
3. The species or groups of species for which the strategy areas is, or could feasibly be, of national importance
4. 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 development including house building and infrastructure
5. 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 and adaptation

The description of habitats and species (content shaded grey in Table 1.1) is being dealt with separately. This report relates to the final two points in Table 1.1 i.e. preparation of a description of the following for East Sussex and West Sussex:

¹ [The Environment \(Local Nature Recovery Strategies\) \(Procedure\) Regulations 2023 \(legislation.gov.uk\)](https://www.legislation.gov.uk/uksi/2023/1111/contents/made)

² Local Nature Recovery Strategy Statutory Guidance
https://assets.publishing.service.gov.uk/government/uploads/system/uploads/attachment_data/file/1146160/Local_nature_recovery_strategy_statutory_guidance.pdf

4. Future pressures likely to influence habitats and species (their extent, distribution and quality); and
5. Wider environmental issues affecting the geographical areas which changes in land use or management could help to address.

1.2 Local Nature Recovery Strategies

The UK Government's Environmental Improvement Plan (EIP23)³ reviews and updates the 25 Year Environment Plan and places it on a statutory footing. It provides a delivery plan for the 25 Year Environment Plan framework and vision, setting out what the UK will do to improve the environment, within a generation. The Environmental Improvement Plan's key goal is to improve nature. This includes the target to protect 30% of our land and sea for nature through the Nature Recovery Network by 2030 and restoring or creating more than 500,000 hectares of wildlife-rich habitats outside protected sites by 2042. It also seeks to halt the decline in species abundance by the end of 2030 increasing it above 2022 levels by 2042. The ambition is to achieve high quality, accessible, natural spaces with increased biodiversity close to where people live and work, with a focus around the equal distribution of environmental benefits and resources to all. The Environmental Improvement Plan 2023 makes a commitment that everyone should live within 15 minutes' walk of a green or blue space.

However, ecological isolation and fragmentation is still a significant issue across the UK. The ecologist Sir John Lawton has campaigned for a 'Bigger, Better and More Joined-up' approach to UK nature conservation, in order to mitigate this issue. As a result, The Nature Recovery Network (NRN) has been formulated to create a single, national network improving and joining up wildlife-rich places (terrestrial, coastal and marine) across England in both rural and urban areas. The NRN is identified within the Government's 25 Year Environment Plan as an integrated approach to nature recovery, bringing partners, policies and investment together to help address the crises facing biodiversity, climate and health. The NRN aims to achieve this by implementing Local Nature Recovery Strategies (LNRSs) across 48 areas of England; these LNRSs will join up to form the basis of the national NRN. The legal framework and delivery mechanisms for the NRN and the preparation of Local Nature Recovery Strategies (LNRS) has been set out within the Environment Act 2021⁴.

The Government's overarching vision is therefore for a NRN to be created, with LNRSs linking together to support nature's recovery at the larger, national scale.

Two LNRSs will be prepared for Sussex, covering the following geographical areas:

- West Sussex (RA with responsibility for preparing this strategy is WSCC); and
- East Sussex and Brighton & Hove (RA with responsibility for preparing this strategy is ESCC).

Due to the tradition of working for nature across the wider Sussex area via entities such as Sussex Nature Partnership, Sussex Wildlife Trust and Sussex Biodiversity Record Centre, the two RAs will work closely together on the production of their LNRSs to ensure there is strong join up and format similarities between them. However, two separate strategy documents will have to be produced, and as such, two separate descriptions are required.

An LNRS consists of two main parts: the Habitat Map (showing areas that are and could become of importance for biodiversity) and a Statement of Biodiversity Priorities. This document forms part of the background evidence for the Statement of Biodiversity Priorities.

³ HM Government (2023) Environmental Improvement Plan 2023

⁴ HM Government (2021) Environment Act 2021.

1.3 This Document

This report presents a detailed description of the pressures, impacts, and issues affecting biodiversity (both habitats and species) and the natural environment of Sussex (comprising West and East Sussex, including Brighton & Hove). This report will assist West Sussex and East Sussex Responsible Authorities in the production of their LNRs.

A desk-based exercise has been undertaken collating and examining available and credible information sources in order to present the required information for East Sussex and West Sussex. This report is structured as follows:

- Section 2: Approach to the Study;
- Section 3: Biodiversity Baseline and Trend Information Across Sussex;
- Section 4: Description of Pressures, Impacts and Issues Common to Both Areas;
- Section 5: Description of Pressures, Impacts and Issues Affecting the Natural Environment in West Sussex;
- Section 6: Description of Pressures, Impacts and Issues Affecting the Natural Environment in East Sussex and Brighton & Hove;
- Section 7: Wider Environmental Issues and the Impact of Management;
- Section 8: Opportunities for the Application of Nature Based Solutions in Sussex;
- Section 9: Limitations and Data Gaps; and
- Section 10: Conclusions and Next Steps.



2.0 Approach to the Study

2.1 The Process

2.1.1 Information Collation and Review

This study has involved the collation and review of published reports, research, and studies done by others (including national, regional and local) in order to develop the description required. A suggested key reference list was provided by WSCC and ESCC. This was expanded at the beginning of the study and an initial key reference list agreed with the Council officers. As the study progressed, some additional sources of information were added to the list through contact with the team working on the first three points in Table 1.1.

2.1.2 Identification of Key Pressures and Wider Impacts

Information on key pressures, impacts and issues identified within the sources listed in the key reference list has been collected into a spreadsheet format which recorded information applying to either or both of the LNRS areas, whether it provides background information or information about biodiversity, habitats, species, trends, pressures and threats and wider environmental benefits.

Researchers at SLR and our partner organisation, HT Ecology, reviewed documents and contributed to the collated information and to the preparation of this report. The collated information is presented within Sections 3, 4, 5, and 6 of this report. Section 3 presents background information on biodiversity in both LNRS areas and trends showing how it has been changing over time. Sections 4, 5, and 6 present information on the pressures, impacts and issues facing nature in the LNRS areas.

2.1.3 Identification of Opportunities for the Application of Nature Based Solutions

In reviewing the information sources, researchers also identified opportunities for the application of nature-based solutions, as requested by WSCC and ESCC.

Nature based solutions are actions to protect, sustainably manage, or restore natural ecosystems, that address societal challenges such as climate change, human health, food and water security, and disaster risk reduction effectively and adaptively, simultaneously providing human well-being and biodiversity benefits⁵.

Opportunities for nature-based solutions in the two LNRS areas could provide multiple benefits for nature and people and could be incorporated into the LNRSs.

Identified information about the application of nature-based solutions can be found within Section 7 of this report.

⁵ <https://www.worldbank.org/en/news/feature/2022/05/19/what-you-need-to-know-about-nature-based-solutions-to-climate-change>

3.0 Biodiversity Baseline and Trend Information Across Sussex

3.1 Overview

This section details biodiversity in Sussex, drawing on data from within the key reference list. The majority of the data has been gathered from documents relating to Sussex and has not been broken down into LNRS area information. This is likely to be because many biodiversity data are applicable across both LNRS areas. Furthermore, several data sources relate to the South Downs National Park, which spans across both LNRS areas and beyond. Despite these challenges, the report distinguishes trends specific to each LNRS area where feasible. Section 3.1 details information for Sussex as a whole, whereas Section 3.2 and 3.3 relate to West Sussex and East Sussex and Brighton & Hove LNRS areas, respectively.

3.1.1 Woodland

Analysis of woodland habitat trends in Sussex highlights the critical role of ancient woodlands in supporting biodiversity and the challenges faced in woodland management and conservation. The stability of ancient woodland cover in areas like the South Downs National Park contrasts with the dynamic changes in woodland composition observed in other parts of West and East Sussex. These findings underscore the importance of conservation strategies that address both the preservation of existing woodland habitats and the promotion of ecological succession through the planting of young trees.

3.1.2 Grassland

Sussex contains several important unimproved grassland habitats, with lowland calcareous grassland being of particular importance. By 1980, Sussex had experienced a loss of 25% of calcareous grassland that was present in 1966. Despite this decline, the southeast retains an estimated 8,700 hectares of this habitat, representing between a quarter and a third of the UK's total resource. The South Downs are particularly noted for supporting some of the finest remaining examples of this habitat⁶.

Lowland calcareous grasslands are recognized for their exceptional biodiversity, often likened to the 'tropical rainforests' of northwestern Europe due to their species richness. A single square metre of this grassland can support up to 80 species of vascular plants and mosses, including 25 species identified in the UK Biodiversity Action Plan (BAP). This biodiversity includes notable species such as the Adonis blue butterfly, silverspotted skipper, several bumblebee species, the wart-biter cricket, and a variety of beetles, moths, hoverflies, and bees^{7 8}.

The South Downs National Park (SDNP), underpinned by its unique geology leading to the formation of thin, nutrient-poor rendzina soils, supports over 6,600 hectares of calcareous grasslands across the counties of East Sussex, West Sussex, Hampshire and the city of Brighton & Hove. These habitats, however, are often fragmented and isolated, with 36% of chalk grassland sites across the National Park being less than 1 hectare in size, and only 45 sites exceeding 10 hectares. Despite the ecological significance of these grasslands, only 45% across the National Park are designated as SSSIs, leaving a majority without legal protection. This leaves them particularly vulnerable to decline as demonstrated by a 2012 to

⁶ Natural England (2009) State of the Natural Environment in the South East

⁷ South Downs National Park Authority (SDNPA) and the Sussex Biodiversity Record Centre (2012-2015) The state of lowland calcareous grassland within the South Downs National Park

⁸ South Downs National Park Authority (2012) Lowland Calcareous Grassland Habitat Potential Model

2015 study⁹ which showed that 41% of SSSIs surveyed were in favourable condition, with 99% favourable or recovering and 0.83% unfavourable or destroyed. Of the chalk grassland LWSs surveyed, 22% were favourable within East Sussex county and 26% were favourable within West Sussex county. A total of 57% and 58% of East and West Sussex's LWSs were favourable, part favourable or recovering respectively. 58% of LWSs across the wider SDNP area were unfavourable or destroyed. 10% of undesignated chalk grassland sites were in favourable condition or 13% classed as favourable, part favourable or recovering. 84% of sites were unfavourable or destroyed.

In East Sussex, valuable meadow habitats, particularly those in the High Weald and along the Arun and Adur river catchments, face declines due to fertiliser application, leading to a loss of rich flora¹⁰.

3.1.3 Heathland

The southeast of England, including Sussex, holds an important proportion of the world's lowland heathland, with approximately 25,000 hectares representing about 20% of the global resource¹¹. This is particularly noteworthy given that England has seen a loss of 80% of its lowland heathland since the 1800s. Such a drastic reduction underscores the global conservation importance of the remaining heathlands. In Sussex, 2,981 hectares of lowland heath have been identified, which is therefore considered to be an important area in the south of England. This habitat within Sussex is fragmented, especially outside of Ashdown Forest which is its stronghold within the southeast¹².

3.1.4 Rivers, wetland, marshes and mudflats

In Sussex, floodplain grazing marsh occupies 1.5% of the region, as reported in 2012¹³. However, the UK has seen a significant loss of wetlands, estimated at around 80% since Roman times, with much of this occurring during the Industrial Revolution¹⁴. Wetlands, mudflats and saltmarsh, covering a total of 2,398.74 hectares in Sussex, face increasing threats from climate change, development, and the construction of hard sea defences. These habitats are therefore classed as 'at risk' in Sussex¹⁵. Research has highlighted that saltmarsh is under significant threat, with a decline from 1,700 hectares in the 1970s to 1,080 hectares by 2001 along nine estuaries on the south coast. Reedbed, fen, and grazing marsh, covering 15,018 hectares in Sussex, are also identified as high-risk habitats due to their fragmentation, mostly as a consequence of climate change pressures such as coastal squeeze. The vital ecosystem services they provide, including flood risk mitigation and water purification, are therefore also at risk¹⁶.

Sussex's rivers and streams support diverse ecological communities. However, only 15% of rivers and 9.7% of lakes across the SDNP are classified as 'good or high ecological status'. Chalk river SSSIs are predominantly in unfavourable condition due to over-abstraction, agricultural pollution, channel modification, and inappropriate fisheries management. Despite

⁹ The South Downs National Park Authority (SDNPA) and the Sussex Biodiversity Record Centre (2012-2015) The state of lowland calcareous grassland within the South Downs National Park

¹⁰ West Sussex County Council (1993). An Environmental Review of West Sussex.

¹¹ Natural England (2009) State of the Natural Environment in the South East

¹² Sussex Nature Partnership (2019) Natural Capital Investment Strategy for Sussex 2019-2024

¹³ South Downs National Park Authority (2012). State of the National Park Report.

¹⁴ Sussex Wildlife Trust (2012) The Wetland Potential of Sussex

¹⁵ Sussex Nature Partnership (2019) Natural Capital Investment Strategy for Sussex 2019-2024

¹⁶ Natural England (2009) State of the Natural Environment in the South East

these challenges, rivers like the Ouse and Cuckmere support a variety of fish and other species, indicating their ecological importance¹⁷.

3.1.5 Coastal and marine habitats

Sussex's coastal habitats exhibit a remarkable diversity. The chalk reefs in the eastern English Channel are particularly significant, constituting about 75% of all reefs in Europe. The rocky habitats in the area are primarily colonized by keelworms and *Balanus* barnacle species, along with a diverse array of mobile fauna including netted dogwhelk, crabs, and lobsters. These rocky surfaces with foliose algal cover tend to support a higher diversity of mobile fauna.

The mixed sediment habitats of Sussex are known for their rich variety of species, particularly where conditions are more stable. Typical species in these habitats include anemones and slipper limpets (an invasive, non-native species). Mobile sand areas are characterized by robust fauna such as venerid bivalves, amphipods, polychaete worms, and heart urchins. Sand banks in these areas are important nursery grounds for young fish like plaice, cod, and sole.

The Sussex coast once held extensive kelp habitats, with tangle, oarweed, and sugar kelp being regularly observed¹⁸. These species are in decline along the south coast of the UK, due to a lack of substrate on which to anchor. Coastal and marine habitats across the SDNP, spanning 6.7 km² (out to the Mean Low Water Spring) including 20 km of coastline, feature varied ecosystems such as coastal saltmarsh, intertidal rock, and intertidal sediment predominantly composed of shingle¹⁹.

3.1.6 Notable Species

About 80 protected species live in Sussex, ranging from dormice to bats, plus about 500 species recognised as a priority for conservation²⁰.

For the period 1994 to 2006, the population index for farmland birds in the southeast shows a decrease of 21%, with 12 of the 19 species showing declines of over 10%²¹. For the period 1994 to 2006 the population index for woodland birds in the southeast of England shows an overall decrease of 19%, with 16 of the 29 species showing declines of over 10%. Of particular concern are spotted flycatcher, willow tit and willow warbler, which have declined by over 50%. Habitat loss, mostly as a result of changes to land management (agriculture), is noted as the biggest driver of the decline.

Details on trends in the South Downs National Park show that many species are rare and declining. For instance, the National Park and Bognor Regis are the only places in the UK where greater mouse-eared bat has been recently recorded. The last known British colony disappeared in 1985, however a single male was discovered hibernating in the National Park in 2002 and has been recorded at the same location every year since²².

Trends for invertebrates in Sussex are likely to mirror those in the UK where half of the 27 bumblebee species are in decline, with three of these species already extinct. Additionally, two-thirds of moth species are experiencing a long-term decline and 71% of butterflies are in decline. The trend extends to a broader scale as well, with 38% of bee and hoverfly species

¹⁷ South Downs National Park Authority (2012) Lowland Calcareous Grassland Habitat Potential Model

¹⁸ Sussex Inshore Fisheries and Conservation Authority (IFCA) (2017)

¹⁹ South Downs National Park (2012). State of the National Park Report

²⁰ CPRE (2021) Sussex

²¹ Natural England (2009) State of the Natural Environment in the South East

²² South Downs National Park Authority (2012). Lowland Calcareous Grassland Habitat Potential Model.



across Europe in decline²³. Across the southeast, formerly widespread species such as the pearl-bordered fritillary butterfly have declined in range and numbers²⁴.

3.2 Biodiversity Baseline and Trend Information for West Sussex

3.2.1 Designated sites

The number of designated sites within West Sussex is increasing. In 1992 there were 68 SSSIs; 11 LNR; 30 other nature reserves and 192 LWS. By 1996, this number had increased to 71 SSSI; 15 LNR; 34 other nature reserves; 220 LWS²⁵.

3.2.2 Woodland

In West Sussex, approximately 19% of the land area is covered by woodland, making it the second most wooded LNRS area in England. The composition of these woodlands is predominantly broadleaved species, accounting for over half of the area, with the remainder comprising coniferous species and open woodlands. A review of woodland trends within the Chichester Harbour National Landscape has shown stability in the extent of broadleaved woodland since 2013. However, the proportion of young trees has increased to 6% of woodland cover, doubling in the last five years. Despite active reforestation efforts, including the planting of 8,585 trees by the Chichester Harbour Conservancy and Friends of Chichester Harbour between 2014 and 2017, the coverage of ancient and semi-natural woodland remains unchanged at 1% of the National Landscape²⁶. This suggests that reforestation is primarily compensating for the loss of semi-mature and mature trees rather than expanding woodland cover.

3.2.3 Grassland

Grassland, which comprised 44% of the West Sussex agricultural land area in 1991, saw a significant reduction in unimproved grassland by 289 hectares between 1971 and 1981, reflecting both regional and national trends. The most pronounced declines were observed on the coastal plain and the South Downs, largely due to conversion to arable land and development pressures. Chalk grassland in particular has suffered from fertilizer application and ploughing, though it has managed to persist on steeper slopes where such practices are less feasible. The extent of unimproved grassland has dramatically reduced from 16,300 hectares in 1813 to just 1,400 hectares by 1991, highlighting the urgent need for conservation measures²⁷. No post-1991 data on this trend has been identified to indicate whether this trend has halted, continued or been reversed in more recent years.

3.2.4 Heathland

Heathlands in West Sussex encompass both dry and wet types and occupy less than 1% of the LNRS area's total area. These habitats are primarily located on the sands and sandstone north of the Downs, with additional, smaller remnants in the High Weald²⁸. Historical data reveal a large decline in heathland coverage, from 7,500 hectares in 1813 to 670 hectares by 1981. This significant loss reflects the extensive pressures from agricultural expansion, urban

²³ West Sussex County Council (2019). Pollinator Action Plan 2019-2022:

²⁴ Natural England (2009) State of the Natural Environment in the South East

²⁵ West Sussex County Council (1997) State of the Environment.

²⁶ Chichester Harbour Conservancy (2019). Chichester Harbour AONB Management Plan 2019-2024.

²⁷ West Sussex County Council (1997). State of the Environment.

²⁸ West Sussex County Council (1993). An Environmental Review of West Sussex.

development, and the consequent habitat fragmentation that has eroded the extent and ecological integrity of heathlands in the LNRS area²⁹.

3.2.5 Rivers, Wetland, marshes and mudflats

West Sussex has several important wetland habitats including the Chichester Harbour SSSI which is in an 'Unfavourable Declining' condition due to loss of saltmarsh, poor quality of saltmarsh and mudflat habitat and the continued decline of wintering and nesting bird species. Despite being a highly designated area (legally protected SSSI and SPA), it is still experiencing gradual deterioration of the natural environment and loss of biodiversity.

In Chichester Harbour, 58.8% of the historic extent of saltmarsh in 1946 has been lost, with 46.5% of the saltmarsh being lost since designation as an SSSI in 1970. From 1946 to 2016, 58% of saltmarsh habitat area was lost overall, with loss of almost half (46%) of that present when the site first became legally protected (1970). The saltmarsh was in unfavourable condition at the time of first designation as the saltmarsh losses in the 1960's were approximately 18 hectares a year. The rate of loss has slowed, however, on average 2.54 hectares (the equivalent of more than 3 football pitches in area) of saltmarsh is still being lost every year across Chichester Harbour, primarily due to coastal squeeze caused by rising sea levels. At the current rate of decline the site could lose all its remaining saltmarsh habitat by the middle of the next century³⁰. This loss of habitat is impacting wetland bird species, particularly nesting tern populations, due to loss of high tide roosting sites, nesting sites and changes to food supply and feeding conditions³¹.

Overall, the main intertidal habitats and bird features are assessed as unfavourable declining condition largely due to the continued loss of saltmarsh, the poor quality of saltmarsh and mudflat habitat, and the continued decline of several bird species (wintering and nesting). Saltmarsh habitat within Chichester Harbour needs to be restored to achieve at least the 552 hectares area at SSSI designation.

The Adur estuary, and Pagham and Chichester Harbours contain inter-tidal mudflats that are of vital importance for wading birds (ringed plover, redshank and dunlin). Many of the ditch systems in the Adur valley contain reedbeds which support breeding reed warblers. The flood plains of the Adur and Arun support meadows and ditches for breeding and wintering birds. There are no 'natural' ponds in Sussex³².

3.2.6 Coastal and marine habitats

The coastline of West Sussex is noted for its lagoons, shingle areas, and kelp forests, hosting a variety of marine life including seahorses and nesting fishes. The Chichester Harbour area is a focal point for conservation efforts. This area supports diverse wildlife, including seal and bird colonies.

Vegetated shingle, an internationally rare habitat, features unique plant species like yellow horned poppy and sea kale. The region also has remnant sand dunes at East Head and Climping, both designated as SSSIs but under intense recreational pressure³³.

Intertidal seagrass is also present along the coastline of West Sussex and can be found within the Pagham Harbour Marine Conservation Zone. This habitat has seen significant declines in the last ten years however, with coverage falling from approximately 6 ha in 2011 to less than

²⁹ Natural England (2009). State of the Natural Environment in the South East.

³⁰ Natural England (2021) Condition Review of Chichester Harbour Sites 2021

³¹ Chichester Harbour Conservancy- CHaPRoN project

³² West Sussex County Council (1993). An Environmental Review of West Sussex.

³³ West Sussex County Council (1993) An Environmental Review of West Sussex

0.01 ha in 2021³⁴. The cause of decline has yet to be established however eutrophication, chemical contamination, changes in sediment composition and other anthropogenic pressures may be negatively influencing the health of beds.

3.2.7 Notable Species

West Sussex saw a 29% decline in barn owl numbers between 1970 and 1997³⁵.

Chichester Harbour is of interest for its bird populations, common seal and grey seal. There are also approximately 200 maritime taxa including invertebrates, algae and fish³⁶.

On average, the wintering populations of birds in Chichester Harbour are in unfavourable condition as numbers of many species have declined, some species dramatically so (>70% long term). The site remains nationally important for nine wintering species and internationally important for dark-bellied brent geese and black-tailed godwit. Some of the birds whose populations are doing well are species which can switch their foraging habitats away from the main intertidal area such as brent geese.

Nesting terns are in unfavourable declining condition because nesting sandwich tern numbers have declined to zero, little tern numbers have declined dramatically and the number of their chicks per nest successfully fledging is at or close to zero. The best remaining saltmarsh habitat and the largest eelgrass beds are in areas with lower nitrogen.

3.3 Biodiversity Baseline and Trend Information for East Sussex (including Brighton & Hove)

3.3.1 Woodland

East Sussex experienced a decline in woodland cover from 17% in 1966 to 15.6% in 1980, although this was still significantly higher than the English average of 8% in the latter year. Ancient woodland accounts for 72.6% of woodland in East Sussex which is over 2 hectares in extent. An estimated 10% of ancient woodland was lost between 1920 and 1980. The 1980 Forestry Commission Census detailed the composition of East Sussex woodlands as 39% broadleaved high forest, 25% conifer high forest, 24% coppice, and 12% scrub. This varied composition underscores the ecological complexity and the necessity for tailored management strategies to preserve these habitats³⁷.

3.3.2 Wildflower meadow

In East Sussex, wildflower grasslands (including lowland meadow and chalk grassland) are predominantly found where the South Downs National Park and the High Weald National Landscape extend into the LNRS area. The LNRS area only has around 250 hectares of lowland meadows. The habitat is therefore considered one of the most threatened. Nationally it has been estimated that 95% of all such meadows have been lost in the last 50 years and this trend is likely to also apply to East Sussex. Declines are likely to be due to inappropriate management, lack of grazing, agriculture nutrient enrichment (from air pollution and development)³⁸.

³⁴ Natural England (2023). Pagham Harbour MCZ Intertidal Seagrass Sampling.

³⁵ West Sussex County Council (1997) State of the Environment

³⁶ Chichester Harbour AONB Management Plan 2019-2024 (2019)

³⁷ East Sussex County Council (1994) State of Nature Report for East Sussex

³⁸ East Sussex County Council (1994). State of Nature Report for East Sussex.

3.3.3 Heathland

Ashdown Forest, located within the High Weald National Landscape, stands out as the key heathland site in East Sussex, comprising 1,264 hectares. Ashdown Forest is recognized as one of the finest remaining examples of lowland heathland comprising 3% of the habitat in the country. This area is important for a variety of species and delivers a range of ecosystem services. Its conservation is vital not only for local biodiversity but also for maintaining the ecological connectivity and resilience of heathland habitats across the region. In East Sussex, heathland declines have mirrored the trends of declining coverage within the wider Sussex area, mainly as a consequence of inappropriate land management, such as under grazing.

3.3.4 Rivers, Wetland, Marshes and Mudflats

East Sussex supports significant wetland areas, including the Pevensey Levels (SSSI and SAC) and Rye Harbour (SSSI and SPA) nature reserves, alongside rare reedbeds and marshlands. However, challenges persist, with almost 80 km of rivers artificially channelled and three-quarters of ponds in poor condition as of 1984, primarily due to silting, shading, pollution, or infilling. This indicates a pressing need for restoration and conservation efforts to improve the health and resilience of these aquatic ecosystems³⁹.

3.3.5 Coastal and marine habitat

East Sussex's marine habitats range from soft sediments to rocky reefs, encompassing a wide array of species and ecological structures. Notably, the East Sussex coast alongside the West Sussex coast has experienced significant loss in its kelp habitats since the 1980s, impacting associated species and ecosystem services. The Sussex Kelp Recovery Project (SKRP), a collaborative effort, focuses on restoring these kelp habitats, recognizing their benefits for biodiversity, carbon capture, and commercial fisheries⁴⁰.

3.4 Conclusions

This review of biodiversity and trends information within the two LNRS areas in Sussex has identified issues with loss of habitats and species, species declines and unfavourable condition of habitats. The key habitats of concern include ancient and semi-natural woodland, meadows, unimproved grassland, chalk and calcareous grassland, dry and wet heathland, wetland habitats including saltmarsh, lagoons, intertidal mudflats, vegetated shingle, remnant sand dunes and kelp forests.

Past and current pressures identified within this section include development, recreation, agricultural expansion, fertilizer application and ploughing, inappropriate land management, lack of grazing and nutrient enrichment. Impacts on ponds has occurred through silting, shading, pollution, or infilling.

In the following sections of this report, further evidence identifies future pressures, threats and impacts on nature in the East and West Sussex LNRS areas.

³⁹ East Sussex County Council (1994). State of Nature Report for East Sussex.

⁴⁰ Sussex Inshore Fisheries and Conservation Authority (2017)

4.0 Description of Pressures, Impacts and Issues Common to Both Areas

4.1 Introduction

There are a number of current and future pressures identified across Sussex which could impact the natural environment and its biodiversity. This section provides an overview of the common key pressures identified across the two Sussex LNRS areas. Sections 5 and 6 discuss pressures, impacts and issues which relate specifically to the East Sussex LNRS area (section 5) and the West Sussex LNRS area (section 6) respectively, where data is available.

4.2 Climate Change

Climate change will cause a number of environmental changes within Sussex, as outlined by the 2018 UK Met Office climate projections for the 21st Century. Summer temperatures could be up to 5.4°C hotter by 2070 and average summer rainfall could decrease by up to 47% by 2070, while there could be up to 35% more precipitation in winter. There will be an increase in the frequency and intensity of storms. This pattern may lead to more regular drought and likely water restrictions, drying groundwater and rivers and the drying of wetland habitats. Information on how habitats and species could be affected by changes in precipitation can be found in Section 4.3 and in Section 5 and 6 for each LNRS area.

The changing patterns in precipitation and storms makes parts of Sussex particularly vulnerable to an increased year-round risk of more frequent river, surface and coastal flooding. Sea levels could rise affecting coastal habitats, causing coastal squeeze and affecting coastal communities, potentially creating the need for more sea defence infrastructure⁴¹. Sections 5 and 6 identify the areas in West and East LNRS areas most at risk from sea level rise.

Climate change will have impacts on the survival of species and their lifecycles, their geographic range, and the condition of the areas they occupy. It is noted that climate change could act alongside other stressors to drive ecological change, such as a change in species distribution, lower survival rates or habitat loss⁴². The impacts of climate change are likely to cause negative changes to habitats, habitats distribution, and phenology⁴³ which could potentially be irreversible^{44, 45}.

Climate change could also result in soil erosion and instability and changing agricultural and forestry practices to account for longer growing seasons, new forms of pest control etc⁴⁶.

The impacts of climate change are already being felt, for instance with the record-breaking temperatures and drought experienced in 2022. These impacts are predicted to worsen in the coming years, with more frequent and intense flooding, drought and episodes of extreme heat⁴⁷.

The South Downs National Park extends across parts of West Sussex and East Sussex and Brighton & Hove. Average rainfall across the South Downs National Park was around 807mm

⁴¹ West Sussex County Council (2020) Climate Change Strategy 2020-2030

⁴² UK Parliament (2022) Climate Adaptation for Nature

⁴³ Phenology is the study of seasonal changes in plants and animals from year to year, such as flowering of plants, emergence of insects and migration of birds, especially their timing and relationship with weather and climate <https://naturescalendar.woodlandtrust.org.uk/what-we-record-and-why/why-we-record/what-is-phenology/>

⁴⁴ Chichester Harbour Conservancy- CHaPRoN project

⁴⁵ Natural England (2009) State of the Natural Environment in the South East

⁴⁶ West Sussex County Council (1993) An Environmental Review of West Sussex

⁴⁷ East Sussex County Council Climate Emergency Plan 2023-25

per annum in the west to 879 mm per annum in the east in 2016. The recharge of the chalk aquifers occurs during the autumn and winter and is abstracted for the public water supply. Changes to seasonal rain patterns and evaporation rates may affect the ability of the aquifer to recharge fully⁴⁸.

According to the State of the National Park Report 2012⁴⁹, climate change impacts were already being felt in terms of growing seasons and weather patterns, leading to changes in the distribution and abundance of species, the quality of habitats, the availability of water, and the viability of different types of cropping and land use within the South Downs.

The most climate change vulnerable areas in the Sussex LNRS areas are indicated to be:

- All of the river valleys;
- The coast and coastal plain around Chichester and Pagham Harbours;
- the Rother and Western Streams Catchment (although this is a mixed picture and in some areas there is low vulnerability); and
- The area between the High Weald National Landscape and South Downs National Park⁵⁰.

The National Park is already experiencing more unpredictable weather events causing drought, soil erosion and flooding. This is changing the landscapes as habitats come under pressure and agricultural systems and infrastructure struggle to adapt⁵¹.

The High Weald National Landscape area (parts of which are located in both East and West Sussex) is also seeing changes in economic land use, more harmful tree diseases and increased flooding⁵².

Figure 4.1 illustrates the vulnerability of the Sussex LNRS areas to climate change. The figure suggests that the East Sussex LNRS area may be more vulnerable to the impacts of climate change, as there appears to be more areas classed as 'very high vulnerability' than in the West Sussex LNRS area. Within the East Sussex LNRS area, Pevensey Bay/Hailsham and Rye/Camber are considered to have 'very high vulnerability'. Within the West Sussex LNRS area, Chichester/Bognor Regis and Shoreham-by-Sea are considered to have 'very high vulnerability'. This suggests that towns and settlements within coastal and estuarine areas in the Sussex LNRS areas - and subsequently the habitats and species in these areas - are more vulnerable to the impacts of climate change than in terrestrial areas.

⁴⁸ South Downs National Park Authority (2016) Climate Change Adaptation Plan

⁴⁹ South Downs National Park (2012) State of the National Park Report

⁵⁰ South Downs National Park (2020) People and Nature Network (PANN) Evidence and Action Report

⁵¹ South Downs National Park Authority website Major Issues. [Major Issues - South Downs National Park Authority](#)

⁵² High Weald AONB (2023) draft Management Plan 2024-2029

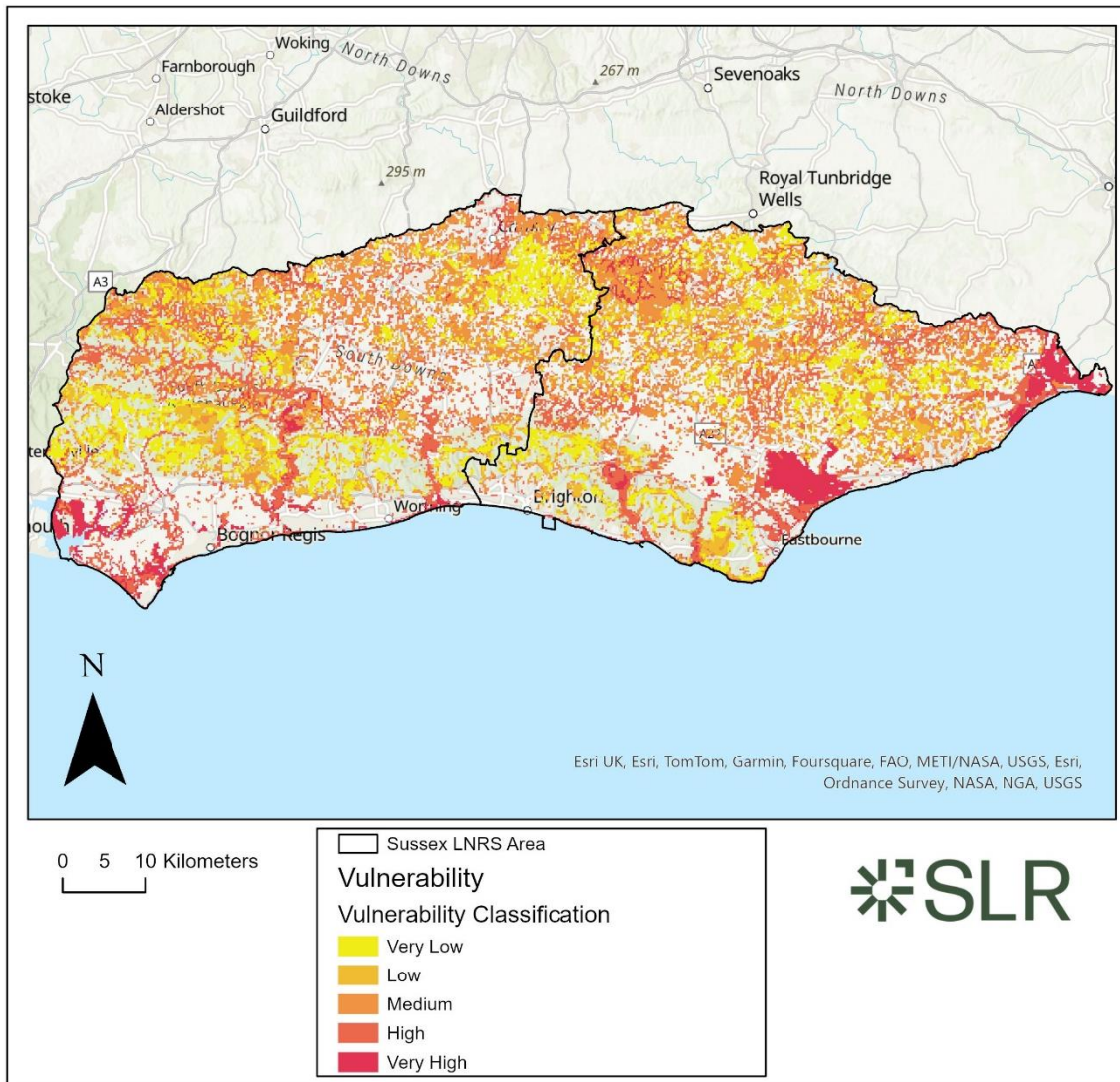


Figure 4.1: The vulnerability of the Sussex LNRS area to Climate Change

The remainder of this sub-section is divided into further sub-headings relating to temperature and precipitation, flood risk, coastal squeeze, water resources and abstraction as the information collated suggests that these are the key climate change related issues to be faced by both Sussex LNRS areas.

4.3 Temperature and Precipitation

All UK regions are expected to warm – more so in summer than in winter. Changes in average summer temperatures are expected to be greatest in parts of southern England. There has been an upward trend in average temperatures in the UK over the last 360 years and this is particularly relevant to the southeast. In Eastbourne, East Sussex, the average trend in temperature was an increase of over 1 degree Celsius during the 50 years between 1960 and 2010⁵³. By 2050, winter temperatures across the South Downs National Park are predicted to experience a mean increase of around 2.2°C, with an increase to average

⁵³ Natural England (2010) State of the Environment- South East England

seasonal rainfall of 16% across the southeast region also predicted⁵⁴. Summer rainfall in the southeast is likely to decline⁵⁵. The biggest changes, down by about 40%, were predicted in 2010 in parts of the far south of England (decreases range from 65% to 6%)⁵⁶. Relative humidity may decrease by up to 5-10% during summer, with the greatest reductions in southern England. A reduction in rainfall in summer months would adversely affect many wetland habitats. Lowland fens are particularly likely to be under increasing threat in southeast England⁵⁷. Solar radiation may increase on average, with the greatest increase expected in southern England⁵⁸.

Due to changes in temperature, many spring life-cycle events are likely to advance further in the future. Autumn life-cycle events are likely to occur progressively later. Species that do not adjust their phenology in response to climate change are more likely to experience declines in population, as this can affect the way they synchronise with other species as well as their productivity⁵⁹.

Many species and habitats are strongly influenced by temperature and rainfall and the interactions between these; therefore, climate change may bring a range of direct and indirect pressures and consequences for biodiversity. Hedgerows are vulnerable to drought and changes in climatic conditions, such as hotter, drier summers which may lead to a decrease in diversity of hedgerow species and associated flora. This will also reduce their effectiveness in terms of providing habitat connectivity within the landscape⁶⁰. Chalk grassland sites are at risk from influences including climate change and disease⁶¹. Some chalk grassland species are more sensitive to drought and heat stress than others. Overall species composition can change, with conditions favouring some grasses. Sites under 5Ha are more vulnerable as they have less resilience to change so small, isolated fragments of habitat may be lost⁶². Lowland heath in southeast England is potentially vulnerable to climate change, with reduced rainfall leading to changes in species composition. The composition and structure of heathlands are vulnerable to wildfire; fire risk may well increase with warmer conditions and any seasonal decrease in rainfall⁶³.

Increased air and sea surface temperatures have resulted in changes in the range sizes and distribution of a number of coastal animals. Rates of change observed in marine species have been greater than those observed in land-based and freshwater species⁶⁴. Divers in the 1980's recorded the presence of kelp as abundant or common from Selsey to Eastbourne in over 50% of their dive sites. However, since the 1980's Sussex has experienced a 95% loss in its kelp habitat due to pressures including climate change and storm damage. Changing water temperature and storm events reduce growth rates and reproductive success⁶⁵. The

⁵⁴ South Downs National Park Authority (2016) Climate Change Adaptation Plan

⁵⁵ South Downs National Park Authority (2016) Climate Change Adaptation Plan

⁵⁶ Natural England (2010) State of the Environment- South East England

⁵⁷ UK Research and Innovation (2015) Biodiversity Climate Change Impact Report Card

⁵⁸ UK Research and Innovation (2015) Biodiversity Climate Change Impact Report Card

⁵⁹ UK Research and Innovation (2015) Biodiversity Climate Change Impact Report Card

⁶⁰ South Downs National Park Authority (2016) Climate Change Adaptation Plan

⁶¹ Natural England, The South Downs National Park Authority (SDNPA) and the Sussex Biodiversity Record Centre (2012-2015) The state of lowland calcareous grassland within the South Downs National Park.

⁶² South Downs National Park Authority (2016) Climate Change Adaptation Plan

⁶³ UK Research and Innovation (2015) Biodiversity Climate Change Impact Report Card

⁶⁴ UK Research and Innovation (2015) Biodiversity Climate Change Impact Report Card

⁶⁵ Sussex Kelp Recovery Project <https://sussexwildlifetrust.org.uk/helpourkelp>

decline of this important habitat is likely to have caused a concomitant decline in associated species and ecosystem function⁶⁶.

Climate change can deprive pollinators of food supplies at times when they need them, increase their exposure to parasites and diseases, or change habitats so that they are no longer suitable. There may be gains as well as losses but a resilient network of good pollinator habitat across the area is needed for them to be able to adapt and take advantage of changes⁶⁷.

4.3.1 Flood Risk

The warming atmosphere is able to hold more moisture, which results in more frequent storms and intense rainfall. This is predicted to cause greater surface water flooding, as well as more frequent coastal and fluvial flooding from higher river flows and rising sea levels⁶⁸. In 2023, Brighton & Hove experienced 18 flash-flood incidents, and is ranked as the 8th highest Flood Risk Area in England⁶⁹.

As well as temporary inundation of land, flooding can affect habitats and species through causing pollution of watercourses. Development can increase flood risk through reducing infiltration and, in the past, resulting in the loss of functional floodplain through building. 'Urban creep' can increase the extent of hard surfaces in existing urban areas which often does not require planning permission (such as paving gardens). Climate change can cause the potential need to improve infrastructure either damaged by flooding or required to reduce flood risk and protect property⁷⁰. Any new infrastructure would need to be carefully designed to avoid negative effects on habitats and species.

Figure 4.2 shows how flood risk has changed over time, by highlighting areas of historical flood risk as well as current flood risk areas (zones 2 and 3).

⁶⁶ Sussex Inshore Fisheries and Conservation Authority (IFCA)

⁶⁷ West Sussex County Council (2019) Pollinator Action Plan 2019-2022

⁶⁸ East Sussex County Council (2016) Local Flood Risk Management Strategy 2016-2026

⁶⁹ Brighton and Hove City Council (2024). Adapting to Climate Change for a Sustainable Future.

⁷⁰ East Sussex County Council (2016) Local Flood Risk Management Strategy 2016-2026

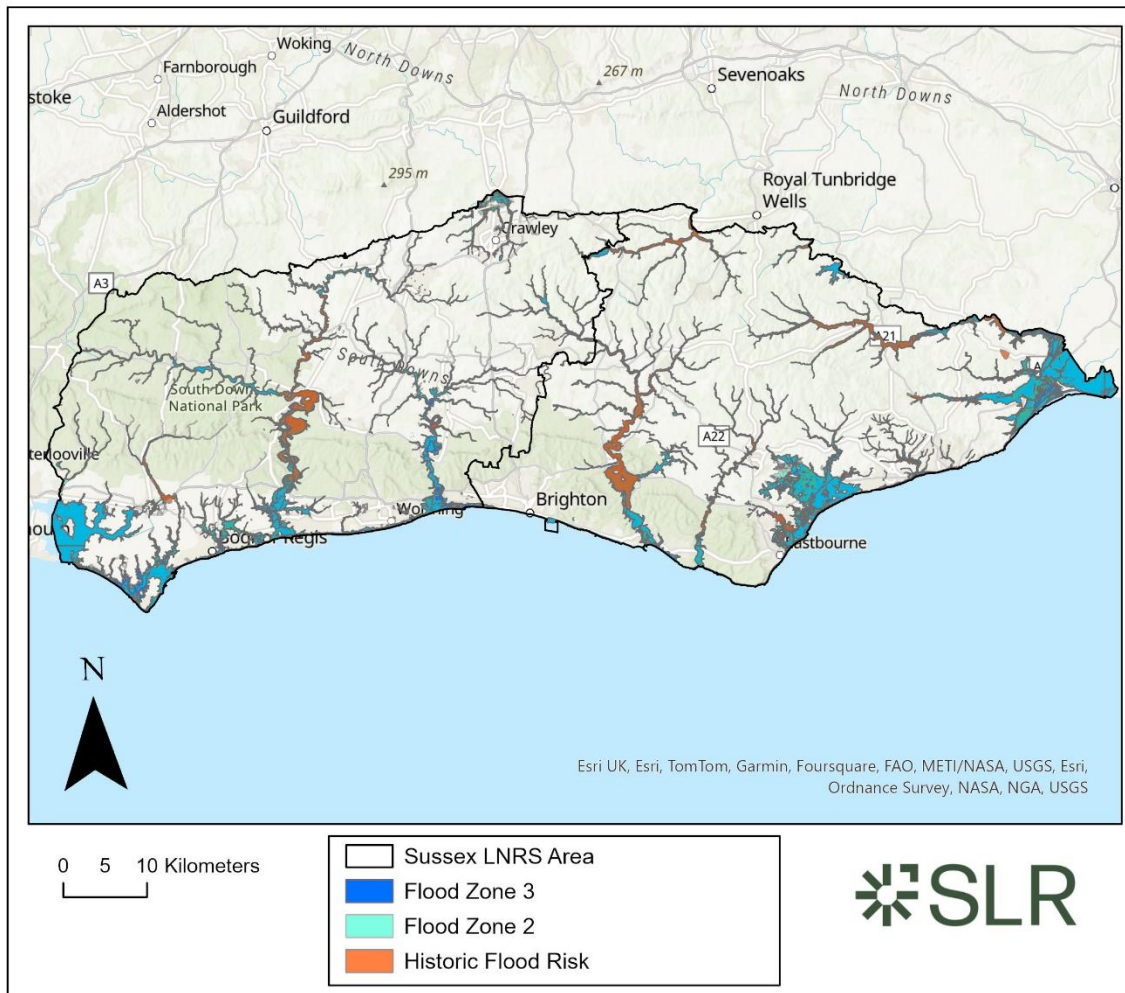


Figure 4.2: Flood risk over time in the Sussex LNRS

4.3.2 Coastal Squeeze

Sea level rise could result in coastal squeeze, where space for intertidal habitats is reduced by sea-level rise pushing against hard sea defences and built-up areas and this could adversely affect the condition of coastal habitats and possibly result in habitat loss⁷¹. Intertidal habitats such as salt marsh are experiencing the greatest losses.

Projected rises in sea level will have significant impacts by accelerating the natural erosion of coastal and intertidal habitats, and by changing the pace and nature of natural geomorphological processes. Soft cliffs and the vegetation communities that grow on them will be particularly affected, especially in the south and east of England, where the land is sinking slightly. Rising sea levels will result in conflict between (i) the need to maintain intertidal and coastal habitats (e.g. dune systems) by allowing the natural movement of coastlines and through managed realignment and (ii) the need to protect valuable inland coastal habitats (e.g. grazing marsh and saline lagoons)⁷². Further information about the potential effects of sea level rise in each LNRS area can be found in Sections 5 and 6.

⁷¹ Natural England (2009) State of the Natural Environment in the South East

⁷² UK Research and Innovation (2015) Biodiversity Climate Change Impact Report Card

4.3.3 Water Resources and Abstraction

Hotter temperatures and drier conditions could increase water scarcity, increase water demands by humans and could create negative effects on habitats, species and biodiversity. Climate change may make water neutrality in new developments harder to achieve as people may use more water in hotter temperatures⁷³.

By 2050 dry summers could result in 80% less water in the UK's rivers and reservoirs, especially in the southeast which already suffers from water stress⁷⁴.

The southeast is the most water stressed English region. In 2008/09, each person in the southeast used, on average, 156 litres of water per day. This was above the national average and is predicted to rise.

In 2007 in the southeast, 4,162 billion litres of water were abstracted from the environment. Abstraction is already affecting chalk rivers – an internationally rare wildlife habitat dependent on healthy flows fed by groundwater. Low flows lead to siltation, decline in mayfly, poor salmonid recruitment and loss of water crowfoot⁷⁵.

Since 1990, southern England has experienced an increased trend in soil moisture deficit, with a corresponding increase in water abstraction for irrigation. The economic impact of soil degradation in England was estimated in 2016 at between £250 and £350 million per annum⁷⁶.

Population growth and climate change will combine as key pressures on water resources within Sussex. Within the Sussex North Water Supply Zone abstraction rates are a concern⁷⁷. Increased temperatures in the future could exacerbate the situation and put habitats under further stress. New reservoirs are proposed in East and West Sussex, and a water recycling scheme and desalination plant are proposed in West Sussex to help with additional water needs in the future⁷⁸.

4.4 Development and Land Use

Development for housing, employment uses and infrastructure, as well as population increase in an area can result in land take, increased use of resources, increased pollution, and increased recreation pressure. The southeast of England is a densely populated area with relatively high property values. The region's proximity to London provides economic benefits. In 2008, the average density of new housing developments in the southeast was 36 dwellings per hectare⁷⁹.

The effects of development on nature can be the fragmentation of habitats⁸⁰, loss of habitats, disturbance to and displacement of species as well as other negative effects from pollution. The High Weald National Landscape draft Management Plan 2024-2029 attributes traffic, noise and light pollution to development which are degrading the National Landscape's tranquil and dark qualities.

⁷³ Water Neutrality - West Sussex County Council website <https://www.westsussex.gov.uk/planning/water-neutrality/>

⁷⁴ Brighton and Hove City Council Carbon Neutral 2030 Programme

⁷⁵ Natural England (2009) State of the Natural Environment in the South East

⁷⁶ South Downs National Park Authority (2016) Climate Change Adaptation Plan

⁷⁷ Water Neutrality - West Sussex County Council website <https://www.westsussex.gov.uk/planning/water-neutrality/>

⁷⁸ Water Resource South East. Consultation on regional plan [Water Resources South East \(engagementhq.com\)](https://www.engagementhq.com/water-resources-south-east/)

⁷⁹ Natural England (2009) State of the Natural Environment in the South East

⁸⁰ Natural England Green Infrastructure Framework

Management plans for the High Weald National Landscape and the South Downs National Park (parts of which are located in both East and West Sussex) discuss the pressure development is placing on these areas which are important for nature.

According to the High Weald Management Plan 2019-2024, an increase in greenfield development pressure for housing development is threatening the character of the National Landscape. Suburbanisation, including pressure for residential intensification unrelated to land management outside of towns and villages, and large replacement dwellings are occurring. The Management Plan also reports the loss of green fields to development and infrastructure, and conversion to other land uses such as planting of new woodlands. Light pollution impacts wildlife through disrupting circadian rhythms, migration, feeding and breeding across all animal groups including invertebrates, mammals, birds and amphibians⁸¹.

The updated High Weald draft Management Plan 2024-2029 states that the scale of housebuilding in the High Weald National Landscape is currently at an unprecedented level; the High Weald is experiencing the highest level of housing growth of any National Landscape in England. Pressure from ever increasing numbers of new developments is eroding the rural landscape. The draft Management Plan calls for transformational change in the way that development is planned for and delivered in the High Weald National Landscape in order to meet the climate, biodiversity and inequality challenges of the next 20 years.

The updated High Weald draft Management Plan 2024-2029 also cites recreational pressure causing degradation of nature, including biodiversity decline, erosion of habitats including sensitive geological features and damage to natural systems which also reduce people's experience of nature.

There is pressure to increase recreation and improve peoples' access to the countryside⁸². National Parks are large areas of land that are protected by law for the benefit of the nation. They were originally established by the 1949 National Parks and Access to the Countryside Act. The Environment Act 1995 revised the original legislation and set out two statutory purposes for National Parks in England and Wales:

- Conserve and enhance the natural beauty, wildlife and cultural heritage; and
- Promote opportunities for the understanding and enjoyment of the special qualities of National Parks by the public.

The South Downs National Park contains a network of paths and open access sites. A visitor survey revealed that walkers caused the most issues for land managers (59% of issues raised). This was particularly the case when dogs were walked off the lead or when walkers accessed private land. This led to disturbance to livestock as gates were left open and in a few cases animals were attacked by dogs as well as damage to wildlife.

Natural England suggests that the addition of significant numbers of households to areas surrounding wildlife sites presents the risk of increasing recreational pressure to levels which could adversely affect their conservation status⁸³. There is conflict between providing access to the countryside and nature conservation sites. Enforcement and maintenance are the key issues identified within the ESCC (2017) Rights of Way Improvement Plan 2007-2017.

Recreational users can cause problems for land managers, for example, by allowing dogs to disturb grazing animals. Illegal use of rights of way by motorised vehicles can be a problem in some parts of the South Downs National Park⁸⁴.

⁸¹ High Weald AONB (2023) High Weald AONB draft Management Plan 2024-2029

⁸² East Sussex County Council (2017) Rights of Way Improvement Plan 2007-2017

⁸³ Natural England (2009) State of the Natural Environment in the South East

⁸⁴ South Downs National Park (2012) State of the National Park Report.

On some sites recreational access can have a detrimental effect on biodiversity through effects such as trampling, disturbance, erosion or general degradation such as litter and anti-social behaviour. Urban edge sites in particular can be subject to a high level of impacts including flytipping, arson, motor vehicle use and damage to infrastructure preventing habitat management⁸⁵.

The ESCC (2017) Rights of Way Improvement Plan 2007-2017 reports increased use of the path network, in particular of edge of town paths, often for dog walking, but also other forms of recreation. There is pressure to increase recreation and improve peoples' access to the countryside. As well as urban edges, recreation pressure is also high at 'honey-pot sites' such as at the coast and at several sites within the South Downs National Park.

Low river flows and a decline in raw water quality are both noted as key issues in Sussex within the South East Water (2023) Draft 25-year Environment Plan. Increasing demands for water due to population growth could exacerbate these issues.

Sediment is a big concern for kelp and shellfish populations. Urban development and farming, as well as trawling and dredging, increase levels of sedimentation and nutrient loading in the coastal environment. Increased sediment can smother or scour the rocky substrate so that kelp can not attach itself to the seafloor. It also increases turbidity which reduces the levels of light in the water column, stunting growth. The SKRP focuses on four historically common kelp species of Sussex: oarweed, tangle, sugar kelp and furbellows⁸⁶.

As mentioned under section 4.2, since the 1980's Sussex has experienced a 95% loss in its kelp habitat due to pressures including development (decline in water quality) and farming practices (eutrophication)⁸⁷. The decline of this important habitat is likely to have caused a concomitant decline in associated species and ecosystem function⁸⁸.

4.5 Invasive Species and Disease

Invasion by non-native and introduced species has been identified as a pressure on biodiversity within Sussex⁸⁹. Numbers of invasive species across the UK, including Sussex, have increased since 1970⁹⁰. Invasive species are a threat to native species, as they can outcompete them for food, light and nesting sites. They often breed quickly, and if left unmanaged, can dominate an environment within years. Invasive species are considered to be such a large issue that they are now regarded as the second greatest threat to global biodiversity after habitat loss⁹¹. In 2012, West Sussex recorded 5,057 invasive alien species⁹².

Invasive species in woodland habitats across Sussex include grey squirrels, common rhododendron, and deer. These species have been creating issues for woodland habitats within the High Weald National Landscape for the last 30 years⁹³. Non-woodland habitats -

⁸⁵ South Downs National Park (2020) People and Nature Network (PANN) Evidence and Action Report.

⁸⁶ Furbellows is not a true kelp, but is often considered a pseudokelp due to similar appearance and ecology

⁸⁷ Sussex Kelp Recovery Project <https://sussexwildlifetrust.org.uk/helpourkelp>

⁸⁸ Sussex Inshore Fisheries and Conservation Authority (IFCA)

⁸⁹ Natural England (2009). State of the Natural Environment in the South East.

⁹⁰ State of Nature Partnership (2023). State of Nature Report.

⁹¹ South Downs National Park (2012). State of the National Park Report.

⁹² Sussex Biodiversity Record Centre (2012). Designations and Priority Habitats in West Sussex.

⁹³ High Weald Joint Advisory Committee (2019). High Weald AONB Management Plan 2019-2024.

such as grassland and heathland - have also been invaded by plant species such as Himalayan balsam, giant hogweed, Japanese knotweed, cotoneaster and snowberry⁹⁴.

Across Sussex's freshwater environment, water vole populations have been devastated by American mink following their release from fur farms in the 1950s. Water voles are at risk due to the predatory nature of American mink, as opposed to being outcompeted. Additionally, the North American signal crayfish is outcompeting the UK's white-clawed crayfish following their importation for commercial farming. As a result, the native species is now endangered, despite being protected under the Wildlife and Countryside Act, 1981. White-clawed crayfish are at risk due to increased competition, as well as the predatory nature of signal crayfish.

Disease caused by invasive species and pathogens has also been identified as a pressure on biodiversity within Sussex. The most notable diseases affecting species within Sussex are Dutch Elm Disease and Ash Dieback. Dutch Elm Disease has been affecting Elm trees across Sussex - and the UK - since the 1960s⁹⁵. East Sussex was at particular risk from this disease as the LNRS area contains the only population of mature English elms in the world. Brighton & Hove, for example, contains over 17,000 elm trees, and subsequently the city is included in the 'national elm collection'⁹⁶. Although instances of the disease have fallen across Sussex due to effective management practices, it is still evident⁹⁷. Around 400 mature elms have had to be felled in Seaford, Lewes and Eastbourne since 2017 due to Dutch Elm Disease⁹⁸.

Ash dieback has been affecting native European ash (*Fraxinus excelsior*) trees across Sussex and the UK since the 1990s⁹⁹. The disease, caused by an airborne, invasive fungus (*Hymenoscyphus fraxineus*), can directly kill the tree through leaf loss and crown dieback, or weaken it enough for it to be killed by other pests and pathogens. The disease has the potential to kill approximately 2 billion ash trees (95%) over the next 10-20 years. This will have a significant impact on biodiversity within West Sussex, particularly within the South Downs National Park, where approximately 21% of all trees are ash¹⁰⁰ and similar impacts are anticipated in East Sussex.

As well as having a significant impact on biodiversity that rely on these species for shelter or food, the loss of trees such as ash and elm will have implications on other ecosystem services they support, such as carbon sequestration, flood minimisation and soil protection¹⁰¹.

It is suggested that the impact of invasive species and disease could worsen as a result of climate change, and an increase in climatic compatibility¹⁰². Increases in temperature may favour species that are vectors for disease; this could lead to the additional loss of tree and plant species. Species that are adapted to, or reliant on, native trees may subsequently be impacted by a shift in their range¹⁰³. There is also likely to be increased competition from invasive and non-native species for resources, such as water which may be subject to drought or water stress.

⁹⁴ South Downs National Park Authority (2016). The state of lowland calcareous grassland within the South Downs National Park (2012-2015).

⁹⁵ East Sussex County Council (1994). State of Nature Report for East Sussex.

⁹⁶ Brighton and Hove City Council (2023). National Elm Collection.

⁹⁷ Dutch Elm Disease- East Sussex County Council

⁹⁸ East Sussex County Council (2023). Urban Tree Planting.

⁹⁹ East Sussex County Council (1994). State of Nature Report for East Sussex.

¹⁰⁰ West Sussex County Council (2019). Ash Dieback Action Plan.

¹⁰¹ West Sussex County Council (2020). West Sussex Tree Plan.

¹⁰² South Downs National Park Authority (2021). South Downs Wildlife Recovery Bulletin March 2021.

¹⁰³ South Downs National Park Authority (2016) Climate Change Adaptation Plan

4.6 Land Management

Poor land management, such as intensive land use or inappropriate management has been identified as a pressure on biodiversity within Sussex for the last 30 years¹⁰⁴.

Intensive land use, such as through monoculture (the growing of a single crop across a large land area) can lead to the loss of habitats and food sources, which in turn can threaten species. The decline in woodland and farmland bird species has been attributed to changes in agriculture¹⁰⁵. Monoculture also threatens pollinators such as bees, moths and butterflies, by reducing their food source and nesting resources. This can lead to simplified pollinator communities dominated by common generalist species¹⁰⁶. Monoculture also leads to soil degradation, due to exhaustion and the depletion of nutrients. Degraded soil is not able to support the biodiversity that relies on it, which can often be entire ecosystems; this can subsequently lead to the loss, and possible extinction, of species. Soil degradation will also have implications on the ecosystem services they support, such as carbon sequestration and flood minimisation¹⁰⁷. Intensive land use has led to the decline of 90% of lowland calcareous grassland habitats within the South Downs National Park¹⁰⁸.

The use of chemicals such as pesticides and herbicides is common across agricultural landscapes focused on monoculture, creating direct and indirect impacts to biodiversity. The use of 26 systematic pesticides (neonicotinoids) is of particular concern, due to their high toxicity to insects. In 2018, DEFRA restricted all outdoor use of three neonicotinoid pesticides - Clothianidin, Imidacloprid and Thiamethoxam - due to the risks they posed to pollinators¹⁰⁹. However, these neonicotinoids still persist in soil, leading to exposure to species¹¹⁰. Pollinator species are identified as being most at risk from the use of chemicals such as these; neonicotinoid treated crops are known to have near-lethal effects on bumble bees, solitary bees and honey bees¹¹¹. Half of the UK's 27 bumblebee species are in decline, with 3 species already going extinct¹¹².

Pesticides and herbicides used in agriculture can also have a significant impact on aquatic biodiversity. Information on how habitats and species could be affected by pesticides and herbicides can be found in Section 4.7.2.

Inappropriate land management practices such as grazing, are also having an impact on the biodiversity of Sussex. The biodiversity of calcareous (chalk) grassland, lowland meadow, coastal and flood plain grazing marsh, acid grassland and some areas of lowland heathland, are reliant on grazing. Uncontrolled grazing levels in particular has been identified as an issue for lowland calcareous grasslands within the South Downs National Park. Areas that have experienced a lack of grazing, have been found to be susceptible to scrub encroachment.

¹⁰⁴ East Sussex County Council (1994). State of Nature Report for East Sussex.

¹⁰⁵ Natural History Museum (2023). UK Bird Species in Decline.

¹⁰⁶ DEFRA (2018). Management and drivers of change of pollinating insects and pollination services.

¹⁰⁷ High Weald Joint Advisory Committee (2019). High Weald AONB Management Plan 2019-2024.

¹⁰⁸ South Downs National Park Authority (2016). The state of lowland calcareous grassland within the South Downs National Park (2012-2015).

¹⁰⁹ DEFRA (2022). National Pollinator Strategy: Pollinator Action Plan 2021-2024.

¹¹⁰ West Sussex County Council (2019). Pollinator Action Plan 2019-2022.

¹¹¹ DEFRA (2018) Management and drivers of change of pollinating insects and pollination services.

¹¹² West Sussex County Council (2019). Pollinator Action Plan 2019-2022.

However, areas that have experienced overgrazing have been found to have declined in habitat quality¹¹³.

4.7 Pollution

4.7.1 Air Pollution

Air pollution is identified as a pressure to the biodiversity of Sussex, as high levels of air pollution can lead to loss of species through soil acidification and eutrophication. Pollutants of concern include Nitrogen Dioxide (NO₂), particulate matter (PM_{2.5} and PM₁₀), and ozone, with transport and industry being the main sources of pollution¹¹⁴. Ground level ozone was of particular concern in 1993, with Sussex experiencing some of the highest concentrations in the UK¹¹⁵. Pollutants including benzene and ground level ozone were of most concern prior to 2000, due to high concentrations being generated from vehicles. Benzene is no longer a concern however¹¹⁶.

In 2022, Sussex experienced 7 days of high ozone levels across 3 sites. Moderate levels of PM₁₀ and PM_{2.5} were measured at all sites across 2022, with 8 instances of high levels of PM₁₀, and 5 instances of high levels of PM_{2.5}. Very High levels of PM₁₀ were recorded at seven sites and five PM_{2.5} sites. There were no occurrences of 'Moderate' sulphur dioxide (SO₂) or 'Moderate' NO₂ levels recorded during the year. Between 2018 and 2022, concentrations for all air pollutants in Sussex declined¹¹⁷.

No data has been found which indicates whether past air pollution has persisted in soils within the LNRS areas. According to research in other locations, nitrogen deposition has been found to alter nitrogen cycling and nitrogen status in soils across habitats such as forests, heathlands and grasslands. Studies have identified that elevated extractable (i.e. available) nitrogen stores can persist in grassland soils for a number of years, potentially as a result of persistent effects on soil nitrogen cycling. Similar trends have also been identified within heathland and forest soils. Overall, however, the extent and duration of persistent effects on soil nitrogen availability and cycling seems to vary depending upon the extent of pollution exposure, where greater levels of exposure can result in slower rates of recovery.

The deposition of acidifying pollutants can induce soil acidification within grasslands, heathlands and forests. Soil acidification can promote the loss of major plant nutrients from the soil complex, as well as mobilising phyto-toxic metals. Grassland studies have identified that soil acidification can persist for a number of years, whereby the capacity of the soil to replace lost nutrients (e.g. from the weathering of underlying bedrock) may play an important factor in the speed of soil recovery. Heathland and forest studies have also shown evidence for an initial persistence of soil acidification followed by a recovery of soil pH. Moreover, a persistent loss of soil nutrients and elevation in toxic metals has also been observed in forest soil¹¹⁸.

¹¹³ South Downs National Park Authority (2016) The state of lowland calcareous grassland within the South Downs National Park (2012-2015)

¹¹⁴ East Sussex Environment Board (2020) East Sussex Environment Strategy

¹¹⁵ West Sussex County Council (1993) An Environmental Review of West Sussex

¹¹⁶ West Sussex County Council (1993) An Environmental Review of West Sussex.

¹¹⁷ Sussex Air Quality Partnership (2023) Sussex Annual Air Quality Monitoring Report

¹¹⁸ Clark, C. M., Hobbie, S. E., Venterea, R., Tilman, D. (2009). Long-lasting effects on nitrogen cycling 12 years after treatments cease despite minimal long-term nitrogen retention. *Global Change Biology*. 15, 1755-1766.

Vinton, M. A. and Burke, I. C. (1995). Interactions between individual plant species and soil nutrient status in shortgrass steppe. *Ecology*. 76, 1116-1133.

4.7.2 Water Pollution

When chemicals such as pesticides and herbicides are washed off crops (either through natural methods such as rainfall, or anthropogenically), they enter the water cycle as diffuse pollution¹¹⁹. This can lead to excessive nutrient enrichment within water bodies, leading to blooms of algae, a process known as eutrophication. Algae blooms significantly reduce water quality, through increased pH and decreased oxygen levels. This threatens the survival of aquatic species, as well as terrestrial species that rely on the contaminated water body for sustenance.

As a result of rising nitrate levels from fertiliser use, a significant number of water-bodies across Sussex are failing Water Framework Directive (WFD) indicators of water quality. Out of the 146 water bodies designated by the WFD across Sussex, 52 are classed as bad or poor status for ecological quality¹²⁰. All water bodies failed for chemical quality. The bathing water quality at Bognor Regis, for example, is classified as poor, and swimming is subsequently not advised¹²¹. Coastal habitats are also being impacted due to elevated nutrient levels in estuaries¹²². Bosham Channel in West Sussex, for example, is noted as being affected by nutrient runoff from arable farmland¹²³.

Changing land use (as a result of development) and an increased frequency of heavy rainfall events (as a result of climate change) are also having an impact on water pollution, by putting pressure on Waste Water Treatment Works. This is leading to increased storm discharges of polluted water into water bodies, resulting in excessive nitrates and the growth of macroalgal weed. This creates issues for saltwater and freshwater habitats, important to biodiversity, such as Chichester Harbour¹²⁴.

High levels of polyfluoroalkyl substances (PFAS), also known as ‘forever chemicals’ have been found in the River Ouse¹²⁵. These chemicals are widely used to create household items such as washing detergent. There is growing evidence of their harmful impact wildlife.

In 1995, three major, three significant and 322 minor pollution incidents were reported relating to Rivers in West Sussex¹²⁶. Although water pollution incidents have reduced since 1995, they are still occurring. Between 2018 and 2022, Worthing experienced 31 water pollution incidents, 2 of which were classed as significant.

Power, S.A., Green, E.R., Barker, C.G., Bell, J.N.B. and Ashmore, M.R. (2006). Ecosystem recovery: heathland response to a reduction in nitrogen deposition. *Global Change Biology*. 12, 1241-1252.

Chen, Y. and Hogberg, P. (2006). Gross nitrogen mineralization rates still high 14 years after suspension of N input to an N-saturated forest. *Soil Biology & Biochemistry*. 38, 2001-2003.

Högberg, P., Fan, H., Quist, M., Binkley, D. and Tamm, C.O. (2006). Tree growth and soil acidification in response to 30 years of experimental nitrogen loading on boreal forest. *Global Change Biology*. 12, 489-499.

Boxman, A.W., Van Dam, D., Van Dijk, H.F.G., Hogervorst, R.F. and Koopmans, C.J. (1995). Ecosystem responses to reduced nitrogen and sulphur inputs into two coniferous forest stands in the Netherlands. *Forest Ecology and Management*. 71, 7-29.

Koopmans, C. J., Lubrecht, W. C. and Tietema, A. (1995). Nitrogen transformations in two nitrogen saturated forest ecosystems subjected to an experimental decrease in nitrogen deposition. *Plant and Soil*. 175, 205-218.

¹¹⁹ High Weald Joint Advisory Committee (2019) High Weald AONB Management Plan 2019-2024

¹²⁰ Environment Agency (2023) South East River Basin District Data Summary

¹²¹ Environment Agency (2023). Bathing Water Profile for Bognor Regis.

¹²² Natural England (2009) State of the Natural Environment in the South East

¹²³ Chichester Harbour Conservancy (2019) Chichester Harbour AONB Landscape Character Assessment

¹²⁴ Chichester Harbour Conservancy (2019). Chichester Harbour AONB Management Plan 2019-2024.

¹²⁵ Wildlife and Countryside Link (2020). Forever Chemicals.

¹²⁶ West Sussex County Council (1997) State of the Environment

4.7.3 Plastic Pollution

Biodiversity is also affected by plastic pollution, as species can become trapped by fishing nets or plastic can holders. Plastic is also often mistaken for food, allowing it to enter the food chain and poison a number of species. Chichester Harbour is particularly affected by marine-based plastic pollution¹²⁷.

The Ouse and Adur River Trust (OART) has developed a 'Preventing Plastic Pollution' Project across Sussex¹²⁸. The project monitors 16 sites across the Ouse and Adur catchment, recording and removing source of plastic from the water body. OART are also undertaking brand audits to understand the sources of plastic pollution in Sussex, enabling work with local businesses to reduce their environmental impact.

¹²⁷ Chichester Harbour Conservancy (2019). Chichester Harbour AONB Management Plan 2019-2024.

¹²⁸ Ouse and Adur Rivers Trust (2022). Preventing Plastic Pollution.



5.0 Description of Anticipated Pressures, Impacts and Issues Affecting the Natural Environment in West Sussex

5.1 Introduction

This section presents information specifically related to pressures, impacts and issues identified for West Sussex. No specific land management, invasive species and disease or pollution pressures, impacts or issues particular to West Sussex have been identified. The sources reviewed suggest these issues are common to both East and West Sussex.

5.2 Climate Change

5.2.1 Temperature and Precipitation

Wet habitats, especially wet woodlands in Horsham, are some of the most biodiverse habitats in the UK and the drying up of the landscape has been a significant factor in recent biodiversity loss, especially in declines of invertebrates¹²⁹. Warmer climate could mean wet heathland sites dry up, reducing ecosystem diversity¹³⁰.

5.2.2 Flood Risk

Flooding has occurred throughout West Sussex at many different locations. To identify the areas in the LNRS area which are at risk of flooding, existing flood risk mapping and reports of flooding are continually reviewed to ensure that the understanding of flood risk is based on the best available data.

Pressures from climate change, including extreme weather events, are likely to increase the number of sewer flooding events in West Sussex. Areas previously known to have experienced regular sewer flooding are Worthing and Durrington, the Manhood Peninsula, Barnham, North Lancing, Littlehampton, Shoreham and Burgess Hill¹³¹. In 2021, Southern Water were fined for releasing combined sewer overflows along the West Sussex coast, in order to try and manage excess rainwater.

25 flood risk Priority Areas have been identified in West Sussex. The West Sussex Flood Risk Management Strategy has focused on Priority Areas because funding for capital projects typically requires a high-cost benefit ratio that is generally not met by single residential property projects. The Priority Areas relate to property at risk and are generally located in the east of the LNRS area, reflecting the higher risk of surface water flooding in these areas. The 25 Priority Areas identified to be most at risk of flooding from surface water flooding will be considered first for flood risk reduction investigation work by Risk Management Authorities (RMAs)¹³².

¹²⁹ Horsham District Nature Recover Nature Report (2021) Horsham District Council and Sussex Wildlife Trust

¹³⁰ South Downs Wooded Heath Habitat Potential Model (2011). A Sussex Biodiversity Record Centre report funded by the South Downs Heathland Partnership

¹³¹ West Sussex County Council (2021) Draft Local Flood Risk Management Strategy 2021-2026

¹³² West Sussex County Council (2021) Draft Local Flood Risk Management Strategy 2021-2026

In West Sussex where many of the communities are coastal, or near tidal rivers, sea level rise could be significant¹³³. Warmer, wetter winters may result in increased flood and storm events, which may damage habitats like shingle banks and sand dunes¹³⁴.

5.2.3 Coastal Squeeze

The length of natural coastline in Chichester Harbour is decreasing due to the installation of shoreline defences; this causes coastal squeeze, causing the loss of saltmarsh habitat, affecting the natural setting of the Chichester Harbour National Landscape.

According to the Chichester Harbour Management Plan¹³⁵, sea level rise of 0.53 metres-0.98m is predicted by 2100. It is identified that this would affect coastal footpaths, and lowland farming.

The national populations of four of the notified wader species have shifted range in response to climatic factors, which explains part of the declines seen. The number of nesting terns has declined as a result of climate change (sea level rise and increased severe weather events such as storms). Pressures on high tide roosts are also reported and inappropriate coastal management¹³⁶.

The Chichester Harbour Landscape Character Assessment (2019) identifies the following climate-related risks due to sea level rise which could affect parts of the National Landscape and specific habitats:

- Chichester Harbour Mouth: sea level rise and erosion could lead to the loss of existing saltmarsh and is a long-term threat to East Head. There is the possibility that the sea will breach through the narrow 'hinge' of East Head.
- Chichester Harbour Central Basin: sea level rise and erosion could lead to the loss of existing saltmarsh, and of sand and shingle spits and islands.
- Thorney Channel Head, Itchenor Reach and Bosham Channel: sea level rise and erosion could lead to the loss of existing saltmarsh.
- Wittering Coast: sea level rise could lead to loss of low-lying coastal grazing marsh; and
- Sea level rise poses risks to Snow Hill Inlet, Thorney Island, Chidham Peninsula, Bosham Peninsula, Havant to Chichester Coastal Plain and West Manhood Peninsula¹³⁷.

An interactive sea level rise map¹³⁸ based on topography (i.e. it does not factor in sea defences) identifies that all of the West Sussex coast is at risk from sea level rise by 2050 with large areas at risk of inundation from the sea at Chichester Harbour, Pagham Harbour, West and East Wittering, land between Bognor Regis and Littlehampton and inland towards Arundel and the South Downs along the course of the River Arun. The map identifies the need for sea defences and / or coastal flood management in these areas as a result of the risk from future sea level rise.

¹³³ West Sussex County Council (2020) Climate Change Strategy 2020-2030

¹³⁴ Chichester Harbour AONB Management Plan 2019-2024

¹³⁵ Chichester Harbour AONB Management Plan 2019-2024

¹³⁶ Condition Review of Chichester Harbour Sites 2021

¹³⁷ Chichester Harbour AONB (2019) Landscape Character Assessment

¹³⁸ Coastal Risk Screening Tool developed by Climate Central <https://coastal.climatecentral.org/>

5.2.4 Water Resources and Abstraction

Prior to 2000, water consumption and water stress was an issue within West Sussex as a result of increasing development and thus excessive abstraction. In 1994, it was estimated that 270 litres of water were supplied to every person in the area each day¹³⁹.

Climate change is predicted to have a significant impact on water within the South Downs National Park. Groundwater fed rivers such as the River Meon could see reduced flows of between 5–10%. Rivers within clay catchment areas such as the River Ouse could see its summer flows reduced by 30%. Concerns have been raised that groundwater abstraction within the Sussex North Water Supply Zone may be harming biodiversity within internationally designated sites. Southern Water supplies water to Horsham District, parts of Crawley Borough, the northern part of Chichester District (and parts of the South Downs National Park within those Local Authorities) from its Sussex North Water Resource Zone (WRZ).

Water supplied by Southern Water within the zone area is sourced from abstraction points that are hydrologically linked to the Arun Valley, which includes internationally designated sites (a Special Protection Area (SPA), a Special Area of Conservation (SAC) and a Ramsar site). Natural England has raised significant concerns regarding the current abstraction (and any increase in abstraction required to serve any development), advising that it cannot conclude with certainty that this process is not having an adverse impact on site integrity through a reduction in water supply and deterioration of habitat at designations including Amberley Wild Brooks Site of Special Scientific Interest (SSSI), Pulborough Brooks SSSI and Arun Valley Special Protection Area (SPA), Arun Valley Special Area of Conservation (SAC) and Arun Valley Ramsar site.

In October 2021, Natural England issued a Position Statement to WSCC. The statement sets out that it cannot be concluded that the existing abstraction within the zone is not having an adverse impact on the Arun Valley sites and advises that development within the zone must not add to this impact.

Investigations and discussions between Southern Water, the Environment Agency and Natural England on the long-term sustainability of the abstraction points are ongoing, including a sustainability investigation to assess what level of ground and surface water abstractions are sustainable. In the meantime, Natural England has advised the Local Planning Authorities (LPAs) that development in the Sussex North WRZ region must not add to this potential adverse effect. This can be achieved by making development within the WRZ “water neutral”. In other words: *“For every new development, total water use in the region after the development must be equal to or less than the total water-use in the region before the new development.”*

Development proposals within the zone area that would lead to an increase in water demand will need to demonstrate and robustly evidence ‘water neutrality’. Water neutrality statements are required with planning applications¹⁴⁰.

5.3 Development and Land Use

In 1991, the population of West Sussex was 712,300 (3.6 persons per hectare)¹⁴¹. In 2021, the population of West Sussex was 882,700¹⁴², a 23.9% increase since 1991. By 2036, the population of West Sussex is predicted to reach 955,536¹⁴³. In 1991, most of the larger

¹³⁹ West Sussex County Council (1997) State of the Environment

¹⁴⁰ Sussex North Water (December 2022) Neutrality Study: Part C – Mitigation Strategy Final Report

¹⁴¹ West Sussex County Council (1993) An Environmental Review of West Sussex

¹⁴² Census (2021). West Sussex Briefing 1 Population.

¹⁴³ West Sussex County Council (2021). Population forecasts.

settlements in West Sussex were coastal, including Bognor Regis, Littlehampton, Worthing and Adur/Shoreham-by-Sea. Crawley, to the northeast of the county, was also densely populated. The 2021 Census highlights that these settlement patterns still exist, with Crawley, Worthing and Adur having the highest population densities in West Sussex¹⁴⁴.

The urban area of West Sussex grew by 52% between 1945 and 1990. Between 1971 and 1981 the developed area of the LNRS area grew by 13% from 18,833 to 21,231 ha. Between 1971 and 1991, the area of land covered by development increased from 12.5% to 15.1%; agricultural areas decreased from 64.2% to 62.2%; woodland and other habitats remained fairly stable. Over 2900 ha of development occurred on semi natural habitats between 1971 and 1991¹⁴⁵.

In 1981, transport infrastructure covered 6,230 ha of West Sussex (3%). This was an increase of 4% since 1971. Improved grassland, arable land, woodland and unimproved grassland were lost as a result of these developments¹⁴⁶.

The Knepp Project is an example of how nature restoration can occur in an area where there is considerable development. There are opportunities for land to be linked with other habitats in the area, such as St Leonard's Forest and Ashdown Forest via a wildlife corridor¹⁴⁷.

The South Downs National Park is important for chalk grassland. Chalk grassland has suffered a significant decline, particularly in the last 70 years. It is estimated that, due to factors such as agricultural intensification, abandonment and urbanisation, approximately 90% of the original habitat has been lost. Chalk grassland sites are at further risk from influences including climate change and disease¹⁴⁸.

The South Downs National Park has experienced major housing development around its borders. These new communities are predicted, by the South Downs National Park Authority, to have a significant impact; for example, on water abstraction and treatment, transport systems and because people will want to and should have access to enjoy the South Downs. Although abstraction has been reduced on some vulnerable and important catchments like the Itchen, both the aquifers and river flows remain vulnerable to over use, and household per capita consumption is still higher than the national average (as discussed in Section 5.2.4)¹⁴⁹. The South Downs National Park Authority states that the Chichester/Rother catchment is under pressure from development around Midhurst and Petworth¹⁵⁰.

Urbanization can cause fragmentation of habitats such as wooded heath and calcareous grassland, both of which are found within the South Downs^{151, 152}.

Over 300 planning applications are submitted each year in and around Chichester Harbour¹⁵³. A number of species, including overwintering birds, common seals, grey seals and water voles, are sensitive to recreational disturbance, as it can reduce time spent by species feeding

¹⁴⁴ Census (2021). West Sussex Briefing 1 Population.

¹⁴⁵ West Sussex County Council (1997) State of the Environment

¹⁴⁶ West Sussex County Council (1993) An Environmental Review of West Sussex

¹⁴⁷ CPRE Sussex [Climate change threatens iconic Sussex landscape - CPRE Sussex](#)

¹⁴⁸ Natural England, The South Downs National Park Authority (SDNPA) and the Sussex Biodiversity Record Centre (2012-2015) The state of lowland calcareous grassland within the South Downs National Park

¹⁴⁹ South Downs National Park Authority website Major Issues. [Major Issues - South Downs National Park Authority](#)

¹⁵⁰ South Downs National Park (2020) People and Nature Network (PANN) Evidence and Action Report.

¹⁵¹ South Downs National Park Lowland Calcareous Grassland Habitat Potential Model (2012). A Sussex Biodiversity Record Centre (SxBRC) report funded by the South

¹⁵² South Downs Wooded Heath Habitat Potential Model (2011). A Sussex Biodiversity Record Centre report funded by the South Downs Heathland Partnership

¹⁵³ Chichester Harbour AONB Management Plan 2019-2024

and resting. On average, 1 in 4 households have a dog in southeast England, which results in potentially frequent disruptions to the wildlife as more houses are built. Recreational pressure also increases erosion of sand dunes at East Head. To help address this, all new developments within 5.6 kilometres of the Chichester Harbour Special Protection Area (SPA) are required to pay a levy to be used to raise awareness of recreational disturbance and thereby help to mitigate the problem. High levels of light pollution can also impact nocturnal species - the number of greenhouses in and around the National Landscape are contributing to this. Urbanisation leads to the loss of hedgerows and trees. Chichester Harbour Conservancy have little control over development due to their position as a non-statutory consultee¹⁵⁴.

New developments and instances of heavy rainfall (becoming more common with climate change) puts pressure on Waste Water Treatment Works leading to storm discharges into Chichester Harbour. This affects water quality, which results in excessive nitrates and the growth of macroalgal weed. This is a problem for habitats and wildlife, particularly those in saltwater and freshwater habitats. Impacts of bacteria from storm discharges and agricultural run-off cause nutrient pollution, and thus failures of the classification of shellfish and bathing waters. Chichester Harbour is a designated Bass Nursery Area and its fish stocks need to be protected¹⁵⁵.

Chichester Harbour Mouth is identified as a particular part of Chichester Harbour under pressure from recreation: large seasonal crowds disturb tranquillity, and cause erosion of dunes at East Head

Development pressure within Chichester Harbour is identified at:

- Bosham Channel: harbourside housing development on the adjacent peninsulas – loss of trees and hedgerows, increasing bulk/scale of development and introduction of urban features at the water's edge;
- Itchenor Reach: Any potential new harbourside development on the adjacent peninsula could lead to the loss of wooded shorelines; and
- Fishbourne Channel: Potential major development outside the National Landscape on the southwest or western side of Chichester with possible run-off impact on water quality. Development on the adjacent peninsula edges could lead to the loss of wooded shoreline¹⁵⁶.

Sand dunes are under intense recreational pressure on the West Sussex coast. Honey-pot sites, such as the sand dunes and downland at Devils Dyke, are under heavy pressure¹⁵⁷.

¹⁵⁴ Chichester Harbour AONB Management Plan 2019-2024

¹⁵⁵ Chichester Harbour AONB Management Plan 2019-2024

¹⁵⁶ Chichester Harbour AONB Management Plan 2019-2024

¹⁵⁷ West Sussex County Council (1997) State of the Environment

6.0 Description of Anticipated Pressures, Impacts and Issues Affecting the Natural Environment in East Sussex and Brighton & Hove

6.1 Introduction

This section presents information specifically related to pressures, impacts and issues identified for East Sussex and Brighton & Hove. No specific land management, invasive species and disease or pollution pressures, impacts or issues particular to East Sussex have been identified. The sources reviewed suggest these issues are common to both East and West Sussex.

6.2 Climate Change

6.2.1 Temperature and Precipitation

The predicted impacts of climate change in East Sussex are the same as West Sussex with regards to warmer, wetter winters and drier, hotter summers with more frequent and intense flooding, drought and episodes of extreme heat.

The UK's Tyndall Centre for Climate Change Research has estimated that, based on current scientific understanding, East Sussex County needs to cut carbon emissions by about 13% per year to keep within its share of the total global carbon budget. This rate of reduction is higher than has been achieved in the past¹⁵⁸.

The National Trust highlights Birling Gap in its map of climate change threats to its stately homes, countryside and coastline, published in 2021. The National Trust reports that in 2014, the chalk cliffs at Birling Gap suffered seven years' worth of erosion in just two months, in part due to heavy storms. The rate of erosion, although naturally occurring due to the geology of the area, will increase with more storms, rainfall and higher sea levels.

The National Trust's map plots how extreme heat and humidity, landslides, coastal erosion, shrinking and shifting ground, and high winds could change over the next 40 years. The data are based on a "worst-case scenario" where emissions of greenhouse gases continue unabated¹⁵⁹.

6.2.2 Flood Risk

Since the publication of the first East Sussex Local Flood Risk Management Strategy in 2013 the threat of flooding has not receded and is becoming a more frequent aspect of life. The winters of 2013/14, 2015/16 and 2022/23 witnessed widespread flooding to homes, businesses and the disruption of essential infrastructure. It would also seem that the summer months, which have often been characterised by water shortages, now see localised intense rainstorms. Groundwater, surface water, ordinary watercourse flooding are often influenced by other factors, such as the tide, main rivers or sewer systems. For example, a high tide can prevent drains from discharging into the sea, 'tide locking' the system which in turn can lead to surface water flooding if this coincides with intense rainfall¹⁶⁰.

¹⁵⁸ East Sussex Environment Strategy. East Sussex Environment Board (2020)

¹⁵⁹ CPRE Sussex [Climate change threatens iconic Sussex landscape - CPRE Sussex](#)

¹⁶⁰ East Sussex County Council (2016) Local Flood Risk Management Strategy 2016-2026

Brighton & Hove is likely to suffer from muddy flooding, dumping eroded soil from the South Downs onto roads and drainage systems in the city¹⁶¹. This might lead to blockage of drainage systems and potentially uncontrolled flooding of water in this area. If muddy flood water entered the sea, it could deposit additional material which alters light penetration in the water column and can provide different nutrients, altering the ecosystem.

Flood risk is highest to the south of the LNRS area and on river flood plains, in particular Eastbourne, Lewes and Hastings. As these areas are typically low-lying, not only is there the direct risk of flooding from major rivers or the sea, but also susceptibility to flooding from groundwater and surface water. Beyond the coastal strip and river valleys, the flood risk in East Sussex is more dispersed. Flooding may occur as a result of pockets of high groundwater, or surface water running off steeper slopes, compacted ground or from blockages to a drainage system. This type of more localised flood risk occurs in both urban and rural settings and can be difficult to accurately predict. The highest risk of surface water flooding coincides with the wards with the greatest concentration of population and assets. These are mainly in Eastbourne (Meads and Devonshire), Hastings (Central St. Leonards and Castle), and Bexhill (Sackville and Central). However, risk is also present in towns acting as a focus for growth, such as Hailsham¹⁶². Higher sea levels and large storm waves are putting a strain on coastal defences. In December 2019 part of the Albion groyne collapsed into the sea because of strong wind and rain, and at Seaford, the chalk cliff face has suffered several dramatic rock falls¹⁶³.

High groundwater can also increase the surface water flood risk. This is largely present on the coastal strip and on the plains of the rivers Ouse, Cuckmere, and Rother, where the water table lies close to the surface. If the ground becomes saturated, rainfall is unable to drain into the ground, and floods the ground surface. This contributes to the higher flood risk in villages such as Alfriston and Willingdon, which are situated on floodplains. Groundwater flood risk is highest over the South Downs, where the chalk geologies have the potential to store and release large amounts of water. Water levels can rise in response to heavy rainfall, and emerge at the surface or close to it, causing flooding. The wards at highest risk of groundwater flooding include Lewes Bridge, Devonshire in Eastbourne, and Newhaven Denton and Meeching, all of which lie within or close to the South Downs.

The previous Local Flood Risk Management Strategy for East Sussex identified fourteen 'hotspots' at the highest flood risk, which covered the towns of Battle, Bexhill, Crowborough, Eastbourne, Forest Row, Hailsham, Hastings, Heathfield, Lewes, Newhaven, Peacehaven, Seaford, Rye and Uckfield. The distribution of flood risk has not changed significantly since the previous assessment¹⁶⁴.

6.2.3 Coastal Squeeze

An interactive sea level rise map¹⁶⁵ based on topography (i.e. it does not factor in sea defences) identifies that all of the East Sussex coast is at risk from sea level rise by 2050 to some degree with large areas at risk of inundation from the sea at Worthing, Shoreham by Sea, Newhaven including inland along the route of the River Ouse, Pevensey, between Bexhill and Hastings and at Rye. The map identifies the need for sea defences and / or coastal flood management in these areas as a result of the risk from future sea level rise.

¹⁶¹ Brighton and Hove City Council - Carbon Neutral 2030 Programme

¹⁶² East Sussex County Council (2016) Local Flood Risk Management Strategy 2016-2026

¹⁶³ Brighton and Hove City Council Carbon Neutral 2030 Programme

¹⁶⁴ East Sussex County Council (2016) Local Flood Risk Management Strategy 2016-2026

¹⁶⁵ Coastal Risk Screening Tool developed by Climate Central <https://coastal.climatecentral.org/>

Eastbourne and Pevensey Bay are experiencing considerable coastal squeeze. It is estimated that this area of coastline loses between 10,000m³ and 30,000m³ of sediment each year. The input of sediment from wave action and cliff erosion is slower than the output of sediment from littoral drift, meaning that natural beaches are no longer self-sustaining. Unless this is remedied, between 7,000 and 10,000 properties would be at increased risk of flooding in the event of a breach. In order to combat this, the Environment Agency are developing a £100 million coastal flood and erosion risk management project, running from Pevensey Bay to Eastbourne¹⁶⁶. The project is expected to reduce the risk of flooding and coastal erosion to residential properties, key infrastructure, local businesses, heritage sites and nature conservation areas. If successful, the flood defences will contribute to the maintenance of Pevensey Levels, an internationally important freshwater site¹⁶⁷.

6.2.4 Water Resources and Abstraction

East Sussex is recognised as an area of serious water stress. The National Infrastructure Commission has concluded that, without further action to reduce demand, there is a 25% chance over the next 30 years that large numbers of households in East Sussex will have their water supply cut off for an extended period because of severe drought¹⁶⁸.

Drought could affect the quality and amount of groundwater supplies available to Brighton and Hove. All Brighton and Hove residents' drinking water comes from the Brighton Chalk Block aquifers¹⁶⁹.

6.3 Development and Land Use

There is a great variety of different types of open access land in East Sussex, including Country Parks, Forestry Commission woodlands, much National Trust land, many Nature Reserves and some farmland which is in an agri-environment scheme. This land is held by a variety of owners, including County and District Councils, government agencies (such as the Forestry Commission and English Nature) and non-governmental organisations (such as the National Trust and Sussex Wildlife Trust). The best known and most visited open access sites in East Sussex are probably the Ashdown Forest, Hastings Country Park, Seven Sisters Country Park (together with neighbouring Crowlink and Seaford Head) and the Eastbourne Downland (including Beachy Head)¹⁷⁰.

Within the South Downs, the new right of access has opened up some areas of land which were not previously accessible by the public using public rights of way, by permission or by other means. In some areas this has provided an important addition to the total network of public access within the Downs. However, the criteria used for mapping downland as open country (and therefore access land) has led to access land in the South Downs being fragmented and often confined to the steep scarp slopes¹⁷¹.

There are ten larger areas of the LNRS area which have few, if any, rights of way. For some of these areas having little or no public access can be beneficial for conservation reasons. The areas lacking a rights of way network are in:

- Ashdown Forest;

¹⁶⁶ Pevensey Bay to Eastbourne Coastal Management Scheme (2024). Project Overview.

¹⁶⁷ Natural England (2013). Pevensey Levels.

¹⁶⁸ East Sussex Environment Board (2020) East Sussex Environment Strategy.

¹⁶⁹ Brighton and Hove City Council Carbon Neutral 2030 Programme

¹⁷⁰ East Sussex County Council (2017) Rights of Way Improvement Plan 2007-2017

¹⁷¹ East Sussex County Council (2017) Rights of Way Improvement Plan 2007-2017

- Frant & Eridge;
- Ashburnham & Penhurst;
- Pevensey Levels;
- Middle Rother Valley;
- Tillingham & Brede Valleys;
- Wootton Farm near Polegate;
- Glynde Levels;
- Iford & Rodmell Brooks; and
- Sheffield Park.

The Sussex Downs (formerly the Sussex Downs AONB before the South Downs National Park was established) covers 15.29% of the public rights of way network in East Sussex and the popularity of the Downs for walking, horse riding and mountain biking puts pressure on the network and other access provision. ESCC recognises that the South Downs is a distinct and different area to the rest of East Sussex and may require a different approach to rights of way improvement planning¹⁷².

The Downs in East Sussex are a very popular destination for outdoor recreation for both local people and visitors from further afield. In East Sussex alone there are a number of 'honey-pot' locations within the Downs. The most popular coastal sites are Beachy Head, Birling Gap, Seven Sisters Country Park and Seaford Head. Inland sites include Butts Brow, the Long Man of Wilmington, Alfriston village, Firle Beacon, Mount Caburn and Ditchling Beacon¹⁷³.

Survey data¹⁷⁴ identified the main problems associated with public access: litter (quoted by 40% of respondents); fly-tipping (39%); dogs not under control (38%); vandalism (32%); trespass (31%); gates and accesses blocked by vehicles (31%).

The East Sussex Rights of Way Improvement Plan 2007-2017 identifies the following needs in East Sussex:

- Provide and maintain recreation infrastructure such as paths, increasing off road routes for improved user safety and enjoyment;
- Circular routes close to population centres that do not conflict with land management, with provision of dog bins and dog gates where needed;
- New access provision where it enhances or 'tidies up' the rights of way network, makes it safer for the public to use or is of strategic importance; and
- Take advantage of the recent Accessible Natural Greenspace Study to identify areas where the local population has little or no 'accessible natural greenspace' when identifying potential new countryside sites¹⁷⁵.

The Ashdown Forest is a former Royal hunting ground and is now a large area of lowland heath at the centre of the High Weald National Landscape. It is covered by heather, bracken, gorse and grasses, together with mixed oak and birch woodlands and landmark clumps of Scots pine. Its elevated position and broad open ridges afford outstanding views, notably across the Low Weald to the South Downs. As well as the natural beauty of the area, the

¹⁷² East Sussex County Council (2017) Rights of Way Improvement Plan 2007-2017

¹⁷³ East Sussex County Council (2017) Rights of Way Improvement Plan 2007-2017

¹⁷⁴ South Downs National Park Authority (2021). Visitor Survey

¹⁷⁵ East Sussex County Council (2017) Rights of Way Improvement Plan 2007-2017

Forest attracts visitors, including many from overseas, to sites referred to in AA Milne's 'Winnie-the-Pooh' books.

The right for the public to access the Forest for walking has been clearly established under the Ashdown Forest Act 1974 and it is a very popular area for walking. Horse riding along designated rides is permitted by purchase of a permit from the Conservators of Ashdown Forest (who have responsibility for managing the Forest). However, cycling is not permitted off public bridleways¹⁷⁶.

¹⁷⁶ East Sussex County Council (2017) Rights of Way Improvement Plan 2007-2017



7.0 Wider Environmental Issues and the Impact of Management

7.1 Introduction

The information reviewed in this study has identified wider environmental issues affecting part or all of the Sussex LNRS areas which changes in land use or management could help to address.

7.2 Land Management

There are a number of examples of effective land management, including regenerative agriculture, rewilding and habitat restoration identified within the sources reviewed.

7.2.1 Regenerative Agriculture

Regenerative agriculture is a sustainable approach to farming, which places emphasis on chemical and monoculture free methods of food growth. As a result, biodiversity improvement approaches are integrated into farming, such as contour ploughing, buffer strips and natural pest regulation¹⁷⁷. This supports soil restoration, by allowing the nutrients in soil to regenerate. Healthy soil mitigates against a range of environmental impacts; it acts as a carbon store, contributing to climate mitigation and adaptation; it has higher water infiltration capacity, contributing to flood risk minimisation through a reduction in surface runoff¹⁷⁸; and it has a higher capability to hold onto nutrients, reducing the risk of eutrophication in nearby waterbodies¹⁷⁹. A reduced risk of eutrophication will subsequently lead to improved water quality in freshwater and marine ecosystems, allowing species and habitats to recover¹⁸⁰.

In parts of the South Downs National Park - including near Brighton, and above Portsmouth - there have been some innovative pilot projects carried out by water companies to change land use and reduce nitrates at the source. This has been done by working closely with farmers, non-governmental organisations and government bodies¹⁸¹.

The High Weald National Landscape aims to utilise regenerative land management in order to restore biodiversity levels to a pre-industrialised farming baseline¹⁸².

7.2.2 “Rewilding”/ Minimal Land Management

“Rewilding” is the process of returning habitats back to their most natural form, following anthropogenic interference. Rewilding is often defined as removing anthropogenic interference and allowing nature to return to its own pace. It can also be described as species reintroduction and minimal management¹⁸³. Rewilding allows a diversified mix of species, including of different ages, across habitats¹⁸⁴.

¹⁷⁷ South Downs National Park Authority (2016). Climate Change Adaptation Plan.

¹⁷⁸ South Downs National Park Authority (2016). Climate Change Adaptation Plan.

¹⁷⁹ High Weald Joint Advisory Committee (2019). Draft High Weald AONB Management Plan 2019-2024.

¹⁸⁰ High Weald Joint Advisory Committee (2019). High Weald AONB Management Plan 2019-2024.

¹⁸¹ South Downs National Park Authority (2023). Major Issues.

¹⁸² High Weald Joint Advisory Committee (2019). High Weald AONB Management Plan 2019-2024.

¹⁸³ High Weald Joint Advisory Committee (2019). Draft High Weald AONB Management Plan 2019-2024.

¹⁸⁴ Brighton and Hove City Council (2021). Carbon Neutral 2030 Programme.

An example of a rewilding/minimal management project within the West Sussex LNRS area is the 'Knepp Estate'¹⁸⁵. This project is led by grazing animals, such as cattle, ponies, pigs and deer. The introduction of animal disturbance to the landscape helps to generate habitat and biodiverse complexity, due to their different grazing preferences¹⁸⁶. The result of this project is a diverse range of habitats (including scrub and grassland) and thriving populations of common species, as well as extremely rare species including turtle doves, nightingales, peregrine falcons and purple emperor butterflies. The project aims to grow the rewilding network over the next decade, to create a wildlife corridor across the both LNRS areas.

An example of a rewilding/minimal management project within the East Sussex LNRS area - specifically within Brighton and Hove - is 'Wilding Waterhall'¹⁸⁷. This project aimed to restore rare chalk grassland on a former golf course. Actions included the introduction of grazing animals, such as cows, sheep and ponies, to provide more natural habitat drivers, and allowing the natural regeneration of trees and shrubs.

Biodiversity focused road verges are a good example of how small-scale rewilding projects can benefit the natural environment.

In East Sussex, there are two types of biodiversity focused road verges, wildlife verges and meadow verges. These biodiversity focused road verges have been used across East Sussex as a method of rewilding since the 1990s, due to their effectiveness in improving biodiversity outcomes. In 1994, it was believed that a significant percentage of ancient meadowland was found on road verges in East Sussex, leading to 0.3% of the area's road verges being designated for conservation¹⁸⁸. It is estimated that biodiversity-focused road verges now cover 110 ha of East Sussex.

In West Sussex, there are two types of biodiversity focused road verges, community road verges (CRVs) and notable road verges (NRVs). Verges are designated as CRVs if they are deemed as an opportunity to increase biodiversity, specifically through the growth of wildflowers that have previously been outcompeted by grass. Verges are awarded NRV status where there are existing protected species of plants or insects present. Both types of verge are only cut once per year - usually in Autumn - in order to limit damage to species and habitats. They are also not covered in woodchip or grass cuttings in order to prevent smothering. In 2023, there were 84 NRV locations designated across West Sussex, covering 157 ha. There are also 24 CRV locations designated across West Sussex.

Linking biodiversity focused road verges across Sussex will help to create wildlife corridors/pollinator highways¹⁸⁹. WSCC are currently investigating ways of linking Community Road Verges (CRVs) to other projects in West Sussex and across the South Downs, to help create wildlife corridors.

The examples of 'rewilding'/minimal management outlined above suggest that this form of land management would be most beneficial for improving grasslands, wildflower meadows and scrub.

¹⁸⁵ South Downs National Park Authority (2020). South Downs National Park Partnership Management Plan 2020-2025.

¹⁸⁶ Knepp Castle Estate (2022). Rewilding.

¹⁸⁷ Brighton and Hove City Council. (2023) Rewilding.

¹⁸⁸ East Sussex County Council (1994). State of Nature Report for East Sussex.

¹⁸⁹ West Sussex County Council (2022). Nature-friendly Road Verges.

7.2.3 Habitat Creation and Restoration

The development of new habitats across Sussex is critical for restoring biodiversity across the LNRS area. Habitats should not be created in isolation, however, and should subsequently be developed as green infrastructure. Green infrastructure refers to the development of interconnected habitat networks that support a wide range of biodiversity. Any open space that supports biodiversity in any way can therefore be deemed as green infrastructure. The existence of green (and blue) infrastructure can contribute to climate resilience by providing natural carbon sinks (such as trees)¹⁹⁰. Improvements to ecological networks and improving habitat connections can also improve climate resilience for species, facilitating migration, for example.

The restoration of habitats is critical across Sussex, in order to improve biodiversity. The restoration of woodland and grassland habitats are critical for providing wildlife corridors, particularly from urban areas to rural, for species such as insects, birds and bats¹⁹¹. The restoration of kelp species, including tangle, oarweed, and sugar kelp, will be beneficial to marine species as it supports species population growth by acting as a nursery ground for species such as bass, cuttlefish and lobster¹⁹², as well as acting as a food source for others. It is estimated that one kelp can support up to 80,000 individual animals¹⁹³. Habitat creation work carried out by the Newt Conservation has allowed for ponds and suitable terrestrial habitat to be created or restored for great crested newts across the Sussex LNRS areas, between 2018 and 2023¹⁹⁴.

Since the 1990s, the restoration of habitats has been identified as crucial for climate change adaptation and mitigation, as many habitats act as natural carbon sinks¹⁹⁵. Tree planting, for example, is being widely conducted across rural and urban areas in Sussex in order to increase carbon sequestration capacity and reduce levels of greenhouse gas emissions¹⁹⁶. The 'Greening Coastal Towns and Cities Programme' has seen 55,000 trees being planted across 83 locations including within Bexhill and Brighton¹⁹⁷. Seagrass is considered as even more effective carbon stores, with it being estimated that the coastal ecosystem can sequester approximately 20 times more carbon per acre than land forests¹⁹⁸. Wetland and floodplain habitats also act as carbon stores; their restoration, through blocking drainage channels and re-vegetating bare peat- is noted as important for reducing 'blanket bog vulnerability' to climate change^{199 200}. Studies have shown that ponds are more effective at carbon storage than oceans relative to their size²⁰¹.

Habitat restoration is also beneficial for flood risk minimisation, and improvements to the water quality of freshwater and marine habitats. River and stream restoration, as well as tree planting, is being carried out across Sussex in order to reduce events of localised and flash

¹⁹⁰ Natural England (2023). Green Infrastructure Framework.

¹⁹¹ West Sussex County Council (2020). West Sussex Tree Plan.

¹⁹² Sussex Inshore Fisheries and Conservation Authority (IFCA) (2023). Kelp.

¹⁹³ Sussex Kelp Recovery Project (2023). Rewilding the Sussex seabed.

¹⁹⁴ Newt Conservation Partnership (2023). NatureSpace District Licensing Scheme: Monitoring Results (2019-2023)

¹⁹⁵ East Sussex County Council (1994) State of Nature Report for East Sussex

¹⁹⁶ UK Parliament (2022) Climate Adaptation for Nature

¹⁹⁷ East Sussex County Council (2023) Urban Tree Planting

¹⁹⁸ Sussex Kelp Recovery Project (2023) Rewilding the Sussex seabed

¹⁹⁹ Sussex Wildlife Trust (2016) Arun & Rother Catchment Habitat Potential Model Update

²⁰⁰ UK Research and Innovation (2015) Biodiversity Climate Change Impact Report Card

²⁰¹ Sussex Wildlife Trust (2016) An analysis of Ecoserv-GIS Ecosystem Service mapping outputs for the ARC Project Area, using Horsham as a case study

flooding. The restoration of floodplains and wetlands can help to reduce flood risk by providing water storage areas, effectively slowing down and filtering water runoff²⁰². The restoration of saltmarsh is also important for improvements to water quality, as it acts as a water filtration system, removing polluting matter and balance pH²⁰³. Vegetated buffer zones along watercourses have been noted as an effective method of removing pollutants from surface-runoff²⁰⁴.

The 'Trees of the River Uck' project is another example of effective restoration, and the benefits it can bring to the environment, as well as to communities. The scheme covers the cost of planting trees on suitable land across the Uck catchment areas, as well as allowing local landowners to gain free expert tree-planting advice from the Woodland Trust²⁰⁵.

The examples of habitat creation and restoration outlined in this sub-section suggest that this form of land management would be most beneficial for improving woodland, wetlands, saltmarsh, waterbodies (rivers and ponds), peat, and kelp forests.

7.2.4 Species Control

Species control refers to the management of native and invasive species across habitats. In order to minimise the impact of invasive species on landscapes, human interference is often required. For example, across the High Weald National Landscape, landscape-scale deer management is taking place in order to reduce species number and prevent overpopulation. This subsequently benefits flora of the High Weald that would otherwise be trampled or overgrazed²⁰⁶. The removal of damaging invasive plants, particularly rhododendron, is also being conducted across the High Weald. As well as removing invasive species, the reintroduction of native species will be important for biodiversity recovery. For example, the reintroduction of beaver into Horsham, would have extensive ecological benefits²⁰⁷.

7.3 Flood Risk Management

7.3.1 Flood Alleviation

Sustainable urban drainage schemes (SUDs) are an effective, nature-based solution to flood risk. Developments across Sussex are required to integrate SUDs into their design, in order to mitigate against flooding²⁰⁸. One example of SUDs implementation in Brighton & Hove is the Wild Park Rainscape²⁰⁹, where a vegetated swale is being proposed next to the A27, in order to filter water run-off before it enters the underground chalk aquifer. This is important as it will prevent polluted water from entering the city's main source of drinking water.

7.4 Adaptation to Climate Change

Both WSCC and Brighton & Hove City Council have committed to achieving carbon neutrality by 2030. Both authorities have created Climate Change Strategies which recognise the importance of improving biodiversity, to increase levels of carbon sequestration²¹⁰. Brighton &

²⁰² Sussex Wildlife Trust (2016). Arun & Rother Catchment Habitat Potential Model Update

²⁰³ Chichester Harbour Conservancy (2022) CHaPRoN project

²⁰⁴ Horsham District Council and Sussex Wildlife Trust (2021) Horsham District Nature Recover Nature Report

²⁰⁵ South Downs National Park Authority (2020) People and Nature Network (PANN) Evidence and Action Report

²⁰⁶ High Weald Joint Advisory Committee (2019) Draft High Weald AONB Management Plan 2019-2024

²⁰⁷ Horsham District Council and Sussex Wildlife Trust (2021). Horsham District Nature Recover Nature Report.

²⁰⁸ East Sussex County Council (2016). Local Flood Risk Management Strategy 2016-2026

²⁰⁹ The Aquifer Partnership (2024). Wild Park Rainscape.

²¹⁰ West Sussex County Council (2020). Climate Change Strategy 2020-2030.

Hove aim to achieve this by planting more trees and hedgerows, implementing more opportunities for ‘rewilding’, and effectively managing the city’s greenspaces with a focus on biodiversity²¹¹. ESCC sets out similar targets in its Climate Emergency Plan 2023-25 and is in the process of developing a Climate Change Strategy.

7.5 Access to Nature

Access to nature is a wider environmental issue placed on biodiversity, as a lack of fair access to open space restricts residents’ ability to contribute to environmental management²¹². Connecting with nature is also critical for people’s physical and mental wellbeing; it is believed that spending time in nature can reduce the risk of heart disease by 35% and the risk of hip fractures by 68%²¹³.

Despite having a significant area of greenspace, barriers to accessing these spaces exist across Sussex. Along the southern coastal plain, for example, the A27 and A3 hinders access to the South Downs National Park and the coast. Farmed or managed land can also be a barrier to access, due to the limitations they place of Public Rights of Way. In the South Downs National Park it is estimated that almost 80% of the land area is restricted due to limitations on Public Rights of Way²¹⁴. Within the Park, stiles on footpaths, unsuitable surfaces, and a lack of information about suitable paths and trails are also noted as barriers to access, particularly for residents with reduced mobility²¹⁵. Implementing safe and accessible cycling and walking routes across Sussex is therefore essential for accessing nature^{216,217}.

Access to nature is variable across Sussex. In 2010, the southeast had around 140,000 ha of accessible greenspace, yet only 20% of residents had access to a site of at least 2ha within walking distance (300m)²¹⁸. Access to greenspace is particularly limited in urban areas, despite 40% of residential urban areas containing green infrastructure²¹⁹.

As development increases across Sussex, there is potential that the number of households in areas of poor accessibility to natural greenspace will increase. North of Adur-Worthing, for example, has the lowest density of Accessible Natural Greenspace (ANG) within Sussex²²⁰. It is subsequently important that sufficient new natural greenspace is provided in deficient areas such as this to minimise the effect that new development may have on access to nature²²¹. This is especially important in areas that are already suffering with poor health or deprivation. A coordinated response to planning for green infrastructure will be of value in locations where cross boundary growth is proposed, or where there are additional landscape or heritage considerations²²².

²¹¹ Brighton and Hove (2023). Carbon Neutral 2030 Programme.

²¹² High Weald Joint Advisory Committee (2019). High Weald AONB Management Plan 2019-2024.

²¹³ East Sussex Environment Board (2020). East Sussex Environment Strategy.

²¹⁴ South Downs National Park Authority (2020). People and Nature Network (PANN) Evidence and Action Report.

²¹⁵ South Downs National Park (2012). State of the National Park Report.

²¹⁶ East Sussex County Council (2020). East Sussex Walking and Cycling Strategy 2020-2030.

²¹⁷ West Sussex County Council (2016). West Sussex Walking and Cycling Strategy 2016-2026.

²¹⁸ Natural England (2009). State of the Natural Environment in the South East.

²¹⁹ Natural England (2023). Green Infrastructure Framework.

²²⁰ South Downs National Park Authority (2020). People and Nature Network (PANN) Evidence and Action Report.

²²¹ Natural England (2009). State of the Natural Environment in the South East.

²²² South Downs National Park Authority (2020). People and Nature Network (PANN) Evidence and Action Report.

The South Downs National Park aims to connect 50,000 people per year with nature by supporting and contributing to the delivery of accessible natural greenspace in areas where there is a deficiency of provision²²³. The South Downs National Park Authority has so far contributed to this target by involving local residents - especially children - in nature-based activities and the development of play space. They are also working to improve access to the National Park through the Rights of Way network²²⁴. The High Weald National Landscape has taken a similar approach to improving access to greenspace across its network, whilst also developing training programmes based on traditional land management skills, in order to encourage landowners to approach land management in a more nature and people friendly way²²⁵.

²²³ South Downs National Park Authority (2020). South Downs National Park Corporate Plan (2020-2025)- Year 4 & 5 Action Plan 2023-25)

²²⁴ South Downs National Park Authority (2020). South Downs National Park Partnership Management Plan 2020-2025.

²²⁵ High Weald Joint Advisory Committee (2019). High Weald AONB Management Plan 2019-2024.

8.0 Opportunities for the Application of Nature Based Solutions in Sussex

8.1 Introduction

The application of nature-based solutions provides potential solutions to environmental issues such as climate change, flooding and water quality (among others). They also improve biodiversity outcomes by increasing habitat connectivity and diversity across landscapes²²⁶.

8.2 Natural Capital Investment Areas

The SDNPA’s People and Nature Network²²⁷ has identified ‘Natural Capital Investment Areas’ across Sussex. These are areas where evidence has shown ‘hotspots’ for environmental interventions and green infrastructure, that will be socially, economically and environmentally beneficial²²⁸. These areas have also identified blue-green river corridors, which link the urban areas to the countryside.

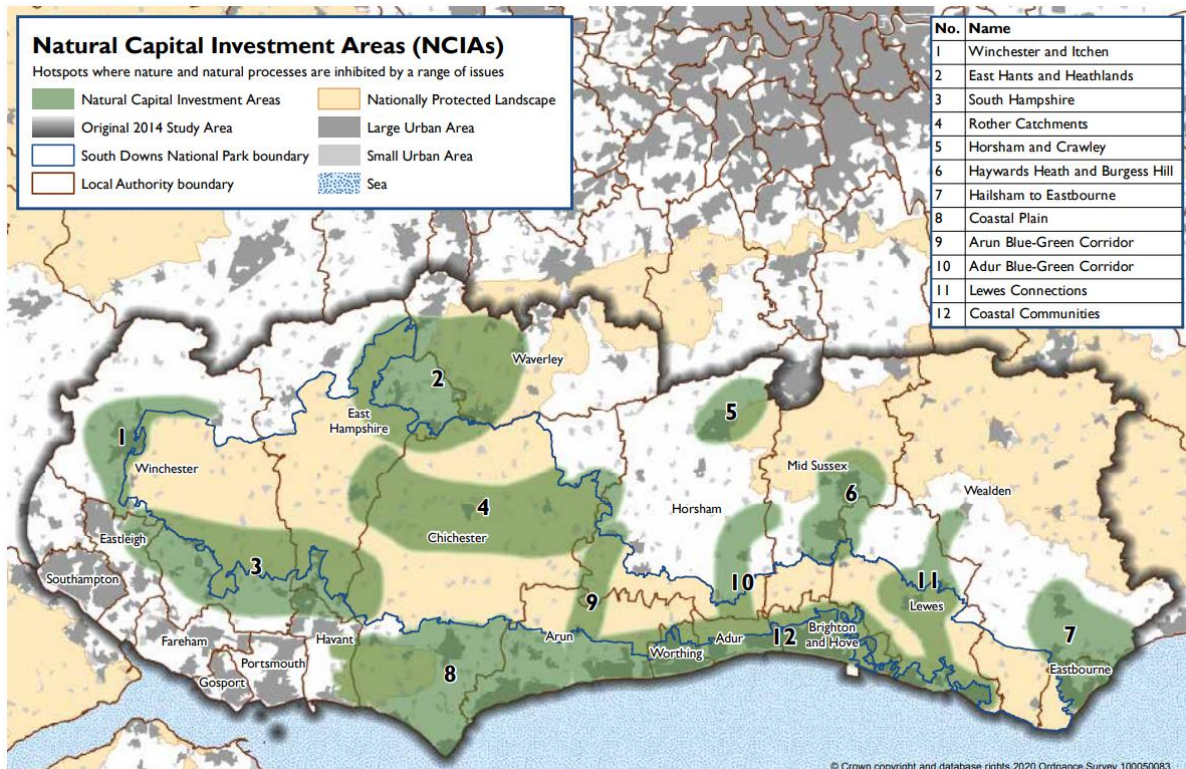


Figure 8.1: Natural Capital Investment Areas

²²⁶ South Downs National Park Authority (2016). Climate Change Adaptation Plan.

²²⁷ South Downs National Park Authority (2020). People and Nature Network Evidence and Action Report.

²²⁸ Natural England Green Infrastructure Framework

8.3 Biodiversity Opportunity Areas (BOAs) and Nature Improvement Areas (NIAs)

Opportunities for the application of nature-based solutions have been identified within Biodiversity Opportunity Areas (BOAs) across Sussex. BOAs have been developed using a landscape-scale approach to identify significant opportunities for habitat creation and restoration. East and West Sussex contain 75 individual BOAs.

Table 8.1 highlights the types of nature-based solution identified as being most appropriate for implementation in each BOA. BOAs that could benefit from improvements to access are also highlighted.



Table 8.1: The Application of Nature-based Solutions in Biodiversity Opportunity Areas

Name of Biodiversity Opportunity Area	Wetland habitat management, restoration and creation	Coastal habitat management, restoration and creation	Heathland management, restoration and creation	Woodland management and restoration	Ecological networks	Landowner advisory and agri-environment schemes	Floodplain restoration and reconnection	Flood alleviation	Access improvements
Climping to Houghton	✓	✓	✓	✓		✓	✓	✓	✓
Chichester Harbour	✓	✓			✓	✓		✓	✓
Westbourne chalk streams to Compton tributaries	✓				✓				
Walderton to Welldown including Kingley Vale	✓		✓	✓	✓	✓			
Lavant watershed	✓		✓		✓	✓			
Western escarpment			✓	✓	✓	✓			✓
Hampshire Rother watershed	✓				✓				
Rogate Common			✓	✓	✓				



Name of Biodiversity Opportunity Area	Wetland habitat management, restoration and creation	Coastal habitat management, restoration and creation	Heathland management, restoration and creation	Woodland management and restoration	Ecological networks	Landowner advisory and agri-environment schemes	Floodplain restoration and reconnection	Flood alleviation	Access improvements
Weavers Down to Lynchmere			✓		✓				
Stedham, Iping, Woolbeding Crescent			✓		✓	✓			
Heyshott			✓		✓				
Snapes Copse and Verdley Wood				✓	✓	✓			
Black Down			✓	✓	✓	✓			
Barlavington, Coates and Rother	✓		✓		✓				
Ebernoe with watercourse flightlines				✓	✓	✓			✓
Chiddingfold Complex				✓	✓	✓			✓
Arundel Park			✓	✓					
Houghton to Coldwaltham	✓				✓		✓	✓	
Parham to Fittleworth	✓		✓		✓				



Name of Biodiversity Opportunity Area	Wetland habitat management, restoration and creation	Coastal habitat management, restoration and creation	Heathland management, restoration and creation	Woodland management and restoration	Ecological networks	Landowner advisory and agri-environment schemes	Floodplain restoration and reconnection	Flood alleviation	Access improvements
Clapham to Burpham downs			✓		✓	✓			✓
Central downs Arun to Adur			✓			✓			✓
Lower Adur Arun watershed	✓		✓		✓				
Northeast Worthing downs			✓			✓			✓
Knepp Estate with fluvial extensions	✓			✓	✓		✓		
Shoreham Estuary and Beach	✓	✓							✓
Adur to Newtimber including Mill Hill			✓		✓	✓			✓
North Bramber floodplain	✓								



Name of Biodiversity Opportunity Area	Wetland habitat management, restoration and creation	Coastal habitat management, restoration and creation	Heathland management, restoration and creation	Woodland management and restoration	Ecological networks	Landowner advisory and agri-environment schemes	Floodplain restoration and reconnection	Flood alleviation	Access improvements
Crooked Moon to Thundersbarrow			✓			✓			✓
Brighton and Hove urban green network		✓	✓						
Benfield to Hangleton			✓						
The St Leonards watershed	✓		✓	✓	✓	✓	✓	✓	
Woods Mill Stream to Adur	✓								
Rusper Ridge				✓	✓				
Ifield Brook	✓								
Gatwick Woods				✓	✓				
Tilgate and Furnace Green			✓	✓	✓	✓			✓
Stanmer and Ditchling downs			✓		✓	✓			✓
East Brighton downs		✓	✓						✓



Name of Biodiversity Opportunity Area	Wetland habitat management, restoration and creation	Coastal habitat management, restoration and creation	Heathland management, restoration and creation	Woodland management and restoration	Ecological networks	Landowner advisory and agri-environment schemes	Floodplain restoration and reconnection	Flood alleviation	Access improvements
Lewes Brooks and the Ouse Valley	✓	✓			✓	✓	✓		
Seaford to Eastbourne Downs	✓		✓	✓	✓	✓	✓		
Lewes Downs						✓			✓
Mid Ouse floodzone	✓						✓		
Western Ouse streams and Ashdown Forest	✓		✓	✓	✓	✓	✓		✓
River Uck and its headwaters	✓			✓					
Wilmington woodlands and watershed	✓			✓	✓				
Eastbourne Marshes	✓	✓						✓	✓
Pevensy Levels	✓	✓				✓			✓
Medway, Ouse and Rother watershed	✓		✓	✓					✓



Name of Biodiversity Opportunity Area	Wetland habitat management, restoration and creation	Coastal habitat management, restoration and creation	Heathland management, restoration and creation	Woodland management and restoration	Ecological networks	Landowner advisory and agri-environment schemes	Floodplain restoration and reconnection	Flood alleviation	Access improvements
Eridge and Broadwater			✓	✓		✓			✓
Pevensey, Rother and Cuckmere watershed	✓								✓
Romney Marsh area	✓					✓			
Combe Haven and Marline	✓						✓		✓
Rother, Brede and Tillingham Woods	✓			✓					✓
Lower Cuckmere	✓			✓	✓	✓			
Grattons Park				✓					
Ardingly Reservoir				✓	✓				
Lidsey Rife	✓	✓			✓		✓		✓
Bewl Water	✓								✓
Western Rother	✓			✓	✓				
Copthorne Common			✓						
Great Wood				✓	✓				✓



Name of Biodiversity Opportunity Area	Wetland habitat management, restoration and creation	Coastal habitat management, restoration and creation	Heathland management, restoration and creation	Woodland management and restoration	Ecological networks	Landowner advisory and agri-environment schemes	Floodplain restoration and reconnection	Flood alleviation	Access improvements
Hastings Fringe				✓	✓				✓
Bexhill fringe				✓					✓
Cuckoo Trail					✓				✓
Pevensey and Cuckmere Valley					✓				✓
River Cuckmere	✓								✓
Wooton Manor				✓	✓	✓			✓
Burgess Hill	✓		✓	✓		✓			✓
Cuckmere Ouse watershed	✓				✓				✓
Fishbourne and chalk streams	✓				✓				
The Mens and buffer and associated Barbastelle flightlines	✓			✓	✓	✓			
Worth Forest			✓	✓		✓			✓



Nature Improvement Areas (NIAs) are areas of the country where partnerships have been set up to enhance the natural environment and improve the functioning of ecosystems and their services. They were driven by Lawton's 'Making Space for Nature' report and sought to implement 'more, bigger, better and joined up' habitats, as highlighted in the report. NIAs embody an integrated, holistic approach to improving landscapes in terms of biodiversity, water, soils, farming and low-carbon economy. There are 12 NIAs in place across the UK, with one within Sussex spanning both LNRS areas (South Downs Way Ahead NIA). The South Downs Way Ahead NIA covers 42,000 ha and specifically focuses on increasing connectivity of Lowland Calcareous Grassland across the South Downs National Park.

All of the BOAs and NIAs within the Sussex LNRS areas are illustrated in Figure 8.2. The areas highlighted by the figure are subsequently areas where the application of nature-based solutions will be most effective.

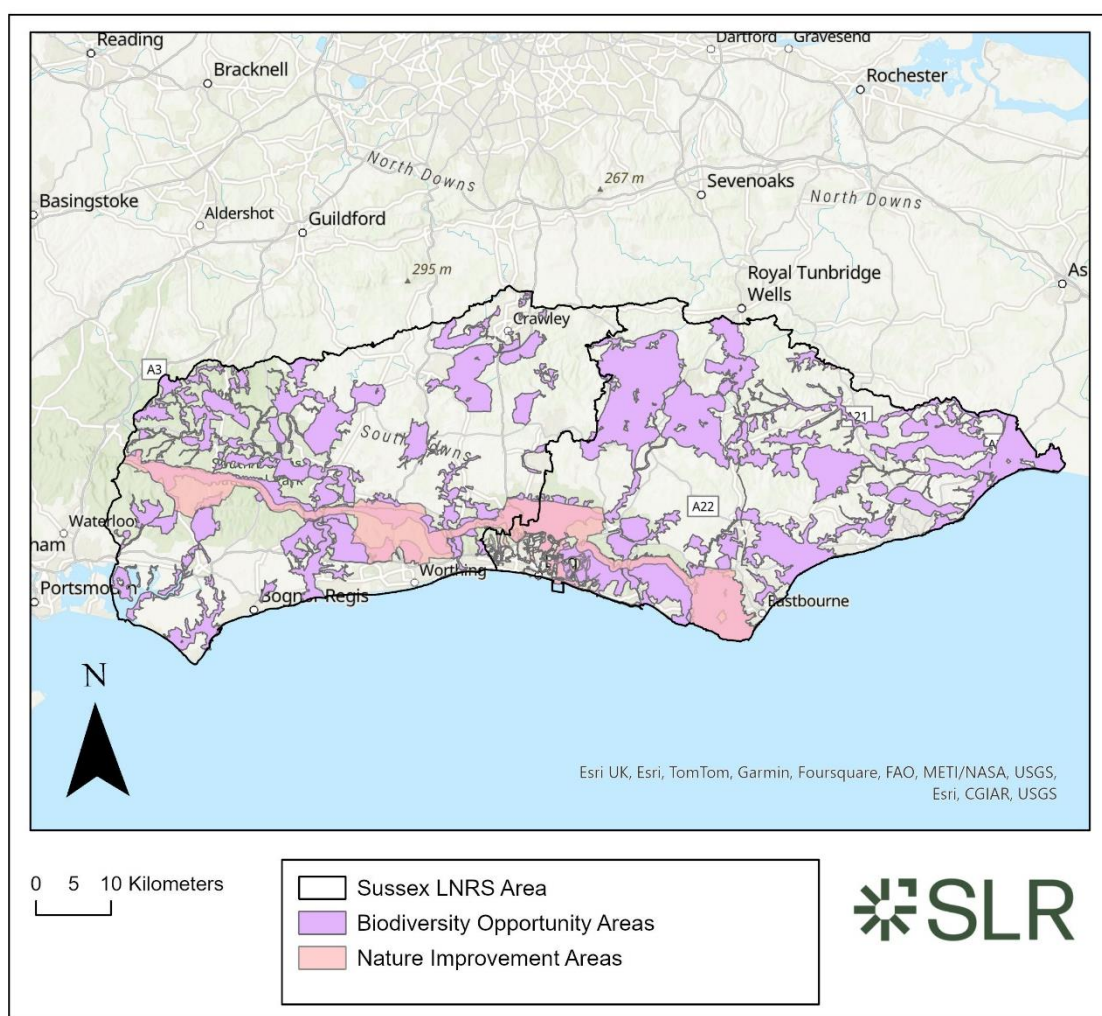


Figure 8.2: Biodiversity Opportunity Areas and Nature Improvement Areas in the Sussex LNRS Area

8.4 Habitat Creation and Restoration

Figure 8.3 highlights areas within the Sussex LNRS area where potential woodland, peat, seagrass and floodplain restoration has been identified at the national level as the most effective for biodiversity. The restoration of all of these habitats will be crucial to reducing the pressures of climate change, particularly relating to flood risk, and pollution within the Sussex LNRS areas. They will also be critical for improving biodiversity levels across Sussex. Habitat potential modelling has been carried out in discrete areas within Sussex (subject to funding and therefore not comprehensive), and this indicates further potential for the creation of wooded heath and chalk grassland in some areas. These are also shown in Figure 8.3.

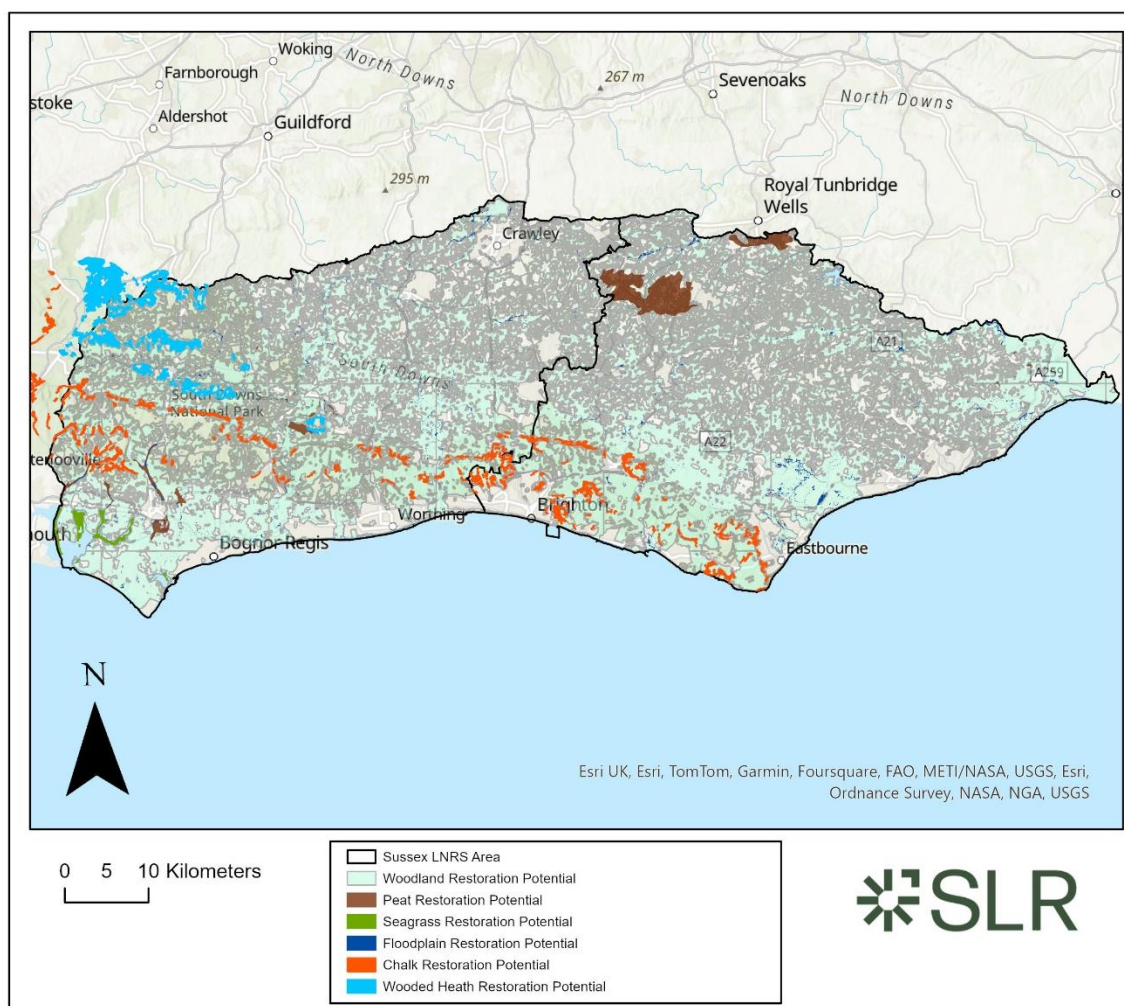


Figure 8.3: Potential Habitat Restoration in the Sussex LNRS Area

Figure 8.4 highlights areas within the Sussex LNRS areas, identified at a national level, where woodland restoration would be the most effective in alleviating the biodiversity pressures of climate change, particularly relating to flood risk, and pollution (air and water quality). The datasets from the Forestry Commission used to produce this figure highlight where incentives are currently available for planting woodlands. It should be noted that whilst woodland planting may be beneficial, there could be local constraints that limit opportunities, e.g. the presence of important archaeological areas and / or the presence of other priority habitats. Sussex Nature Partnership have therefore worked with the SDNP and the Woodland Trust to create

a GIS based Woodland Opportunity Mapping tool to help identify sites suitable for woodland creation across Sussex²²⁹.

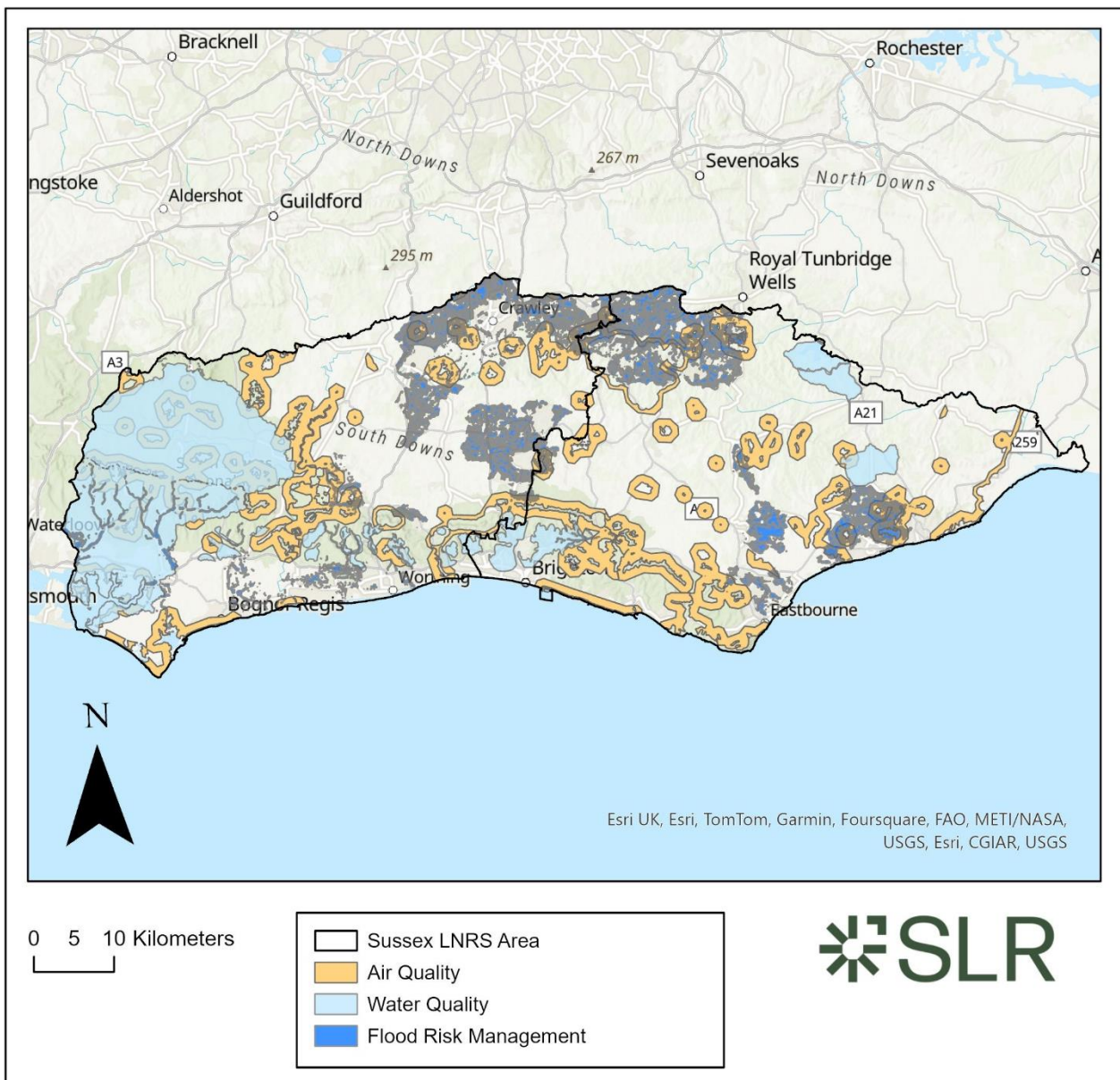


Figure 8.4: Benefits of the application of woodland related nature-based solutions in the Sussex LNRs Areas

²²⁹ Sussex Nature Partnership (2022). Woodland Opportunity Mapping

8.5 Flood Risk Management

Figure 8.5 highlights areas within the Sussex LNRS areas where nature-based solutions relating to flood risk management would alleviate the pressures of climate change, particularly relating to flood risk. The national datasets from the Environment Agency used to produce this figure highlight areas that may be suitable for habitat creation, which could also reduce flood risk if appropriately designed.

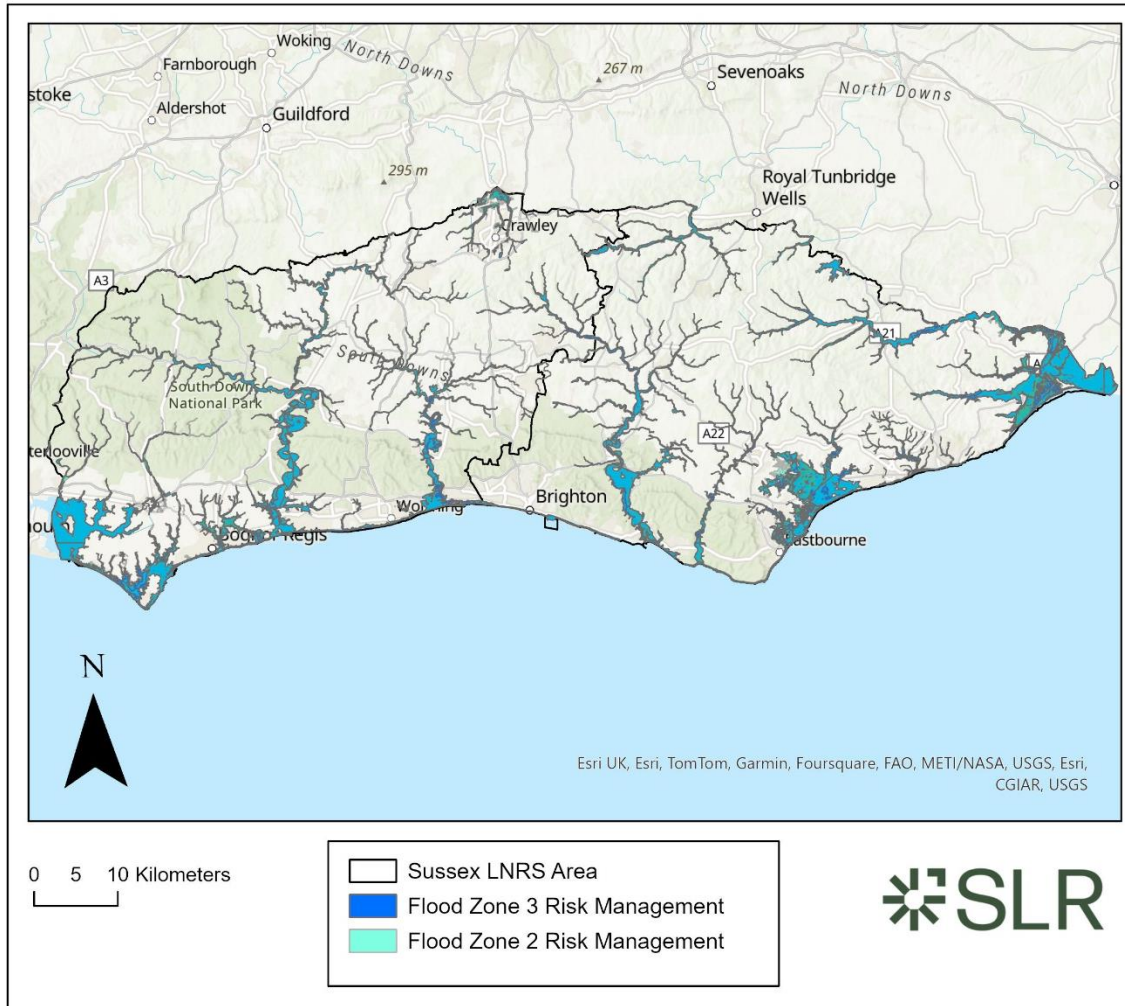


Figure 8.5: The most effective areas for the application of flood risk related nature-based solutions in the Sussex LNRS Areas

9.0 Limitations and Data Gaps

This study has not included collection or analysis of primary data.

This study has been limited by the sources of information available as well as by the timeframe available in which to research pertinent information relating to the pressures, impacts and issues facing nature within East and West Sussex (December 2023 to February 2024).

There is a good level of information available for the South Downs National Park area and the High Weald National Landscape, however, in some cases it is not possible to identify data which is applicable to the parts of these designated areas which fall within East or West Sussex specifically.

There is a lack of historical information available such as in the form of state of the environment / nature reports for both of the LNRS areas. The earliest publication of such data is 1993, for example, An Environmental Review of West Sussex 1993 and The East Sussex State of the Environment 1994. This lack of historic data has made identification of change over time and trends in nature in the LNRS areas difficult.

There is a lack of standardised recording over time for biodiversity outside of nationally protected sites. An initiative to implement a standardised approach to monitoring of Local Wildlife Sites within Sussex has been developed, in order to provide useful information about trends going forward. The initiative is in the early stages, however, so is currently considered as a data gap.

10.0 Conclusions and Next Steps

The review of available information has enabled a description of the future pressures likely to influence habitats and species (their extent, distribution and quality) for the West Sussex and East Sussex LNRS areas. Section 9 of this report notes the limitations and assumptions applicable to the study.

Table 10.1 highlights the key species and habitats of concern identified for both LNRS areas in the biodiversity review, along with identified pressures, threats and impacts.

Table 10.1: Identified Pressures, Threats and Impacts Affecting Key Habitats and Species of Concern in the LNRS areas

Habitats and Species Under Threat	Identified Pressures, Threats and Impacts	LNRS Area
Ancient and semi-natural woodland	Invasive species	Both
Kelp Forests	Climate change Development and land use (sediment and nutrient loading) Land management (agriculture)	Both
Unimproved grassland (lowland calcareous grassland)	Development and land use Land management (agriculture) Inappropriate land management (grazing)	Both
Wildflower meadows	Development and land use (air pollution) Land management (agriculture) Inappropriate land management (grazing)	Both
Lowland Heathland	Development and land use (air pollution) Land management (agriculture) Inappropriate land management (grazing)	Both
Wetlands/ mudflats/ saltmarsh	Climate change (coastal squeeze) Development and land use Inappropriate coastal management	Both
Reedbed/fen/grazing marsh	Coastal squeeze	Both
Chalk rivers	Development and land use (over-abstraction) agriculture, channel modifications and inappropriate fisheries management	Both
Farmland birds	Land Management (agriculture)	Both
Woodland birds	Land Management (agriculture)	Both

Habitats and Species Under Threat	Identified Pressures, Threats and Impacts	LNRS Area
Pollinator species (bees, butterflies, moths)	Land Management (agriculture)	Both
Wintering populations of birds (dark-bellied brent geese and black-tailed godwit)	Loss of habitat (saltmarsh)	West Sussex
Nesting populations of birds (sandwich tern)	Loss of habitat (inter-tidal mudflats)	West Sussex
Seagrass	Sediment loading and eutrophication	West Sussex
Wading birds (ringed plover, redshank and dunlin).	Loss of habitat (inter-tidal mudflats)	West Sussex
Remnant sand dunes	Recreational pressure	West Sussex
Barn owl	Land Management (agriculture)	West Sussex
Rivers and Ponds	Artificial channelling; Silting, shading, pollution, or infilling	East Sussex (and Brighton and Hove)

The key future pressures identified in the study which are likely to influence habitats and species (their extent, distribution and quality) for the West Sussex and East Sussex LNRS areas are:

- Climate change: temperature, precipitation;
- Flood risk;
- Coastal squeeze;
- Water resource management and abstraction;
- Development pressure and land use;
- Population increase and recreation pressure; and
- Pollution.

The information reviewed in this study has identified wider environmental issues affecting part or all of the Sussex LNRS areas which changes in land use or management could help to address. These include:

- Regenerative agriculture;
- “Rewilding”/minimal land management;
- Habitat recreation and restoration;
- Species control;
- Flood alleviation; and
- Access to nature.

This study has also identified opportunities for the application of nature-based solutions within Biodiversity Opportunity Areas (BOAs), Nature Improvement Areas and Natural Capital Investment Areas, as well as opportunities for habitat creation and restoration and management of flood risk areas.

The next step is for the information presented within the report to be used to inform the preparation of the two LNRSs for West and East Sussex.

