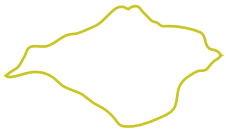
ISLE OF WIGHT



Local Nature Recovery Strategy

STATEMENT OF BIODIVERSITY PRIORITIES

Part 1: Description of Strategy Area

Island Nature

www.islandnature.org

Contents

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Preface

We are now at a crossroads, where we must choose between a future that brings together our human and natural worlds and begins to heal their metabolic rift, or one which pulls them further apart. The challenge we face is not a lack of data, knowledge or insight, but an erosion of principled decision making for the long-term wellbeing of society and ecosystems. The Isle of Wight Local Nature Recovery Strategy (LNRS) recognises the critical importance of protecting the biological integrity of the Island, and the quality and value of its outstanding natural world for the generations to come. By affirming the establishment of the Isle of Wight UNESCO[1] World Biosphere Reserve as the overall context for the LNRS, we are acknowledging the urgent need for integrated and comprehensive action against the impacts of climate change, biodiversity loss and health and well-being inequality. Together we can make the Island a beacon of positive change, in the management and care of the landscapes we share and the ecosystems we rely upon. In doing so we will use the LNRS, the principles and guidance it provides, to shape a better place.

Principles

The Isle of Wight LNRS is founded on three key principles:

- **Biotic Integrity: protecting and enhancing the diversity and abundance of our wildlife and securing the lifecycle resources it needs to flourish. (First Nature).**
- **Cultural Wellbeing: supporting the Island's farming and community infrastructure, the pattern of its landscape heritage, as it transitions to a high nature-value economy. (Second Nature).**
- **Ecological Health: protecting and enhancing the quality of our water, air and soil, and the functional diversity of its ecosystems, the recombination of the human and natural worlds. (Third Nature).**

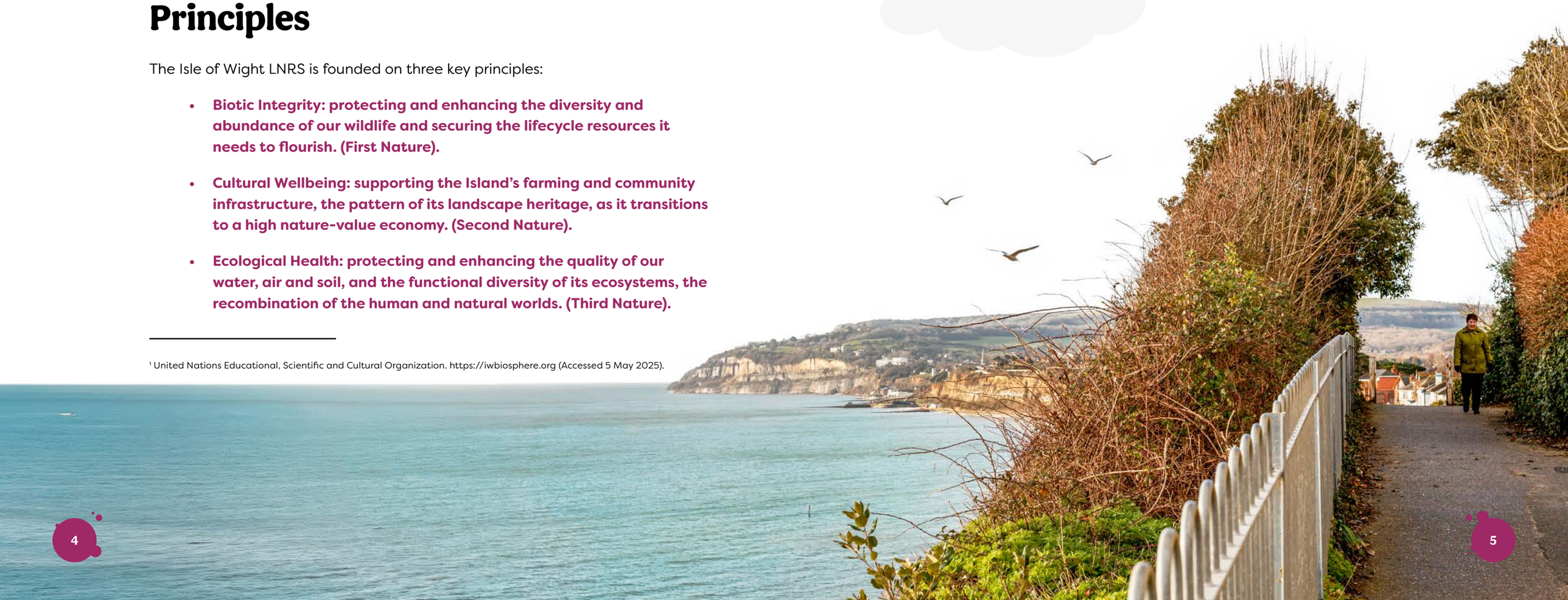
[1] United Nations Educational, Scientific and Cultural Organization. https://iwbiosphere.org (Accessed 5 May 2025).

Vision

We want to create a living, working Island environment where the life chances of our communities of wildlife and people alike are enriched by the variety, abundance, and quality of the ecosystems we all share.

The Isle of Wight Biosphere is a unique ecological space where we have the opportunity to work alongside nature to forge a richly connected assemblage of healthy habitats, in every parish, on every farm, in every town and village, to recover and sustain our Island lives..

Image below: The Bay cliff path, Lake. Photography by Julian Winslow.



1. Introduction

LNRSs are new statutory spatial plans underpinning the National Nature Recovery Network[2], produced by forty-eight different responsible authorities in England. The Isle of Wight is one such area and its strategy covers the whole of the land surface and the intertidal zone to the administrative limit of the Isle of Wight Council[3], a total area of 393 km^2.

The strategies are one of a number of new requirements introduced by the Environment Act 2021[4] intended to reverse the decline of biodiversity and improve ecological connectivity and functionality across the landscapes of England.

Each LNRS explores the priorities for nature recovery in its area, working with local stakeholders to define the opportunities where positive change for wildlife and wider environmental benefits can best be delivered.

Each LNRS is required to:

- **Agree priorities for nature recovery.**
- **Map the most valuable existing areas for nature.**
- **Map specific measures for creating or improving habitat for nature in the context of wider environmental benefits.**
- **Align with National Environmental Objectives[3] (including for example public health and climate change), as well as referencing global 30 x 30[5] ambitions for land management, and the role of nature-based solutions[6].**

[2] UK Government (2024) Nature Recovery Network. Available at: https://www.gov.uk/government/publications/nature-recovery-network (Accessed 29 April 2025).

[3] Isle of Wight Council (2024) Home page. Available at: https://www.iow.gov.uk (Accessed 3 December 2024).

[4] UK Government (2021) Environment Act 2021. Available at: https://www.legislation.gov.uk/ukpga/2021/30/contents (Accessed 29 April 2025).

[5] Markwick, J. (2023) 30 by 30: a boost for nature recovery. Natural England Blog. Available at: https://naturalengland.blog.gov.uk/2023/12/11/30-by-30-a-boost-for-nature-recovery/ (Accessed 29 April 2025).

[6] London School of Economics and Political Science (LSE) (2022) What are nature-based solutions to climate change? Available at: https://www.lse.ac.uk/granthaminstitute/explainers/what-are-nature-based-solutions-to-climate-change/ (Accessed 4 December 2024).

The Isle of Wight LNRS Statement for Biodiversity Priorities is split into 4 parts:

Part 1. Description of Strategy Area

Part 2. Priorities and Measures

Part 3. Priority Species & Assemblages

Part 4. Technical Methods

The Local Habitat Map is embedded within Part 2, and can be viewed online via the Island Nature website (islandnature.org). The map also includes all geographically located measures.

The details of the Isle of Wight stakeholder engagement programme and governance structure are provided in detail in IW Local Nature Recovery Strategy - Technical Methods. The core steering group has throughout comprised Isle of Wight Council, Natural England, Forestry Commission[7], Environment Agency[8], Hampshire and Isle of Wight Wildlife Trust[9], IW National Landscape[10], Environmental Farmers Group[11], Wight Rural Hub[12], National Farmers Union[13], Country Landowners Association[14], National Trust[15], Natural Enterprise[16],

[7] Forestry England (2024) Isle of Wight Forest Plan. Available at: https://www.forestryengland.uk/forest-planning/isle-wight-forest-plan (Accessed 3 December 2024).

[8] Environment Agency (2025) Home page. Available at: https://www.gov.uk/government/organisations/environment-agency (Accessed 3 December 2024).

[9] Hampshire & Isle of Wight Wildlife Trust (2025) Home page. Available at: https://www.hiwwt.org.uk (Accessed 3 December 2024).

[10] Isle of Wight Natural History & Archaeological Society (2025) Home page. Available at: https://isleofwight-nl.org.uk (Accessed 3 December 2024).

[11] Environmental Farmers Group (2024) Home page. Available at: https://www.environmentalfarmersgroup.co.uk (Accessed 3 December 2024).

[12] Wight Rural Hub (2025) Home page. Available at: https://www.wightruralhub.co.uk (Accessed 3 December 2024).

[13] National Farmers' Union (2025) Home page. Available at: https://www.nfuonline.com (Accessed 3 December 2024).

[14] Country Land and Business Association (2025) South East. Available at: https://www.cla.org.uk/in-your-area/south-east (Accessed 3 December 2024).

[15] National Trust (2025) Isle of Wight. Available at: https://www.nationaltrust.org.uk/visit/isle-of-wight (Accessed 3 December 2024).

[16] Natural Enterprise (2025) Home page. Available at: https://naturalenterprise.co.uk (Accessed 3 December 2024).

Island Rivers[17], Solent Forum[18], Isle of Wight Local Records Centre[19], Isle of Wight Natural History and Archaeology Society[20], People's Trust for Endangered Species[21], Royal Society for Protection of Birds[22] and Wight Squirrels[23].

The full list of aligned strategic documents informing the LNRS is also provided in the Technical Methods, the principal ones being: The IW National Character Area[24], draft Island Planning Strategy[25], IW National Landscape Management Plan[26], IW Catchment Plan[27], IW Climate and Environment Strategy[28], Solent Seascape[29], Southern IFCA strategic plans[30] and the original set of Habitat Action Plans produced by the Isle of Wight Biodiversity Action Partnership[31] between 1999 and 2019 (this archive will be migrated to the Island Nature[32] website as part of the LNRS process).

In developing the strategy, the LNRS project team has used data from a wide variety of sources, including the Isle of Wight Council, the Local Records Centre[25], the Catchment Partnership[16] national datasets available from the Government through the LNRS Data Viewer[33], from individual eNGOs and from expert recorders both nationally and locally. Stakeholder information, opinion and site promotion have been collated from a programme of public and sectoral engagement that ran from September 2023 to October 2024.

Blue tit feeding its young in a sculpted nestbox, Sandown. Photography by Artecology.

[17] Island Rivers (2024) Home page. Available at: https://islandrivers.org.uk (Accessed 3 December 2024).

[18] Solent Forum (2025) Home page. Available at: https://www.solentforum.org (Accessed 3 December 2024).

[19] Isle of Wight Local Records Centre (2025) Home page. Available at: https://www.iwlrc.co.uk (Accessed 3 December 2024).

[20] Isle of Wight Natural History and Archeaological Society (2025) Home Page. Available at: https://iwnhas.org (Accessed 3 December 2024).

[21] People's Trust for Endangered Species (2025) Home page. Available at: https://ptes.org (Accessed 3 December 2024).

[22] Royal Society for Protection of Birds (2025) Home page. Available at: https://www.rspb.org.uk (Accessed 3 December 2024).

[23] Wight Squirrels (2025) Home page. Available at: https://www.wightsquirrels.co.uk (Accessed 3 December 2024).

[24] Natural England (2014) National Character Area Profile: 127 Isle of Wight (NE561). Available at: https://publications.naturalengland.org.uk/publication/6225459138265088 (Accessed 4 December 2024).

[25] Isle of Wight Council (2024) Island Planning Strategy. Available at: https://www.iow.gov.uk/environment-and-planning/planning/island-planning-strategy/ (Accessed 4 December 2024).

[26] Isle of Wight National Landscape (2024) Isle of Wight AONB Management Plan (draft). Available at: https://isleofwight-nl.org.uk/discover-learn/iw-aonb-management-plan/ (Accessed 4 December 2024).

[27] Island Rivers (2019) Isle of Wight Catchment Management Plan. (Online). Available at: http://www.islandrivers.org.uk/wp-content/uploads/2019/11/1.-Isle-of-Wight-Catchment-Management-Latest-version-Nov-2019.pdf (Accessed 3 December 2024).

[28] Isle of Wight Council (2020) Climate and Environment Strategy. Available at: https://iow.moderngov.co.uk/documents/s1870/Climate%20and%20Environment%20Strategy.pdf (Accessed 4 December 2024).

[29] Solent Seascape (2025) Home page. Available at: https://solentseascape.com (Accessed 3 December 2024).

[30] Southern Inshore Fisheries and Conservation Authority (Southern IFCA) (2024) Strategic Plan 2024–2025. Available at: https://secure.toolkitfiles.co.uk/clients/25364/sitedata/Redesign/Authority_Reports/Southern-IFCA-Strategic-Plan-24-25-FINAL.pdf (Accessed 4 December 2024).

[31] Isle of Wight Local Records Centre (IWLRC) (2025) Home page. Available at: https://www.iwlrc.co.uk/ (Accessed 10 January 2025).

[32] Island Nature (2025) Home page. Available at: https://www.islandnature.org/ (Accessed 5 May 2025).

[33] Natural England (2024) LNRS Map Viewer. Available at: https://experience.arcgis.com/experience/7c5242fdec7f433aa4ee4510383e3909/page/Home/ (Accessed 4 December 2024).

2. The Isle of Wight Description

The Isle of Wight is England's largest Island and forms part of the most significant cluster of inhabited English islands, the Solent region. It stretches 36 km east to west, and 22 km north to south and is England's second most populous Island after neighbouring Portsea. It has no road link to the mainland and the crossing distance varies between 3 and 10 km along its northern coast.

The Island was historically part of Hampshire but became an independent administrative county in 1890, and a separate ceremonial county (i.e., with its own Lord Lieutenant) in 1974. It is administered by a single unitary authority (UA), one of the 4 upper tier authorities that make up the Solent and Hampshire Region, comprising the Isle of Wight UA, Hampshire County Council, and Portsmouth and Southampton City Councils.

The Island is mapped as LNRS region 46[34]. Its nearest neighbours are Dorset (region 44), Hampshire (region 45) and West Sussex (region 47).

2.1. Physical Geography

2.1.1. Coastline

The Island's land surface is 380 km^2 with 120 km of coastline broadly divided into 60 km of Solent coast, from The Needles to Culver via the Medina Estuary, and 60 km of Channel coast from The Needles to Culver via St. Catherine's Point. The intertidal zone that encompasses the Island covers approximately 13 km^2; a large proportion is owned and managed by the Isle of Wight Council, with some on long leasehold from the Crown Estate[35]. Approximately 30% of the shoreline is protected by coastal defences[36], predominantly around the larger coastal settlements in the eastern half of the Island.

[34] UK Government (2022) Local nature recovery strategies: areas and responsible authorities. Available at: https://www.gov.uk/government/publications/local-nature-recovery-strategies-areas-and-responsible-authorities (Accessed 3 December 2024).

[35] The Crown Estate (2025) Home page. Available at: https://www.thecrownestate.co.uk (Accessed 3 December 2024).

[36] Isle of Wight Council (2010) Shoreline Management Plan 2 (SMP2). Isle of Wight Council. Available at: https://www.iow.gov.uk (Accessed 3 December 2024).

The Isle of Wight coastline has been shaped by major sea level fluctuations driven by periods of glaciation. During the last cold period of the Ice Age sea levels fell by up to 140 metres. At this time, the Island's chalk spine would have extended to the Isle of Purbeck in Dorset. As the ice sheets melted and sea levels rose over the period 15,000 to 5,000 years BP (Before Present), the chalk ridge was eroded and the valley behind flooded, forming the Solent, gradually separating the Isle of Wight from the mainland. Fluctuating sea levels around the Island's evolving coastline created rapid rates of erosion and the sediments derived from the newly formed sea cliffs were transported by ocean currents to form the various sand and gravel banks in the eastern Solent.

The Island's inshore environment is typical of convoluted coastlines, with high variation in the degree of wave exposure and habitat, creating complex conditions of high conservation value.

2.1.2. Geology

Landforms and soils determine land use and habitat, and the Island's dramatically zoned geology has created a highly distinctive and diverse landscape. The northern half of the Island is composed of younger Palaeogene clays, sands, gravel ridges and limestones, forming an extensive plain to the Solent coast of approximately 200 km^2 (53% of the Island). The Late Cretaceous central chalk spine and south-eastern uplands together cover 45 km^2 (12%) and the still older southern Cretaceous sandstone hills and mudstone plains to the Channel coast and east to Sandown Bay cover 130 km^2 (34%). The Early Cretaceous exposures at Compton and Yaverland are internationally important dinosaur fossil sites. The 5 km^2 (1%), from Niton to Shanklin along the south-eastern coastline, is a complex rotational landslip, the largest inhabited landform of its type in Northwest Europe.

The Island's soft geology has created a coastline (where it is not altered by seawalls, port infrastructures, harbours, and marinas) characterised by dynamic natural processes and the reproduction of biologically rich and highly complex cliff and slope habitat mosaics.

2.1.3. Water

The Island's water environment is made up of thirty-five river water bodies, eight estuaries and transitional coastal waters, and four groundwater bodies. It also includes fourteen bathing waters, one surface drinking water source and six designated shellfish waters. Except for small watercourses running south into the English Channel, such as the Atherfield Stream, all of the Island's rivers run north to the Solent. Rising from the chalk they rapidly become influenced by either the clay or sandy soils depending on their course.

Classic chalk streams are rare, the majority are essentially chalk-influenced, but the Lukely Brook in Newport and the Caul Bourne at Winkle Street are good examples.

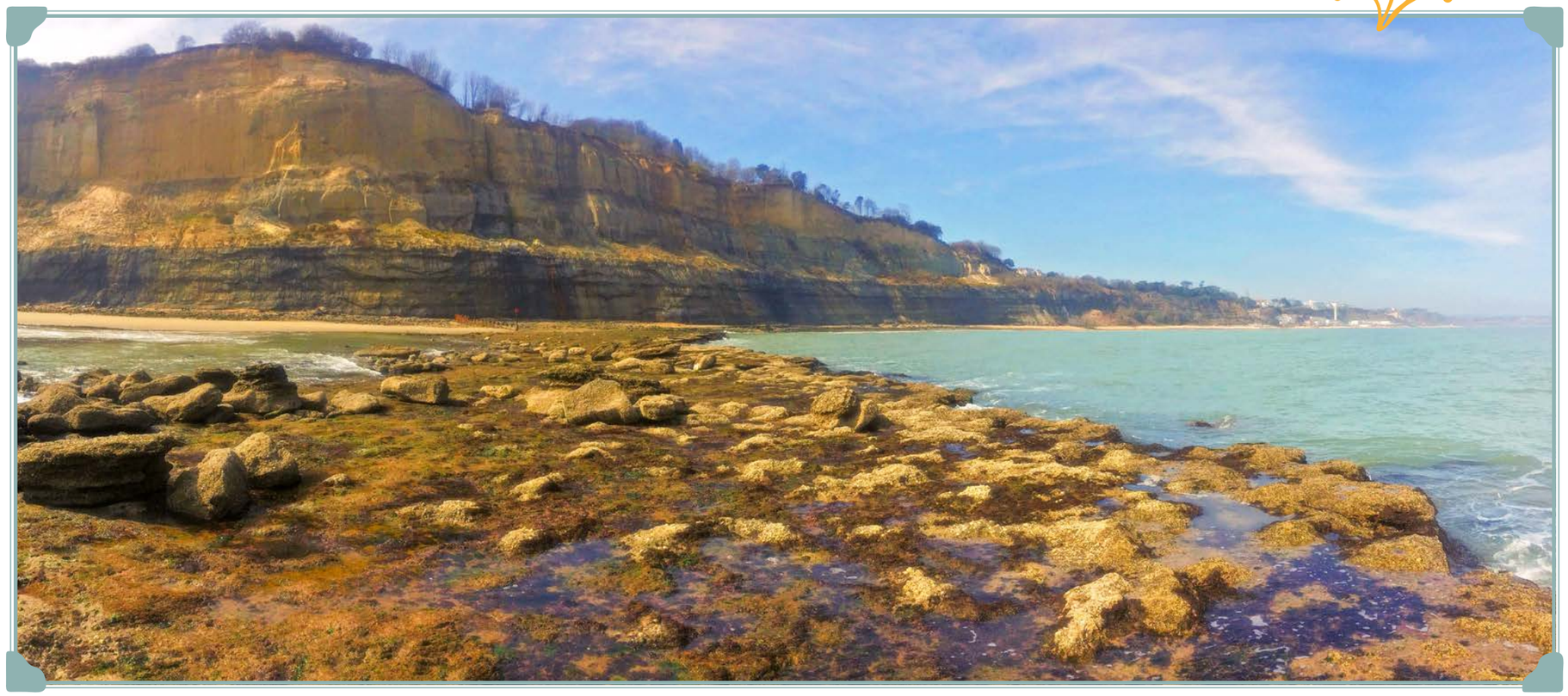
47% of Island drinking water is taken from the aquifers at Knighton (eastern chalk ridge), Carisbrooke (Bowcombe Valley) and Ventnor (Ventnor Downs), 23% is abstracted from the Eastern Yar river at Sandown and 30% comes from the River Test in Hampshire via a sub-Solent pipeline. The Island community is not self-sufficient for potable supply (investment in waste water recycling is currently being planned[37]) and water is therefore one of the most contested and problematic resource issues that the Island faces under accelerating conditions of climate change.

[37] Southern Water (2025) Isle of Wight Water Recycling Project. Available at: https://www.southernwater.co.uk/about-us/our-plans/water-recycling/isle-of-wight-water-recycling-project/ (Accessed 29 April 2025).

2.1.4. Habitats

The Isle of Wight is a fabric of rich and diverse habitats. Some of these are regarded as Priority Habitats[38]. Some also exist as 'transitional' habitats, where one type merges into another type. Soft edges, gradations between habitats and resulting heterogeneous mosaics of diverse niches are a particularly important and distinctive component of the Isle of Wight's land cover. A full description of important habitats for the Isle of Wight and the decision-making process used to evaluate them are detailed in Chapter 2.7.

[38] UK Government (2022) Habitats and species of principal importance in England. Available at: https://www.gov.uk/government/publications/habitats-and-species-of-principal-importance-in-england (Accessed 3 December 2024).



Horse Ledge at low tide, Shanklin. Photography by Ian Boyd.

2.2. Landscape History and Prehistory

The Island's overarching landscape ecology divides naturally into four distinct regions: the south-western bowl, the south-eastern downs, the central ridge, and the northern dissected plateau, together with the rivers that flow through them, and the intertidal zone that encircles them.

The south-western bowl is underlain mainly by Wealden and Lower Greensand geology, giving rise to a gently rolling landscape with isolated knolls and 'hogback' ridges. At the coast, the Wealden rocks produce terraced slopes with temporary ponds, while the Lower Greensand forms high, steep sea cliffs.

The south-eastern downs, deeply indented on their inland side and steeply precipitous where they face the Channel, are underlain by Gault Clay and Upper Greensand, capped by Chalk. This unstable combination has produced huge areas of historic and still-active landslip.

Iron age timbers preserved in peat at Alverstone. Photography by Ian Boyd.

The central east-west 'backbone' of the Island is predominantly flintstone-rich chalk in a narrow ridge broadening into a central plateau around Chillerton and Calbourne. Where it reaches the sea at Culver and Compton, the chalk forms very high, vertical cliffs. One of the prominent features of the central ridge is the presence of steep-sided dry valleys or coombes. In places, where it is not masked by downwash from the chalk above, there is a prominent secondary ridge in the Upper Greensand, well-defined for example between Shorwell and Brighstone and between Yaverland and Culver.

The northern half of the Island is underlain by Palaeogene clays and silts with an extensive cover of gravels, producing a low plateau dissected by river and stream erosion to produce an area of low hills and gentle slopes towards the Solent. The soils here are heavy clays and difficult to cultivate, consequently most of the Island's ancient woodlands remain intact in this area.

The Island is unusual in the south of England for its areas of deep peat deposit and these, as well as being sites of importance for wildlife and providing important carbon storage functions, reveal the post-glacial story of the Island's climate and environment history through preserved pollen stratigraphy, for example at Gatcombe Withybed and Munsley Bog. This is a palaeoecological resource of national significance. The main periods of distinct plant community that are revealed are as follows:

Table 1: History of land cover change on the Isle of Wight, 13,000 BP to Present[39]

Period	Environment
13,000 – 11,600 Before Present (BP)	Harsh arctic tundra conditions with permafrost and a rich alpine flora. This included dwarf shrub and heathland communities with Juniper, Heather, and Willow; short turf grassland similar in some ways to modern chalk communities with Rock-rose and Moonwort; alpine meadows with Jacob's-ladder and Meadow-rue; and diverse wetlands.
11,600 – 7,800 BP	The early warm period produced rapid transitional change with the arrival of Birch and Pine woodland and the spread of Hazel, Oak, and Elm.
7,800 – 6,300 BP	The Island is substantially separated from the mainland in this period, and there is consequently an increase in oceanic conditions and flooded valleys favoured the establishment of dominant Alder and Small-leaved Lime woodlands, still with Oak, Elm and Hazel and an enriched understory of Yew, Bird Cherry, Dogwood, Field Maple, Buckthorn and Crab Apple.
6,300 – 5,700 BP	The arrival of Neolithic culture at this time marked the first clearances of natural woodland for agriculture, creating a mosaic of climax and secondary woodland. Elm declined, through selective use and disease, but Lime remained dominant.
5,700 – 3,200 BP	Increased woodland clearances and the dramatic decline of Lime in the Bronze Age, leading to long and complex evolution of open downland and dry and wet heathland habitats interspersed between managed Oak, Hazel, and Willow woodlands. Final land bridge severance.
3,200 – Today	From Romano-British times, through the Historic Period to the Modern Era, the influences of farming and forestry, and urbanisation and domestication on the landscape have predominated, now intensified by the impacts of climate change.

[39] Isle of Wight Council (2013) Historic Environment Action Plan: Isle of Wight Overview. Isle of Wight Council. Available at: https://www.iow.gov.uk/azservices/documents/1324-IsleofWightHEAPOverview_2013.pdf (Accessed 3 December 2024).

2.3. Human Occupation

The earliest evidence of human occupation, Palaeolithic tools from 500,000 years ago, date back far beyond the formation of the Island.

The prehistoric Solent River began to flood with sea water approximately 9,000 years ago, remaining connected by a land bridge to the mainland until about 5,500 years ago.

The early inhabitants of the Island were hunter-gatherers exploiting resources of land, coast, and river; Coastal zones, especially for intertidal foraging, were important resources for early peoples throughout the prehistoric period[40].

Until 6,000 years ago, when cultivation started, much of the Island landscape was wooded, as elsewhere in Britain, persisting until the Bronze Age clearances. Human settlement and agriculture have been the driving forces of landscape change on the Island since the Iron Age and Romano-British period. Most human communities were associated with the chalk landscapes and this pattern continued into the Anglo-Saxon 5th and 6th centuries before spreading out across the Island as the large estates were broken up.

Significant landscape features from this time remain visible as hedges and ditches, some still functioning as civic boundaries in the older parishes such as Arreton and Newchurch. From the Norman Conquest through the Medieval period, the Island developed as small, nucleated villages built around church and manor complexes with access to woodland, fields, aggregate and stone but from the late Middle Ages to the 18th Century open land became largely enclosed. The Island's urbanisation dramatically accelerated in Regency and Victorian times as industry, tourism and military occupation grew in importance.

The Island we see today retains elements of each of the phases of its evolution. It remains largely rural, with a field pattern and farmed landscape that would certainly be familiar to a visitor from a century ago. The exceptional time-depth and tangible natural and cultural heritage embedded in its landscape form an essential characteristic of the Island and tell the story of a special relationship that persists between its people and its environment.

[40] Tomalin, D. (2021) Roman Vectis: Archaeology and Identity in the Isle of Wight. Isle of Wight Natural History & Archaeological Society.

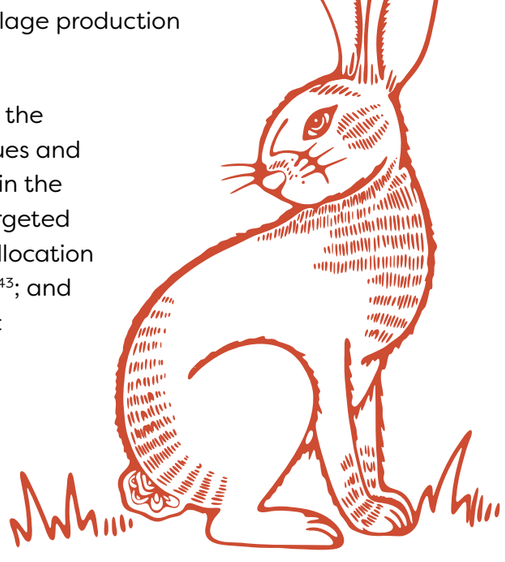
Illustration: Wheat (Triticum).

The Island's population today is approximately 141,000[41] and is spread across approximately one hundred towns, villages, and hamlets with the main centres of population being Newport (the County Town), the Medina Valley, Ryde, and the conurbation of The Bay area comprising Shanklin, Lake and Sandown.

The Island is a rural landscape, entirely shaped by human activity since its separation from mainland England. Approximately 80% is open countryside, 10% woodland, and 10% core urban settlement. Of the open countryside, 75% is farmland, 230 km² owned and managed by a little over 300 agricultural holdings comprising 120 km² of grass and 8 km² of crops. The land-based labour force, including farm and forestry and other contractors, and conservation estate rangers and wardens is approximately 1,000 people[42].

Key trends affecting the farmed landscape in recent years have been the continuing contraction of the dairy sector, changes in cropping due to the growth of feed stock (for example maize) for the two large-scale anaerobic digester plants on the Island, the prevalence of contract farming, especially for vegetables, and an increase in land set aside for horses and with it a shift to haylage production from land previously grazed by livestock.

The LNRS is likely to be highly relevant in the context of changes to Island farm revenues and infrastructures. It will become influential in the way that agri-environment support is targeted and prioritised; it will help to guide the allocation of Biodiversity Net Gain offset payments[43]; and it will help to define the Island's strategic positioning within the global stream of natural asset finance and future investment opportunity.



[41] Office for National Statistics (ONS) (2023) Annual mid-year population estimates: Mid-2023. Available at: https://www.ons.gov.uk/peoplepopulationandcommunity/populationandmigration/populationestimates/bulletins/annualmidyearpopulationestimates/mid2023 (Accessed 2 December 2024).

[42] Department for Environment, Food & Rural Affairs (2023) Structure of the Agricultural Industry in England and the UK. Available at: https://www.gov.uk/government/collections/structure-of-the-agricultural-industry (Accessed 10 January 2025).

[43] Department for Environment, Food & Rural Affairs (2022) Biodiversity Net Gain: Updating Planning Requirements. DEFRA. Available at: https://www.gov.uk/government/news/strategy-breaks-ground-on-biodiversity-net-gain-and-nature-growth (Accessed 3 December 2024).

Illustration: Brown Hare (Lepus europaeus).

2.4. Island Socio-economics

The Isle of Wight shares many of the characteristics and challenges of coastal communities around the UK but concentrated and intensified by 'islandness,' its logistical, economic, social and political separation from the mainland.

The Island population is significantly older than the national average, and this demographic trend line is steepening. Annually, approximately 1,000 children are born on the Island, 2,000 people die, 5,000 arrive through local immigration (predominantly retirees from the central south of England) and 4,000 move away (mainly school leavers)[40]. These numbers fluctuate, but the net annual increase in population is small, averaging just 200 over the decade leading up to the last census. ONS projections show the Island population continuing to grow at approximately 2% each year though this has significantly slowed during and post-Covid.

Photography by Claire Hector.

There are approximately 60,000 jobs on the Island, 30,000 full-time, 20,000 part-time, and 10,000 self-employed[44]. These are mainly taken up by care, education, retail and 'home service' sectors, but there are also significant strengths in tourism and hospitality, creative and cultural enterprise, and in electronics and engineering (the latter having established a 'tech' cluster in the Medina Valley).

The Island economy is approximately £3.5 billion annually, comprising £2.5 billion in the private sphere and £1 billion public and social. These economies are very closely entwined through networks of procurement and contract. The Island faces significant challenges of low pay and precarious employment[45] [46], poor health outcomes for young people[40], underperformance against national school exam standards[47], and narrowing career options[48].

[44] Office for National Statistics (2023) Employment, Unemployment and Economic Inactivity on the Isle of Wight. ONS. Available at: https://www.ons.gov.uk/visualisations/labourmarketlocal/E06000046/ (Accessed 3 December 2024).

[45] Solent Local Enterprise Partnership (2020) Solent LEP Skills and Local Labour Market Report: June 2020. Solent LEP.

[46] Isle of Wight Council (2022) JSNA Healthy Lives. Available at: https://www.iow.gov.uk/keep-the-island-safe/public-health/joint-strategic-needs-assessment-jsna/jsna-healthy-lives/ (Accessed 4 December 2024).

[47] Department for Education (2023) GCSE and Equivalent Results in England 2022/23 (Revised). DfE. Available at: https://www.gov.uk/search/research-and-statistics (Accessed 3 December 2024).

[48] Isle of Wight Council (2020) Isle of Wight Economic Profile: Final Report February 2020. Available at: https://www.iow.gov.uk/azservices/documents/1433-Isle-of-Wight-Economic-ProfileFinalFebruary2020.pdf (Accessed 4 December 2024).

LNRS is relevant and important to each of these areas. It is an essential catalyst of the Island's transition to a new high-nature value economy consistent with its global Biosphere credentials. In addition, the LNRS will create resources and opportunities, including a 'data commons,' that will support new environmental education initiatives, such as the Natural History GCSE[49], and higher education partnerships with the South Coast universities.

Newport High Street. Photography by Julian Winslow.

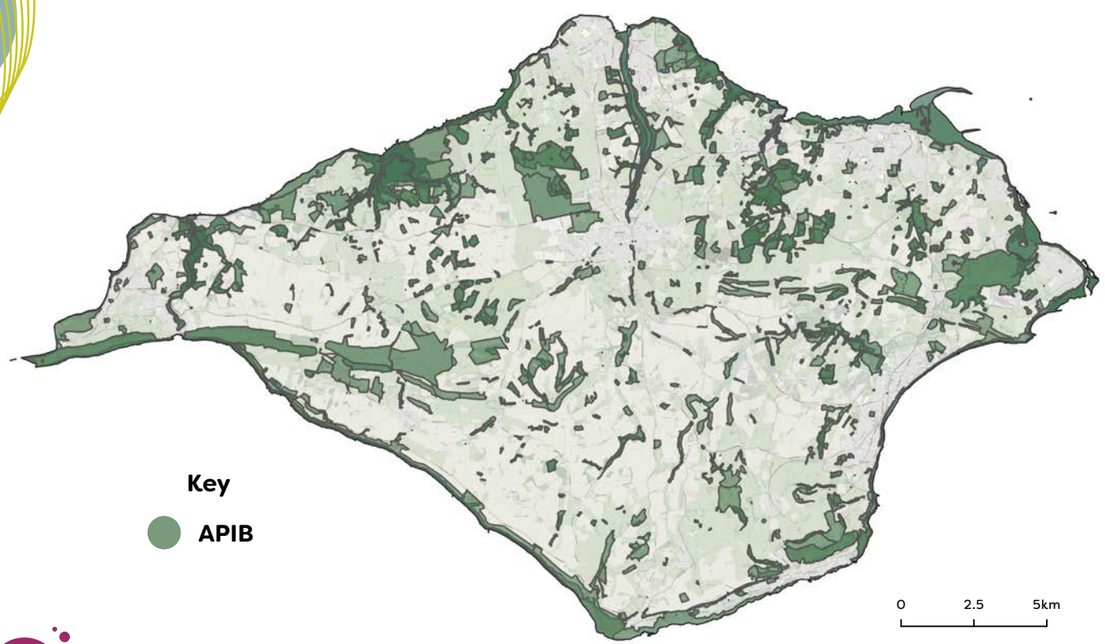
[49] Department for Education (2022) The new Natural History GCSE and how we're leading the way in climate and sustainability education – your questions answered. The Education Hub. Available at: https://educationhub.blog.gov.uk/2022/04/25/the-new-natural-history-gcse-and-how-were-leading-the-way-in-climate-and-sustainability-education-your-questions-answered/ (Accessed 29 April 2025).

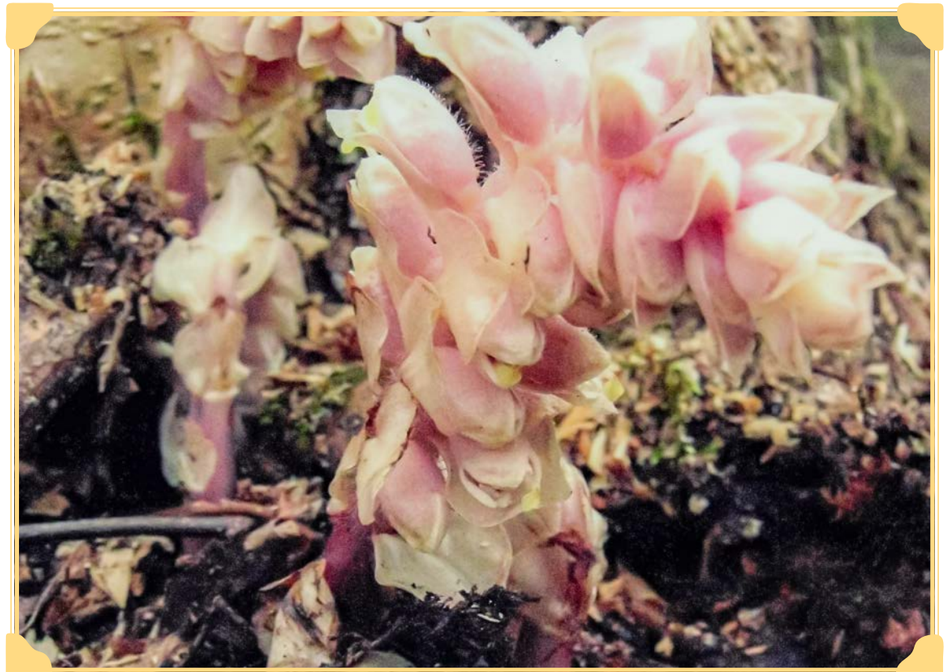
2.5. Environmental Policy

Island habitats receive a high level of protection in policy and law, and this is evident in the diversity and extent of the designated landscape as it applies to the terrestrial environment[50]:

- **Special Areas of Conservation (SAC) 13.08 km²**
- **Special Protection Areas (SPA) 9.54 km²**
- **Ramsar (wetlands) 16.20 km²**
- **Sites of Special Scientific Interest (SSSI) 42.16 km²**
- **National Nature Reserve (NNR) 28.76 km²**
- **Sites of Importance for Nature Conservation (SINC) 42.58 km²**
- **Local Nature Reserves (LNR) 1.11 km²**
- **Solent Brent Goose and Wader sites 7.83 km²**
- **Irreplaceable Habitats (Ancient Woodland, Lowland Fen, Sand Dunes, Saltmarsh) 17.12 km²**

Figure 1: Areas of Particular Importance for Biodiversity (APIB)





Ancient Woodland Indicator Species Toothwort, Eaglehead Copse SSSI. Photography by Ian Boyd.

Cowslips at Freshwater. Photography by Ian Boyd.

Illustration: Eel grass (Zostera marina).

2.5.1. Landscape Designation

The total Island land surface specially protected for the quality and importance of its habitat and biodiversity under one or more of these designations is approximately 20%. Overlapping with much of this is the IW National Landscape, which covers 191 km² (50% of the Island). Approximately one-third of the designated habitat sites also fall within the National Landscape.

There is an additional environmental policy designation set out in the local authority's (draft) Island Planning Strategy: the Ecological Network (EN). This maps over the older policy definitions that located 10 Biodiversity Opportunity Areas (BOAs), as set out in the 2009 Biodiversity Strategy for England in support of the UK's Biodiversity Action Plan and the 2010 Lawton Review 'Making Space for Nature'.

The Ecological Network covers 184.40 km², closely fitting the distribution of the designated habitat estate. The Ecological Network and the National Landscape are 'encompassing' environmental designations in the current planning policy and together they cover 264.61 km², 69% of the Island land surface.

2.5.2. Coastal Designations

The extent of policy protection on the coast is even greater; approximately 97% of the Island's shoreline, intertidal zone and inshore waters are protected as SAC, SPA, SSSI, or Marine Conservation Zone (MCZ).

The coastal environment of the Island is further supported by the Shoreline Management Plan (SMP2 2010) which provides a large-scale assessment of the risks associated with coastal change and presents a policy framework to protect people and the developed, historic, and natural environment. The SMP2 is a high-level document that forms an important part of DEFRA's strategy to manage the Island's fluvial and coastal flood defences.

The recently created King Charles III England Coast Path[50], together with its designated 'coastal margin', circumnavigates the Island and is a significant national recreational and cultural asset.

[50] National Trails (2025) A guide to the King Charles III England Coast Path. Available at: https://www.nationaltrail.co.uk/en_GB/guide-to-the-kciiiecp/ (Accessed 29 April 2025).

Illustrations from top: Swallows; Peacock's Tail (Padina pavonica).

2.5.3. Heritage Designations

The Island also has over 15,000 locations on its Historic Environment Record, including archaeological sites, historic parks and gardens, listed buildings and scheduled monuments. These offer important opportunities to combine positive combined outcomes for biodiversity and heritage, for example the historic parkland restoration proposals between Parkhurst and Ashengrove, and the 'excavated landscapes' of chalk and gravel quarries, brickworks, and clay pits, often supporting rare and threatened species. The relationship between the designed and built historic environment, Island biodiversity and future nature recovery is of great importance.

2.5.4. UNESCO Biosphere

The Island's impressive catalogue of terrestrial, coastal, and marine environmental designations and policy protections are ultimately incorporated into the Isle of Wight UNESCO World Biosphere Reserve, a status granted by the United Nations on June 19th, 2019.

The IW Biosphere covers over 900 km², two-thirds marine including the whole of the Solent. The designation is effectively a regional one, being relevant to the coastal cities of Portsmouth and Southampton and to the counties of Hampshire, Dorset, and West Sussex. This is important to the development of effective collaborations for nature recovery and peer learning opportunities between the four neighbouring LNRS programmes, particularly in the context of proposals for regional devolution.

UNESCO Biospheres are defined as 'learning places for sustainable development.' They are sites for testing interdisciplinary approaches to understanding changes and interactions between social and ecological systems, including conflict prevention and management of biodiversity. They are places that provide local solutions to global challenges. Biosphere reserves include terrestrial, marine, and coastal ecosystems.

Illustrations from top: Oak leaf; White-letter Hairstreak (Satyrium).

2.6. Isle of Wight Habitats

2.6.1. Habitat Categories

The Isle of Wight Flora (2003)[51] identifies ten habitats of primary botanical significance on the Island: Solent coastal, woodland, calcareous grassland, neutral and acid grassland, heathland, wetlands, aquatic and waterways, south (Channel) coastal, farmland, and churchyards and cemeteries.

[51] Pope, C., Snow, L., and Allen, D. (2003) The Isle of Wight Flora. Botanical Society of Britain & Ireland. Available at: https://bsbi.org/publications/ebooks/the-isle-of-wight-flora (Accessed 4 December 2024).

The Isle of Wight Biodiversity Action Partnership, in its work of two decades (1991 to 2021), identified and proposed management objectives and priorities for nine overarching priority categories of Isle of Wight habitats: maritime soft cliffs and slopes, calcareous grassland, heathland and acid grassland, lowland meadows, wetlands, woodland, farmland, Solent coastal, and community or urban.

These in turn have been refined through the LNRS consultation and technical design process to properly recognise the significance of habitat assemblages, mosaics and clusters. The ten final priority areas framing the work of the LNRS are therefore: Catchments and Rivers; Estuaries, Rivers, and Transition Waters; Lowland Grassland and Heath; Maritime Soft Cliffs and Chines; Trees and Woodland; Lagoons, Dunes, and Shingle Banks; Beaches, Seafronts and Seashores; and Urban Grey, Blue and Green Infrastructure.

Eastern Yar River meander, Brading. Photography by Daneen Cowling.

2.6.2. Important Habitats

The UK Priority Habitat Inventory (PHI) identifies the extent and distribution of 12 categories of important habitat on the Island. These are given in Table 2 (below) as priority habitats[52]. Total PHI extent is displayed in Figure 2.

Table 2 Area coverage of Priority Habitats on the Isle of Wight taken from the Priority Habitat Inventory (Natural England, 2024)

Priority Habitat	Area Coverage (Km²)
Deciduous Woodland	34.55
Calcareous Grassland	7.72
Maritime Cliffs	5.70
Grazing Marsh	4.85
Lowland Meadow	2.97
Acid Grassland	1.50
Lowland Fen	1.10
Lowland Heath	0.95
Reedbeds	0.67
Orchards	0.47
Dunes	0.10
Vegetated Shingle	0.05

[52] Joint Nature Conservation Committee (2024) UK BAP Priority Habitats. Available at: https://jncc.gov.uk/our-work/uk-bap-priority-habitats/ (Accessed 4 December 2024).

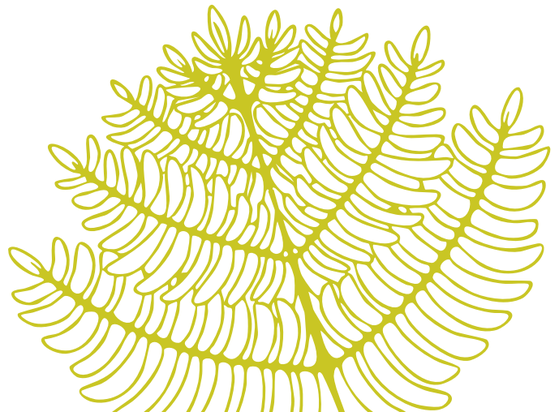
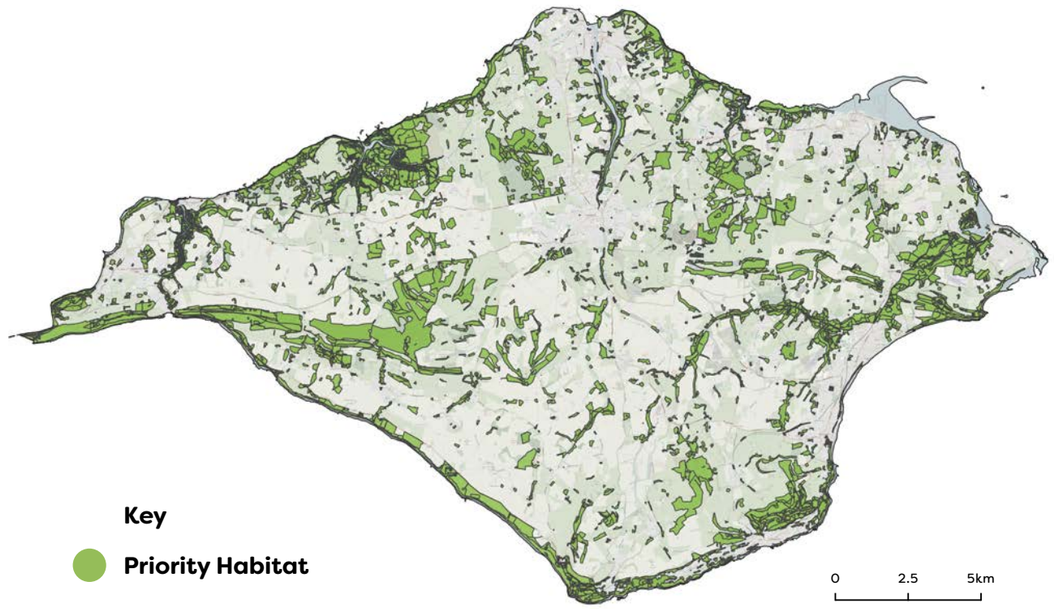


Figure 2: Map of the Priority Habitat Inventory (PHI) coverage on the Isle of Wight.



Amphibians under pressure due to loss of habitat, but a garden pond makes all the difference. Photography by Ian Boyd.

Illustration left: Royal fern (Osmunda regalis).

2.6.3. Habitat Change, Loss, and Quality

Some of the rarest and most vulnerable of the Island's habitat types are the relics of prehistoric environments, predating the separation of the Island from the mainland, habitats that would have been present through the interglacial periods, maintained by the actions of megafauna before expanding through the period of Neolithic woodland clearances. These are chalk grassland, wet and dry heaths, bogs, mires, springlines and ephemeral wetlands, and clay meadows, all of which have severely declined in modern times. Some of the Island's oldest designated Ancient Woodlands ('primary' ancient woodland) also belong in this category, such as the withybeds at Gatcombe, which have been continuously wooded for over 10,000 years, as well as the exceptional coastal oakwoods that line the saltmarshes of Newtown National Nature Reserve.

Adder's-tongue Fern and Common Spotted Orchid on a lowland meadow remnant, Newport. Photography by Ian Boyd.

The loss of UK chalk grassland over the past 150 years is estimated to be over 90%, and on the Island 63%[53] [54]. For heathland, the national loss is 97%, and on the Island 80%[55]. Lowland meadows are approximated to have declined nationally by 97% (since 1935)[56], a loss likely to have been reflected on the Island too. There is important work to be done within the best of the Island's

[53] Isle of Wight Biodiversity Action Partnership (2019) Lowland Calcareous Grassland Habitat Action Plan: Third Review.

[54] Chatters, C. (2010) Wild Hampshire & Isle of Wight. Wellington: Halsgrove.

[55] Isle of Wight Biodiversity Action Partnership (2008) Heathland and Acid Grassland Habitat Action Plan: Second Review.

[56] Joint Nature Conservation Committee (JNCC) (2008) Lowland Meadows: UK BAP Priority Habitat Description. (PDF) Available at: https://data.jncc.gov.uk/data/f0553254-1d47-474a-98e5-37fa163a28b5/UKBAP-BAPHabitats-29-Lowland-Meadows.pdf (Accessed 3 December 2024).

priority habitats to bring them up to an acceptable standard. For example, over 10 km² (25%) of the Island's SSSIs are in poor condition[57], with much scope for ecological uplift. The LNRS addresses this need by combining work within existing designated and priority sites with the expansion of conservation potential into areas likely to become of ecological value in the future.

Other historically important habitats are those that arose as a result of the formation of the Solent and the split from the mainland. These are dynamic habitats covering the coastal, intertidal, estuarine, and marine environments, the lower river valleys, and floodplains. Each is in some way still adjusting to its recent geological history, with new patterns of erosion and landslide around the coast, and the dramatic contraction of stream ordering within watersheds, meaning that what were once small headwaters and tributaries feeding the Solent River suddenly became main rivers in their own right and had to adapt accordingly to much shorter distances to reach sea level. One result of this process is the formation of the chines[58], dramatic, deep ravines, predominantly along the south coast of the Island, created as watercourses accelerated their channel erosion.

The most widespread habitats on the Island's land surface (60%) are those combinations of landscape features associated with farming and forestry. These are essentially cultural landscapes, continually shaped over the past three thousand years, most substantially in the eight decades since the Second World War, creating permanently modified versions of an original suite of lowland grasslands, heaths, woods and wetland. Food, wood fuel and construction products have traditionally been the primary outputs from this estate, but in the past 30 years this has broadened to include energy production (solar arrays and cropping for anaerobic digestion), development for tourism, quarries for building materials, and farming for wildlife and ecosystem services through Environmental Land Management Schemes (ELMS) and other farm revenue support schemes. The establishment of mandatory Biodiversity Net Gain (BNG), other 'stacked' options for nature-based credits, and global Environmental Social Governance (ESG) natural capital finance, are opening new opportunities for investment and revenue generation in the land-based economy, and these trends will inevitably bring with them new patterns of landscape change.

[57] Natural England (2025) MAGIC Map Application. Available at: https://magic.defra.gov.uk/MagicMap.html (Accessed 5 May 2024).

[58] Island Rivers (2023) Chines. Available at: https://islandrivers.org.uk/chines/ (Accessed 29 April 2025).

Illustration: Adder (Vipera berus).

2.6.4. Built Environments

The most recent habitats are those associated with human settlements and their infrastructures. These include residential and commercial developments, sea defences, road networks, bridges and culverts, cycleways and footpaths, schools, churches, ferry ports and harbours.

All built, planned and landscaped places provide habitat niches but these are generally incidental to design and are exploited opportunistically by wildlife. Increasingly, there are efforts being made to integrate intentional habitat design into new buildings and grounds, and to retrofit them during repairs and maintenance, supported by local planning policies and the requirements of Biodiversity Net Gain (BNG). The UK has a set of high priority species partly or wholly dependent on man-made built structures and dwellings for at least some of their life cycle (various synanthropic relationships, all forms of commensalism). Examples include Swifts, House Martins, Swallows and House Sparrows, together with Pipistrelle, Grey Long-eared and Serotine bats.

Installation of a swift box on a house in Cowes. Photography by Claire Hector.

Progress in the field of ecological design and engineering is well advanced in the coastal and maritime sectors, where constructed habitats (artificial reefs, pools, colonisable surfaces) are now routinely required by regulators. The Island has a strong track record in this field and has pioneered new approaches to nature recovery on defended coasts around the UK and in Europe.

2.6.5. Transitional Habitats

Transitions, seral stages, ecotones, and successions are all forms of 'in-between' environments, where one type of habitat begins to grade or blend into another. An example would be the scrubby bramble thicket that gradually connects a dense hedgerow to a grass field, or the creeks and saltmarshes that connect an estuary to its woodland fringes. Similar sequences also occur in soils, particularly important on steeper slopes where a sequence of thickness and composition changes occur from the top to the bottom. These are called soil catenas and are especially relevant to habitat quality and nature recovery work on the Island's dry greensand and chalk grasslands. The importance of Island soils as foundational habitat types, continuous across the whole Island land surface, and meeting marine sediments in the intertidal zone, is fully recognised by the LNRS. Geology and soil type has been used as the core criterion for habitat management prioritisation and mapped interventions for nature recovery.

Transitions are essential to the functioning of Island ecosystems, acknowledged from the beginning of the LNRS process. The Island landscape is made up of many thousands of small habitat units, creating a highly fragmented patchwork of great diversity and complexity, tightly 'shrink-wrapped' by the hard boundary of its coast. This pattern is mirrored in the way the Island is farmed. Few of the 300 or so holdings are larger than 1 km^2. The Island has famously been called 'England in miniature' precisely because of its distinctively varied, mixed and blended landscape character. But these qualities also result in low resilience to change and high vulnerability to attrition and degradation from edge effects, nutrient enrichment, and unsympathetic land management. In their landscape ecology, Island habitats therefore tend to be much more 'edge' than 'core' in the way they function for wildlife. Many of the Island's most iconic species inhabit these dynamic transitions, natural processes on coastal cliffs, the brownfields and 'wastes' of industrial and residential areas, the spreading margins of copses and hedgerows, and agricultural field corners and headlands.

Because of the restricted extent of Island habitat, and the lack of large-scale continuity, Island ecosystems have compensated by forming dense and varied mosaics that can together provide the resources needed by different communities of wildlife and assemblages of species. This 'mend and make do' approach has many interesting parallels with other environmental and social priorities on the Island and provides an important bridge between core ecological strategy and wider issues of socio-economic sustainability.

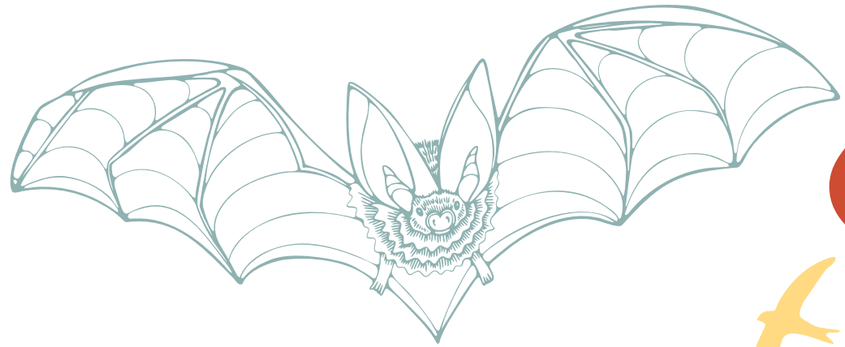
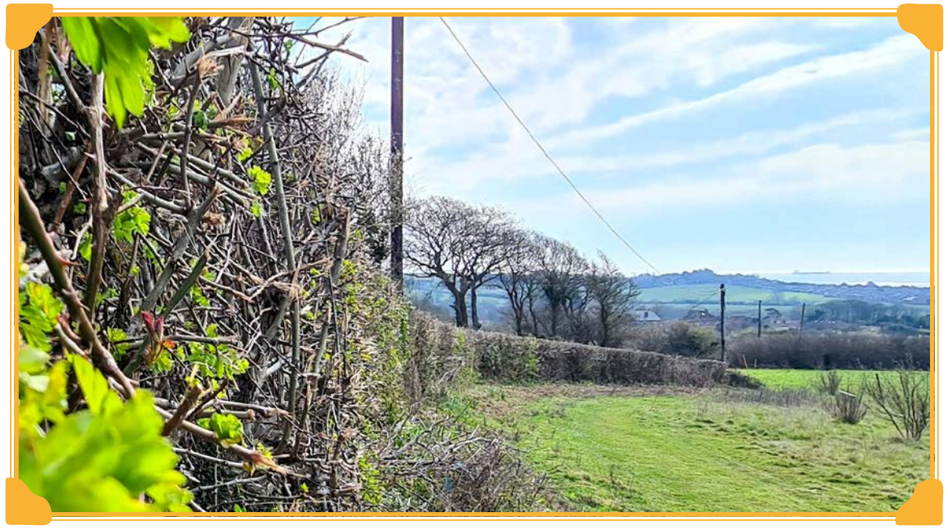


Illustration: Grey long-eared bat (Plecotus austriacus).

2.6.6. The Importance of Hedgerows

The Island has a nationally significant density of hedgerow coverage at 3.6 km/km^2; the ratio for Hampshire is 1.5, and for Surrey is 1.2[59]. Because of their wide reach across the Island's dense landscape patchwork, Island hedgerows connect and interact with every other habitat type from rivers and coasts to downs and towns. For this reason they play a notable role as habitat connectors, wildlife refuges, and the soft edges between harder features, for example between a road and a maize field. Hedges are themselves almost always a combination of habitat niches and transitions. They are 'starter kits' for a wide variety of successional forms and stages; for example, they can be simply left to expand in size and become scrub thickets or small woodland features. Hedges have their own margins where they blend into the habitats alongside, and from where, especially in farmed landscapes, wide field headlands can be developed, with zones of reduced herbicide and nutrient input, uncropped cereals, overwintered stubble, pollinator strips, small wetland features, and many other valuable environments. For all these reasons, hedgerows are given great importance in the LNRS. They are habitats in their own right, as well as transitional spaces where a variety of management options can be developed, and they are essential regulatory structures affecting the ways in which soil, water, and wildlife move through the landscape.



Hedgerow at Brading. Photography by Claire Hector.

[59] Centre for Ecology and Hydrology (2024) High-Tech Aerial Mapping Reveals England's Hedgerow Landscape. Available at: https://www.ceh.ac.uk/press/high-tech-aerial-mapping-reveals-englands-hedgerow-landscape (Accessed 3 December 2024).

2.6.7. Matrix Restoration

The Island's clusters of small habitat features, conservation hotspots and relic natural spaces are all set within a larger-scale land-use matrix. This might be farmland, or settlement, woodland or valley floodplain. Each of these is generally a more homogenous, simplified ecosystem, lacking fine-grained habitat diversity and often contested between the competing interests of nature, food and timber production, energy and water, development, industry, and waste disposal.

Improving the value of these areas can be achieved by increasing the intensity of conservation management work within the fragments of higher quality habitats, creating patchworks of biologically favourable mosaic. At the same time, this approach seeks to reduce or 'de-intensify' the impact of the predominant land management and maintenance regimes that surround them (i.e. the matrix type). This might result in the widespread use of future Sustainable Farm Incentive (SFI)[60] options across a farmland matrix, or the variation of grass cutting and other 'tidying' contracts on urban greens in response to the enhanced biodiversity duty on public bodies.

Matrix and mosaic management is important for a range of species, particularly those that have poor dispersal distances, that rely on habitats that are already heavily fragmented or have seasonally variable food requirements (such as Adonis Blue butterfly and Great Crested Newt). Similarly, matrix management supports larger species that require extensive areas to move between habitat patches (such as Barbastelle bat and Marsh Harrier).

There are also important climate change mitigation and adaptation benefits to the matrix and mosaic approach to landscape management for wildlife. This is because it is focussed on the creation of dense habitat diversity and these heterogeneous environments have been shown to favour a resilient community of native species over opportunistic colonisation by non-natives. Such an approach is likely to help agriculture as well as wildlife, as many invasive species, particularly those predicted to arrive in Europe following climate change, are serious crop pests for farming and forestry[61].

[60] Department for Environment, Food & Rural Affairs (2024) SFI Scheme Information: Expanded Offer for 2024. Available at: https://www.gov.uk/government/publications/sustainable-farming-incentive-scheme-expanded-offer-for-2024/sfi-scheme-information-expanded-offer-for-2024 (Accessed 4 December 2024).

[61] Forest Research (2024) Pests & Diseases. Available at: https://www.forestresearch.gov.uk/climate-change/risks/pests-and-diseases/ (Accessed 4 December 2024).

Illustrations: Adonis Blue butterfly (Polyommatus bellargus).

2.7. Isle of Wight Species

There are almost 10,000 living species recorded on the Island's Local Records Centre database, and as many as 15,000 identified by the specialist recorder network of the Isle of Wight. There are in addition 4,000 fossil taxa.

The Island's flora and fauna are as notable for their absences as for their specialities, the consequence of biogeographical separation from mainland ecosystems over the past 5,500 years. The Island has a shorter list of breeding bird species than most counties, for example it has no (or very few) Tawny Owls, Nuthatches, Lesser-spotted Woodpeckers, or Marsh Tits (all well-established in the New Forest). Badgers did not persist once the Island separated, and it is likely that Foxes became extinct soon after. The only reason that we have these species here today is that both were repeatedly shipped onto the Island in the 19th and early 20th centuries for hunting[62]. There are no Mink (which is one of the reasons that Water Voles remain widespread)[63], there are no Grey Squirrels (which is why Red Squirrels thrive here), and there are no wild deer (which is why Dormice are so widespread)[64]. This latter special characteristic of the Island's natural environment is of particular importance, creating a pre-medieval woodland landscape, a time before deer were introduced, which is exceptionally rare in the UK. The absence of deer pressure on natural regeneration and new planting is beneficial to the ecology of small and fragmented Island woodlands when compared with mainland UK and is undoubtedly key to the survival of a woodland mammal assemblage unique in the UK and rare across Europe: Red Squirrel, Hazel Dormouse, Bechsteins and Barbastelle bats.

Red Squirrel. Photography by @nealstaleyphotography.

[62] Badger Trust Isle of Wight (2019) History of badgers on the Isle of Wight. Available at: https://www.badgertrust-isleofwight.co.uk/history/ (Accessed 2 December 2024).

[63] People's Trust for Endangered Species (2024) Water Vole. Available at: https://ptes.org/get-informed/facts-figures/water-vole/ (Accessed 4 December 2024).

[64] Isle of Wight Biodiversity Partnership (2014) Isle of Wight Deer Position Statement. Available at: https://www.wildonwight.co.uk/publications/Isle%20of%20Wight%20Deer%20Position%20Statement-1-2.pdf (Accessed 4 December 2024).

The Island's rivers generally score relatively poorly for freshwater invertebrates[65], again because of the effects of geographical isolation but also because of the continuing adjustment of stream ordering, channel morphology and sediment flows following the flooding of the Solent that separated the Island and turned its small tributaries and headwaters into main rivers. The Island is still quite new as a geomorphological and geographical entity. .

The Island has a number of nationally and internationally important species. These include Wood Calamint (a flowering plant) and Reddish Buff (a moth), which are found nowhere else in the UK, and an extraordinary fungus, *Bryostroma popei*, parasitic on moss and new to science, found in ancient woodland at Briddlesford in 2019 is so far unknown anywhere else in the world. The English endemic plant Early Gentian, found only on chalk downland in the southern counties, has its largest population on the Island, in some years numbering in the hundreds of thousands. The Hemipteran plant bug *Mocuellus collinus* was known only from Island sand dunes in the UK (and named in standard field guides as 'the Isle of Wight Hopper') until being discovered in Chichester in 2024 perhaps suggesting a Solent population. One of the most surprising specialities in the Island's impressive species list is the humble Dandelion. In reality this is a collection of over 250 microspecies[25], many very rare and localised. The Island is considered to have the richest Dandelion flora in the UK, linked to the great diversity and combination of small-scale habitats and mosaics.

Perhaps the most spectacular concentrations of biodiversity are those inhabiting the Island's coastal slopes and cliffs. These complex mosaics of sand, chalk, and clay, flushes, seeps, and pools, hot dry turf, and bare ground, constantly refreshed and reproduced by natural processes, support an exceptional invertebrate fauna. This includes the Glanville Fritillary (butterfly) and internationally significant populations of bees, wasps, flies and beetles, such as the Chestnut Click Beetle[66] and the globally rare cranefly *Dicranomyia lackschewitzi*.

The western chalk cliffs still support a small seabird colony that includes Guillemot and Shag; a few pairs of Fulmar breed on the sandstone cliffs at Lake and Shanklin.

[65] Freshwater Biological Association (2025) RIVPACS & RICT. Available at: https://www.fba.org.uk/other-scientific-collaborations/rivpacs-and-rict (Accessed 4 December 2024).

[66] Buglife – The Invertebrate Conservation Trust (2009) Join the Hunt for the Chestnut Click Beetle. Available at: https://cdn.buglife.org.uk/2019/08/Join-the-hunt-for-the-Chestnut-click-beetle_0.pdf (Accessed 4 December 2024).

Illustration: Dandelion (Taraxacum).

The Island's intertidal and shallow marine environment is biologically rich, the result of its geological and hydrographic diversity, from the sheltered Solent estuaries to the extensive sandy beaches of Sandown Bay and the rock and reef habitats of the chalk and sandstone cliffs, from the low energy muddy shallows of the north coast to the wilder, high energy south coast with waves that have travelled for thousands of miles across open ocean. The biodiversity of the intertidal marine environment is also characterised by the Island's geographical position on the Channel coast, acting as the easternmost point for species more common in Devon and Cornwall and a western outpost for species that extend from Kent to Sussex. The Island's Solent coast connects ecologically with Eastern Dorset, Hampshire and West Sussex, together providing a total suite of habitats and resources needed by species such as Sanderling (wintering flocks) and 4 breeding terns, Sandwich, Common, Little and Roseate. Sandwich Tern is also increasing as a winter resident.

White-tailed Eagle. Photography by Piotr Krzeslak.

Species introductions and reintroductions are an active and current part of the Island's conservation effort. White-tailed Sea Eagles are now well established and breeding in the Solent region as a result of the continuing work of the Roy Dennis Wildlife Foundation[67] in partnership with Forestry England. The Hampshire and Isle of Wight Wildlife Trust is consulting with landowners in the Eastern Yar regarding the potential introduction of European Beaver and is actively involved in developing plans for White-clawed Crayfish and Chough.

[67] Roy Dennis Wildlife Foundation (2017) White-tailed Sea Eagles. Available at: https://www.roydennis.org/animals/raptors/sea-eagle/ (Accessed 2 December 2024).

It is important to stress that projects of this kind are closely regulated in law and are required to undergo detailed environmental impact assessment in order to be granted a licence to proceed. The primary focus of the LNRS at this time is to recover and sustain the communities of flora and fauna already here, or very recently lost, and which define Island biogeography today, and to anticipate the ways in which global, national and local patterns of economic, climatic and environmental change may support, obstruct, accelerate or alter, those conservation efforts. The future governance of LNRS work will accommodate and integrate the policy and practice of species introduction and the matrix-with-mosaic approach to mapped measures allows for such initiatives.

The LNRS has identified a priority list of over 500 species divided into 14 assemblages that cover: Chalk, Acid Grassland and Heath, Lowland Meadow, Floodplain, Rivers, Bogs, Trees and Woodland, Urban, Maritime Soft Cliffs, Saltmarsh, Saline Lagoons, Dunes and Shingle, Beaches, Seafront and Seashores, and Farm Mosaic. These assemblages are applied to nature recovery priorities, as species-inclusive measures, targets for conservation management and as tools for longer term project design, funding and monitoring. Within the 14 assemblages, there are some smaller species groupings of special importance. Some of these are focused on key larval foodplants, for example the exceptional Red Data Book invertebrate assemblages associated with Island populations of Dyers Greenweed and Saw-wort, both components of the rare and Solent-distinctive meadow-heath communities. For the full priority species list, see Statement of Biodiversity Priorities - Part 3.

The success of the LNRS in achieving its stated objective of nature recovery, depends upon a dual approach to the prioritisation, integration and location of projects and programmes of practical intervention. The first is habitat-led, focussing on the most vulnerable and depleted Island ecosystems and rebuilding lifecycle resources for assemblages of dependent species. The second is species-led, using the precise requirements of endangered Island species (and indeed those recently locally extinct), to bring to the surface an understanding not only of necessary habitat quality to be achieved, but also of the wider environmental, cultural and socio-economic constraints on population viability.

Illustration: Wood calamint (Clinopodium menthifolium).

2.8. Threats and Challenges

This section outlines the sources of disturbance and degradation that are facing habitats and species on the Isle of Wight. Tackling these pressures is a key component of nature recovery.

2.8.1. Climate Change

Climate change is a worsening global threat. In the UK, temperatures on land have risen by as much as 1°C on average since 1980 and coastal sea surface temperatures by roughly 0.7°C over a similar period. Sea level around the UK has risen by at least 10 cm since 1990. The southeast of England is predicted to have hotter and drier summers, with warmer wetter winters. These trends are projected to continue as we release more greenhouse gases into the atmosphere each year[68].

Climate change affects biodiversity in various ways. Changes in distribution and abundance and in the timing of seasonal differences in habitat use, food requirements and lifecycle events are altering the composition of local plant and animal communities. The direct impacts of a changing climate on local habitats and species may include:

- **Increased droughts and the drainage of peatlands, increasing rates of decomposition and release of carbon dioxide and methane.**
- **Increased risk of wildfires with higher temperatures and drier conditions.**
- **Increased storm severity and frequency with more overtopping of sea defences risking saline intrusion into freshwater habitats.**
- **The drying out and potentially complete loss of some wetlands.**
- **Temperature ranges outside the comfortable range of species, resulting in mortality through temperature stress and/or migration to more suitable climates.**
- **Sea level rise leading to intertidal zones being squeezed out against hard defences in some places, and migrating upstream in others.**

[68] HM Government (2023) Climate Change Explained. Available at: https://www.gov.uk/guidance/climate-change-explained (Accessed 4 December 2024).

Climate change! Arreton. Photography by Ian Boyd.

The indirect impacts of climate-induced changes in land use will have additional, knock-on effects on biodiversity. The need to grow new varieties of more resilient food crops, increased need for summer irrigation and the geographical shifts in arable and livestock production.

Changes in the composition of Island wildlife are already happening. The spread of egret species, wintering tern flocks, new insect and fungi species recorded every year, and the arrival of new and sometimes highly invasive invertebrates in the Solent's marine environment, are all likely to be at least partly linked to climate change and the exploitation of altered and new ecological niches. Changing environmental conditions alongside shrinking habitat coverage are leading to the emergence of new species assemblages ('novel ecologies') in built environments, for example the changing urban populations of species such as Badger and Hedgehog and the entirely new insect communities now colonising residential gardens. It is important to rethink assumptions of 'urban hostility' with regard to biodiversity (i.e. the concept that urban spaces and the built environment have no ecological value or potential), and actively create the right conditions for future wildlife.

Ecological mitigation and adaptation work here on the Isle of Wight is potentially important for other projects and programmes in the UK, as it combines concentrated issues of habitat isolation and fragmentation with a southernmost location that is exposed to more rapid and extreme climate-driven effects. The research collaborations that are proposed as part of LNRS delivery will include opportunities to develop a better understanding of species loss and resilience, habitat design, and medium-term planning for habitat migration.

2.8.2. Eutrophication

Eutrophication is the over-enrichment of soil and water by nutrients such as nitrogen and phosphorus, leading to the excessive growth of a few dominant plant species, loss of habitat diversity, deterioration in important soil biochemical functions, and oxygen depletion in aquatic environments. The harmful ecological effects of nutrient enrichment from point and diffuse sources, and the spread of those impacts into the wider environment by water and air, are significant threats to the health of the Island's ecosystems[69]. The small-scale, fragmented nature of the Island patchwork of habitat mosaics makes them especially vulnerable to eutrophication effects. This is because they lack resilient interior habitat blocks into which species can retreat, and because they are mostly 'edge,' presenting a very large perimeter to encroaching impacts. Eutrophication simplifies ecosystems, reducing complexity and gradually homogenising previously diverse environments. This trend is evident, for example, in the continuing reduction in recorded ancient woodland indicator plants on the Island over the past 30 years[61].

Eutrophication, Medina Estuary. Photography by Ian Boyd.

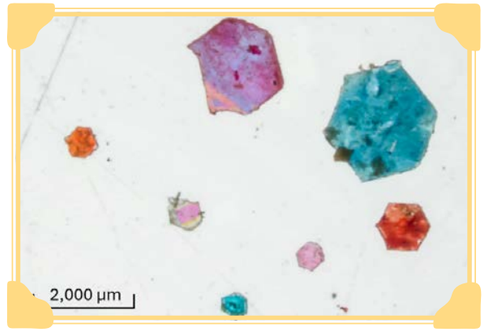
The reduction in habitat diversity in the landscape has potentially significant consequences as the resilience of such damaged environments against future threats (including climate change) is impacted.

In the estuarine and intertidal environment, nutrient enrichment has particularly severe consequences, promoting dense algal colonisation of mudflats that blankets the surface and reduces foraging space for wintering waders and wildfowl. Nutrients can also damage seagrass beds as algal proliferation covers leaf surfaces (epiphytic smothering).

[69] UK Government (2024) Pollution and environmental quality. Available at: https://www.gov.uk/environment/pollution-and-environmental-quality (Accessed 3 December 2024).

There are a number of pathways by which nutrients can enter the environment. The largest source is agricultural fertiliser[70], running off through the soil and via ditches and drains, onto other land and into the water environment, but also spread as airborne dust from fertiliser stockpiles. Contaminated discharges from combined sewer overflows and private sewage treatment plants also add significantly to nutrient inputs into fresh and saltwater systems. Other sources include topsoiling in public parks and roadside verges, domestic gardens, pet waste, and septic tank overflows.

2.8.3. Plastics



Plastics under a microscope taken from Medina Estuary. Image from Liberty Turrell.

The issue of marine plastic and its damage to habitats and species is now well-known, estimates suggest that between 4.8 million and 12.7 million tonnes of plastic enters the oceans each year as discarded waste[71] [72] but the problem is much more significant than just the nurdles and ship waste that find their way to the strandline. Research undertaken by Manchester University in 2023 found that the concentrations of microplastics in the Medina Estuary are internationally significant, exceeding figures for the Pearl River Estuary in China, the Kayamkulan Estuary in India, and the Jagir Estuary in Indonesia, making it amongst the most contaminated estuaries in the world[73].

Plastics can enter the environment from windblown litter, road runoff from gullies and drains, domestic and industrial discharges from combined sewer overflows (CSOs) and water treatment plants (including very high concentrations of plastic clothing fibres[74]), eroding landfill sites, agricultural activities, fishing and shipping.

[70] UK Government Nutrient Management Expert Group (NMEG). Available at: https://www.gov.uk/government/groups/nutrient-management-expert-group-nmeg (Accessed 3 December 2024).

[71] Natural History Museum (2015) How much plastic is in the ocean? Available at: https://www.nhm.ac.uk/discover/quick-questions/how-much-plastic-is-in-the-ocean.html (Accessed 4 December 2024).

[72] Jambeck, J.R. et al. (2015) 'Plastic waste inputs from land into the ocean', Science, 347(6223), pp. 768–771.

[73] Stafford, J. (2024) 'New research uncovers environmental crisis in Isle of Wight estuary', The University of Manchester News, 29 October. Available at: https://www.manchester.ac.uk/about/news/new-research-uncovers-environmental-crisis-in-isle-of-wight-estuary/ (Accessed 4 December 2024).

[74] UK Government (2021) Plastics: challenges for the water environment. Available at: https://www.gov.uk/government/publications/plastics-challenges-for-the-water-environment (Accessed 3 December 2024).

Sources of microplastic may also generate PFAS 'forever chemicals' (per- and polyfluoroalkyl substances) and there is alarming evidence that the combination of the two may significantly amplify environmental harms[75].

Pollution in the Medina Estuary. Photography by Liberty Turrell.

2.8.4. Light

The night-time environment is increasingly lit, often by broad-spectrum lighting, and there is growing evidence that artificial light at night (ALAN) has consequences for ecosystems, potentially contributing to declines in insect populations (in part the result of changes to foodplant biochemistry) and disruption foraging behaviour in bats and birds. It is generally thought that broader spectrum lighting (e.g. LEDs) has greater ecological impact than narrow-spectrum lighting (e.g. LPS), as the wider range of wavelengths emitted can affect a greater range of organisms and biological processes. The energy efficiency of LEDs, in the context of 'net zero' and other sustainability ambitions, makes it unlikely that older lamp technologies will be retained. Adjusting the spectral composition of LEDs to reduce the intensity of the most biologically disruptive wavelengths, while still maintaining the benefits to people, could be a more feasible mitigation strategy, and this is currently being investigated by Newcastle University[76] [77].

[75] Orsini et al (2024) Combined toxicity of perfluoroalkyl substances and microplastics on the sentinel species Daphnia magna: Implications for freshwater ecosystems. Environmental Pollution.

[76] Mohamed, W. (2022) 'Increase in LED lighting "risks harming human and animal health"', The Guardian, 14 September. Available at: https://www.theguardian.com/environment/2022/sep/14/increase-in-led-lighting-risks-harming-human-and-animal-health (Accessed 4 December 2024).

[77] Sanchez de Miguel, Alejandro & Bennie, Jonathan & Rosenfeld, Emma & Dzurjak, Simon & Gaston, Kevin (2022) Environmental risks from artificial nighttime lighting widespread and increasing across Europe. Science Advances. 8. 6891. 10.1126/sciadv.abl6891.

2.8.5. Noise

Noise and vibration (including in the marine environment) can have damaging effects on species through disruption to their feeding and roosting routines, interference with communication (calls, song), and stress effects on individual animals[78]. Music events, firework displays, construction works, highways schemes and traffic can all, individually and together, create conditions that erode the ecological health of local environments.

2.8.6. Development, Urbanisation and Domestication

The Island population grows annually by 2% or less, driven entirely by inward migration (predominantly from the central south of England) as deaths exceed births by 100%[68]. The scale of Island development is therefore small relative to the mainland with the number of new builds completed each year rarely exceeding 400. Changing housing priorities set by the national government may produce a change in this number[19].

The impact of development nevertheless has a material effect on habitats and species whether from new residential and commercial premises, urban drainage; works to harbours, marinas and sea defences, engineering on the highways network; works to water company infrastructure, or land diversification projects such as field photovoltaic arrays and anaerobic digester plants.

Pan Country Park development, Newport. Photography by Claire Hector.

The impact of development is not solely the loss of habitat but also the process of attrition that can follow, especially in areas of new housebuilding. The Island has a population of approximately 35,000

[78] UK Government (2016) First UK assessment of underwater noise in the marine environment published by UK research partnership. Available at: https://www.gov.uk/government/news/first-uk-assessment-of-underwater-noise-in-the-marine-environment-published-by-uk-research-partnership (Accessed 3 December 2024).

cats and 45,000 dogs[79], all of which can kill or disturb wildlife, far outstripping the numbers of most of our wild mammals (Badgers, for example, are unlikely to number more than 3,500[80]). Urbanising effects can be concentrated within particular landscape features. Island chines are one example, deeply incised coastal ravines that have historically been the principal access to beach and shore. This has naturally led to piecemeal tourism development, road and service infrastructures and a process of creeping domestication.

2.8.7. Recreational Pressures

The Island has a resident population of 141,000 and a visiting population of approximately 2 million, and pressure on habitats and species from recreational activity has always been a part of Island life. Much of this is concentrated in the most popular destinations and so can be anticipated. These are locations such as the large beaches in Ryde and Sandown, the south coast chines, easily accessed forests such as Parkhurst and Firestone, viewpoints such as Tennyson Down, Mottistone Down, Brading Down, Ventnor Downs, and waterside walks such as the Cowes to Newport and Yarmouth to Freshwater cycleways. The Island's dense public rights of way network (over 1,000 km) helps to dilute pressures by offering many alternative access options, but recreational impacts can remain problematic in some areas. Examples include dog disturbance to ground nesting birds and important wildlife ponds, off-road bikes eroding fragile surfaces on chalk and sand, large outdoor events damaging flora, and beach fishing leaving line and hooks that endanger wildlife (and people).

Disturbance to the Island's large aggregations of wintering wildfowl and waders, feeding and roosting in estuaries and along parts of the Solent coast, has become an increasing problem. Solent Bird Aware[81] provides a ranger service (funded through the SPA development levy) which seeks to better inform the public about the risks to these bird species and the need for a responsible and respectful attitude to local wildlife. The sharp decline in Sanderling numbers using the foreshore at Ryde Sands is an example of a high priority for remedial action that has become particularly urgent over the past 5 years.

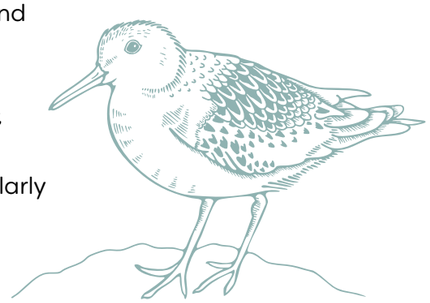


Illustration: Sanderling (Calidris alba).

[79] Data extrapolated from: Pet Food Manufacturers' Association (2023) Pet Population 2023 Report. PFMA. Available at: https://www.pfma.org.uk (Accessed 3 December 2024).

[80] Wilson, G., et al. (1997) Estimating population densities of European badgers (*Meles meles*). Journal of Applied Ecology, 34(5), pp. 1312–1321.

[81] Bird Aware Solent (2025) Home page. Available at: https://birdaware.org/solent/ (Accessed 3 December 2024).

Managing recreational impacts requires a careful balance, between the promotion of positive wildlife encounter that builds support for long-term nature recovery across a wide constituency, and the prevention of habitat degradation and habitat loss from thoughtless and ill-informed behaviours. The two Island Heritage Coasts[82], Tennyson and Hamstead (80 km in total), within the framework of the National Landscape, provide a useful example, and a practical aid, in accommodating both landscape protection and public enjoyment of the landscape, as does the development and delivery of the King Charles III England Coast Path[44].

2.8.8. Agriculture

Agricultural field, Wroxall. Photography by Ian Boyd.

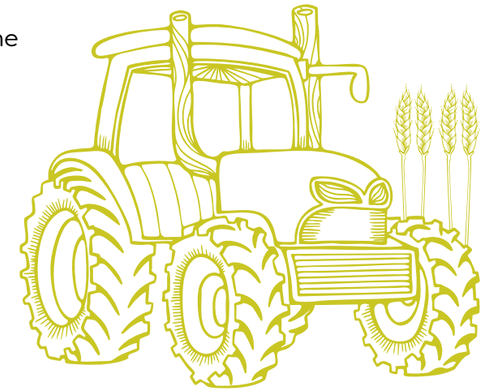
Changing farming practices over the past 50 years have significantly impacted biodiversity[83]. The intensification of agriculture over that time has seen narrowing of crop variety[84], the spread of grass monocultures, the application of chemical fertilizers and pesticides, especially in areas of marginal productivity where the input to yield ratio is high; and the rise of mechanisation and reliance on large machines operating in large fields. These efficiencies have in places led

[82] Isle of Wight Natural History & Archaeological Society (2024) Heritage Coasts. Available at: https://isleofwight-nl.org.uk/visit/heritage-coasts/ (Accessed 3 December 2024).

[83] Benton, T.G., Bieg, C., Harwatt, H., Pudasaini, R. and Wellesley, L. (2021) Food system impacts on biodiversity loss. Chatham House. Available at: https://www.chathamhouse.org/sites/default/files/2021-02/2021-02-03-food-system-biodiversity-loss-benton-et-al_0.pdf (Accessed 6 December 2024).

[84] Nasiro, K. (2024) Cropping Systems Diversification as an Approach to Enhancing Crop Productivity: A Review. Plant, 12(3), 48-65. https://doi.org/10.11648/j.plant.20241203.12 (Accessed 6 May 2025)

to the loss of semi-natural habitats, the fragmentation of ecological networks and the degradation of soils[85]. The twin effects of a simplified and homogenised farm ecosystem, together with the accumulating nutrient enrichment of terrestrial, freshwater, and marine habitats, have been drivers of nature depletion[86].



Most agricultural businesses must, out of necessity, use chemical applications throughout the year, including plant protection products, growth regulators and fertilisers, to ensure productivity. The existing and evolving regulatory framework in the UK for these products is substantial. Eutrophication of the environment nevertheless remains highly problematic[87]. There are likely to be new opportunities, supported by agri-environment schemes and by private finance initiatives, that can combine the efficient use of chemical applications and the use of Integrated Pest Management and Nutrient Management Planning, as part of wider regenerative landscape management, with special arrangements around key nature recovery projects.

Wheat field, Chale. Photography by Ian Boyd.

[85] Defra (2022) Soil Health: A UK-Wide Discussion. Available at: https://defrafarming.blog.gov.uk/2022/06/28/soil-health-a-uk-wide-discussion/ (Accessed 4 December 2024).

[86] State of Nature (2024) Home page. Available at: https://stateofnature.org.uk/ (Accessed 3 December 2024).

[87] UK Government (2022) Nutrient pollution: reducing the impact on protected sites. Available at: https://www.gov.uk/government/publications/nutrient-pollution-reducing-the-impact-on-protected-sites/nutrient-pollution-reducing-the-impact-on-protected-sites (Accessed 3 December 2024).

Illustration: Tractor with wheat.

Changes to the farming economy continue, including shifts in the profitability of particular crops, the availability of agri-environment schemes and other incentivised programmes, and the appeal of energy production, such as field arrays of photovoltaic panels and maize cropping to supply the Island's two anaerobic digester plants.

The Isle of Wight has a strong legacy of Environmental Land Management Scheme (ELMS) agreements across the farmed landscape, and there is significant work now being undertaken by organizations such as the Environmental Farmers Group11 to help move Island farming towards high nature-value production, regenerative land management, and the positioning of the Island's farmed landscape as an investable offer to the emerging natural capital markets seeking good examples of sustainable practice. The LNRS has an important role to play in helping the agricultural sector to develop a more cooperative structure that allows Island farmers and land managers to collaborate and access pooled expertise for positive change.

2.8.9. Commercial Exploitation

Large-scale commercial forestry, seabed disturbance, and the abstraction of drinking water are all components of the Island economy, but all pose potential risks to habitats and wildlife.

Starling populations are in steep decline, Cowes. Photography by Claire Hector.

The historic impacts of plantation forestry have become essentially permanent in the landscape in places such as Parkhurst and Brighstone[88], where large-scale mosaics of heath and chalk have been replaced by planted woodland. Timber extraction can further endanger the relics of older pre-afforestation habitats that persist within the plantations.

Dredging for bivalves, trawling and winning of marine aggregates, and maintenance dredging of port and

[88] Isle of Wight Biodiversity Action Plan Steering Committee (2019) Woodland Habitat Action Plan: Third Review. Isle of Wight Council. Available at: https://www.islandnature.org/resources (Accessed 6 December 2024).

harbour facilities, are all highly regulated practices. In the Solent and around the Island's channel coast the work of the Southern Inland Fisheries Conservation Authority (Southern IFCA), and the Marine Management Organization (MMO), has done much to reduce impacts. These effects are important to future extension of LNRS into marine environments, but they are equally important to the intertidal zone. This is because the mobilisation of sediment and contaminants in deeper water will inevitably reach the shallow estuarine environment of the Solent system and this is relevant to the work of nature recovery set out in this document.

Longest river on the Island, the Eastern Yar. Photography by Island Rivers.

Demands on the Island's freshwater environment are very significant81. It is a restricted resource and under intense pressure from competing uses. This is especially true in the Eastern Yar catchment[89] where the combination of drinking water and agricultural abstractions from surface and ground supply have placed increasing environmental stress on wetland habitats, the river, its tributaries and the complex suite of headwater flushes, seepages, bogs and mires.

The current drinking water supply on the Island is likely to be unsustainable in the medium term, dependent as it is upon imported water from Hampshire's chalk rivers[90]. New methods to preserve Island surface water resources through the enhanced treatment of recycled wastewater are proposed[31] that will augment low river flows in drought conditions, recharging above the drinking water river intake on the Eastern Yar. The future competition for Island water between human needs and ecosystem function will continue to intensify.

[89] Environment Agency (2019) Isle of Wight Abstraction Licensing Strategy. Available at: https://assets.publishing.service.gov.uk/media/5cab1000e5274a78e335091d/Isle_of_Wight_Abstraction_Licensing_Strategy.pdf (Accessed 3 December 2024).

[90] Southern Water (2024) Draft Water Resources Management Plan 2024: Consultation Summary. Available at: https://www.southernwater.co.uk/media/ulck5ijz/southern_water_dwrmp24.pdf (Accessed 3 December 2024).

2.8.10. Soil Degradation

Island soils are a wholly bounded and irreplaceable resource (in human time frames) that form a continuous skin across the whole of the land surface and continue into the sedimentary habitats of the estuarine, intertidal and marine environments of the coast.

The geochemical heterogeneity of Island soils underpins botanical and ultimately landscape diversity, the defining theme of the Island's Natural Character Area (see chapter 1.9). All of the threats and challenges set out above combine and concentrate on the issue of soil quality, its ecological health and sustainable management.

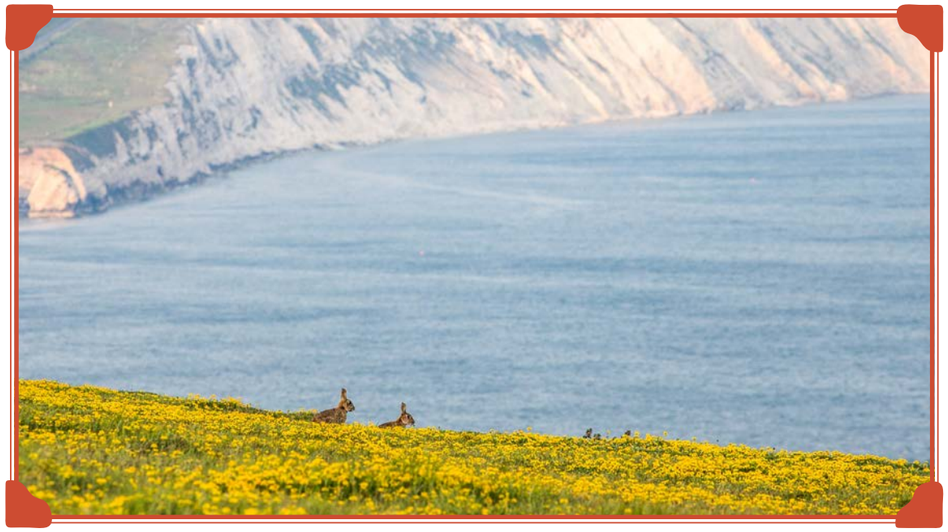
The development of the LNRS through its future iterations will need to fully integrate soil as a habitat in its own right, and as the foundational resource for all others.

Desiccation cracks in dry soil, Newport. Photography by Ian Boyd

3. Opportunities for Nature Recovery on the Isle of Wight

3.1. The Isle of Wight Natural Character Area

The Isle of Wight Natural Character Area (NCA Profile 127)[18] provides an important Statement of Environmental Opportunity that brings together ecological, landscape, cultural and economic components of a proposed trajectory for positive change.



Brown Hares at Compton. Photography by James Padolsey.

Published a decade ago, it continues to underpin strategic management plans produced by the Island's conservation organisations and public authorities.

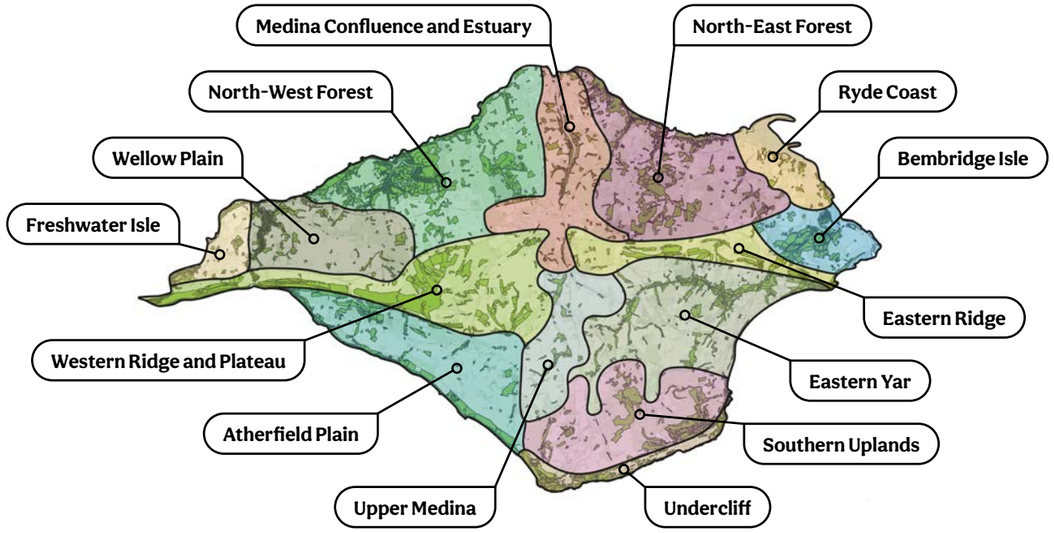
The comprehensive coverage of the whole Island as a single landscape unit is advantageous for strategic prioritisation work but does not work at a fine enough grain to fully prescribe for the diversity of small-scale habitat mosaics that make up the Island ecosystem; this is the task of the LNRS.

The key nature recovery themes of the LNRS are integration and assembly, recognising the critical importance of small habitat mosaics in close combination, the transitional zones between them and around them, and the wider land use matrix within which they are set.

3.2. A Biogeographical Approach

The Isle of Wight LNRS takes a biogeographical approach, a way to break down the whole Island into manageable units where there are common themes around nature recovery and community interests that can be shared and used by peer-to-peer farm networks, parish councils, schools, community groups, businesses, public service providers and other stakeholders seeking opportunities for nature recovery[91]. This approach is informed by the 2010 Lawton Review 'Making Space for Nature' which asks us to "become better at deriving multiple benefits from the ways we use and interact with our environment. There are many things that society has to do that may seem to have rather little to do with nature conservation, but could have, or even should have if we embrace more radical thinking; flood management by creating wetlands is an obvious example. We need to exploit these 'win-win' opportunities to the full. Being better at valuing a wider range of ecosystem services would help this process."

Figure 3: Map of the Isle of Wight Biogeographical Units



[91] Lawton, J.H., Brotherton, P.N.M., Brown, V.K., Elphick, C., Fitter, A.H., Forshaw, J., Haddow, R.W., Hilborne, S., Leafe, R.N., Mace, G.M., Southgate, M.P., Sutherland, W.J., Tew, T.E., Varley, J. and Wynne, G.R. (2010) Making Space for Nature: A Review of England's Wildlife Sites and Ecological Network. Report to Defra, London.

3.3. The Isle of Wight UNESCO World Biosphere Reserve

Fundamental to this integrated approach, is the overarching Isle of Wight UNESCO World Biosphere Reserve designation[92]. Biospheres are predicated on a 'nature first' principle and set out to create new and better ways of combining high natural value with a resilient and prosperous human society. The Isle of Wight Biosphere Steering Group has published 9 principles that provide alignment with the LNRS (Figure 4). The Biosphere provides a mechanism for connecting the LNRS with the UN Sustainable Development Goals and builds a global connection between the Isle of Wight and other Islands and coastal communities within the UNESCO network.

As stated in the statutory guidance, the LNRS is expected to align with National Environmental Objectives (NEOs) outlined in the Environment Act (2021)[4] and the Environmental Improvement Plan (2023)[93]. This is defined in the Statement of Biodiversity Priorities – Part 2. The 9 Biosphere Principles provide a framework to integrate these objectives with other local, national and international strategic references underpinning the LNRS.

The IW LNRS, by following the Biosphere's integrated and cross-disciplinary approach to defining and prioritising nature recovery, in the context of other interdependent environmental and social factors, fits well with the 'nexus' methodology, set out by the Intergovernmental Science-Policy Platform on Biodiversity and Ecosystem Services (IPBES)[94]. In the Assessment Report on the Interlinkages Among Biodiversity, Water, Food and Health – known as the Nexus Report – published in 2024, IPBES assesses complex interconnections and explores specific response options to maximize co-benefits across five 'nexus elements': biodiversity, water, food, health and climate change. Nexus approaches recognise that challenges facing nature recovery are interconnected with other elements across multiple spatial and temporal scales. By improving understanding of these interconnections opportunities for collaboration become more frequent and more effective.

[92] UNESCO (2025) About the World Network of Biosphere Reserves (WNBR). Available at: https://www.unesco.org/en/mab/wnbr (Accessed 3 December 2024).

[93] DEFRA (2023) Environmental Improvement Plan 2023. DEFRA. Available at: https://www.gov.uk/government/publications/environmental-improvement-plan (Accessed 3 December 2024).

[94] IPBES (2024) Home page. Available at: https://www.ipbes.net/nexus/ (Accessed 3 December 2024).

Figure 4: *The Isle of Wight Biosphere's 9 principles. Designed by MooksGoo.*

3.4. Defining Nature Recovery

Nature Recovery, as set out in the statutory regulations, and further explored through the process of stakeholder engagement can be summarised as follows:

- **Nature Recovery on the Isle of Wight is the activity of helping habitats and species to thrive by repairing the human relationships with the natural world.**
- **Nature Recovery seeks the protection and enhancement of biodiversity and ecological functions everywhere, in urban and farming landscapes as well as in areas with a lower human footprint.**
- **Nature Recovery aims to nurture vibrant, rich and biologically resilient ecosystems most able to flourish in the context of current and future challenges.**
- **Nature Recovery needs to be meaningful and effective at the local scale where people can be most intimately connected, but also consider the challenges at national and planetary levels.**
- **Nature Recovery recognises that healthy human relationships with the rest of the natural world are essential for a sustainable and resilient future and so works to understand how the human societies and natural ecosystems of the Island can flourish together.**

"Nature Recovery is the activity of helping habitats and species to thrive" - Wasp and water. Photography by Ian Boyd.

Translating these principles into clear objectives for nature recovery on the Island has been the task of the LNRS Steering Group and can be set out as follows:

- **A comprehensive mapped vision for the full extent of habitat recovery prioritised for the next 5 years by Island stakeholders, located through mapped measures.**
- **A framework of mapped measures for habitat recovery and enhancement shown as the Areas Considered Likely to Become of Importance for Biodiversity (ACB) that also support the urgent and necessary remedial works to failing sites within the Areas of Particular Importance for Biodiversity (APIB).**
- **A set of representative priority species assemblages that align with habitat recovery and provide the basis for monitoring and evaluating the progress of the LNRS.**
- **A set of 'rapid response' habitat and species recovery projects for delivery that can be drawn from the LNRS, creating early opportunities for community participation and awareness-raising.**
- **A timetable for baseline assessments on carrying capacity for key species, their populations, and assemblages, to inform the second and subsequent iterations of the IW LNRS.**
- **Visible integration of LNRS priorities into emerging policy development on the Island, and in the Hampshire and Solent region, with active partnerships to deliver positive change.**
- **The promotion of public and private investment in large-scale ecosystem creation and restoration, using the LNRS alongside the development of regenerative farming to set out an 'investable landscape.'**

Illustration: Barn owl (Tyto alba).

The LNRS is by definition interventionist, seeking to repair past ecological harm and habitat degradation through targeted reparative actions shared across a wide stakeholder community. Discourses and rationales for such interventions may then follow instrumental framings often narrowed down to the economic, health and ecological benefits of nature's contributions to people (NCP). It is nevertheless essential to remember and respect the autonomy of nature, by leaving space and time for natural processes, through rewilding for example, and by working as equal partners through traditional, more symbiotic forms of land management. In the words of nature-writer, author and journalist Richard Mabey:

"What I object to is the idea of the natural world being there in order for us to use it, for everything from curing our drug addiction to finding new sources of fuel. It needs more respect than that. Simply having it as a consumer durable isn't good enough any more. We need to elevate it to the status of a democratic partner and allow it sometimes to make its own decisions." [95]

3.5. Opportunities For Nature Recovery By Habitat

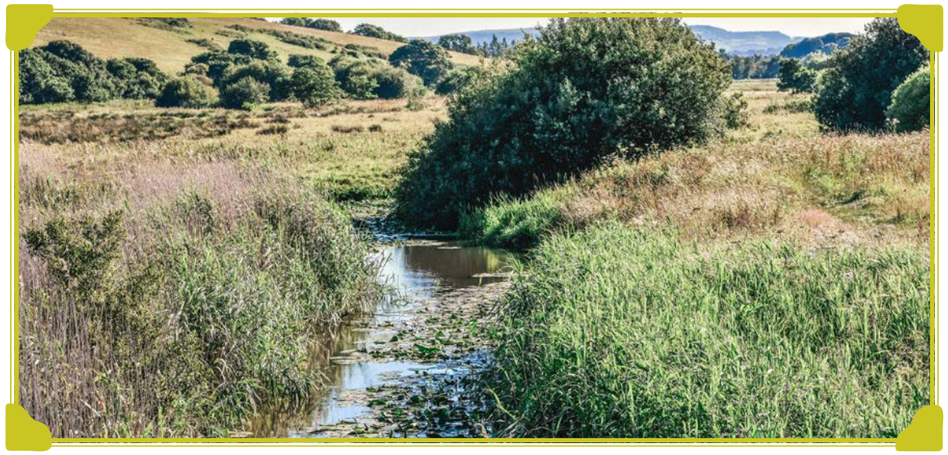
LNRS engagement, research and data analysis have resulted in a set of overall priority habitat assemblages for nature recovery. These have been grouped to recognise the critical importance of mosaic and matrix ecologies in the way in which nature recovery is most likely to succeed on the Island. The priority groups are Catchments and Rivers; Estuaries, Harbours, and Transitional Waters; Beaches, Seafronts and Seashores; Trees and Woodland; Maritime Soft Cliffs and Chines; Lagoons, Dunes, and Shingle; Grassland and Heath; and Urban Green, Blue and Grey Infrastructures.

In addition, the LNRS has identified Overarching opportunities that focus on collaboration, communication and information, and a set of Lawton measures focussing particularly on hedges, headlands and field boundaries as tools for nature recovery, especially in farmed landscapes.

This section provides a summary of these opportunities for nature recovery for each habitat type listed and their associated important species.

[95] Mabey, R. (2023) Interview, *Farming Today*, BBC Radio 4, 26 September.

Illustration: Water Vole (Arvicola terrestris)



Brading Marshes. Photography by Fran Clarke.

3.5.1. Catchments and Rivers

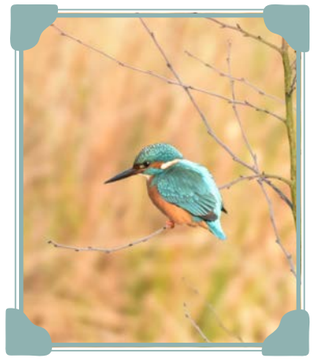
This combines valley wetlands, river channels, watercourses, in-channel features, and the range of small headwater features. The objective is to develop a 'total catchment' model of systematic and integrated nature recovery that undertakes local projects, however opportunistic, within an understanding of the whole water resource that connects and sustains them.

Fundamental to this is an approach to management that seeks to deliver a rich landscape-scale habitat mosaic of floodplain wetlands, including rush pasture, reed swamp, valley fens, wet woodland, and ditch systems, together with upper catchment habitats in good ecological health, such as bogs, mires and seepages. An essential component of this mosaic is the pattern of 'ecotones' between these wetland types; these are the in-between habitats that blend one into the next, in the nature of their soils and vegetation, and which contain some characteristics of both as well as unique features of their own.

The LNRS seeks to achieve ecologically functional river channels, capable of supporting and sustaining assemblages of key species, wherever possible well connected with their floodplains (but only where poor river water quality does not then compromise rare adjacent habitats) and free from obstructions to fish passage. The LNRS gives special attention to the Island's four

Illustration: Norfolk Hawker dragonfly (Aeshna isoceles).

anadromous fish species, those that migrate between salt and fresh waters, between estuaries and their rivers, European Eel, Sea Trout, River Lamprey and Sea Lamprey.



Kingfisher at Alverstone Mead Nature Reserve. Photography by @nealstaleyphotography.

A future climate planning challenge for the LNRS is the need to anticipate the migration of the floodplain environment itself, together with its habitat mosaics, both upstream, ahead of estuarine conditions, and laterally into adjacent land as winter rainfall increases and storm events become more frequent.

There is a special focus on the Island's unique deep peat beds, as irreplaceable palaeoecological record, critical carbon store, and nature recovery priorities, supporting some of the Island's rarest and most restricted species.

Underlying this section's conservation objectives is the urgent need to secure a healthier water environment, better soil conservation, reduced nutrient and pesticide pollution, reduced abstraction stress and safer minimum flow levels to support catchment wetlands. Collaboration across all relevant organisations, regulators and landowners is essential to achieving this.

Rare and declining plants such as Many-stalked Spike-rush, Opposite-leaved Pondweed, and Lesser Marshwort rely on good water level management in valley wetlands as do scarce breeding birds such as Teal and Pochard. Iconic reedbed species such as Marsh Harrier and Bittern will benefit from high quality floodplain mosaic alongside Marsh Cinquefoil, Small Water-pepper, and recent arrivals such as the Norfolk Hawker dragonfly. River restoration work, set within a whole catchment perspective, will support Kingfisher, Brook Lamprey, and Water Vole, a mammal that has suffered catastrophic declines across mainland UK but retains a stronghold on the Island. The role that European Beaver might play in both the future conservation management of floodplain wetlands and climate adaptation and mitigation actions is the subject of current discussion and consultation. The Island's bogs are very small in comparison to those in the nearby New Forest but have a particular and special identity and are amongst our most fragile habitats. They support species critically dependent on their particular soil and water condition; there is a real and urgent threat of local extinctions as these already fragmented relics diminish still further. Urgent nature recovery work is necessary to help retain a unique assemblage, including the insectivorous plants Pale Butterwort and Common Sundew, four rare Sphagnum mosses, Star Sedge and the beautiful Bog Asphodel.

3.5.2. Estuaries, Harbours, and Transitional Waters

These environments form complex ecological and land use mosaics, combining human social, cultural and economic interests with high natural capital value and so are amongst the most contested of the Island habitats. The Island's Solent coast has six estuarine systems which also include the larger harbours (Yarmouth, Newtown, Cowes, Newport).

The conservation and enhancement of the Island's exceptional saltmarsh transitions is a headline nature recovery opportunity, particularly where these end in ancient woodlands (including remarkable 'oak mangroves' currently the subject of research work[96]).

Making space for the upstream and lateral migration of estuarine habitat mosaics as sea levels rise is essential to sustaining habitat and species richness, diversity, and resilience. This has already been planned for in some locations in managed retreat schemes set out by the IW Shoreline Management Plan, IW Estuaries Project, and Solent Seascape, for example along the Western Yar.

Newtown Harbour National Nature Reserve. Photography by Kai Davis.

[96] Hendy, I., Jones, D., Sargent, J., Sharp-Harris, G., Leggett, G., Barnes, D., Howell, J., Shipway, R., and Tupper, M. (2024) 'UK intertidal oak forests: temperate mangrove analogues?', The Marine Biologist, July. Available at: https://insight.cumbria.ac.uk/id/eprint/8406/ (Accessed 4 December 2024).

The coastal and maritime infrastructures of ports and harbours are also an important contributor to future nature recovery, especially given the constrained conditions of Island estuaries between roads, esplanades, and developments. These built environments offer scope for adding ecological value by designing and constructing habitats for wildlife (for example native Oysters) that can work on harbour walls and sea defences, and on and under pontoons. Such projects also assist in monitoring the spread of non-native invasive species and contribute to best practices in their management and control.

The Isle of Wight LNRS has the opportunity to actively contribute to regional work on breeding terns, in decline across the UK. At the time of writing, there are no remaining tern nesting sites on the Island, but there are encouraging signs elsewhere in the Solent, including the return of Roseate Terns to the Hampshire coast in 2024. There is the potential to develop constructed habitats for these birds within the estuary and harbour environment of the Island, including such major projects as revisiting the Cowes Breakwater.

The saltmarsh species assemblage developed by the LNRS provides a framework for targeted nature recovery work. From recently extinct but potentially recoverable species such as Slender Centaury, to very rare species in local strongholds, such as Bulbous Foxtail, to those in steep decline, such as Lax-flowered Sea Lavender, the story of saltmarsh ecology within the mosaics of estuarine systems is one of continuing pressure and constraint as recreational and industrial pressures combine with coastal squeeze and declining water quality to constrict habitats and their species.

There are important species assemblages already legislated for in the Solent coastal environment by virtue of the extensive and overlapping suite of SSSI and SPA designations. These are integrated into LNRS species prioritisation and include Black-tailed Godwit, Brent Goose, Teal, and Little Grebe.

Brent Goose illustrated by Hannah George.

Dodder, Bouldnor. Photography by Ian Boyd.

3.5.3. Lowland Grassland and Heath

This habitat category brings together the conservation grasslands on chalk, gravel, sand, and clay, sharing compatible and often interchangeable requirements for ecological improvement. The close proximity of chalk and sandstone along the Island's central spine and plateau, and in its southern upland, and similar close combinations of clay and gravel across the northern plain, makes it important that consistent and mutually reinforcing measures are applied to support nature recovery at scale.

On the chalk and upper greensand, there are opportunity areas on slopes, ridges, and escarpments, where reduced nutrient enrichment and more diverse soil sequences can help to accelerate the work of nature recovery. Limestone grassland, lowland meadow, wood meadow and meadow heath are a more fragmented habitat resource. The LNRS focuses on better management of what remains as well as the landscape-scale uplift of the agricultural and wooded matrix 'setting' that encloses the clusters and mosaics of these semi-natural grasslands.

The Island's 'excavated landscape' of the past, present, and future is of great importance for wildlife. Quarries, brickworks, chalk, sand, clay, and gravel pits all provide dense concentrations of wildlife interest often in degraded landscape settings. Old and current landfill sites can be equally interesting, and so the management, planning, and restoration of all of these features in their combined cultural, historic, economic, and ecological contexts needs to be considered as an important nature recovery opportunity.

Conservation grasslands and heaths are mosaic habitats, featuring an assemblage of smaller habitat features working together to provide the full complement of lifecycle resources for the communities of wildlife they support. Long and short swards, thin and deep soils, bare ground, and exposed rock, wet and dry topography, and a variety of scrub and thicket transitions, including gorse, thorn and bramble, are all essential components of high nature-value dry grassland and heath. The control and reduction of nutrient spread via water, air, and soil is a high priority as the process of eutrophication (the over-enrichment of habitats), results in the long-term degradation of conservation-grade sites and the gradual simplification and homogenisation of all grassland ecosystems.

Early Gentian, chalk grassland, Tennyson Down, West Wight. Photography by Ian Boyd.

Urban grasslands are also important nature recovery opportunities. Many of these are on made ground and clay soils, which can mimic lowland meadows, particularly if they have been seeded with a wildflower mix. Public parks and gardens, churchyards, golf courses and school grounds can all be important for grassland species, and some will be relics of much older habitats and still retain elements of their special ecological characteristics. Assemblages of grassland fungi (called mycota) can be especially important on these sites. They also offer important access and engagement opportunities for the residents of Isle of Wight towns and villages.

The Island's chalk downs and cliffs are nationally important examples of an internationally rare habitat and support an exceptionally rich flora and fauna. This may be dramatically displayed, for example, the country's largest concentrations of the English endemic Early Gentian and spectacular summer flights of the beautiful Adonis Blue and Chalkhill Blue butterflies. Or it may be hidden, such as the tiny and nationally endangered Red Data Book rust fungus *Puccinia thesii,* parasitic on chalk specialist Bastard Toadflax.

Sandy acid grassland and heath in good ecological condition is one of the Island's most depleted habitats, reduced to just a handful of quality sites where species such as Spring Vetch, Heath Dog Violet, Sheepsbit and Lesser Quaking Grass still persist.

In both cases, chalk and sandstone, the underlying geology is more extensive than the total area of conservation-grade priority habitat sites. There is therefore potential to recover more land from the wider agricultural and urban landscape that could still provide the right conditions for key species. Farm management is essential to these efforts, and this includes the importance of arable land to maintain populations of rare annual plants which are adapted to, and dependent upon, the disturbance, seed bank renewal and control of competitors provided by cultivation.

Clay habitats occur across the northern half of the Island. As for the other grassland types, the best examples are in short supply and the majority of these remain as small fragments set within a matrix of other land types such as forestry, pasture or urban fringe. Clay grasslands exist as a complex range of overlapping forms; it is helpful therefore to distinguish three main types: meadow heath, wood meadow, and lowland meadow (essentially traditional hay meadow). The meadow heaths are characteristic of the north-west clays, appearing as open ground within Parkhurst and Bouldnor Forests, and across the Cranmore and Ningwood estates. Meadow heath is a nationally distinctive community and restricted to the Solent region. Wood meadows occur as open ground features within the Briddlesford/Quarr and Thorness/Newtown wooded landscapes. Lowland meadows are particularly identified with habitats under longstanding mowing regimes such as cemeteries and churchyards, and the historic grounds of Osborne, Norris, and Barton. One of the Island's most famous species, the Reddish Buff moth, found nowhere else in the UK and scarce across Europe, depends on meadow heath habitats that support abundant Saw-wort. Saw-wort is a good example of a keystone Island species that is a food plant for a number of other very rare insects, such as the marvellously named Colin's Saw-wort Fly. Another significant keystone is Dyer's Greenweed, a pretty, shrub-like plant found across clay grasslands, and supporting a set of remarkably rare micro-moths, including the Greenweed Pigmy Moth, the Greenweed Flat-body Moth, the Brighton Boring Moth, and the Large Gold Case-bearer and is also a host for a priority plant parasite, Dodder.

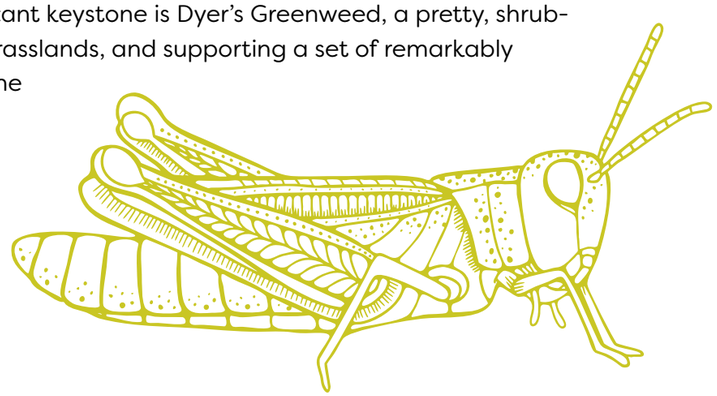


Illustration: Mottled grasshopper (Myrmeleotettix maculatus).

Bluebells in bloom at Borthwood Copse. Photography by Claire Hector.

3.5.4. Trees and Woodlands

Woodland is the Island's largest terrestrial habitat resource, covering over 5,000 hectares and comprising over 1,000 different sites. Small woods already dominated by edge effects may be best left undisturbed, and distinctive small chalk coombe copses may similarly respond best to non-intervention. Applying buffers to larger woodlands can help protect woodland interiors from external pressures and thus facilitate conservation management work. Buffers also make room for natural regeneration and new planting, for the development of transitional zones that grade usefully into neighbouring habitats. This approach will support the protection of the Island's ancient woodland network of irreplaceable habitat, including restoration management on PAWS (Plantations on Ancient Woodland Sites). The restoration of traditional woodland management techniques within a framework of craft renaissance, supported by high nature-value economics, is central to long-term nature recovery in the wooded landscape of the Isle of Wight.

The LNRS seeks to create and sustain a network of well-managed, deer-free Island woodlands with structural diversity, good deadwood supply, transitional and successional spaces, and enclosed habitats such as grassland and heath, all set within a landscape-scale pattern of matrix and mosaic.

There are important opportunities to recover, extend, and reconnect a variety of biodiverse woodland types, including historic parkland and wood pasture, community orchards, coastal and estuarine woods, carrs and wet valley woodlands, some of which are amongst the oldest continuously wooded features recorded in the UK, for example Gatcombe Withybeds. The LNRS has focussed particularly on restoring fragmented valley woodlands on the Lower Greensand geology of the eastern Yar river catchment, and on the integration of cultural landscape repair with parkland and wood pasture habitat creation.

The LNRS has inherited a substantial legacy of past tree-planting projects funded by the Forestry Commission, including the JIGSAW woodlands. This has resulted in large blocks of young trees now in need of renewed conservation management. There is therefore an opportunity to intentionally design and build a new landscape-scale woodland matrix enclosing and protecting a wide variety of open ground and transitional habitats.

Illustration: English bluebell (Hyacinthoides non-scripta).

Ecological connectivity and habitat quality are also supported by a growing network of open-grown trees outside woodland settings. These include hedgerow and field trees on farmland, and street trees and avenues in urban settings. There is an urgent need to create a comprehensive inventory of the Island's most important ancient and veteran specimens, also considered individually as irreplaceable habitats, each in their own right.

There are widespread opportunities for new tree-planting identified within the landscape-scale matrix work, and it is important that all new schemes use good ecological design, climate-proofing species selection (native and non-native) and a proactive approach to making space for complementary habitat creation such as open ground, glades, rides and meadows.

These opportunities are further informed by the species assemblage for Trees and Woodland. This includes a grouping that is perhaps the most distinctive in the Island's flora and fauna, four woodland mammals: Red Squirrel, Hazel Dormouse, and Bechstein's and Barbastelle bats, found together in almost no other woodland environments in the UK and scarce across Europe.

Rare fungi feature prominently in the Trees and Woodland assemblage, particularly the Boletes (including the wonderfully named Satan's Bolete) and Tooth fungi. These are species that form complex relationships with the root systems of living trees such as oak and beech. They rely on the retention of zones of undisturbed woodland habitat with ancient and veteran trees.

One of the Island's most famous species, Wood Calamint has its only UK site in woodland west of Newport and was brought back from the edge of extinction by reinstating the hazel coppicing regime that this plant relies upon. It has become a champion species for the Island-wide revival of forms of traditional woodland management.

Another Island speciality, widespread here but very rare nationally, restricted to just the Isle of Wight, east Dorset and the New Forest, is Narrow-leaved Lungwort, a component of often spectacular displays of spring flora.

The Wood Cricket has a similar southern distribution, found only in parts of Devon, the New Forest and the Isle of Wight. This is a flightless species (and therefore very vulnerable to habitat loss) dependent on deep leaf litter and sunny woodland clearings.

Illustration: White Helleborine (Cephalanthera damasonium).

Elm planting and river restoration at Towngate, Newport. Photography by Claire Hector.

3.5.5. Urban Green and Grey Infrastructure

The built environment in all its forms, with its associated greens, parks, gardens, and verges, creates a dense, varied and complex mix of habitats, novel ecosystems, and abundant niches. It covers approximately 10% of the Island, more dominant in East Wight.

These environments, together with their own boundary and transition spaces provide a wide range of essential ecosystem services and increasingly offer refuge for species struggling under intensified agricultural regimes. There is a 'biological deserts fallacy'[97] still widely presumed, whereas, in fact, our towns and cities contribute more than we think to local and regional biodiversity including support for rare and endangered species.

Conservation is not just about biodiversity but about the human relationship with that biodiversity; the healthier nature is where people live, the better that relationship will be, and the more people will care about preserving biodiversity everywhere.

There are opportunities to add ecological value to all urban infrastructures, both as retrofit projects and as integral designs for new construction work. This should include as standard the installation of nest and roost spaces for bird and

[97] Barnosky, A.D. and Hadly, E.A. (2021) 'Tipping Point for Planet Earth: How Close Are We to the Edge?', BioScience, 71(2), pp. 148–158.

Church Litten, Newport. Photography by Julian Winslow.

bat species dependent on buildings. The LNRS is intended to support planning decision-making by making it easier to negotiate constructed habitats for wildlife as part of the development process.

Vegetated sustainable urban drainage schemes (SuDS) are likely to be increasingly important as opportunities for ecological enhancement in the built environment following the publication of the Isle of Wight Council SuDS Supplementary Planning Document in 2024[98].

In urban settings it is important to consider a broad environmental health agenda as well as specific management measures for wildlife. Good ecological health underpins the success of these interventions and can only be sustained by reducing air, water, and soil pollution, controlling noise and artificial light levels, and by managing recreational and commercial disturbance on sensitive wildlife sites.

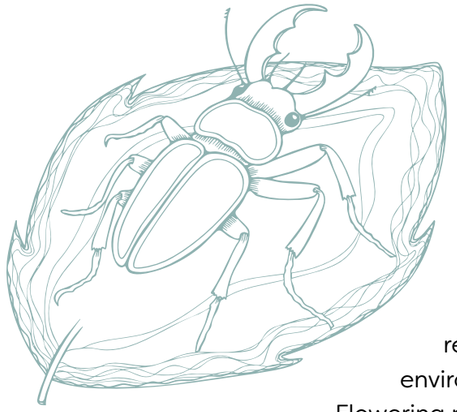
There are over 3 km² of public greenspace spread across the Island's towns and villages. These offer substantial opportunities to deliver better outcomes for urban wildlife, better provision of lifecycle resources including forage, nesting, roosting, overwintering, hibernating, refuge, and display. These gains for nature recovery require a change in standard maintenance contracting and the enhanced duty for biodiversity, incumbent on local authorities, provides the essential leverage needed to make those changes. The enhanced duty enshrined in the Environment Act 2021, constitutes a change in the law sufficient to trigger a review of existing public contracts.

[98] Isle of Wight Council (2025) Supplementary Planning Documents. Available at: https://www.iow.gov.uk/environment-and-planning/planning/local-plan/supplementary-planning-documents/ (Accessed 3 December 2024).

One of the key characteristics of the urban ecosystem is the dominance of early successional habitats of value to wildlife, including short grass, bare ground and open soil, young woodlands and trees, and the equivalent of exposed bedrock in the form of the concrete and brick geology of built environments. Brownfield industrial sites fall within this category and can be exceptionally important sites for invertebrate assemblages[99].

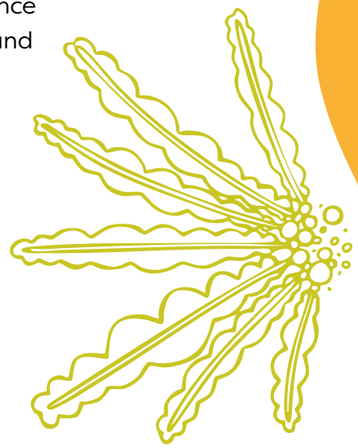
The LNRS recognises the wildlife value of aggregations of residential gardens and their potential to usefully connect with nearby public and private green infrastructure, including semi-natural features, on the urban edge. Private gardens on the Island cover over 26 km², more than double the total area of priority conservation grassland habitat. An essential part of LNRS delivery will be the provision of easily accessible wildlife information and management guidance to homeowners, community groups and parishes, supporting the biogeographical priorities of their neighbourhood. The proposal for an LNRS data commons will be important in this regard.

The urban species assemblage provides details of 36 priority species that will help to target delivery work, monitor progress and aid communication with local stakeholders. Most prominent is the 'synanthropic' group, particularly those species dependent on human buildings for at least part of their lifecycle. These include Swift, House Martin, House Sparrow, and the bat species Serotine and Nathusius' Pipistrelle.



The best known, and most reliably reported Island locations for the magnificent Stag Beetle are all urban and this species is regularly promoted for citizen science projects in local schools and through local media.

There is an important link between the urban nature recovery and the historic environment of the Island. Flowering plants such as Rue-leaved Saxifrage and the ferns Rustyback and Sea Spleenwort all have their only known stations on listed buildings and scheduled monuments.



[99] Buglife – The Invertebrate Conservation Trust (2024) Brownfield Hub. Available at: https://www.buglife.org.uk/resources/habitat-hub/brownfield-hub/ (Accessed 4 December 2024).

Illustrations from left: Stag Beetle (Lucanus cervus). Rustback fern (Asplenium ceterach).

3.5.6. Maritime Soft Cliffs and Chines

The Island is defined by its coastal geology, the dramatic landscape of eroding sand, clay and chalk slopes, cliffs, and landslides. Water seeps through the cliffs to emerge as springs and shallow pools and differences in the resistance of rock types mean they erode at different rates, forming tiered and stepped ledges known as undercliffs. The exceptional variety and complexity of pioneer habitats and niches created and refreshed by the pattern of natural processes is essential to communities of invertebrates of international importance. Elsewhere the high chalk cliffs support the last of the Island's seabird colonies, where a handful of Guillemots and Shags still nest.

On the south coast of the Island particularly, the cliffs are cut through by a series of short steep-sided river valleys creating canyon-like features known as chines. These distinctive coastal features carry the soft cliff ecology inland, following feeder streams into the farmed hinterland and also creating the primary points of public access to the beach and shore, attended by holiday accommodation and other visitor facilities.

Soft cliffs at Alum Bay. Photography by Kai Davis.

Glanville Fritillary, virtually restricted in the UK to the southern soft cliffs of the Island. Compton. Photography by Martha Henson.

The Undercliff, running from Niton to Ventnor, also includes chines (for example at Shanklin and Luccombe) and many calcareous springs and tufa-forming streams (a rare habitat across Europe). It is characterised by extensive secondary woodland growing over boulders and scree; here there are opportunities to manage tree cover to ensure the mix of damp and dry shade, patchy sunlight on cliff surfaces and fallen rocks. A poorly understood ecological characteristic of Island undercliffs is their provision of mass deadwood into the intertidal zone, forming substantial timber reefs, and from there washing out into deeper water wood falls. The upper shore deadwood zone is likely to form an important and complex transitional environment between terrestrial and marine faunas.

The continuation of natural process is the most important ecological management priority for these environments, but also the creation and management of wide buffers within which cliff-top vegetation can establish, providing ancillary forage and other services to the soft cliff invertebrate assemblages featuring such rarities as the Carrot Mining Bee, Cliff Tiger Beetle, and Black-headed Mason Wasp.

Most famous of all the cliff-dwelling species is the Glanville Fritillary, a butterfly restricted to the Channel Islands and the Isle of Wight (though short-lived populations occasionally appear along the south coast). It is widespread across Europe but at its northernmost climatic outpost here in the UK. It is showing signs of range expansion on the Island, moving from the sea cliffs inland to similarly warm dry and sandy grassland habitats where its foodplant is abundant. This suggests that there may be opportunities to duplicate soft cliff mosaic features on inland bare ground and short sward sites within the dispersal distances of some key species, creating additional capacity under warming climatic conditions. In some locations these cliff analogues could include urban brownfields.

There is a need to reduce the risks of over-development and urbanisation on open coast, especially within the chines. Controls will help to prevent the creep of domesticating influences on the natural processes of the cliff habitats, the spread of litter and debris (for example when built structures collapse as a result of cliff erosion), the spread of garden, exotic and invasive plant species, and the impact of artificial light at night.

There are opportunities to develop more collaborative working relationships with farmers and landowners within the chine catchments that run out through soft cliff habitats. This would help to support agri-environment options which could be targeted to improve water quality, reduce soil loss, and encourage the spread of cliff biodiversity along the chine stream corridors, into a more ecologically managed hinterland.

The soft cliff species assemblage reinforces how critical it is that small-scale wet and dry habitats are sustained and refreshed in a dynamic environment able to support a vast spectrum of successional niches simultaneously.

Many of the rarest and most specialised examples of cliff biodiversity are themselves ephemeral, appearing perhaps only sporadically in favoured locations. Bog Apple Moss is known only from damp sandstone cliff surfaces at Shanklin Chine; the still poorly understood Scabrous Feather Moss needs precise conditions provided by only a few bare ground microclimates at the western edge of the Undercliff. Another bryophyte, Dotted Hornwort, colonises disturbed ground (such as arable headlands) near to the cliff edges.

Illustration: Common Apple-moss (Bartramia pomiformis).

Henbane, vegetated shingle, Thorness Bay. Photography by Ian Boyd.

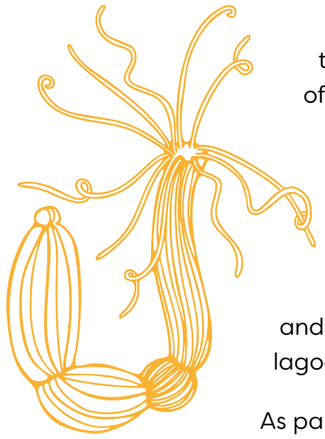
3.5.7. Lagoons, Dunes, and Shingle Banks

These features are rare and restricted priority habitats on the Island, and scarce across the whole Solent region. They are threatened by a combination of recreational and commercial pressures, sea-level rise, and coastal squeeze. The total Island resource is less than 50 ha, 0.1% of the land surface.

Many of the species remaining in these fragments are also rare and threatened. Urgent and persistent conservation effort is essential if the Island is to sustain habitat quality within the coastal landscape. Because of their small size, and their particular physical characteristics, each is potentially replicable as a constructed or even translocated project. Some species, particularly the more general bare ground and short sward assemblages, may appear as components of spontaneous urban flora nearby, or colonise suitable waste ground and brownfield locations.

It is perhaps one of the most exciting outcomes of the LNRS that the rollback of high priority designated habitats such as these may be successfully delivered through a programme of intentional constructed habitat design on the urban coast and farmed interior.

The LNRS advocates for a renewed conservation effort on existing dune, lagoon and shingle sites, improving core habitats and creating complementary conditions in the immediate vicinity. The Island's various Harbour Authorities



will have an important part to play in this work as will tourism providers and attractions, making these habitats of interest to their customers, and fostering a spirit of respect and care.

The establishment of 200m 'opportunity halos' around all dune, lagoon, and vegetated shingle sites is proposed, areas within which to search for useful retreat and reconstruction sites, based on dispersal and range distances for assemblage species, including lagoonal species during flood events.

As part of this initiative, there is an opportunity to design and construct safe nesting sites for key SPA and SSSI bird species with low breeding success, such as Ringed Plover and Oystercatcher, and for those now lost as breeders but with the potential to return, for example Sandwich, Common, Little and Roseate Terns.

There are two priority assemblages provided, for lagoons, and for dunes and shingle. The closely related lagoonal flowering plants Spiral and Beaked Tasselweed are salt tolerant and share some similarities with the truly marine Eelgrass species. The tiny translucent lagoon Starlet Sea Anemone was first described as a new species in 1935, from specimens found on the Island, and this is recognised in its scientific name *Nematostella vectensis*. The characteristic dune and shingle plant group Sea Holly, Sea Bindweed, Sea Spurge and Sea Knotgrass are all rare and local on the Island due to the very limited extent of their habitat.

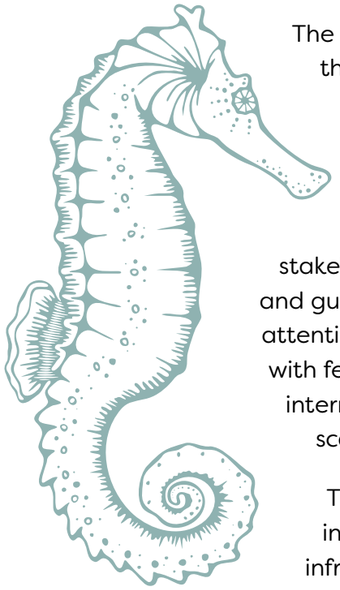
Ivy bees at a relic dune in Ryde. Photography by Ian Boyd.

Illustration: Starlet Sea Anemone (Nematostella vectensis).

Ryde Pier, sands, and town. Photography by Dan Roberts.

3.5.8. Beaches, Seafronts and Seashores

The Isle of Wight has 125 km of coastline and 13 km² of intertidal zone, which is broadly split into six habitat units. The north-west coast has coarse sand, mud flats and seagrass beds (including some rock and clay reefs). The north-east coast with its fine sand and mud flats, is also with abundant seagrass. The east coast and Sandown Bay section with highly mobile coarse sand, associated Polychaetes and dense Egg Wrack beds, also including the dramatic chalk boulders, caves and reefs at Culver and the exceptional rockpool environment of the limestone reefs at Bembridge Ledges. The landslip and Undercliff coast are characterised by intertidal boulders, marine timber and lower shore Kelp forests. The 'Back of the Wight' shingle beaches, rocky reefs, clay reefs densely colonised by Anemones and finally the chalk reefs, caves and boulders of the Freshwater cliff section. These coastal biogeographical zones conform almost exactly to their equivalent policy units in the Shoreline Management Plan (the seventh being the Medina Estuary, which is separately classified in LNRS). Approximately one-third of the Island coast is defended and appears as 'Hold the Line' in the SMP2, the rest is predominantly 'No Active Intervention' and is left to natural process with the exception of some sections where private sea defences have proliferated (for example, Quarr and Bembridge).



The key conservation tasks for LNRS are divided between the built and natural coasts, concentrating on visitor management, public information, making space for natural processes and designing and constructing enhanced ecological value.

The LNRS identifies opportunities to work with stakeholders to provide clear and accessible public information and guidance on responsible enjoyment of the coast. Particular attention should be given to intertidal sand and mudflats with feeding and roosting birds, rocky intertidal reefs with internationally important palaeontological features and scarce algal communities, vulnerable to degradation.

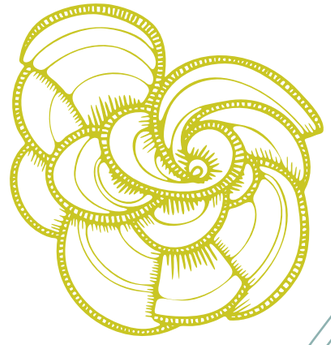
There are important opportunities to combine active interventions for nature recovery as part of the built infrastructure of the urban coast (repairs, upgrades, new construction) with programmes of public information, interpretation and education. This work can be extended to include opportunities for people to participate in nature recovery themselves through citizen science projects, volunteering, special events and activities, and collaborative projects with the arts community.

Most of the Island's nationally important Seagrass beds are essentially urban environments, stretching out from defended coasts and main centres of coastal population. These critically important habitats provide feeding, breeding and nursery functions that extend into the intertidal zone, supporting high-priority fish species such as European Stingray, Short-snouted Seahorse, and Nursehound. The LNRS creates new opportunities to extend and sustain the

Thornback Ray in the eastern Solent coast. Photography by Theo Vickers.

Illustration: Short-snouted Seahorse (Hippocampus hippocampus).

partnerships for Solent nature recovery that have been built up between local stakeholders, national and international eNGOs, universities and natural capital funders. One of the tasks of the LNRS is to grow these productive alliances, and build new ones, pushing out into the Island's Channel coast environment where there is a clear data deficit and a need for more concentrated conservation efforts, particularly in the east coast bays from Culver to St. Catherine's Point.



The species assemblage for Beaches, Seafront and Seashores provides additional information to help prioritise actions, refine specifications for conservation work and support data collection. Key species include Peacock's Tail, a rare seaweed that appears in the summer on soft sandstone reefs. It is at its northernmost global range here and will potentially extend its range as climatic conditions change, but it is vulnerable both to smothering from invasive algae, such as Sargassum, and mechanical damage from trampling (its main populations are on or near popular beaches). The Island has five of the largest enclaves of this species in the British Isles and, therefore, a national responsibility for its conservation.

3.5.9. Marine

As per the LNRS guidance, the strategy only extend to Mean Low Water, and so there is no marine section at the time of writing. Some very useful preliminary work was undertaken in 2024 between Hampshire County Council and the Isle of Wight Council with the support of the Solent Forum; the State of the Solent report[100] subsequently produced by Solent Seascape is an essential conservation guide to the wider marine environment.

The IW LNRS has nevertheless endeavoured to ensure that a pathway to future marine strategy work is set out clearly. The coastal, estuarine, and intertidal sections are all informed by the Seascape Assessment for South Marine Plan Areas MCA 5 The Solent and MCA 6 South Wight, and descriptions and prescriptions relevant to the scope of LNRS are included. For example, the fact that the rich assemblage of habitats and species associated with the maritime environment surrounding the Isle of Wight is partly because it represents a transition zone between warmer south-western and colder North Sea waters, and this is relevant to both intertidal and marine species under changing sea conditions in a warming climate.

[100] ABPmer (2025) Solent State of Nature Report: Volume 1 – Main Technical Report. Solent Seascape Project. Available at: https://solentseascape.com/resource/solent-state-of-nature-report-solent-seascape-project/ (Accessed 29 April 2025).

Illustration: Peacock's Tail (Padina pavonica).

3.5.10. Overarching Measures

These largely deal with matters of collaboration and shared intelligence, seeking to build an Island-wide platform for persistent, well-informed, rapid, and permanent progress for nature. The work of the LNRS Steering Group over the past year provides an important opportunity to retain and develop the forum as the successor to the Island's BAP partnership, particularly if ultimately administered through the IW Biosphere organisation. It would meet regularly to review progress with LNRS delivery and continue to develop and support high nature-value options for sustainable land use and for the Island's future economy.

Isle of Wight LNRS Steering Group have provided expert support and partnership throughout the strategy process. Photography by Claire Hector.

The LNRS offers an Island-wide opportunity to build a strong new federation for nature recovery across the thirty-three town and parish councils. This work would draw on the enhanced duty for biodiversity shared by other public bodies and would be particularly focussed on creating a new constitutional compact between the Isle of Wight Council and the parishes toward a coherent vision for nature-positive change.

One of the key outcomes of LNRS is the opportunity for a 'data commons' freely available to all, comprising an interrogable mapping tool within which a full set of ecological, environmental, social, and cultural parameters are made easily accessible to help anyone to participate in the shared task of nature recovery.

The working relationship that has been established between the LNRS and the farming and landowning sectors on the Island is essential to the effective and successful delivery of nature recovery. The opportunity to continue to collaborate closely with the Environmental Farmers Group[11], Wight Rural Hub[12], Country Landowners Association[14] and National Farmers Union[13], and with individual farmers, landowners and foresters, to support and progress regenerative Island farming, for nature recovery, for landscape integrity, and for sustainable and viable farming futures, is a high priority.

3.5.11. IW Lawton Priorities

These measures are all based on the Lawton Principles, first set out in 'Making Space for Nature,' a review of England's wildlife sites (also known as the Lawton Review[91]), undertaken for the UK Government by Professor Sir John Lawton in 2010, producing twenty-four recommendations for practical action towards a coherent and resilient ecological network.

The Lawton Review proposed that the overarching aim for England's ecological network should be to deliver a natural environment where, compared to the situation in 2000, biodiversity is enhanced and the diversity, functioning and resilience of ecosystems re-established in a network of spaces for nature that can sustain these levels into the future.

This ambition was to be underpinned by three objectives:

1. **To restore species and habitats appropriate to England's physical and geographical context to levels that are sustainable in a changing climate and enhanced in comparison with those in 2000.**
2. **To restore and secure the long-term sustainability of the ecological and physical processes that underpin the way ecosystems work, thereby enhancing the capacity of our natural environment to provide ecosystem services such as clean water, climate regulation and crop pollination, as well as providing habitats for wildlife.**
3. **To provide accessible natural environments rich in wildlife for people to enjoy and experience.**

At the heart of 'Making Space for Nature' is a set of guiding propositions that have become known as the 'Lawton Principles.' These define the essence of what needs to be done to enhance the resilience and coherence of England's ecological network in four words: More, Bigger, Better and Joined-Up, that is to:

- **Improve the quality of current sites by better habitat management.**
- **Increase the size of current wildlife sites.**
- **Enhance connections between, or join up, sites, either through physical corridors, or by 'stepping stones.'**
- **Create new sites.**
- **Reduce the pressures on wildlife by improving the wider environment, including buffering wildlife sites.**

From the earliest meetings of the LNRS Steering Group, the importance of the Lawton Principles to nature recovery on the Island has been a foundation of discussion and programme design. This has followed through into the definition of opportunities for action:

- **Better: The LNRS recognises the importance of supporting SSSI and SINC landowners (including eNGOs) to overcome problems of undermanagement. The LNRS attempts to frame the nature recovery narrative in such a way that opportunities for new funding are accelerated including collaboration on landscape-scale nature recovery programmes.**
- **Bigger: all APIB sites are buffered within the LNRS in order to support opportunities for transitional habitat development and targeted BNG finance.**
- **Joined-Up: the Natural England Habitat Network, together with the IWC Ecological Network in local planning policy, have been used as the basis for connectivity mapping and landscape matrix and mosaic opportunities. These spatial plans have been further informed by stakeholder comment, species prioritisation work and existing and legacy conservation land management and agri-environment agreements.**

A key opportunity for nature recovery given the Island's fragmented conservation estate is to develop large-scale habitat matrix-with-mosaic zones, focussing on wooded landscapes, floodplains, estuaries and grasslands, enhancing high-quality relics set within a supporting environment sufficiently ecologically enhanced to sustain priority species and their assemblages.

Another is to support and promote the natural extension, through altered maintenance and management, of existing hedgerows to become larger scrub transitions and thickets (for example bramble, thorn, and gorse) with the option then to naturally extend into in-field spaces generating increased gains for biodiversity. Headlands and other boundaries can be similarly managed to develop grassland transitions across short, medium, and long swards. They can also support emergent and bankside vegetation along ditches, drains and watercourses; or make space to retain uncropped arable as winter bird cover, or unsown and untreated tilled ground for rare annual plants. These and a variety of other land-sparing and land-sharing options for biodiversity can also incorporate small and seasonal water bodies. Exactly the same 'headland' principles can be applied to golf courses, public greenspace, roadside verges, and public rights of way.

More: with a renewed focus on nature recovery and the spatial framework and detail provided by the LNRS, there is an opportunity to refresh the search for new Local Wildlife Sites (Sites of Importance for Nature Conservation, SINCs) and Local Nature Reserves (LNR), by collaborating with all stakeholders, especially the Isle of Wight Council, the town and parish councils, housing associations, utility companies and others covered by the enhanced biodiversity duty with regard to the management of their land.

The historic and current 'excavated landscape' of quarries, sand, gravel and clay pits (including old brickworks) provides many potential candidate sites given their high ecological value. The link between the LNRS and future minerals planning is an important and ongoing opportunity for planned nature recovery.

The Lawton measures are particularly supported by the Farm Mosaic species assemblage. There is a strong presence of rare annual plants, both higher and lower (the latter mainly ephemeral autumn and winter annuals), for example Cornflower, Night-flowering Catchfly, Spreading Hedge Parsley, Venus's Looking Glass, and the bryophytes Vectis Moss, and Field Hornwort. This component of the assemblage relies on disturbed ground for its propagation, and in particular the conditions created by arable cultivation. The LNRS proposes the design and retention of arable margins as 'conservation headlands' and the option for their extension into whole-field 'arable reserves' where agri-environment funding can support such actions.

The LNRS also focuses on landscape-scale improvements to hedgerow networks, and to the quality of hedgerows and their associated field margins and headlands as a combined habitat resource that is integral to the farmed landscape. These features provide critical ecosystem functions, as connectors, facilitating the dispersal of species between other habitat fragments and patches within the farmed landscape matrix, but also as in situ feeding and breeding habitat for national indicator species such as Skylark, Yellowhammer and Linnet.

A key part of this work has been to recognise that lowland farmed landscapes on the Island inevitably capture some or all of the LNRS priority habitats and should not be isolated as a separate category but rather as a particularly important mechanism for the delivery of wholesale nature recovery. This approach has enabled the LNRS to provide a better response to landowner concerns about the risks of compromising future productive infield options (food, energy, fibre) by over-prescribing for the working farm environment.

Illustration: Field hornwort (Anthoceros agrestis).

Himalayan Balsam removal at Eastern Yar, from conservation volunteers, working together to create better habitats. Photography by Claire Hector.

4. Next Steps

This section of the IW LNRS Statement for Biodiversity Priorities has set out a detailed description of the Island landscape and ecology, the opportunities and aspirations for nature recovery shared by Island stakeholders, and the pressures and constraints that are likely to influence the success of those efforts.

IW LNRS Statement of Biodiversity Priorities: Part 2 Priorities and Measures provides a detailed breakdown of the actions proposed for the successful delivery of the Island's nature recovery priorities, together with the assemblages of species that are the bellwether measures of success. Full lists and descriptions are given in the IW LNRS Statement of Biodiversity Priorities: Part 3 Species and Assemblages.

The interactive LNRS map locates the key information that will enable anyone to access the details for their neighbourhood, farm, school or street and participate in the Island's shared nature recovery project over the coming years.

Collaborations for biodiversity have a long and proud history on the Isle of Wight. Those already existing have been strengthened and repurposed, and new ones are already emerging as a consequence of the LNRS process. These partnerships are now fully focused on delivering real and lasting positive change for Island nature, and with it, the creation of a better place for us all.

With Thanks to the Isle of Wight LNRS Steering Group

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