Kent and Medway Local Nature Recovery Strategy

Part Two

Priorities, Potential Measures & Areas That Could Become Of Importance For Biodiversity

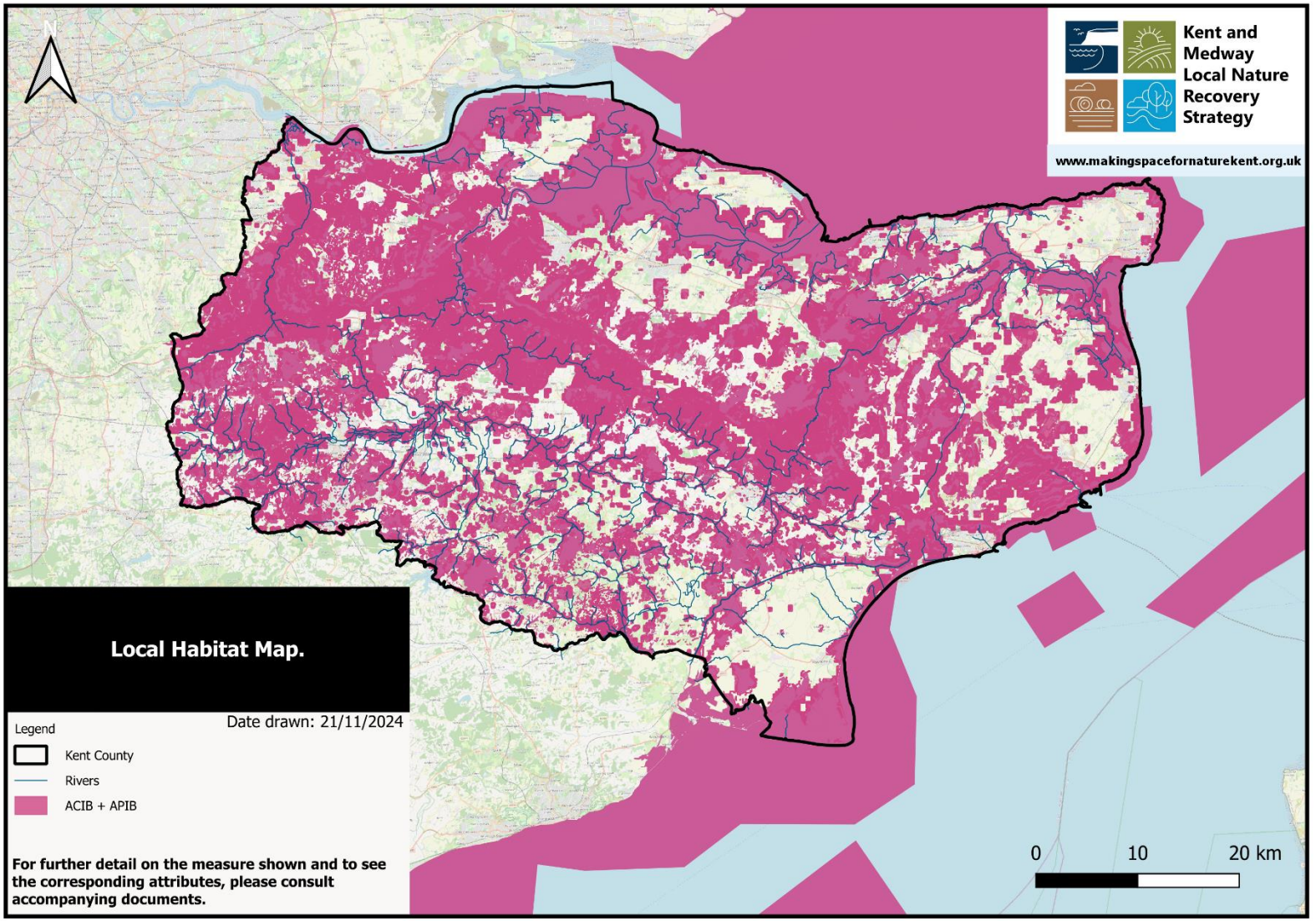
Pre-consultation draft
November 2024

Prepared by Kent County Council

Contents

1. Kent and Medway Local Habitat Map

1.1 Kent and Medway Local Habitat Map



1.2 How the map was created

The local habitat map illustrates the county's areas of particular importance for biodiversity and areas that could become of importance for biodiversity.

1.2.1 Areas of particular importance for biodiversity

Areas of particular importance for biodiversity are defined by the LNRS statutory guidance[1] as:

- National conservation sites.
- Local nature reserves.
- Local wildlife sites.
- Areas of irreplaceable habitat[2].

1.2.2 Areas that could become of importance for biodiversity

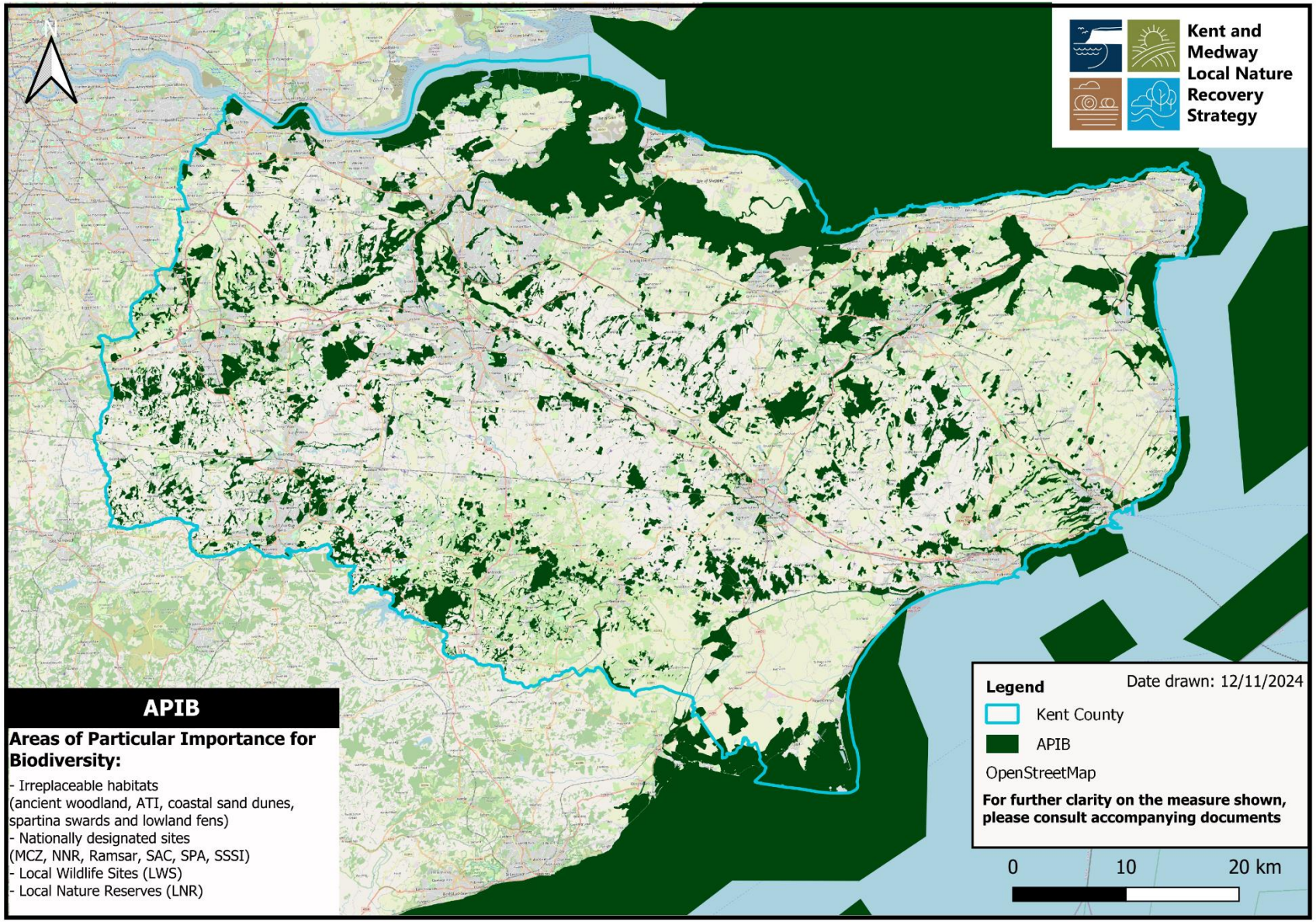
Areas that could become of importance for biodiversity are where the Strategy proposes effort should be concentrated to restore habitat, to achieve the greatest gains for nature and derive the greatest benefits from a healthy, functioning environment. They are the areas of Kent and Medway where targeted action will enable us to deliver on the priorities laid out by the Strategy.

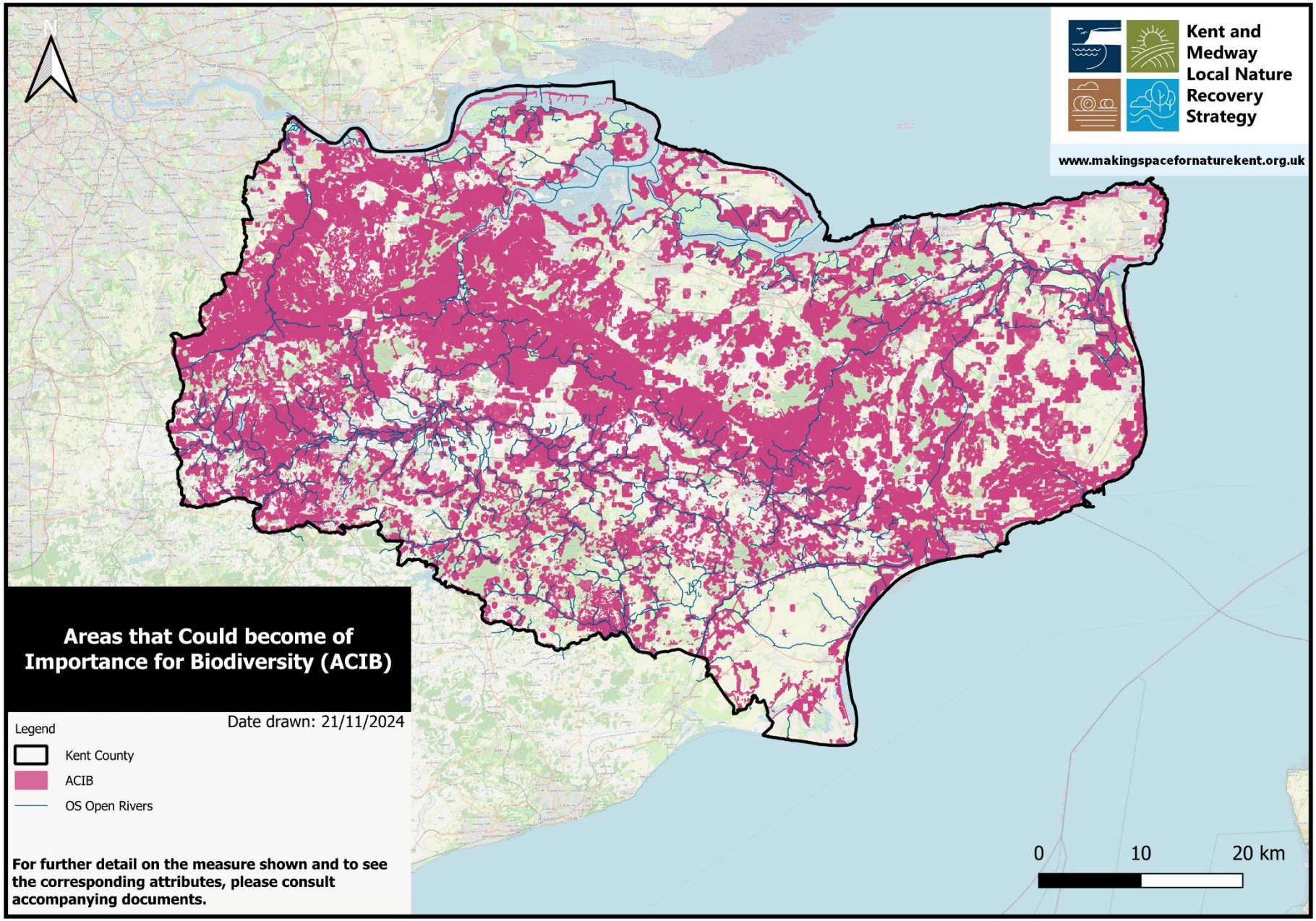
The map was created by the following approach (for more detail on how each individual map was created see Appendix 2.1):

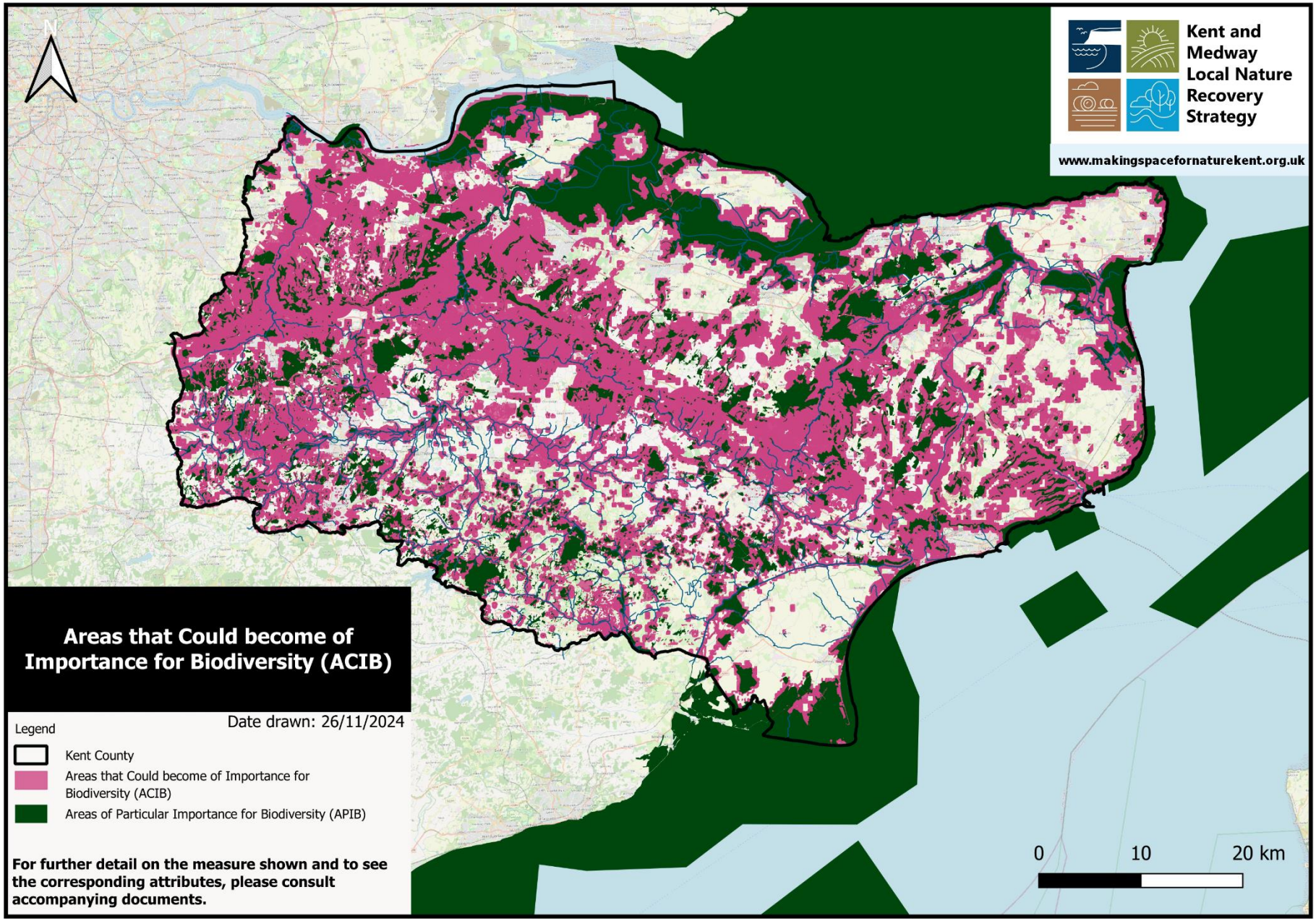
1. Identify data and evidence to inform and define the mapping of potential measures – this focussed on data that enabled the identification of areas most in need of action and/or where action would be most beneficial.
2. Map potential measures.
3. Review and refine potential measures mapping with stakeholders and partners, ground truthing the desk-based mapping work, further focussing/targeting to more defined areas and considering deliverability.
4. Create an initial mapping layer of potential areas that could become of importance for biodiversity, by combining the mapped potential measures mapping, excluding measures that did not include action to restore or create. Refine these further by considering wider environmental challenges that could be addressed by nature-based solutions; other wider benefits such as health and access; and opportunities to build on existing action or delivery.
5. Create final proposed areas that could become of importance for biodiversity by refining initial mapping layer further, by placing priority on areas which improve connectivity of the Strategy area and support the buffering and/or linking of areas of particular importance with the wider landscape.

[1] https://www.gov.uk/government/publications/local-nature-recovery-strategy-what-to-include
[2] Areas of irreplaceable habitat are defined as those included in the Biodiversity Net Gain irreplaceable habitats list, namely: Ancient woodland; Ancient and veteran trees; Blanket bog; Limestone pavements; Coastal sand dunes; Spartina saltmarsh swards; Mediterranean saltmarsh scrub; Lowland fens.

The *Areas of particular importance for biodiversity and Areas that could become of importance for biodiversity maps are shown overleaf and can also be viewed in more detail online at* Local Habitat Map







2. Better, bigger, more and joined up – the overarching principles for nature recovery in Kent and Medway

2.1 Overarching principles of the Kent and Medway Local Nature Recovery Strategy

In order for the county's nature to respond and adapt to the increasing challenges of climate change, as well as the other pressures and challenges it faces, we need to ensure the Local Nature Recovery Strategy for Kent and Medway is applying the principles of Lawton. We are building on these and reframing them slightly to provide a hierarchy for action; that being – better, bigger, more and joined up.

In applying these principles across the Strategy, we will not only support the recovery of nature but also ensure that our habitats and species have the ability and space to respond and adapt to the impacts of climate change, by enabling dynamic habitats and increasing resilience. It also means that there is room for nature, alongside the many competing demands for land in our county, and that the many pressures facing nature are tackled in a more strategic and ecosystem-led approach.

The overarching principles of the Kent and Medway Local Nature Recovery Strategy are:

- **Better** – improve the quality of our existing habitats and ensure they are in a healthy and functioning state, by applying and resourcing better and appropriate management. We also need to better conserve and safeguard what we already have.

- **Bigger** – increase the size of our most valuable and important habitat sites, not only extending but buffering, to protect them from the pressures of human influences.

- **More** – through habitat restoration and creation, establish new, nature-rich sites that not only provide more space for nature but also provide connectivity between existing core sites.

- **Joined up** – enhance connections between, and join up, sites, through improving the quality of the land that exists between, creating new physical corridors, and establishing 'stepping stones.

- **Nature-based solutions** – work with nature and use natural processes to tackle some of the socio-economic challenges our county faces, maximising the benefits of nature recovery.

- **Land management and land use** – increase the number landowners, land managers and farmers utilising nature friendly and habitat sensitive land management and land use practices, recognising the crucial role they have to play in helping to deliver a better, more coherent and resilient wildlife network across the county.

2.2 The building blocks of nature recovery

As our areas of particular importance for biodiversity shows, we already have significant areas of the county that are of immense value and significance for the county's, and in fact England's, natural heritage.

On top of this we also have a wealth of other areas whose management, whether through public sector organisations, voluntary groups, charities, farmers and landowners, is contributing to the protection and enhancement of Kent and Medway's habitats and species.

It is therefore important to understand that the Kent and Medway Nature Recovery Strategy is not starting from scratch nor from a point of inaction. But we're also not starting from a point of perfection. We know that many of our protected sites are in unfavourable condition, that our wildlife is declining, and our habitats are degraded. This is why our principles start with better – improving and safeguarding what we already have. There is little point creating new habitat to extend of connect poor quality, unhealthy and non-functioning existing.

And it is why we have chosen to map our areas that could become of importance for biodiversity on the basis of connectivity and buffering and/or linking of areas of particular importance with the wider landscape. In doing so, we give nature the space and resilience it needs to recover.

3. Kent and Medway's Vision for Nature Recovery

The Kent and Medway Nature Recovery Strategy has ten ambitions for nature recovery, that our more detailed priorities and potential measures are structured around. The first three of these expand further on the overarching principles, expressing the outcomes for connectivity, nature-based solutions and land management and land use.

The fourth relates to the Strategy area's priority species and the remainder focus on broad habitat groupings and the aspirations we have for our grassland, successional, wooded, freshwater, urban and coastal ecosystems.

1. **Connectivity** – High quality habitats are connected at both a county and local scale, providing more linked natural space for nature to thrive in and a landscape that wildlife can move through and adapt to change in.

2. **Nature-based solutions** – Through actions to safeguard, manage and restore the county's ecosystems we maximise our resilience to the challenges of climate change, tackle health and societal inequality and deliver well-being benefits, whilst simultaneously recovering nature.

3. **Land management and land use** – Land management and land use throughout Kent and Medway county not only meets the economic and social needs of the county, but also delivers nature recovery gains.

4. **Species** – Habitat management, restoration, extension or creation considers and takes account of the species that depend upon it, recognising and supporting the interdependencies that exist. It also recognises the contribution that species may make to the habitat and utilises, where appropriate, species within its management to help deliver more dynamic, natural, intact and climate resilient ecosystems.

5. **Grasslands** – Our existing grasslands are conserved, with appropriate management returned to restore, connect and extend these habitats to deliver high quality, species-rich areas across the county.

6. **Successional habitats** – The structural diversity of open mosaic habitat found on previously developed land and low level scrub is safeguarded from loss and damage, for the benefit of species that rely on early successional habitats.

7. **Woodland, trees and hedgerows** – Kent and Medway's native woodland, trees and hedgerows are safeguarded from loss and under appropriate and active management, delivering robust ground flora and soil structures. A mixture of natural regeneration and new establishment, improves connectivity and provides an even greater contribution to climate change mitigation and resilience.

8. **Freshwater** – Our freshwater habitats are clean, sufficient and stable, in a healthy and good ecological state that supports an abundance and diversity of

species. Catchments' functions are restored to deliver a connected mosaic of wet habitats, improving water quality and managing flood risk across the county.

9. **Urban** – Nature plays a central role in shaping the county's built-up environments, with wildlife provided for in a network of connected green and blue spaces, which are also designed and managed to provide nature-based solutions to the challenges facing those living in urban areas.

10. **Coast** – Coastal and estuarine areas are allowed to evolve, with natural processes and progression restored, to enable adaption and resilience to climate change. Management of habitat succession is delivered strategically and holistically, to minimise loss and support a range of high functioning, connected coastal habitats.

4. Understanding the priorities and potential measures

4.1 Delivering against the principles of better, bigger, more and joined up

Each ambition is delivered by a number of priorities and their associated potential measures, those being the actions that are required to realise the outcomes and ambitions we've identified for Kent and Medway's nature.

These measures have been framed around the Strategy's overarching principles by considering:

- What we need to do to **better** TO manage the existing habitats we already have to ensure they are functional and high quality and safeguarded from threats and pressures.

- How we can build on this existing resource, by extending and buffering habitats, so there is a **bigger** extent.

- Where we can restore or create new habitat, so we have **more** quality habitat for nature.

- What **connectivity** is needed, to ensure the better, bigger and more habitat is functionally linked.

- How we can maximise the benefits of this healthy and functioning natural environment and deliver **nature-based solutions** to some of the county's challenges.

- The critical **land management and land use** considerations that are required to underpin delivery for the priority.

In the development and subsequent mapping of these measures, we have also identified:

- Measures that are needed to support the successful delivery of the priority. These are measures which are not habitat or species focussed and therefore are something that cannot be addressed by the LNRS. They largely relate to supporting mechanisms, processes are functions that are considered critical to the delivery of the identified potential measures for habitats and species, and without these being addressed those measures will be limited in their success.

- Further data, evidence and/or mapping that is needed to better inform the priority's delivery.

Supporting measures and further data/evidence/mapping, sit outside the regulatory scope of LNRS and therefore cannot be addressed by the Strategy. However it is important to acknowledge and recognise these in the context of the priority they relate to and are therefore detailed. Only those considered critical to the

achievement of the priority have been included; other wider supporting measures identified by stakeholders during the Strategy development are provided in an annexe.

And finally, any priority that is of particular relevance to one of the Strategy's priority species has also been noted.

Consequently, the potential measures are denoted in the Strategy by the following symbols:


Measures which improve the quality of our existing habitats, through improved management and safeguarding – delivering better.


Measures which extend or buffer existing habitats – delivering bigger.


Measures which restore or create new habitat – delivering more.


Measures which focus on connectivity – delivering joined up.


Measures which deliver nature-based solutions.


Measures which focus on improving land management and land uses.


Data, evidence and/or mapping needed to better inform the priority's delivery.
This is included for information and cannot be addressed by the LNRS.


Measures which will support the success of the priority.
This is included for information and cannot be addressed by the LNRS.


Priority species supported by the priorities and potential measures.

4.2 Mapping potential measures

The Strategy identifies where the potential measures would be best delivered to achieve the greatest gains for nature and derive the greatest benefits from a healthy, functioning environment.

Measures with a reference code are the measures the Strategy has mapped and have been used to inform our targeted action mapping and the subsequent identification of "Areas that Could become of Importance for Biodiversity". The

majority of these mappable measures deliver against better, bigger, more, joined up and nature-based solutions.

Some measures have not been mapped; this is because:

- They are a measure that needs to be actioned across the whole county.
- They are a measure that will not derive an increased gain or benefit based on location – i.e. they will deliver the same outcome wherever they are actioned.
- The measure does not lend itself to being refined further.
- There is insufficient data or knowledge to either map or refine the measure's mapping.
- The appropriate mapping approach was too costly or time consuming.

It is important to note that all measures, regardless of whether they are directing action through mapping or providing suggested best practice, are potential measures. This means that they are not an instruction but rather a suggested action that, if taken, will deliver the most positive outcomes and greatest benefits against the priority it is associated with.

Further, inclusion in the LNRS does not preclude that action from any necessary permissions, site assessments and other pre-requisites before it is implemented.

5. Connectivity priorities and potential measures

5.1 Ambition for connectivity in Kent and Medway

High quality habitats are functionally connected at both a county and local scale, providing more linked natural space for nature to thrive in and a landscape that wildlife can move through and adapt to change in.

5.2 An overview of habitat fragmentation and the importance of improving connectivity

Habitat fragmentation results when large areas of connected habitat become broken up as a result of use of the land or natural processes. The main causes of habitat fragmentation in Kent and Medway are urbanisation and associated infrastructure, agricultural changes or expansion and removal of habitat, such as deforestation. As a coastal county, sea level rise, coastal erosion and salt and freshwater flooding can also temporarily and permanently fragment habitats.

Habitat fragmentation negatively impacts wildlife in several ways. A perhaps obvious consequence is the loss of total habitat area. This loss means less space for species to find what they need in terms of food, shelter and breeding.

When a habitat is fragmented, it not only reduces the quantity but also the quality – what is known as the edge effect. In a functioning and healthy environment, the “edge”, where two different habitats meet, is often a diverse area of varying structures and can in fact be critical to species which require different habitats for their life cycle and/or feeding and breeding. But conditions of these edge habitats are also quite different to the interior of the adjoining habitat and are often unsuitable for the survival of habitat specialists. As habitats become broken up and smaller, the proportion of edge habitat increases, and species not suited to these areas struggle to survive.

Fragmentation also impedes the movement and mobility of species. This impacts wildlife in two ways. Firstly populations of species become isolated, resulting in inbreeding and a reduction in genetic diversity. This makes the population more vulnerable to disease and has consequences its long-term health; and ultimately, puts it at greater risk of extinction. Secondly, fragmentation will limit a species' ability to respond to climate change impacts, whether that be redistributing because of climate shifts or because of habitats have changed, been degraded or lost.

Habitat fragmentation may be a significant driver of nature loss, however it is one that can be addressed and even reversed through habitat management, extension and creation.

5.3 Connectivity priorities and potential measures

The majority of the county's connectivity priorities relate to the specific needs of individual habitats and the functional links that need to be made within or between these. Consequently, the majority of the connectivity potential measures for the Strategy area are detailed with the relevant habitat. In addition to these habitat-based measures for connectivity, the Strategy also promotes a number of overarching priorities and potential measures to be applied across the county.

For the mapped connectivity potential measures see Part 3 or view online at Kent & Medway LNRS Measures

Priority CON1 **County's key wildlife sites better connected by addressing the fragmentation and barriers preventing movement of species.**		**CON1.1** Improve functional connectivity corridors between the designated and protected sites of the Areas of Particular Importance for Biodiversity[3] and safeguard these areas.
		**CON2.2** Identify and safeguard areas that are strategically important in reducing fragmentation and addressing bottlenecks for species movement.
Priority CON2 **Fragmentation caused by arterial roads, railway and other major infrastructure retrospectively addressed, reconnecting habitats and wildlife pathways.**		**CON2.1** Installation of functional green bridges, wildlife crossings, tunnels and other appropriate structures, alongside retrofitting existing structures, to address historic fragmentation caused by major infrastructure.
		Maintain a register of habitat fragmentation caused by major infrastructure to enable a pipeline of projects for funding and investment.
		All new infrastructure to consider fragmentation impacts and design connectivity mitigation into the scheme from the start.

[3] Marine Conservation Zones, National Nature Reserves, Ramsar, Special Areas of Conservation, Special Protected Areas, Sites of Special Scientific Interest, Local Wildlife Sites and Local Nature Reserves.

Click here to view Key to symbols

Priority CON3 **Habitats functionally connected at both a county and local scale, delivering bigger, better, more and joined up with no important wildlife habitats, or species populations, left completely isolated.**		**CON3.1** Conserve essential areas for functional connectivity.
		**CON3.2** Enhance habitats alongside the county's highway, railway, cycleway, pathway and PROW networks and National Trails to become functional networks for wildlife movements and providing opportunities for people to connect with nature.
		**CON3.3** Maximise opportunities to restore wildflower habitat on road verges and other green spaces, to contribute to a county network of wildlife-friendly habitat corridors.
		Develop better understanding, and map, priorities areas for road and verges that need improved management for the benefit of functional connectivity.
Priority CON4 **Management of habitats and wildling approaches to deliver a connected mosaic of habitats at a large scale, where nature can flourish, and species requirements are considered.**		**CON4.1** Conserve essential migration routes for priority species and those species especially vulnerable to climate change.
		**CON4.2** Implement broad buffer zones and connecting strips between significant habitat areas.
		Identify and map migration routes for priority species, identifying any existing barriers to movement.

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Priority CON5 **Landscape scale management, with partners beyond the county, to address habitat change and species migration as a result of climate change.**		▪ Work with responsible authorities to the north and west of the county to ensure they are identifying species migrating from Kent as a result of climate change dispersal. ▪ Utilise existing regional initiatives and partnerships, and develop new where required, to support and facilitate cross boundary working across the south east.
		Increase understanding of likely species movement and habitat change to improve ability to identify which counties to work with.

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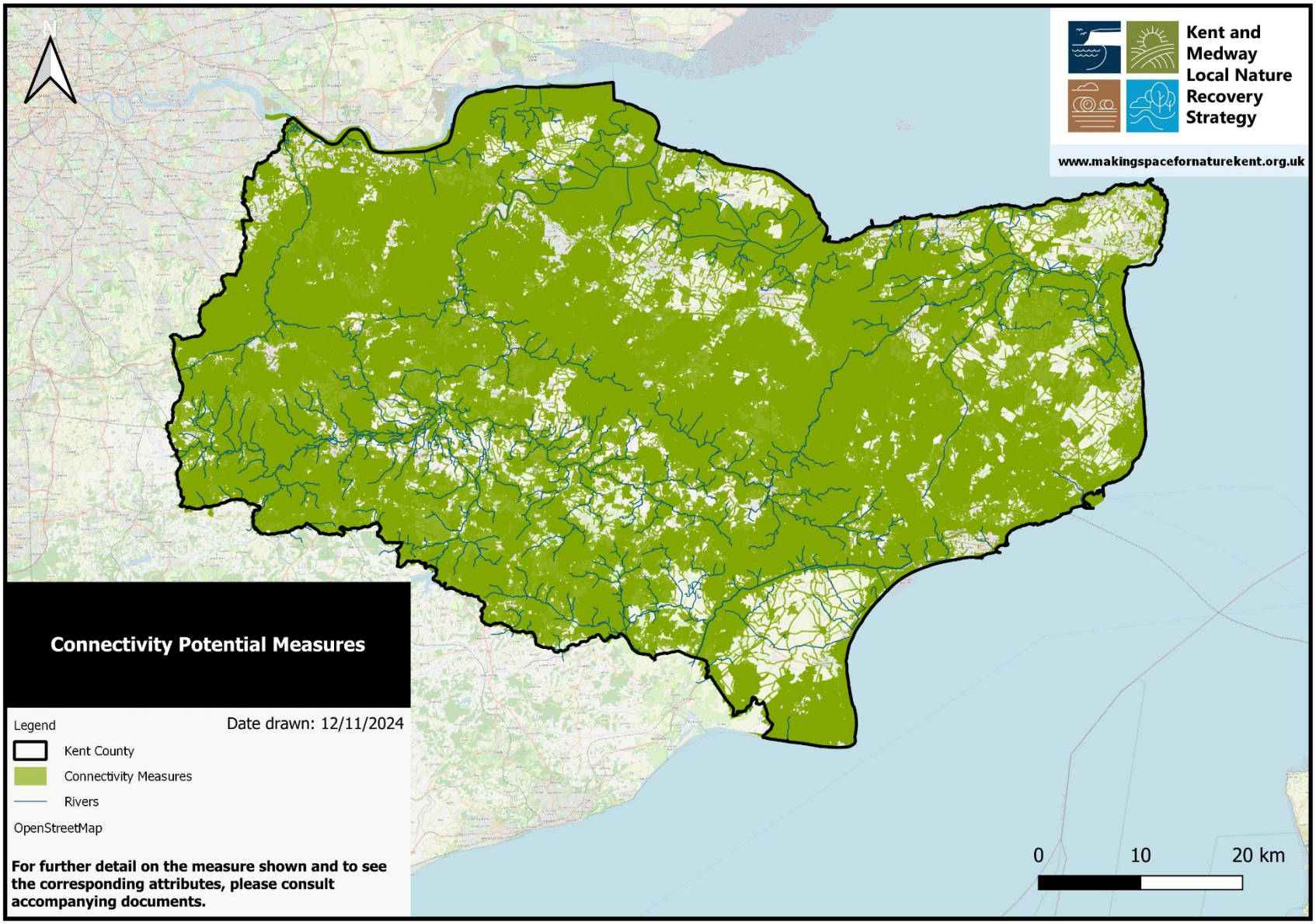
5.4 Map of connectivity priority areas



6. Nature-based solutions priorities and potential measures

6.1 Ambition for nature-based solutions in Kent

Through actions to safeguard, manage and restore the county's ecosystems we maximise our resilience to the challenges of climate change, tackle health and societal inequality and deliver well-being benefits, whilst simultaneously recovering nature.

6.2 An overview of nature-based solutions and the opportunities in Kent and Medway

Nature-based Solutions (NbS) address societal challenges through actions to protect, sustainably manage, and restore natural and modified ecosystems, benefiting people and nature at the same time. They target major challenges like climate change, disaster risk reduction, food and water security, biodiversity loss and human health, and are critical to sustainable development.

Through the many habitats within the county, we are presented with the opportunity to not only recover nature through our interventions but also deliver some other significant benefits, including:

- Carbon sequestration.
- Soil quality improvements.
- Air quality improvements.
- Water quality improvements.
- Water resource management.
- Flood management.
- Coastal erosion management.
- Temperature regulation.

Our six habitat priorities, offer the following potential benefits:

	Carbon sequestration	Soil quality	Air quality	Water quality	Water supply	Flood management	Coastal erosion	Temperature regulation
Grasslands	■	■		■		■	■	
Successional habitats								
Woodland, trees & hedgerows	■	■	■			■		■
Freshwater	■			■	■	■		■
Urban (based on green infrastructure)	■		■	■	■	■		■
Coastal	■					■	■	

Natural Solutions to Climate Change in Kent[4] identified a number of opportunities for nature-based solutions within the county, which would deliver the above benefits. These are discussed below.

6.2.1 Biodiverse grassland

Approximately 8% of the county is biodiverse grassland[5]. Nature-based solutions come from the protection and restoration of grassland, road verge naturalisation and an increase in sustainable agriculture. Sustainable agriculture could significantly increase the benefits offered by grassland, by reverting some of the improved grassland which covers 30% of the county.

The challenges faced with nature-based solutions from grassland are land availability, buy-in of the agricultural sector and intensive management requirements.

6.2.2 Woodland, Trees and Hedgerows

Woodland is the most abundant semi-natural habitat in Kent and Medway, with broadleaved, mixed and yew woodland covering 11% of the county. Active woodland management is regarded as the quickest win in terms of nature-based solutions, with expansion and creation of woodland and hedgerow delivering further in the longer term. This is embedded in the county's tree establishment strategy, Plan Tree, which aims to better manage existing woodland, tree and hedgerow resources and to establish a further 1.5 million trees, increasing average canopy cover to 19%.

The challenges to these opportunities are exacerbating drought conditions in the county putting existing and new trees at risk, the costs of active woodland management and land availability for regeneration and new woodlands, trees and hedgerows.

6.2.3 Freshwater

Rivers and streams cover 1.7% of the county and standing water open water and canals 1.2%. Fen, marsh and swamp wetland habitats account for just 0.2% which means this is a limited habitat.

It is therefore not surprising that in the first instance, the retention and protection of the county's inland wetlands to preserve the benefits to be gained from existing habitat. Greater opportunities exist through the restoration of natural river channels, extension and creation of wetlands and the reinstatement of historic ponds and creation of new.

Land availability, length of time for the habitat to become 'functional', associated flood risks and trading of habitats may pose challenges to these solutions.

[4] Buro Happold for Kent County Council, 2021
[5] Kent Habitat Survey 2012

6.2.4 Urban

With 16% of the county built or urban habitats, its is important to look for opportunities for nature-based solutions in these areas. Especially so as this is where the majority of the population live and work and therefore where the societal challenges that can be addressed by nature-based solution are most keenly felt.

Opportunities include green walls and roofs, better management of and increase in urban green space, naturalising road verges, street trees and use of sustainable urban drainage. These not only provide the benefits outlined above but also are important in respect of delivering health and well-being benefits and providing opportunities to connect with nature within the urban environment.

6.2.5 Coastal wetlands and other habitats

3.6% of the county is coastal grazing marsh, the county's greatest area of UK BAP habitat. With such a notable resource, opportunities begin with improved management, restoration and retention so as to continue to benefit from the services these habitats provide. Extension of this habitat is another opportunity but one that is perhaps harder to deliver given the need to find suitable sites for managed realignment of defences and the effects of coastal squeeze reducing the existing habitat. Extension of the habitat also poses the challenge of habitat trading and therefore needs to be part of a wider, strategic approach.

6.3 Nature-based solutions priorities and potential measures

In delivering the habitat-based priorities and their associated measures, opportunities to realise the benefits these bring in terms of nature-based solutions will be maximised. Where relevant, potential measures have specifically been mapped to where these benefits are most needed – that is focussing on areas of flood risk, poor water quality and supply, poor air quality, urban heating and where the benefits of increasing and improving access to greenspace would be most keenly felt.

In addition to these habitat-based priorities for nature-based solutions, the Strategy also promotes a number of overarching priorities and potential measures to be applied across the county.

Priority NBS1 **Increase the extent of carbon sequestering habitats in the county, which are purposefully managed to function as a carbon store whilst prioritising a nature recovery function**		Increase the extent of agricultural land that is managed for carbon sequestration, focusing on soil health and biomass production.
		Support landowners and managers to recognise and realise the carbon sequestration opportunities of their land by identifying the county's valuable carbon sequestering habitats and potential measures to maximise their function.
Priority NBS2 **Safeguard from loss, and increase the functionality and extent of, habitats delivering critical ecosystem services in the county**		Strengthen safeguards for existing habitats that are important for carbon sequestration.
		Identify areas of Kent where critical nature-based solutions are being delivered.

Click here to view Key to symbols

Priority NBS3 **Improve soil health and structure by enhanced and increased soil management, so that it is delivering better for invertebrates, carbon sequestration, water retention and management, and production and provisioning services.**	 Prioritise soil restoration where soil degradation is impacting food production and other provisioning services.
	 Plant and restore hedgerows across open landscapes, at appropriate locations and taking account of historic field boundaries, to capture water and minimise runoff, reducing scour and siltation.
	 ▪ Adopt principles of agroforestry and permaculture to improve soil management. ▪ Apply conservation grazing practices to develop stronger grassland root structures and adaptive multi paddock grazing, with long rests to restore soil health. ▪ Reduce use of pesticides, herbicides and fertilizer and use of insecticides and wormers in livestock. ▪ Use regenerative practices: reduced inputs, reduced cultivation, no/minimum till, deeper rooting, stronger rooted swards, over wintering stubble, cover crops, minimise compaction, plough along contour, maintain invertebrates and bacteria.
	 Baseline mapping of soil health, determined on areas rather than point data, so a wider collaborative management approach can be employed.

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7. Land management and land use priorities and potential measures

7.1 Ambition for land management and land use in Kent and Medway

Land management and land use throughout Kent and Medway county not only meets the economic and social needs of the county, but also delivers nature recovery gains.

7.2 An overview of land management and land use and the opportunities in Kent and Medway

7.2.1 Kent and Medway's agricultural landscape

The county of Kent is known as the Garden of England for good reason. 62% of the land in Kent and Medway is used for agriculture. 14.7% for forestry and woodland. In total, there are over 13,000 farmers, growers and farm workers across 2,825 farms in the county, covering 222,540ha of land[6]. Over 40% of agricultural grassland is used for grazing livestock and 16% serves a horticultural purpose. Over 50% of land farmed in the county is under arable production.

Farmers, growers and producers in Kent and Medway contribute significantly to the UK's food security, providing 40% of horticultural goods (vegetables, leafy greens, salad products) consumed domestically, and 80% of the top fruit (apples and pears). Viticulture is a fast growing use of land in Kent and Medway, with over 50 vineyards now in the county.

Agricultural business encompasses a wide range of landowners include large private estates, institutional landowners, large commercial operations, family farms and small holdings.

7.2.2 Opportunities through collaboration, innovation and nature-friendly farming

There are many leading regenerative farmers in Kent and Medway, who are applying skilled and innovative regenerative practices to their land, focused on protecting and restoring soil health. Five key principles of regenerative practices inform and guide a suite of farming techniques:

1. Minimise soil disturbance.
2. Maximise species diversity.
3. Keep the soil covered year-round and build soil organic matter.
4. Maintain living roots all year round.
5. Integrate livestock.

[6] Structure of the agricultural industry in England and the UK at June - Defra census 2021

The impact of nature-friendly, regenerative practices is boosted when farmers work together, turning individual efforts into action on a landscape scale. Within Kent and Medway, we are fortunate to have a number of farmers clusters working together at landscape scale. These farmer-led groups are working with local communities, water companies, wildlife charities, and town, parish and local councils. They are demonstrating how business, environment and food security can be linked together whilst protecting and restoring a remarkable range of wildlife habitats and species and also responding to the pressures of climate change.

Collectively, farmers clusters cover over 52,606ha of farmed land across the county (about a quarter of the agricultural land). Together, some 315 members are collaboratively working across a variety of landscapes, soil and habitat types to support vital species recovery and habitat management, restoration and creation. All whilst growing food and managing livestock. These clusters are:

- Boxley
- Darent Valley
- East Kent Arable
- East Kent Valleys
- East Stour
- Eden
- Greensand
- Marden
- North Kent Downs and Medway Gap
- North-East Kent
- Stour Valley to Stone Street
- Swale
- Upper Beult
- 1066

The way that land is managed has a strong influence on the health of our waterways; run-off from agricultural inputs can cause eutrophic pollution which is damaging to biodiversity and negatively impacts our water quality, whilst soil health and intensive farming practices can increase risks from flooding or drought. In recognition of this, South-East Rivers Trust have brought together businesses, local authorities, regulators, water companies, community groups and environmental organisations, to work alongside both them and Countryside Partnerships in Kent. These Catchment Partnership take a holistic approach to land management, which improves water quality and holds more water in the landscape, to benefit both food production and wildlife whilst also improving resilience to drought and flooding.

Many of the nature-friendly farming practices that are so important for supporting the recovery of biodiversity are enabled through Environmental Land Management (ELM) grants from DEFRA. These schemes, which are replacing the EU's Common Agricultural Policy and Basic Payment Scheme, are comprised of three distinct funding streams:

1. Sustainable Farming Initiative – funding farmers to adopt sustainable farming practices that can positively enhance the natural environment, in tandem with the overarching objective of food production.
2. Countryside Stewardship – funding more targeted action for specific habitats.
3. Landscape Recovery – funding landscape-scale, long-term, bespoke projects, with specific objectives for the enhancement of the natural environment.

7.2.3 Non-agricultural land use and management

There are many non-agricultural land owners in the county, which are either currently employing, or present the opportunity for, management practices that support habitats and wildlife. Such landholdings in Kent and Medway include, but are not limited to:

- Amenity greenspace, playparks, country parks.
- Charity owned land such as Kent Wildlife Trust, RSPB, Plantlife, Woodland Trust, National Trust and English Heritage.
- Privately owned natural and historic sites, stately homes, historic and managed gardens, including Crown Estate.
- Golf courses, cricket fields, equestrian sites and other sports pitches
- Churches and cemeteries.
- Allotments.
- Public estate, including councils, National Highways, Network Rail, MoD, NHS, HM Prisons.
- Public and private schools, colleges, universities and other educational facilities.
- Parish and Town Councils.
- Ports.
- Water, power, gas and other infrastructure.
- Minerals and waste sites.
- Business parks, large retailers, developments, airfields and tourist attractions.

7.3 Land management and land use priorities and potential measures

Land management and land use undertaken sensitively and in consideration of the habitat, and wildlife that depends on it, poses a great opportunity to support the recovery of nature. The majority of these opportunities exist in landowners and managers delivering the Strategy's habitat-based potential measures. In addition to these habitat-based measures, the Strategy also promotes a number of overarching priorities and potential measures for land management and land use to be applied across the county.

For the mapped land management and land use potential measures see Part 3 or view online at Kent & Medway LNRS Measures

Priority LM1 **Increase in the number of farms employing nature friendly farming practices, sensitive land management and delivering targeted action for nature recovery, resulting in farmland across the county that is rich in wildlife.**		**LM1.1** Identify opportunities for new or extended farmers clusters in areas of strategic significance not already covered. **LM1.2** Identify key pieces of farmland that are strategically important for linking natural habitats
		▪ Application of regenerative principles of land management including limiting soil disturbance; maintaining soil cover; fostering agricultural diversity and rotations; keeping living roots in the soil; integrating livestock and arable systems ▪ Application of integrated pest management (IPM – use of biological, physical and cultural tools to control pest species) to develop a more natural approach to pest control, reducing reliance on plant protection products and livestock medications. ▪ Restore, create, expand and maintain headlands, margins, in-field strips and ponds. ▪ Management of buffers around arable fields for nature and other environmental benefits. ▪ Increase in habitat complexity on farmland, with mosaic habitats, and strategically considered field margins and hedgerows, providing connectivity across landscape. Utilise: wider, higher, bigger hedges; smaller fields, with grass margin buffers; more scrub, cover crops, arable wildflowers; more trees in hedgerows and worked fields; and ponds. ▪ Incorporate hedgerows into livestock management practices. ▪ Creation of wide environmental buffer margins within linear water ways (ditches, streams, rivers) to reduce run off from agricultural land and nitrogen enrichment. ▪ Creation of successional areas and scrub; and nesting plots for farmland birds. ▪ Ensure any measures taken are in keeping with the local landscape setting and character.
		Use existing and new clusters, and other means, to connect farmers with those already employing nature friendly farming.
		Shrill Carder Bee *Omphalapion beuthini* (Beetle) Barn Owl Turtle Dove Lapwing Yellow Wagtail

Click here to view Key to symbols

		Brent Goose Corn Bunting Linnet Tree Sparrow	Yellowhammer Brown Hare West European Hedgehog Adder Ground-pine

Priority LM2 **Farmland responding to climate change induced pressures with the help of nature.**		**LM2.1** Use of nature-based solutions to improve climate resilience of farmland.
		▪ More cover and catch crops to mitigate flooding and drought. ▪ Agroforestry – integrating trees into agricultural landscapes. ▪ Climate resilient food-crops. ▪ Use of trees to provide shade to livestock.
		Identify farmland at greatest risk of climate change impacts and likely to benefit the most from nature-based solutions.

Click here to view Key_to_symbols

Priority LM3 **Prevent agricultural diffuse pollution[7] of freshwater habitats and groundwater bodies in farmland.**		**LM3.1** Increased water capture, rainwater harvesting, reservoirs, ponds, holding areas, leaky wood dams.
		▪ Wet habitat creation designed to also be beneficial to wildlife. ▪ Adaptive and judicious grazing/better grazing practice to keep more soil carbon. More resilient grazing, livestock can stay out for longer, results in less slurry, less runoff/pollution. ▪ Create wide environmental buffer margins within linear water ways (ditches, streams, rivers) to reduce run off from agricultural land and nitrogen enrichment. ▪ Reduce pressure from livestock access. ▪ Reduce livestock stocking density along clay rivers.
		Identify rivers most sensitive to diffuse pollution and over-abstraction.
		Work with farmers and farmer clusters to address water on a whole farm basis and in the context of their catchment, improving soil health to hold and purify water, reduce need for fertilizer and pesticide use through integrated pest management.

[7] For example, caused by soil, nutrient or livestock management practices and physical modifications

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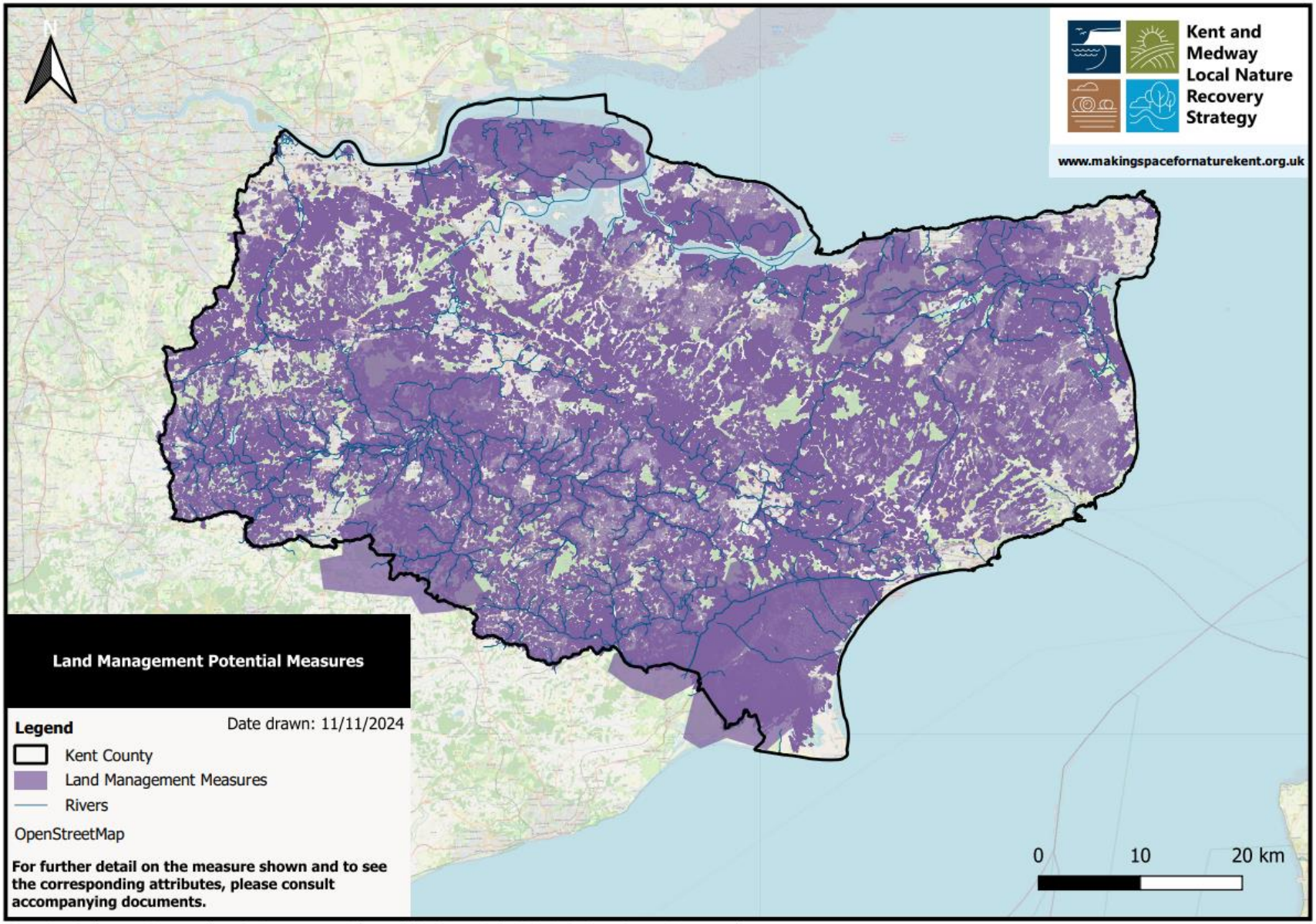
Priority LM4 **Publicly accessible open spaces[8] managed to deliver benefits for wildlife, as well as the people that use them.**	 **LM4.1** Protection of habitats and species sensitive to disturbance by employing site management, and other measures, which support connection to, and experience of, wildlife but ensures our most sensitive sites remain undisturbed.
	 **LM4.2** Create sacrificial and honey pot public sites to reduce the impact of visitors on vulnerable sites.
	 ▪ Adopt principle of "least restrictive" management approach in publicly accessible areas, to enable nature and access to co-exist and thrive. ▪ Tailor management to sensitive habitats. ▪ Provide a greater complexity of habitats – flowering plants, brambles, nettles, log piles, beetle banks, scrub – and increase variety in urban planting schemes, to provide year round shelter, forage and food for wildlife. ▪ Vary topography in landscaping, including scrubby areas, low nutrient substrates and bare or low growing planting areas. ▪ Reduced use of pesticides and herbicides. ▪ Plant right trees, in the right place and with appropriate management to ensure their successful establishment. ▪ Use of herbaceous and perennial plants and shrubs in parks and gardens which are bee and pollinator friendly and use planting around the base of trees. ▪ Implement cut and collect to reduce nutrient loading and support wildflower establishment. ▪ Retain deciduous deadwood (standing, felled or fallen) where safe to do so. ▪ Ensure any measures taken are in keeping with the local landscape setting and character. ▪ Use restrictive buffers to prevent public and dog disturbance in sensitive areas.
	 Identify sites most sensitive to public access impacts. Identify areas where sacrificial and honey pot sites could be established to reduced pressures on more sensitive sites.
	 Use of interpretation/public information to increase understanding of wildlife features and wild management.

[8] Including by not limited to amenity greenspace, playparks, country parks, natural and historic sites, stately homes, historic and managed gardens, golf courses, cricket fields, sports pitches etc.

Click here to view Key_to_symbols

7.4 Map of land use and land management priority areas



8. Species priorities and potential measures

8.1 Ambition for species in Kent and Medway

Habitat management, restoration, extension or creation considers and takes account of the species that depend upon it, recognising and supporting the interdependencies that exist. It also recognises the contribution that species may make to the habitat and utilises, where appropriate, species within its management to help deliver more dynamic, natural, intact and climate resilient ecosystems.

8.2 Delivering for all species within the Strategy area

8.2.1 Creating the LNRS species longlist

In identifying the county's priority species, a long list of species was first compiled. Species in the long list were selected against Natural England criteria, designed to enable local nature recovery strategies to contribute to the national species extinction risk targets[9] of:

- Halt the decline in species abundance by the end of 2030.
- Increase species abundance by the end of 2042 so that is greater than in 2022 and at least 10% greater than in 2030.
- Reduce the risk of species' extinction by 2042, when compared to the risk of species' extinction in 2022.

As such, species which met the following criteria were to be included on the species longlist:

- Any native species which have been assessed as Red List Threatened and Near Threatened against IUCN criteria.
- Any native species which have not been formally assessed against IUCN Red List criteria but where strong evidence is provided to show that they would meet the criteria for Threatened status.
- Any native species considered to be nationally extinct that re-establish themselves or are rediscovered.
- Any native species which Natural England suggest as suitable candidates for conservation translocation, or any native species already subject to translocation efforts that, on Natural England's advice, need to be scaled up to maximise success.
- Other species of local significance which have not yet been Red List assessed or lack approved Red Lists but for which there is strong evidence to show – or in the absence of this, authoritative expert opinion – that they would meet criteria for Threatened status.

[9] The Environmental Targets (Biodiversity) (England) Regulations 2023

The Natural England guidance notes that there are roughly 2,000 species in England which meet these criteria. When species present in Kent were assessed and other species of local significance added, there were 1,503 species in the long list, demonstrating the value of Kent and Medway to supporting rare, threatened and significant species.

8.2.2 Overarching priority to ensure that the Strategy benefits all rare, threatened and significant species in Kent and Medway

Although the Strategy development process required this list to be further refined and focused on species in most urgent need amongst other considerations, it is still important to take account of all the longlist species in any habitat management, restoration, extension or creation work.

The Strategy therefore identifies an overarching priority that ensure this wider suite of species, whilst not the focus of bespoke action, still benefits from action taken with the Strategy area.

Priority SP1 **During design of works to deliver a Strategy potential measure, the habitat assemblages of the species longlist (see Appendix 2.2) should be consulted for the relevant habitat.**

Where works are taking place in <u>locations where a long-list species for Kent and Medway is known to occur</u>, the habitats, structures, host species or other features supporting the species concerned should be maintained in extent and quality, and, where possible, should be locally extended, improved and connected.

Where works are taking place in <u>locations where a long-list species for Kent and Medway was previously known to occur and/or might naturally establish populations</u>, planning and delivery of land-use planning, nature conservation activities, or other land-management work should take the needs of the relevant species into account. This should include avoiding action which would decrease the ecological connectivity between potential sites and those sites already supporting the relevant Kent and Medway LNRS long-list species.

8.3 Kent and Medway LNRS priority species and potential measures

8.3.1 Identifying the LNRS priority species

The Kent and Medway LNRS priority species were identified by applying selection criteria to the species long list to create a short list of potential priority species. The first selection criteria determined whether they were species that the LNRS could best support. Species fell into three categories:

1. Requires better, bigger, more or connected habitat but did not require specific or targeted recovery measures.
2. Requires specific and targeted habitat management, improvements in environmental quality and/or bespoke conservation actions.

3. Requires better evidence/understanding before necessary action can be determined, action outside England and/or is a vagrant or occasional visitor.

Those in category one were considered to be species that would benefit from the LNRS but not suitable a priority species as they would benefit from the wider action delivered by the Strategy. Therefore, only species which fell into category two were assessed by the final selection criteria, which were:

- Urgency of recovery requirements.
- Significance of strategy area nationally and internationally to the conservation of the species.
- Scale of effort required.
- Associated benefits to other wildlife and wider environment.
- Vulnerability to climate change.
- Species needs support tracking or adapting to changing climate.
- Ability to build on existing local, regional and/or national initiatives.
- Local expertise knowledge of other reasons outside above criteria that qualifies species for shortlisting as potential priority species.

The species shortlist was then considered by county experts to nominate priority species. These were selected in consideration of the habitats they were associated with, and which species would deliver action that would have broader impact than just for that individual species alone.

8.3.2 Presentation of the Kent and Medway priority species

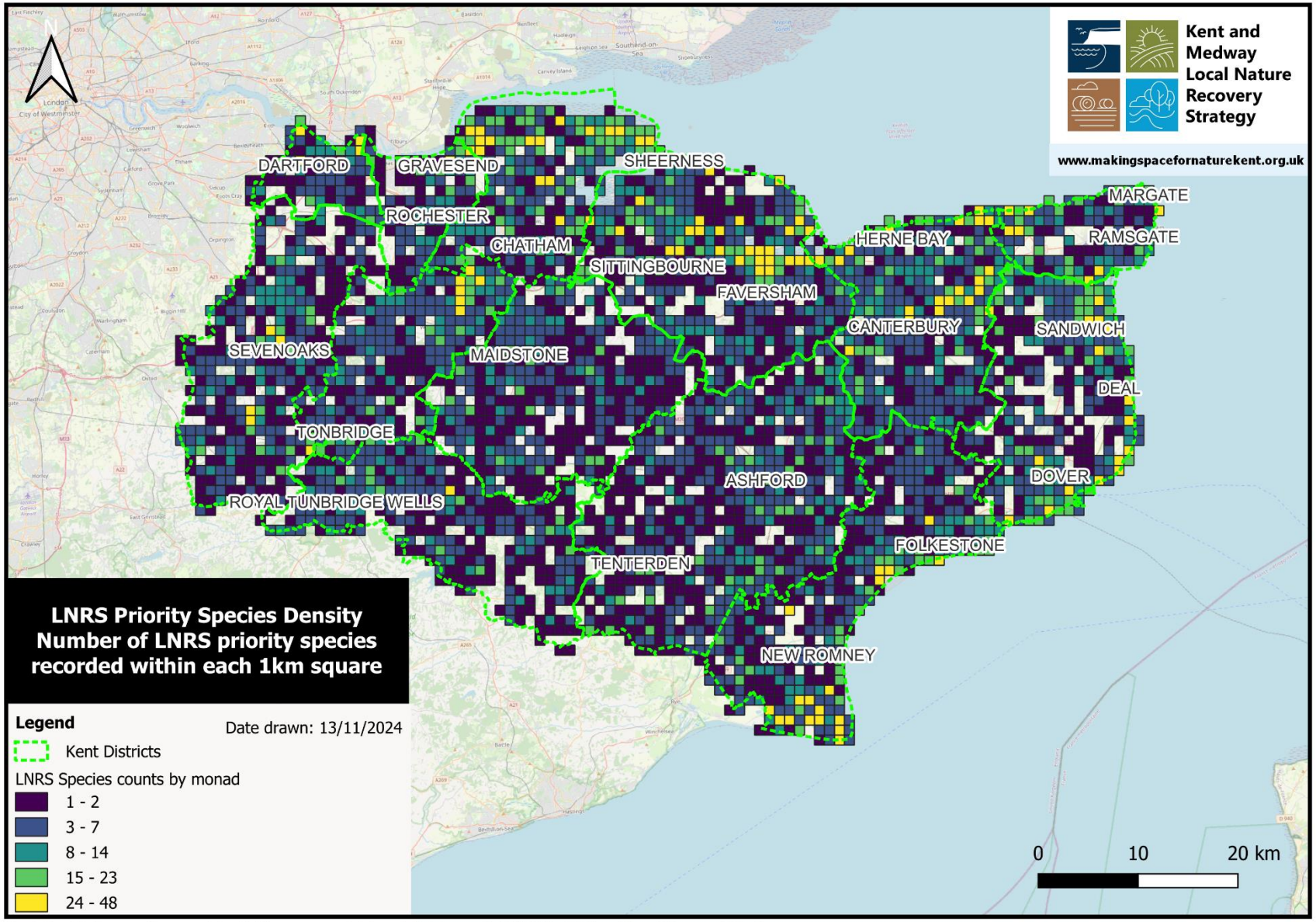
The below sets out the agreed priority species for the Kent and Medway Local Nature Recovery Strategy area. In total there are 141 priority species – this is a large number of priority species but is a reflection of the large number of species in the original species long-list. These priority species represent 9% of the county's rare, threatened and significant species – it is expected that targeted action for these 141 will offer wider benefits to the other 1,362 species not identified as a priority.

The breakdown of priority species across the different taxa is as follows:

Amphibian	2
Annelid	1
Bees, Wasps and Ants	9
Beetles	18
Bird	31
Butterflies	13
Caddisflies	1
Crustacean	1
Dragonflies and damselflies	1
Fish	3
Fungi	5

Grasshoppers, crickets & allies	2
Lichens	2
Mammal	10
Millipedes	2
Molluscs	1
Moths	16
Reptile	1
Spiders	4
True bugs	2
Vascular Plant	16

The overleaf has been created to demonstrate areas of the county of particular importance for the LNRS priority species, based on density per one kilometre square.



Map illustrating the density of LNRS priority species recorded within each 1km square.

The tables overleaf identify the priority species for each taxa group and their associated habitats. Where species require more bespoke action than that already provided for by the potential measures within the Strategy for that habitat, these are detailed. Where the potential measures are sufficient, the relevant priority reference number is provided. Overviews of the species and their extent are taken from the State of Nature in Kent report[10].

[10] State of Nature | Kent Nature

8.3.1 Amphibian priority species

Of the five native species of amphibian in Kent, two are frogs and toads, and three are newts. They are the Common Frog, the Common Toad, the Smooth Newt, the Palmate Newt and the Great Crested Newt. The Great Crested Newt has European Protected Species status, and the Common Toad is on England's list of species of principal importance. All these amphibians have partial protection under the Wildlife and Countryside Act. The Natterjack Toad became extinct in Kent in the 1960s and native Pool Frogs have never been recorded in the county.

Amphibians are dependent upon the presence of breeding ponds with suitable terrestrial habitat. Lowering of pond density can result in damaging levels of population fragmentation. The Low Weald has the highest pond density in Kent and is consequently the stronghold of Great Crested Newts.

Although trends at a county level are difficult to establish, the distribution and status of Kent's amphibians is better known now than ever before, and expert opinion suggests that populations of all of Kent's amphibian species are reasonably stable. However, significant losses of all species are likely to have occurred throughout the 20th Century that were primarily linked to the loss of breeding ponds. The Marsh Frog has become established in Kent over the last 80 years and the range of the species continues to expand. The impact of the Marsh Frog on native amphibian species is still unclear.

Habitat availability, disease and climate change all pose considerable threats to amphibian species.

Priority species	**Associated habitats**	**Potential measures**
Common Toad	Eutrophic standing waters and Other standing open water	Create larger ponds (400m^2 area minimum; optimal area 600-800 m^2). Connect new and existing waterbodies to high quality terrestrial habitat such as grassland, scrub and woodland that is not fragmented, especially by arable and roads.
Great Crested Newt	Eutrophic standing waters	Create new ponds (at least 200m^2 in area) to achieve high pond density. No introduction of fish to new and existing ponds. No creation of new ponds for great crested newt in floodplains, to reduce risk of fish colonisation.

8.3.2 Annelid priority species

Priority species	Associated habitats	Potential measures
Tentacled Lagoon Worm	Saline lagoons	CL6

8.3.3 Bee, Wasp and Ant priority species

Ants, bees and wasps (aculeates) in Kent totals 523 species. However, 42 of these are regarded as extinct meaning that the current total of extant species is 481, which includes 219 species of bee, 221 species of wasp and 41 species of ant. Kent has a nationally important aculeate fauna, with one of the highest diversities in the UK. This reflects a combination of areas of suitable habitat, a diversity of habitat types, the warm summers and the proximity to Europe;, a source of new arrivals. Amongst these species, Kent is nationally important for:

- The solitary bee species of Andrena gravida, Andrena polita and Andrena vaga.
- Shrill Carder Bee (Bombus sylvarum)
- The wasp species Cerceris quadricincta.
- The cuckoo bee (Coelioxys mandibularis)
- The mason bee (Osmia pilicornis.)

Ants, bees and wasps (Aculeates) in Kent are generally suffering from downward trends. This is particularly true of some of the more specialist species in this group. However, some more generalist species appear to be on the increase and the number of ants, bees and wasps recorded in the county is growing year on year, because of new species colonising from continental Europe or variable species being recognised as multiple cryptic species. There have been a total of six Aculeate species lost in the last century in Kent, some of which are also now nationally extinct. However, 17 Aculeate species have been added to the county list, with the majority of these being discovered in the last decade.

Habitat loss is the main driver of change for this fauna, whether this is through direct loss of sites to development or inappropriate habitat management. Other important factors affecting their populations include climate change and pesticide use. With a changing climate and more development pressure, it is likely that the general trend will continue to decrease.

Priority species	Associated habitats	Potential measures
Four-banded Weevil-wasp	Lowland dry acid grassland and Lowland heathland	GL4, with a focus maintaining bare soil through disturbance.
	Coastal sand dunes and Maritime cliff and slopes	Maintain open exposed sandy soils on sand dunes and bare, exposed soils on cliff and sloped.
Fringe-horned Mason Bee	Lowland mixed deciduous woodland	WTH1, with focus on maintenance of Sweet Chestnut coppice to create understorey.
Long-spined Ant	Coastal vegetated shingle Coastal sand dunes	CL7, with focus on maintenance of sparse cover of low-growing vegetation.
Maidstone Mining Bee	Lowland calcareous grassland	Retain open habitat mosaics, prevent scrubbing over and ensure long-term continuity of flower-rich habitats. Encourage species such as Hawks Bit, Cat's Ear, Hawkweed and other Asteraceae.
Moss Carder Bee	Lowland calcareous grassland	Encourage a diversity of flowers with a continuous long flowering season. Prevent encroachment shrub but allow longer areas of grass for nesting and hibernation in areas.
	Coastal & floodplain grazing marsh,	Rotation of grazing livestock to allow flowering (ideally remove between March-August). Manage shrub encroachment. Allow longer grass swards for nesting and hibernation sites. Encourage restoration of riparian habitat. Manage sea wall cutting on rotation, green hay legume rich where needed.
	Lowland meadows and Other neutral grassland	Encourage a diverse range of flower species and manage as a hay meadow. Graze from mid-autumn and winter; remove livestock from March/April onwards. Have areas of longer grass sward for nesting and hibernation. Encourage Tufted Vetch, Common Vetch, Red Clover, Birds Foot Trefoil, Knapweed, Teasel, Meadow Vetchling and other legumes.
	Arable field margins	Allow natural regeneration where possible and seed where necessary to increase floristic diversity, abundance and seasonal length.

Priority species	Associated habitats	Potential measures
		Encourage legumes such as Birds Foot Trefoil, Meadow Vetchling, Tufted Vetch, Red Clover, Knapweed. Cut and collect once a year, late season (September). Allow longer grass sward to develop in selected areas for nesting and hibernation; cut these swards once every three years.
	Open Mosaic Habitats on Previously Developed Land	Stop shrub encroachment and maintain as early successional habitat.
	Bramble scrub	Encourage spread where suitable (excellent flower for drought years as has a tap root).
	Aquatic marginal vegetation	Increase floristic diversity on ditch/pond edges such as Water Mint, Yellow Flag Iris and Purple Loosestrife. Allow longer grass and flower sward around sides and top of ditch for nesting and hibernation sites. Cut longer grass areas on rotation once every three years.
	Developed land sealed surface	Use of planters to grow English cottage garden flowers, native bulbs or herbs with a long growing season. Avoid bedding plants which produce no nectar or pollen and replace with perennials.
Oak Mining Bee	Mixed scrub	Maintain oak canopy and stands.
Sea Aster Bee	Coastal saltmarsh	CL1 and CL2, with focus on encouraging spread of Sea Aster.
Shrill Carder Bee	Arable field margins	Allow natural regeneration where possible and seed where necessary to increase floristic diversity, abundance and seasonal length. Encourage legumes such as Birds Foot Trefoil, Meadow Vetchling, Tufted Vetch, Red Cover and Knapweeds. Cut and collect once a year, late season. Allow longer grass sward to develop in areas for nesting and hibernation.
	Bramble scrub	Maintain for nesting and hibernation sites and forage. Manage around areas to encourage Black Horehound, White Dead Nettle, Red Dead Nettle and other hedgerow edge species.
	Developed land sealed surface	Planters with various long corolla herbs.

Priority species	Associated habitats	Potential measures
		Amenity areas with longer grass swards for nesting and hibernation. In community/private gardens and allotments encourage planting of herbs, Salvias and Foxgloves.
	Lowland calcareous grassland	Encouragement of Red Bartsia, Kidney Vetch, Greater Birds Foot Trefoil and other legumes. Management to maintain open flower-rich mosaics. Allow longer grass areas for nesting and hibernation; to be cut once every three years.
	Lowland meadows	Manage as a hay meadow. Graze livestock from late September to March. Ensure meadows flowers until end of September (as this species has a long and late life cycle). Encourage Greater and Common Birds Foot Trefoil and other legumes such as Vetches. Ensure a longer grass sward present for nesting and hibernation sites; cut on rotation once every three years.
	Open Mosaic Habitats on Previously Developed Land	Manage to retain open mosaic, prevent extensive scrubbing over and ensure long-term continuation of flower-rich habitats. Leave longer grass swards, cut on rotation of three years to create nesting and hibernation habitat.
	Other neutral grassland	Ensure meadows flowers until end of September (as this species has a long and late life cycle). Encourage Greater and Common Birds Foot Trefoil and other legumes such as Vetches.
	Aquatic marginal vegetation	Encourage flower species such as Yellow Flag Iris, Water Mint, Purple Loosestrife. Allow longer grass in some areas for nesting and hibernation. Ensure area left to flower until late September.
	Coastal and floodplain grazing marsh	Manage sea wall cutting on rotation, green hay where needed to increase floristic diversity, abundance and seasonal flowering length. Encourage growth and spread of legumes, Black Horehound and White Dead Nettle.

Priority species	Associated habitats	Potential measures
		Ensure forage available from April to end of September. Rotate livestock grazing to allow for flowering and seed set.
Shining Guest Ant	Lowland mixed deciduous woodland	Maintain nests of wood ant species as this ants' host. Leave debris such as hollow twigs and stems, wood fragments for nesting.

8.3.4 Beetle priority species

Almost 68% of Britain's beetles have been recorded in Kent – the known Kent fauna currently comprises 2,758 species in 99 families. Kent is home to many threatened and specialised species however recording of beetles is patchy. Beetles can be found in almost all habitats in Kent, semi-natural habitats hold the richest diversity of species. Kent's beetle fauna is dynamic with new species being found annually. Kent is home to many threatened and specialised species vulnerable to the effects of environmental change and degradation, though recording of beetles is patchy both in space and time, so trends are difficult to determine. Kent's beetle fauna is dynamic with new species being found annually.

Generalist species seem to be doing well in Kent, however there is no baseline data on their abundance. Specialist species are restricted by the availability of their habitat and are threatened by habitat loss, degradation and fragmentation, though some, at the northern edge of their climate envelope in Kent, may be able to broaden their niche as the climate warms and thrive.

Kent's position close to the continent makes it a gateway for new species to arrive either by natural dispersal, or by human assisted migration. The effects of non-native species are rarely studied unless they are potentially economically important pests.

Priority species	Associated habitats	Potential measures
Anthicus bimaculatus	Lowland dry acid grassland	Management to maintain open areas of bare sand amongst shingle acid grassland by grazing. Allow dead plant material to gather for larval development.
Black Night-runner	Lowland fens	FW9
Dune tiger beetle	Coastal sand dunes	Manage, and where feasible, reduce recreational access to the foredunes where this species is known. Allow sand dunes to develop and move inland in response to sea-

Priority species	Associated habitats	Potential measures
		level rise and extreme weather events.
East Coast Dune-walker	Coastal sand dunes	For beaches where this species is known, avoid over cleaning of decaying plant and animal matter (e.g. dung and carrion).
Haliplus variegatus	Lowland fens	FW9
Kentish Clown	Coastal & floodplain grazing marsh	In areas where this species is known, reduce endectocide treatments in livestock.
Longitarsus aeruginosus	Maritime cliff and slopes	Ensure that wet flushes are maintained on soft rock cliffs to provide habitat for Hemp-agrimony.
Noble Chafer	Traditional orchards	Orchard management to allow trees to mature and decline naturally, to provide rotten heartwood for larval phase of life cycle.
Omphalapion beuthini	Arable field margins	GL5, with a focus on increasing extent of species foodplant, Stinking Chamomile.
Ophonus puncticollis	Coastal & floodplain grazing marsh Maritime cliff and slopes	Reduce mowing or rotationally cut sea wall grasslands to allow Wild Carrot to reach maturity.
Phoenix Clown	Lowland mixed deciduous woodland	WTH1, with a focus on coppicing as a management approach in woodlands where this species is known (and connecting woodlands). Bonfire ash from coppicing left in situ to provide opportunities for Pyronema omphaloides fungus to colonise
Pride of Kent Rove Beetle	Coastal & floodplain grazing marsh	In areas where this species is known, put in place livestock management approaches to improve the quality of the dung, including reducing endectocide treatments in cattle, wintering cattle on grazing marsh and not feeding with silage, soya or maize.
Pseudeuparius sepicola	Lowland mixed deciduous woodland	Requires a continuous supply of fungi infected aerial branches. Maintain dead and damaged standing broad-leaved trees, especially oak, in ancient woodlands and pasture woodlands.
Red-horned Cardinal Click-beetle	Lowland beech and yew woodland	WTH1, with particular focus in woodlands where this species is known (and connecting woodlands) on retaining fallen Beech and Oak trees and branches, and preventing deadwood from becoming

Priority species	Associated habitats	Potential measures
		overgrown with bramble etc. Management[11] to retain trees with white-rot. Mature trees to be retained to ensure future veteran trees, and potential veteranisation of trees, to increase decaying wood resource.
Sandwich click beetle	Coastal sand dunes	Management to focus on providing a stable dune habitat, including maintaining Marram grass with a diverse age structure and prevention of smothering by scrub sea buckthorn.
Smicronyx coecus	Coastal vegetated shingle	CL7, with a focus on increasing the distribution of Common Dodder.
Southern Oyster Mushroom Beetle	Wood pasture and parkland	WTH1, with a focus in woodlands where this species is known (and connecting woodlands) on retaining fallen Beech and Oak trees to allow Oyster mushrooms to colonise; and preventing deadwood from becoming overgrown with bramble etc.
Spangled Button Beetle	Coastal vegetated shingle	Maintain a supply of damp water side bare sand around ponds on vegetated shingle.

8.3.5 Bird priority species

About 245 bird species have been recorded regularly in Kent during the past 100 years, 150 of them breeding. Kent's location in the south-east makes it well-placed to receive new colonists of Britain, and also to support birds at the limit of their European range. The long coastline and especially the estuaries are vital to huge numbers of wintering and passage birds, most notably waterfowl.

Kent is located on migration routes used by thousands of terrestrial and coastal birds that make annual journeys between their breeding grounds in the northern hemisphere and wintering areas in the south. Almost 430 species of bird have been recorded in Kent, including both residents and migrants, but this total includes some that are rare visitors, occurring only occasionally and in very small numbers.

[11] Red-horned-cardinal-click-beetle-species-account.FINAL_.pdf

Kent supports national strongholds of species, whose ranges are contracting towards the south-east, including the rapidly declining Turtle Dove and Nightingale. Being close to the continent, Kent is well placed to receive the first pairs of colonising species that are expanding their range, such as Cetti's Warbler in the 1970s and Black-winged Stilt in the last decade.

Kent's long coastline and the estuaries are vital for large populations of non-breeding waterfowl (taken here to include ducks, geese, swans, waders, herons, cormorants, divers, coots and rails, gulls and terns); the more important species depend on a range of habitats – intertidal mud, freshwater bodies and grassland – and include, for example, Brent Goose, Shoveler, Black-tailed Godwit and Dunlin

The most important habitats at a national and international scale are coastal ones (shallow offshore waters, estuaries, and grazing marsh), which support important populations of wintering and some breeding birds. Also noteworthy are the large areas of woodlands and the many artificial and natural wetlands; however, all land use types, including farmland and built development, have their distinctive features for birds.

Over the past century, bird species' fortunes seem to have been fairly evenly matched. Broadly speaking, the numbers of increases are similar or a little greater than the numbers of decreases, but this masks a good deal of complexity within the lists of species involved, and this comparison does need to be qualified for several reasons.

Firstly, measuring change simply by the number of species increasing or decreasing ignores changes in abundance. Evidence at national level is that, for the past 50 years, many species groups, most notably specialist farmland and woodland breeding birds, have been declining in abundance. Even those groups, such as wintering waterfowl, that had been increasing in abundance are now showing declines (BTO, 2021). Secondly, there is a strong possibility that the qualitative descriptions of species' abundance on which have been relied until around 1970, are insufficiently precise to infer actual changes and the imprecision of status descriptions may well have obscured many real changes. Thirdly, some species – perhaps many – have not simply increased or decreased over the century. At some times, populations have declined and at others they have recovered. Such ups and downs have occurred over the long-term or even within short periods. Such a pattern of changes makes judging the overall trend difficult.

These limitations should be considered while observing that, up to the 1970s, most species seemed to undergo little change and increases outweighed decreases. From this point on, with better evidence, an increased number of changes are apparent, but the balance is still towards more species showing a population increase. In the most recent period, since 2010, that situation has reversed, and decreases exceed increases. Taking abundance changes into account, as well as species richness, the current picture is one of substantial and worrying loss of bird biodiversity. There is strong evidence of declines for specialist farmland and woodland birds and, recently, declines have started to affect groups such as wintering waterfowl, that formerly were increasing.

Land use and habitat change has been the primary driver of changes in bird numbers, now exacerbated by climate change, though altering levels of disturbance and persecution, and introductions of non-native species, have played their part. For migrant birds, similar effects on migration routes or on breeding or wintering grounds also are influential.

Priority species	**Associated habitats**	**Potential measures**
Barn Owl	Arable field margins	GL5 and LM1
	Coastal & floodplain grazing marsh	GL2
	Lowland meadows	GL3
	Wood pasture and parkland	WTH1
Bearded Tit	Reedbeds	FW10
Bittern	Reedbeds	FW10
Brent Goose	Cereal crops, non-cereal crops and temporary grass and clover leys	LM1
	Coastal & floodplain grazing marsh	GL2
	Coastal saltmarsh	CL2
	Seagrass beds	CL3
	Other	Maintain the network of functionally linked sites that are needed to support feeding and roosting opportunities.
Common Tern	Other standing open water	Install new nest rafts at lakes and reservoirs; and maintain or replace existing ones.
Corn Bunting	Arable field margins	GL5 and LM1
	Cereal crops and non-cereal crops	LM1
	Coastal & floodplain grazing marsh	GL2
Grasshopper Warbler	Bramble scrub	SH2
Grey Wagtail	Rivers	FW1
House Martin	Built linear features	URB1 and URB2
Kingfisher	Eutrophic and other standing waters	FW8
	Rivers	FW1
Lapwing	Cereal crops, non-cereal crops and	LM1

Priority species	Associated habitats	Potential measures
	temporary grass and clover leys	
	Coastal & floodplain grazing marsh	GL2, noting that this is species principal breeding habitat.
Lesser Spotted Woodpecker	Lowland mixed deciduous woodland	WTH1
	Wet woodland	WTH6
Linnet	Arable field margins	GL5 & LM1
	Blackthorn, Bramble, Gorse, Hawthorn and Mixed Scrub	SH2
	Hedgerow	WTH8
	Lowland heathland	GL4
Little Tern	Beach	CL1 and CL8, noting that key breeding beaches to have enhanced measures to prevent or reduce disturbance and predation, with consideration of seasonal wardening April to July.
Marsh Harrier	Reedbeds	FW10
Marsh Tit	Lowland mixed deciduous woodland	WTH1
Nightingale	Blackthorn, Bramble, Hawthorn and Mixed Scrub	SH2
	Hedgerow	WTH8
Nightjar	Lowland heathland	GL4
	Other coniferous woodland	WTH1
Oystercatcher	Beach	CL1
	Coastal vegetated shingle	CL7
Pochard	Eutrophic standing waters	FW8
Redshank	Coastal & floodplain grazing marsh	GL2
	Coastal saltmarsh and Intertidal mudflats	CL2
Ringed Plover	Beach	CL1 and CL8, noting that key breeding beaches to have enhanced measures to prevent or reduce disturbance and predation, with consideration of seasonal wardening April to July.
	Coastal vegetated shingle	CL1, CL7 and CL8

Priority species	Associated habitats	Potential measures
Sand Martin	Maritime cliff and slopes	Install artificial nest banks.
Sandwich Tern	Beach	CL1, CL2 and CL8
Shoveler	Eutrophic standing waters	FW8
Swift	Built linear features	URB1 and URB2
Tree Sparrow	Arable field margins	LM1, with particular focus on ensuring presence of suitable breeding and foraging habitats. Establish supplementary feeding and nest boxes.
	Hedgerow	WTH8
Turtle Dove	Arable field margins	LM1, with particular focus on ensuring presence of suitable breeding and foraging habitats, with appropriate seed plants and water sources.
	Hawthorn and Mixed scrub	SH2
	Hedgerow	WTH8
Waders & Wildfowl	Coastal & floodplain grazing marsh	GL2, noting that this habitat is extensively used by several species of wildfowl and waders in winter, and also important as breeding habitat for Lapwing and Redshank, and by several ducks using the interlinking ditches and fleets.
	Intertidal mudflats	CL2
Wheatear	Coastal vegetated shingle	CL1, CL7 and CL8
Yellow Wagtail	Cereal crops, non-cereal crops and temporary grass and clover leys	LM1
	Coastal & floodplain grazing marsh	GL2
Yellowhammer	Arable field margins	GL5 and LM1
	Blackthorn, Bramble, Gorse, Hawthorn and Mixed Scrub	SH2
	Cereal crops and Non-cereal crops	LM1
	Hedgerow	WTH8
	Lowland heathland	GL4

8.3.6 Butterfly priority species

Kent has 42 of Britain's 59 resident species of butterfly. This total includes regular migrants from continental Europe, such as Painted Lady *Vanessa cardui* and Clouded Yellow *Colias croceus*, that breed here in most years. Not included in this total are rarer migrants, such as the continental form of Swallowtail *Papilio machaon*, Large Tortoiseshell *Nymphalis polychloros*, Scarce (yellow-legged) Tortoiseshell *Nymphalis xanthomelas*, Camberwell Beauty *Nymphalis antiopa* and Queen of Spain Fritillary *Issoria iathonia*. In addition, Long-tailed Blue *Lampides boeticus* has reached Kent on several occasions since 2013 and has produced another generation, though this has not survived the winter.

Two nationally-scarce butterflies breed in Kent: Heath Fritillary *Melitaea athalia* and Duke of Burgundy *Hamearis lucina*. One of our native species, the Grayling *Hipparchia semele*, is on the brink of extinction in the county, with a sighting in 2020 the first for seven years. Brown Hairstreak *Thecla betulae*, which hadn't been seen in Kent since 1971, was recorded again in 2016, and is slowly expanding its range in Kent.

The last decade has seen an improvement in fortunes for several species of butterfly in Kent. The nationally scarce species Heath Fritillary and Duke of Burgundy have increased in number and extended their range slightly. The spread of Silver-spotted Skipper has slowed, but several other species, including Adonis Blue, have expanded their range. Brown Hairstreak has colonised Kent from Surrey, but Grayling is on the brink of extinction in the county.

Although these results paint a favourable picture for butterfly populations, it is unrealistic to some extent, as many colonies of our commoner butterflies have been lost to development for housing, industrial use, new roads, etc. and this seems to be happening at an increasing pace.

The short grassland of the North Downs is a key habitat in Kent, especially for species such as Adonis and Chalk Hill Blues; however, amounts of suitable habitat continue to decrease due to growth of scrub or housing, industrial or agricultural development. The reduction in coppicing has made most woods unsuitable for many butterflies.

Priority species	**Associated habitats**	**Potential measures**
Adonis Blue	Lowland calcareous grassland	Maintain, improve and extend grassland with Horseshoe vetch, implementing management regime of short sward March/April and

Priority species	Associated habitats	Potential measures
		September/October and no grazing May to August.
Brown Hairstreak	Blackthorn Scrub and Hedgerow	Sunny and sheltered Blackthorn Scrub and Hedgerows maintained on rotation of cutting in a 3-4 year cycle to maintain age structure. Management to support egg laying on 1-2 year old growth and avoid impacting the whole population in one year's management. WTH8
Chalk Hill Blue	Lowland calcareous grassland	Maintain, improve and extend grassland with Horseshoe vetch, with a mixed sward dynamic and winter grazing to maintain habitat.
Dark Green Fritillary	Lowland calcareous grassland and Lowland meadows	Maintain, enhance and extend a violet rich grassland sward with small patches of scrub.
Dingy Skipper	Lowland calcareous grassland and Lowland meadows	Maintain and enhance a sparse sward containing long stems of Birds foot trefoil and/or Horseshoe vetch. In a varied height sward, maintain patches of bare ground abundant in nectar plants and ensure grazing is not too heavy. Cut and collect ungrazed grassland September onwards, on rotation. Retain some habitat overwinter annually.
	Lowland mixed deciduous woodland	Maintenance of woodland rides with cut and collect September onwards on rotation. Retain some habitat overwinter annually.
Duke of Burgundy	Lowland calcareous grassland	Conserve and enhance herb-rich grassland, with abundant cowslips/primroses growing in a tall, open sward with scattered low scrub to provide shelter, perching & roosting sites. Produce mosaic of young, scattered scrub over relic grassland and in bays of scrub edges. Light cattle grazing from late summer to winter. North or west-facing slopes favoured.
	Lowland mixed deciduous woodland and Other mixed woodland	Conserve and enhance herb-rich glades and rides, with abundant cowslips/primroses growing in a tall, open sward with scattered low scrub to provide shelter, perching & roosting sites. Create and maintain connectivity throughout and between sites with woodland rides.

Priority species	Associated habitats	Potential measures
		Manage rides and glades by cutting on long rotations.
Grizzled Skipper	Lowland calcareous grassland and Lowland meadows	Maintain and enhance a sparse sward containing high density of Agrimony, Creeping Cinquefoil and wild strawberry. In a varied height sward, maintain patches of bare ground abundant in nectar plants and ensure grazing is not too heavy. Cut and collect ungrazed grassland September onwards, on rotation. Retain some habitat overwinter annually.
	Lowland mixed deciduous woodland	Cut and collect rides or ungrazed grassland September onwards on rotation, retain some habitat overwinter annually.
Heath Fritillary	Lowland mixed deciduous woodland and Other mixed woodland	Develop and deliver management at scale – managed areas only suitable for 2 to 4 years. Traditional woodland management including coppicing (or clearfells) to provide wide, rotationally managed rides and glades abundant in Common Cow wheat. Arising, lop and top must be removed from woodland floor.
Silver-spotted Skipper	Lowland calcareous grassland	Maintain & improve a sparse short sward containing Sheep fescue, with nectar flowers nearby and small patches of bare ground to enhance and extend habitats to build population.
Small Blue	Lowland calcareous grassland	Chalk grassland managed to create disturbed ground to stimulate growth of Small Blue's sole foodplant Kidney vetch, with some longer sward for roosting. Protect Kidney vetch from grazing by livestock and or rabbits, and graze or cut at appropriate times of year after Kidney vetch has seeded. Where appropriate, create soil scrapes and seed with Kidney vetch or seed into sparse sward.
Wall	Coastal sand dunes and Maritime cliff and slopes Lowland calcareous grassland and	Management of habitat to provide short, open grassland, where turf is broken or stony. Maintain variety of sward heights with diverse grass species including

Priority species	Associated habitats	Potential measures
	Lowland meadows Open Mosaic Habitats on Previously Developed Land	Tor-grass, False brome, Cock's-foot (Dactylis glomerata), Bent grass, Wavy hair grass and Yorkshire-fog.
White Admiral	Lowland mixed deciduous woodland and Other mixed woodland	Maintain and improve rides and glades supporting spindly, trailing honeysuckle with nearby sources of nectar such as brambles. Ensure honeysuckle is not lost as a result of management operations.
White-letter Hairstreak	Lowland mixed deciduous woodland and Other mixed woodland	Retain mature Elm in sunny and sheltered locations in a range of habitats/ locations and encourage their flowering, suckering regrowth. Plant disease resistant Elm trees in sunny sheltered spots but do not coppice them.
	Hedgerow and Mixed scrub	Encourage flowering scrub such as bramble within hedgerow margins to provide nectar sources.

8.3.7 Caddisfly priority species

Priority species	Associated habitats	Potential measures
Tinodes pallidulus	Lowland mixed deciduous woodland	FW4 and FW5, with focus on tree planting towards any headwaters supporting the species to provide partially or fully shaded water, with large cobbles to construct it's larval galleries.
	Other rivers and streams	

8.3.8 Crustacean priority species

Priority species	Associated habitats	Potential measures
White-clawed Crayfish	Rivers	Avoid removing downstream in-river structures where these are protecting White-clawed Crayfish from invasive Signal Crayfish and other non-native crayfish species.

8.3.9 Dragonfly and Damselfly priority species

When it comes to dragonflies, Kent is one of the most species-rich counties in the UK; the county currently hosts 36 species of Odonata that are classified as resident or regular migrants. Of these, one, the Norfolk Hawker *Aeshna isoceles*, is listed as legally protected under the Wildlife and Countryside Act (1981) and five are listed in the Red Data List for Great Britain (2008).

The abundance and diversity of wetlands in Kent is a significant factor influencing the abundance and diversity of dragonflies. Kent's large swathes of grazing marshes form a rich mosaic of pools and ditches that support some of the country's rarest species, including the UK's only Dainty Damselfly populations

In the case of many dragonfly species, maintaining an accurate profile of their status and trend history poses a significant challenge. Over the past 100 years, Kent has gained eight new species through natural colonisation. There is no evidence to suggest that any of these new arrivals have had a negative impact on the wetland communities of the sites they have colonised; consequently, none are classed as 'invasive'.

Climate change is causing rapid changes in species distribution and the county is likely to become home to more new colonists soon. Climate change also threatens several of Kent's resident species, those that occupy low lying flood plains and coastal marshes, which are at risk from sea level rise, as well as peat bogs and shallow streams/ pools, which are at risk from desiccation because of rising summer temperatures and increasing droughts. The future of these species-rich habitats is uncertain, as sea level rise is predicted to threaten many of these coastal and flood plain wetlands. In addition, changes in rainfall patterns, another result of climate change, are threatening some of Kent's rarest wetland habitats, in particular lowland bogs, and their associated peatland specialist dragonflies.

Changes in land use and land use practices, such as urban development and the intensification of agricultural practices, historically have been, and continue to be, a key driver of species trends through the destruction, fragmentation, and degradation of habitat.

Priority species	**Associated habitats**	**Potential measures**
Brilliant Emerald Dragonfly	Other coniferous woodland and Other standing open water	Aquatic vegetation managed so that it does not become too abundant and reduce sunlight exposure. Wet areas left open. Areas with poor growth of conifers cleared to create rides and clearings to provide foraging habitat.

8.3.10 Fish priority species

Priority species	Associated habitats	Potential measures
Common Eel	Rivers	FW1, FW7 and FW12
Short-snouted seahorse	Seagrass beds	CL3
Spiny seahorse	Seagrass beds	CL3

8.3.11 Fungi priority species

Kent has a rich assemblage of fungi with 859 species known in the database held by Kent & Medway Biological Record Centre (KMBRC). Four Kentish species are protected by the Wildlife and Countryside Act 1981, and a further eight Boletes are on the UK Red Data List. In addition, there are 43 species on the Red Data List for Kent. Many common species are widespread across the county, with the rare or endangered species restricted to the county's unimproved chalk grasslands, meadows, ancient woodlands, traditional orchards, parkland with veteran trees, churchyards, and sand dunes.

The vast number of species, relative paucity of recording effort for fungi, and lack of structured, methodological survey schemes mean that assessing trends in the abundance of fungi is highly challenging and therefore not possible to summarise anything meaningful for the LNRS. There have been some newly recorded and interesting species of fungi discovered in Kent in the past ten years.

Priority species	Associated habitats	Potential measures
Marram Oyster fungus	Coastal sand dunes	Management to focus on providing a stable dune habitat, including maintaining Marram grass with a diverse age structure and prevention of smothering by scrub sea buckthorn.
Orchard Tooth	Traditional orchards	Retain diseased trees and damaged branches.
Pink Waxcap	Lowland calcareous grassland and Lowland meadows	Keep the sward short from July to autumn through regular mowing and remove all cut grass. Manage the site to ensure nutrients do not build up and damage the grassland fungi interest and avoid the use of pesticides, fungicides, or proprietary lawn treatments. Do not reseed or carry out other actions which significantly damage

Priority species	Associated habitats	Potential measures
		the soil structure or affect drainage. Manage access to avoid compaction, especially in late summer/autumn, to avoid damage to young fungi and fruiting.
Purple Webcap	Lowland mixed deciduous woodland	Where ancient woodlands neighbour agricultural land, establish buffers to protect from run-off and spray drift. In areas of high fungal diversity, reduce, manage and mitigate access to reduce damage to hyphal networks connecting fungi to their host trees by trampling.
Sweet Webcap	Lowland mixed deciduous woodland	Where ancient woodlands neighbour agricultural land, establish buffers to protect from run-off and spray drift. In areas of high fungal diversity, reduce, manage and mitigate access to reduce damage to hyphal networks connecting fungi to their host trees by trampling.

8.3.12 Grasshoppers, crickets and allies priority species

An overview and detailed information about the state of grasshoppers, crickets and allied insects is difficult to provide for Kent, given the lack of a county recorder and paucity of recording effort. As a group, however, these species have been actively recorded at Dungeness since 1999, providing an opportunity to detail the fauna at this important location for invertebrates in the county. Since 1999, nine species have been added to the records – six of these can probably be attributed to the effects of climate change as the main driver of the range expansion.

Priority species	Associated habitats	Potential measures
Rufous Grasshopper	Lowland calcareous grassland	Target high-quality downland sites for chalk grassland restoration and management to restore or recreate high-quality, species-rich with taller grassland and patches of open scrub. Focus other chalk grassland recreation and restoration projects on the margins of the species' known range and particularly where there are significant gaps.
Wart-biter Cricket	Lowland calcareous grassland	Manage the Lydden-Temple Ewell chalk downland to support the

		population of Wartbiter Bush-cricket on the site through provision of a complex mosaic of bare ground, short sward and taller grass tussocks.

8.3.13 Lichen priority species

Priority species	Associated habitats	Potential measures
Enterographa elaborata	Wood pasture and parkland	Reduce grazing pressure and ammonia deposition around veteran trees in wood pasture and parkland, and in field settings. Plant disease resistant Elms as part of wood pasture and parkland restoration, and in or near churchyards.
Cladonia mitis	Coastal vegetated shingle	CL7 – with particular focus on trampling and vehicle management in areas where this lichen is present.

8.3.14 Mammal priority species

Twenty-nine terrestrial mammal species are found in Kent. Eight mammal species in Kent are of major conservation concern; these are the IUCN Red Listed: Water Vole, Hedgehog, Hazel Dormouse, Harvest Mouse, Otter, Polecat and Eurasian Beaver, which is a critically endangered mammal.

Terrestrial mammals occupy all identified Kent priority key habitats and occupy a range of niches. The Hazel Dormouse stronghold is predominantly the woodlands of Kent and other southern counties. The Beaver, Otter and Water Vole all require sympathetic riparian habitats. Hedgerows are an important priority habitat for many species including Hazel Dormouse, Harvest Mouse, and Hedgehog.

The Red Squirrel was lost from Kent in the 1950s, along with the Otter. The Otter has returned in small numbers, whilst the Grey Squirrel (introduced more than 100 years ago) has supplanted the Red Squirrel. The Polecat and Wild Boar have also returned to Kent in recent years. Official and unofficial reintroductions of Eurasian Beaver have seen the return of this species to east Kent. Trends over time indicate that Hedgehog, Water Vole, Hazel Dormouse and Brown Hare populations are all declining. The most recent State of Britain's Hedgehogs report estimated Hedgehogs in rural areas have declined by a half, and in urban areas by a third since 2000; there is no

reason to suggest that the national decline is any different in Kent. The Water Vole has suffered a catastrophic reduction in population, as a result of loss/degradation of habitat and predation by the non-native American Mink, which escaped from fur farms in the late 1950s.

Kent has a rich fauna of bats with 17 of the UK's breeding species recorded in the last 10 years. It is significant that both species were recorded in an area of restored grassland habitat.

The importance of Kent coastal waterbodies to migrating Nathusius' Pipistrelles has become apparent by trapping. Two of this species trapped in East Kent had been ringed in Lithuania. The loss and 'improvement' of grazed grasslands are of particular concern. Native woodland is over managed with excessive coppicing in much of Kent, to the detriment of the less common woodland bats.

Populations of most species have much reduced in recent decades. Three species of bat new to Kent have been recorded in the last 10-year period. Lesser Horseshoe and Greater Horseshoe – it is significant that both species were recorded in an area of restored grassland habitat. There have been several records of Kuhl's Pipistrelle, as elsewhere in the UK – there is a suggestion its presence may be linked to climate change. The status of three species is currently unknown.

Priority species	**Associated habitats**	**Potential measures**
Beaver	Lowland fens, Aquatic marginal vegetation and Other swamps	FW9
	Reedbeds	FW10
	Wet woodland	WTH6
Bechstein's Bat	Lowland mixed deciduous woodland, Other mixed woodland and Wet woodland	WTH1 and WTH2 with particular focus on increasing the extent of large, continuous areas of oak canopy managed to provide optimal foraging conditions and roosting opportunities within mature trees.
Brown Hare	Cereal crops, Non-cereal crops and Temporary grass and clover leys	LM1
	Coastal & floodplain grazing marsh, Lowland meadows, Other neutral grassland and Arable field margins	GL2, GL3 and GL5
	Open Mosaic Habitats on Previously Developed Land	SH1
	Traditional orchards	WTH9

Priority species	Associated habitats	Potential measures
	Coastal vegetated shingle	CL7
Brown Long-eared Bat	Lowland mixed deciduous woodland and Other mixed woodland	FW11 with a particular focus on the creation and enhancement of wetlands within, or in immediate vicinity of, roost woodlands to ensure availability of feeding and drinking resources.
	Suburban/mosaic of developed/ natural surface	Avoid retrospective green roofs, which could potentially cool maternity roots.
European Water Vole	Lowland fens, Aquatic marginal vegetation and Other swamps	FW9
	Coastal & floodplain grazing marsh	GL2
	Eutrophic standing waters, Mesotrophic lakes and Other standing open water	FW8
	Rivers and Other rivers and streams	FW1
	Reedbeds	FW10
Hazel Dormouse	Blackthorn, Bramble, Gorse and Hawthorn Scrub	SH2
	Hedgerow	WTH8
	Lowland beech and yew woodland, Lowland mixed deciduous woodland and Other mixed woodland	WTH1
	Open Mosaic Habitats on Previously Developed Land	SH2
	Suburban/mosaic of developed/ natural surface	URB1 and URB2
Leisler's Bat	Suburban/mosaic of developed/ natural surface	For known roosts, targeted safeguarding of associated flight corridors.
Noctule Bat	Lowland mixed deciduous woodland and Other mixed woodland	Retain existing and potential roosts within decaying trees. Provision of species diverse grazing pasture to provide high quality foraging including chafer and dung beetles, in close association with woodland roosting habitat.

Priority species	Associated habitats	Potential measures
Serotine Bat	Lowland meadows and Suburban/ mosaic of developed/ natural surface	Provision of species diverse grazing pasture to provide high quality foraging including chafer and dung beetles, in close association with known roost areas.
West European Hedgehog	Arable field margins and Temporary grass and clover leys	GL5 and LM1
	Artificial unvegetated, unsealed surface and Built linear features	URB1 and URB2
	Bramble scrub and Mixed scrub	SH2
	Coastal & floodplain grazing marsh	Employ predator management techniques for ground nesting birds that does not include culling (e.g. small predator fencing and/or translocation to suitable habitats with disease screening) in areas of known hedgehog populations.
	Hedgerow	WTH8
	Lowland meadows and Other neutral grassland	GL3
	Open Mosaic Habitats on Previously Developed Land	SH1
	Suburban/mosaic of developed/ natural surface	URB1 and URB2
	Traditional orchards	WTH9

8.3.15 Millipede priority species

Priority species	Associated habitats	Potential measures
Boring Millipede	Lowland mixed deciduous woodland	Within the wider area of occupation of the Boring Millipede, maintain the extent of chestnut and/or mixed coppice woodland on the chalk, with an emphasis on coppice rotations over 15 years.
Kentish Snake Millipede	Lowland fens and Wet woodland	Maintain high water table known sites for this species.

8.3.16 Mollusc priority species

Priority species	Associated habitats	Potential measures
Shining Ram's-horn Snail	Other standing open water	Within the current and historic range of Shining Ram's-horn, maintain/create/recreate networks of unshaded freshwater ditches supporting dense, submerged vegetation. Ditches should only be cleared when necessary, when sediment or dead vegetation seriously impedes water flow and/or when water no longer provides a barrier to livestock. Low intensity management of grazing marsh – maintenance of moderate stock levels, low or no inputs of fertilisers and only occasional, partial and carefully planned ditch clearance.[12]

8.3.17 Moth priority species

All key habitats in Kent hold at least one population of nationally important macro or micro moth species. Approximately 750 species of macro moth have been recorded in Kent, which includes some very scarce migrants and some now believed to be extinct, representing about 80% of the UK macro moth species. New species continue to be recorded every year in Kent. Kent has important populations of a number of rare moth species, including Straw Belle and Black-veined Moth on the Kent Downs, the principally coastal species Bright Wave and Fiery Clearwing, and Fisher's Estuarine Moth around the Thames Estuary.

Kent is currently home to somewhere between 1,300 and 1,400 species of micro moth, the list being in constant flux. The positive news is that many species have been added to this list in the last few years, some of which also represent the first record for the UK.

Trends in Kent for all moths show a mixed picture over the last 10 years, but it appears that more species show an increase than a decrease. There are an increasing number of species establishing breeding populations in Kent. It appears that climate change is now the main driver of change for populations of Kent moths. Other factors include land use (including the use of chemicals and eutrophication) and artificial light at night.

[12] https://cdn.buglife.org.uk/2019/08/Shining-Rams-horn-snail-species-management-sheet.pdf

Priority species	Associated habitats	Potential measures
Aspen Knot-horn	Lowland mixed deciduous woodland	Retain, plant and encourage suckering of Aspen.
Barred Tooth-striped	Lowland calcareous grassland	Retain, maintain and encourage Wild Privet scrub within chalk grassland; manage scrub rotationally when required but do not eradicate.
Black-veined Moth	Lowland calcareous grassland	Maintain long, tussocky but herb rich sward. Graze at low density to maintain tussocky sward dynamics; keep scrub under control. Only graze over winter months and not between April and September.
Daisy Case-bearer	Lowland mixed deciduous woodland	Retain, expand and connect glades and rides interspersed with a mosaic of scrub abundant with Goldenrod. Manage by cutting late October onwards on a rotational basis; do not graze.
Drab Looper	Lowland mixed deciduous woodland	Retain and encourage expansion of Wood Spurge within woodland rides and glades. Manage glades and rides on a rotational basis, ensuring some bare ground is created. Woodland management to include coppicing, scalloping of ride edges and widening of box junctions.
Fisher's Estuarine Moth	Coastal & floodplain grazing marsh	Retain and encourage new growth of Hog's Fennel within long grassland, to support egg laying and larvae. Keep free from scrub.
Forester	Coastal sand dunes, Lowland calcareous grassland, Lowland heathland and Lowland mixed deciduous woodland (although currently only known on sand dunes in Kent)	Requires sward abundant with Common Sorrel. Management of scrub to reduce encroachment and ensure open habitat' but does not respond well to intensive grazing. If grazing is required, graze at low density October to March only. Abandonment of open habitat can be considered a threat.
Lappet	Hedgerow	Manage sensitively on long rotation to maintain foodplants, especially Blackthorn, Hawthorn and Crab Apple.
Liquorice Piercer	Lowland calcareous grassland, Lowland mixed deciduous woodland	Retain, plant and encourage spread of Wild Liquorice that is allowed to bare seed.

Priority species	Associated habitats	Potential measures
	and Scrub	
Marsh Mallow Moth	Aquatic marginal vegetation, Lowland fens and Coastal & floodplain grazing marsh	Retain and plant Marsh Mallow creating connectivity between populations. Graze in winter only, with no grazing between March and September. Only undertake ditch management in winter months and on a rotational basis; or retain cuttings nearby until spring.
Milkwort Beauty	Lowland calcareous grassland	Maintain sward scrub mosaic with Common Milkwort.
Scabious Leaf-miner	Lowland calcareous grassland	Careful grazing at low density during the winter so as not to damage basal leaves of Small Scabious.
Scarce Goldenrod Plume	Lowland mixed deciduous woodland	Retain, expand and connect glades and rides interspersed with a mosaic of scrub abundant with Goldenrod. Manage by cutting mid-November onwards on a rotational basis; do not graze.
Straw Belle	Lowland calcareous grassland	Maintain long tussocky grassland adjacent to herb rich sward by autumn and winter cattle grazing at low density to maintain sward dynamics. Control scrub encroachment.
Sussex Emerald	Coastal vegetated shingle	Encourage abundant Wild Carrot, managing scrub where necessary.
	Lowland calcareous grassland	Encourage sward abundant in Wild Carrot. No grazing or cutting between March and August.
White-spotted Sable	Lowland mixed deciduous woodland	Retain, expand and connect glades and rides interspersed with a mosaic of scrub abundant with Goldenrod. Manage by cutting late October onwards on a rotational basis; do not graze.

8.3.18 Reptile priority species

Kent's native reptile fauna includes two snakes, the Grass Snake and Adder, and two lizards, the Viviparous (or Common) Lizard, and the Slow Worm. Sand lizards were reintroduced to a dune system in East Kent in 2004-06, following extinction in the late 1960s – the species

was last observed in 2018 and may still persist. Non-native species include the Wall Lizard, which has breeding populations at several locations in Kent. Terrapins have also been found in various water bodies, but without evidence of reproduction.

Kent's reptiles use a range of habitats, of which chalk grassland and its associated low scrub is particularly important. While areas of chalk grassland are often wildlife reserves, reptile populations may still be threatened by unsympathetic management. Brownfield sites are important, but sometimes overlooked as reptile habitats. Habitat loss and fragmentation are currently the most significant drivers of change; however, the first evidence of the negative impacts of climate change – especially for Adders and possibly also Slow Worms – is beginning to emerge.

Expert opinion suggests that all four native species are in decline, although all have partial protection under the Wildlife and Countryside Act. Of most concern is the Adder, which is thought to be in more urgent need of new conservation efforts than any other British reptile. Habitat loss and fragmentation are currently the most significant drivers of change; however, the first evidence of the negative impacts of climate change – especially for Adders and possibly also Slow Worms – is beginning to emerge.

Priority species	Associated habitats	Potential measures
Adder	Arable field margins	Establish and maintain wider field margins (ideally at least 5 meters), with a mix of dense vegetation, grass and bare ground to support basking and foraging. Plant native hedgerows along field edges and allow for scrub development, which can enhance connectivity for adders and provide additional cover and foraging habitat. Clover leys are particularly good for voles that benefit adder in adjacent arable margins.
	Bracken	Maintain a mix of dense bracken for cover and open patches within bracken-dominated areas. Avoid using chemicals to manage bracken in Adder habitats, as these can harm both adders and the invertebrates they feed on.
	Lowland calcareous grassland, Lowland dry acid grassland and Other neutral grassland	Maintain structural complexity in grassland swards. This can be in conflict with other conservation objectives so need to assess site as a whole for habitat and species priorities. Manage grassland to promote good lizard and small mammal populations that are critical for breeding success.

Priority species	Associated habitats	Potential measures
		Protect adder hibernation sites in grassland areas from disturbance and enhance them by ensuring suitable insulation and cover.
	Lowland heathland	Maintain a variety of vegetation heights and densities, creating areas of bare ground and low vegetation for basking and denser scrub for cover. Employ wildfire risk management that does not disturb adders' habitats, such as rotational cutting outside their active season. Create and manage edges between heathland and adjacent woodland or scrub areas, for shelter and foraging. If creating new heathland for benefit of adders, situate adjacent to areas already occupied by adder.
	Lowland mixed deciduous woodland, Other mixed woodland and Wood pasture and parkland	Maintain rides, glades, and woodland edges to provide essential basking spots within woodlands. Maintain a variety of vegetation heights and densities along woodland edges and within open areas, for basking sites and protective cover. Increase structural complexity of grassland sward in wood pasture and parkland.
	Mixed scrub	Maintenance of scrub/grassland mosaic to provide open patches and ensure scrub is not too dense. Create grassland buffers or scrub edges along the boundaries of wood pasture areas to facilitate movement and provide additional cover for adders. Manage grazing at low levels to prevent overgrazing, maintaining a diverse sward structure while preventing the area from becoming too dense with scrub. Minimize mowing in adder-active seasons (spring to autumn) and use lighter machinery, to reduce soil compaction and disturbance of hibernation sites.
	Other	Where adder habitat adjoins will seawalls, consideration needs to be given to the species within sea wall management, maintenance and

Priority species	Associated habitats	Potential measures
		other works.

8.3.20 Spider priority species

Kent has a rich spider fauna with 473 species representing almost 71% of the 670 recorded from the British Isles. In total, 22 spider species that occur in Kent are listed as threatened with extinction in Britain, with a further 11 listed as Near Threatened (NT). Among these 33 species there are six for which all UK records are from Kent while a seventh, *Clubiona pseudoneglecta*, is only known from the Scilly Isles and Kent.

Hot spots for these species are to be found in Kent's chalk grasslands, ancient woodlands, and coastal habitats. The county's warm climate, together with the mix and variety of habitats, are the likely major drivers of species richness, but proximity to continental Europe is also important. Kent is in the front line for spider species colonising both naturally by aerial dispersal – so-called "ballooning" – and as hitchhikers in freight and luggage.

Of 12 species newly recorded in Kent in the last decade most are non-native and relatively new to Britain; half of these are likely to have colonised via the Thames corridor. Historically, the destruction of most of the county's extensive tracts of heathland and lowland meadows through agricultural intensification and urbanisation is likely to have caused the loss of many specialist spider species dependent on these habitats. The semi natural habitats for which the county is best known – ancient woodland, chalk downland and coastal sand dunes, shingle, and mud flats – are now hot spots for species richness and species of conservation concern. Among many drivers of population change, pressures on coastal habitats from development, tourism and the impacts of climate change are likely to cause most losses from the county's spider fauna in the next decade and should be a focus for conservation action.

Although numbers of non-native species are increasing, with evidence that the Thames Gateway is an important route of entry, no evidence is available on their impacts on native species. Our ability to detect trends in spider populations is restricted by a lack of systematic recording but increasing interest in this challenging and important group will facilitate the implementation of new recording methodologies that are urgently needed to inform more effective spider conservation.

Priority species	Associated habitats	Potential measures
Distinguished Jumper	Open Mosaic Habitats on Previously Developed Land	Maintain open areas dry, skeletal soils within the brownfield habitat that support the species by clearing scrub.
Sand Running Spider	Coastal sand dunes	Maintain a full range of successional stages of sand stabilisation

		across the dune system, from mobile sparsely vegetated foredunes, young dunes with dense Marram Grass clumps, to more established dunes with varied vegetation, stable sandy grassland or heath, open sandy areas and dune slacks.
Duffey's Bell-head Spider	Coastal saltmarsh	CL1 and CL2, with particular focus on, where appropriate[13], allowing the re-alignment of sea-defences for expansion of coastal habitats or by creating a managed breach in the sea wall, where the land can get intentionally flooded, creating more saltmarsh habitats.
Yellow-striped Bear-spider	Coastal saltmarsh	CL1 and CL2

8.3.21 True Bug priority species

Priority species	**Associated habitats**	**Potential measures**
Greater Streaked Shieldbug	Coastal sand dunes	Maintain moderate levels of disturbance on dune systems, in order to provide short, open dune vegetation with abundant Common Stork's-bill which can support Greater Streaked Shieldbug. Prevent any net loss of vegetated dune habitat, including preventing excessive disturbance leading to long-term loss of herbaceous vegetation (recognising, however, that the continued presence of bare dune sand is important for other species), and counteract any long-term shift towards fixed dune grassland, scrub or other vegetation.
Prostemma guttula	Coastal sand dunes	In locations where *Prostemma guttula* has been recorded, particularly the coastal dune system between Deal and Pegwell Bay but also other sites including restored chalk downland near Barham, maintain the extent of dry, open, early successional vegetation. Maintain floristically diverse sand dune vegetation by grazing to yield abundant ground bugs (Lygaeidae) for prey.

[13] To ensure that both natural and built environment is not at risk of inundation, damage or loss as a result of the action.

8.3.22 Vascular Plant priority species

As a reflection of its enormously varied topography and geology, more than 2,500 species, subspecies and hybrids of vascular plants have been recorded growing wild in Kent. Of these around 950 are native and the remainder are introductions by man, either deliberate or accidental. In Kent we have responsibility for 194 plants with Red List status, six of which are Critically Endangered, 33 are Endangered and 77 are Vulnerable. The remainder are listed as Near Threatened. The county's Rare Plants Register currently lists 333 species - all threatened and near threatened plants are included along with nationally rare or nationally scarce plants such as Wild Cabbage *Brassica oleracea var. oleracea* and Coralroot *Cardamine bulbifera*, both of which have significant Kent populations.

The Kent flora is better documented now than ever before and recording our flora is a way of identify those plants most in need of assistance. In the last 10 years, four native species have been added and 14, previously thought to have been lost, have been re-found. Some coastal plants have continued to increase their range but there have been declines elsewhere. Species including threatened orchids, thought 10 years ago to have been suffering serious declines, have been found to be faring much better than was feared.

A few non-native species from warmer climates have reached Kent and colonised motorways and other roads. Plants of nutrient-poor soils, grasslands, wetland habitats and waterbodies have suffered the largest population decreases.

The last 10 years have seen great advances in habitat improvement for wild plants on Kent's nature reserves and elsewhere in the county. Kent Wildlife Trust have established pioneering evidence-based information to inform management decisions and provide better outcomes for plants on its reserves and in the wider countryside. Many farmers and landowners have successfully taken part in voluntary schemes targeted at encouraging uncommon arable weeds and grassland plant communities, whilst landscape scale partnerships such as the Upper Beult Farming Cluster, involving farmers, landowners and water authorities, can be expected to benefit aquatic and meadowland plants in the Low Weald by improving water quality and habitats.

However, wildflowers continue to decline and particularly those which grow on nutrient-poor grasslands and those associated with water bodies and wet habitats. Insufficient grazing, scrub invasion and nutrient enrichment together alter soil composition and reduce the number of wildflowers that can survive in grasslands. Nitrogen-hungry broad-leaved grasses and herbs out-compete delicate grassland plants for space so that no bare ground remains for annual species to germinate. For plants of ponds, rivers and ditches, water extraction and lack of management causes water bodies to dry up, whilst poor water quality affects the survival of species that grow submerged in the water. Without help some of our grassland and wetland species are at risk of disappearing and more needs to be done to persuade land managers to implement appropriate measures for their long-term conservation.

Priority species	Associated habitats	Potential measures
Green-winged Orchid	Lowland meadows	Manage meadows by hay-cutting and grazing and do not use herbicides.
Bedstraw Broomrape	Coastal sand dunes	Manage and limit visitor access and use of dune sites where Bedstraw Broomrape is present.
Borrer's Saltmarsh-grass	Coastal saltmarsh	Introduce grazing on coastal saltmarsh.
Bur Medick	Coastal sand dunes	Management to provide short mown or bitten sward on light sandy nutrient poor soil. Target golf courses on this habitat, to maintain areas of close-mown grassland with no spraying.
Dwarf Milkwort	Lowland calcareous grassland	On sites where species is currently present, and areas where it was previously known, manage to provide open conditions in short turf.
Frogbit	Other rivers and streams	Retain and/or introduce grazing of linked marshland.
Greater Water-parsnip	Coastal & floodplain grazing marsh	Minimise intrusive annual ditch management, limiting cutting to control of reed.
Ground-pine	Arable field margins	Land management to withdraw use of herbicides/pesticides on crop margins on thin chalk soils where species is known to have occurred previously.
	Lowland calcareous grassland	Land managed to provide bare, dry open ground on south facing chalk slopes where species known to have previously occurred.
Heath Dog-violet	Lowland acid grassland	Maintenance of thin or short-grazed grassland on acid soils, leached areas over chalk and sand dunes. Minimise competition from coarse vegetation, scrub invasion and atmospheric nitrogen deposition.
Lady Orchid	Lowland mixed deciduous woodland	Creation of, and continued annual management of, open glades, with path and ride widening in Hazel coppice on chalk, where this species occurs.
Least Lettuce	Coastal & floodplain grazing marsh	Manage grazing of sites to realise benefits of cattle trampling to provide open ground for seed germination.
Lizard Orchid	Open Mosaic Habitats on Previously Developed Land	Colonies outside of protected sites, on nutrient-poor open mosaic habitat to be safeguarded from damage and loss.

Priority species	Associated habitats	Potential measures
		Colonies on roadsides to be safeguarded from damage and loss by the introduction of sensitive cutting regimes which, ideally, are supported through the establishment of these sites as Roadside Nature Reserves.
Musk Orchid	Lowland calcareous grassland	GL1, with management specifically targeted for this species focussing on sites where it was previously known.
Opposite-leaved Pondweed	Other rivers and streams	FW6
Ox-tongue Broomrape	Maritime cliff and slopes	Site management to control coarse vegetation which over competes with it.
Slender Hare's-ear	Coastal & floodplain grazing marsh	Management of landward side of earth sea walls and banks and adjoining grassland to provide open areas with some bare ground for seed germination and development.
True Fox-sedge	Other standing open water	FW8, FW11 and FW12

8.4 Other supporting measures and evidence required for LNRS priority species

As with the habitat priorities, we have also identified for some of our species priorities:

- What measures are needed to support the successful delivery of the priority species.
- What further data, evidence and/or mapping is needed to better inform the priority specie's recovery.

Supporting measures and evidence needs sit outside the regulatory scope of LNRS, however it is important to still acknowledge and recognise these, so they are outlined below.

	Species	Additional requirement
	Black Night-runner Beetle	Investigate whether a population is present in the Lydden Valley/Ham Fen landscape. This could be Britain's only population of this S41 species.
	Haliplus variegatus (Beetle)	This beetle is restricted to high quality relict base rich fens with abundant Stoneworts – monitor base rich fens for their stonewort populations.
	White Clawed Crayfish	Identify Ark sites – where new populations can be established, safe from non-native crayfish and crayfish plague. An Ark site for White-clawed crayfish is an isolated, self-contained site with running water, still water, or both, which can support a healthy, self-sustaining population of White-clawed crayfish with little need for ongoing management.
	Fungi	Define and recognise important Kent grasslands of fungal diversity. Create Important Fungi Areas.
	Rufous Grasshopper	In locations with previous records for Rufous Grasshopper but where it has not been recorded this century, revisit to assess presence/absence.
	Wartbiter Bush-cricket	Investigate barriers to the species' dispersal within the wider Lydden-Temple Ewell site and develop a project to create a larger network of chalk grassland sites which support populations of the species.
	Hare	Monitor impacts of grazing on vegetated shingle to determine if hares can contribute to conservation management in a habitat where they may be less persecuted.
	Distinguished jumping spider	Study the Kent and Essex populations with a view to understanding this species dynamics. Identify other suitable sites to introduce the Distinguished jumping spider to, in order to reduce impacts of stochastic events on UK population.
	Lizard orchid	Undertake updated survey of Lizard orchid population on Sandwich dunes.

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	Hare	Better prevention of illegal hare coarsing, with existing Rural Crime Team and landowner action supported.
	West European Hedgehog	Trial traffic calming and signage such as 'ghost hedgehogs' to slow drivers.
	Adders	Educate farmers on the benefits of adders (e.g. small mammal control) and the importance of field margins for biodiversity. Provide guidance on best practices to support adders without affecting agricultural productivity.

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9. Grassland habitat priorities and potential measures

9.1 Ambition for grasslands in Kent and Medway

Our existing grasslands are conserved, with appropriate management returned to restore, connect and extend these habitats to deliver high quality, species-rich areas across the county.

9.2 An overview of the county's grassland habitat, pressures and threats, and the importance of, and opportunities for, recovering this habitat.

Almost a third of the county (29.7%) is covered by improved grasslands. These are agricultural grasslands used for pasture, as well as grasslands of urban parks and gardens. Agriculturally improved grassland is highly productive, resulting from intensive management using fertilisers and/or herbicides. As a result of this improvement, the grasslands are species-poor, lacking many of the finer grasses and flowering plants found in semi-natural swards. Amenity grassland, such as many playing fields, urban parks and urban road verges are also intensively managed and have a limited range of plant species. Although these areas are species-poor, they do offer the opportunity to increase space for nature through the introduction of features that can increase its value to nature and can be important as potential connectivity corridors where they are situated between fragmented areas of species rich habitat.

For many people, chalk grassland, sometimes known as lowland calcareous grassland is what first comes to mind when thinking about grassland habitats within the county. Although this habitat covers just 0.5% of the county[14], this represents 5% of the UK's chalk grassland resource and supports many rare species, orchids and butterflies are particularly associated with this habitat. Chalk grassland has been the focus of nature conservation efforts in Kent for decades however retention of this restored habitat requires ongoing management to prevent scrub encroachment, fragmentation needs addressing and there are still further areas in need of restoration and enhancement.

Species-rich lowland meadow is an even rarer habitat. The 2012 Kent Habitat Survey recorded 28,531ha of neutral grassland, representing the largest of the grassland broad habitat types across the county. However, just 27.7ha, less than 0.1%, of this was recorded as Lowland Meadow. This small fraction of high quality grassland is a reflection of how these lowland meadows have been lost through agricultural improvement and the abandonment of traditional hay meadow management. These small, flower-rich fields support a plethora of wildflowers and insects many of which are rare and threatened. It is therefore important that we look to restore this lost habitat resource across the county by returning to more traditional and land sensitive management practices. This can begin by first focussing on field margins and the encouragement of arable wild plants.

[14] Kent Habitat Survey 2012

A very different grassland habitat, particularly typical to the North Kent coast is coastal and floodplain grazing marsh, which is often found adjacent to saltmarsh and mudflats, but separated hydrologically by coastal infrastructure. Coastal and floodplain grazing marsh is the county's greatest area of UK BAP habitat, covering 3.6% of the area. This habitat is vital for wading birds such as lapwing and redshank that nest in the tussocks of the grassland, as well as large wintering populations of wildfowl and waders. Drought and a lack of sufficient grazing animals are the two main pressures for this habitat; it is an ongoing battle for landowners and managers of these habitats to keep water on the land during spring and summer. Recreational disturbance is an additional pressure, particularly for birds.

The geology of Kent means that acid grassland and heathland are rare habitats (just 512ha and 71.5ha respectively[15]), but important patches can be found. Recreational disturbance and vandalism, including fire, are an issue for more urban sites.

9.3 Nature-based solution opportunities from grassland habitat

Grassland provides a fantastic variety of nature-based solution opportunities. Increased grassland areas, particularly alongside road verges and in arable fields provide vital refuges and foraging areas for pollinators. By reconnecting landscapes with native, pollinator-beneficial flowering plants and grasses, we can increase the diversity of our pollinating insects and therefore support crop production which relies on pollinators for success.

Different types of grassland store a different amount of carbon in their structures. Neutral grassland has been proven to store more carbon (100.5 tonnes CO_2/ha) in the top 30cm of soil than acid grassland (63.6 tonnes CO_2/ha) and chalk (92.01 tonnes CO^2/ha). Grassland recovery, particularly good quality and well-managed neutral grassland restoration could contribute to carbon storage, therefore reducing the amount of carbon dioxide entering the atmosphere.

Well-managed grasslands in good condition can help combat some of the issues impacting water quality, while also providing other benefits such as water retention and slowing the rate at which rainfall reaches our watercourses. Buffer strips adjacent to watercourses can act as a safeguard, preventing pollutant runoff from adjacent fields.

Furthermore, species rich and well-managed grasslands lead to improved soil quality, which helps with flood mitigation. Stronger soils improve its water infiltration capability, so with more sustainable agricultural methods and rewilding of grasslands, we could reduce the risk of flooding and create a more climate-resilient landscape.

On the coast, grazing marsh is an incredibly important habitat for climate resilience. Coastal grazing marsh not only sequesters carbon in its unimproved soil structure, but it also has the capacity to hold fresh water as a floodplain, ensuring a year-round

[15] Kent Habitat Survey, 2012

water supply as well as being a vital habitat for a range of species. It also provides a natural coastal defence, dissipating wave energy.

The balance of grazing animals used as a more organic way of managing grassland is important to achieve the balance of a productive and biodiverse landscape.

9.4 Wider benefits of healthy and functioning grassland habitat

Grasslands are often the sort of open environments with nature and views that most appeal to people for walking – so the mental and physical health benefits are considerable where these areas are accessible.

When located close to urban populations and with access, grassland provides a crucial health role, particularly for deprived communities where health issues may be prevalent. People need to feel safe and welcome however and often there are psychological barriers to overcome.

9.5 Grassland habitat priorities and potential measures

For the mapped grassland habitat potential measures see Part 3 or view online at Kent & Medway LNRS Measures

Priority GL1 **Chalk grasslands are safeguarded from land use changes and other threats, and restored to a better and species-rich condition. They are connected and buffered across the landscape to promote ecological integrity and resilience, particularly for the purpose of facilitating species movements in response to climate change.**		
	GL1.1 Maintain and enhance core, high quality and good condition chalk grassland sites through the application of conservation management sensitive to the existing and potential flora and fauna of the site.	
	GL1.2 Increase the extent of high quality, connected chalk grassland by bringing appropriate sites, adjacent to core/good condition sites, into conservation management.	
	GL1.3 Increase functional links between chalk grassland and other habitats to maximise nature-based solutions offered by improved connectivity.	
	Extension and increase of chalk grassland to be delivered by (in order of preference) i - allowing natural regeneration and colonisation; ii - use of green hay; iii – use of local provenance seed or other plant material.	
	Develop an improved evidence base of the county's core species-rich chalk grassland sites[16].	
	Maidstone Mining Bee Moss Carder Bee Shrill Carder Bee Adonis Blue Butterfly Chalk Hill Blue Butterfly Dark Green Fritillary Butterfly Dingy Skipper Butterfly Duke of Burgundy Butterfly Grizzled Skipper Butterfly Silver-spotted Skipper Butterfly Small Blue Butterfly	Rufous Grasshopper Wart-biter Cricket Barred Tooth-striped Moth Black-veined Moth Forester Moth Liquorice Piercer Moth Milkwort Beauty Moth Scabious Leaf-miner Moth Straw Belle Moth Sussex Emerald Moth Adder

[16] Defined as species-rich if it has more than 15 plant species per square metre; more than 30% cover of wildflowers and sedges (excluding white clover, creeping buttercup and injurious weeds); less than 10% cover of white clover and perennial rye grass.

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		Wall Butterfly Pink Waxcap	Ground-pine Dwarf Milkwort Musk Orchid

Priority GL2 **Existing coastal[17] and floodplain grazing marsh restored to better condition and retaining more freshwater, with sensitive areas, and the breeding waders they support, protected from land management and recreational disturbance. Opportunities taken to create and extend areas of this habitat and increase its climate resilience.**		**GL2.1** Increase opportunities to store winter water on land adjacent to grazing marsh to increase opportunities for “wetting” during spring/summer.	
		**GL2.2** Deliver grazing marsh habitat restoration, extension and creation where it will offer the greatest gains to support the county’s important grazing marsh flora and fauna and is designed to minimise recreational disturbance and reduce risk from predation.	
		**GL2.3** Reconnect rivers with their former natural floodplain and improve the water storage ability of floodplain, in order to protect against climate change impacts and drought.	
		▪ Identify priority areas for the reconnection of rivers with their former natural floodplain. ▪ Identify priority areas for the improvement of floodplain water storage ability.	
		Shrill Carder Bee Kentish Clown Beetle Ophonus puncticollis (Beetle) Pride of Kent Rove Beetle Barn Owl Brent Goose Corn Bunting Lapwing Redshank Yellow Wagtail	Rufous Grasshopper Brown Hare European Water Vole West European Hedgehog Fisher's Estuarine Moth Marsh Mallow Moth Slender Hare's-ear Least Lettuce Greater Water-parsnip

[17] Coastal grazing marsh is covered here rather than under coastal habitats, but it is acknowledged that the nature of coastal changes may mean that freshwater habitats become saline in the future.

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Priority GL3 **Existing species-rich lowland meadow is safeguarded from loss, restored to better condition and extended through sensitive land management practices to reduce soil nutrient levels. Through the extension of lowland meadow, this habitat is better connected, reducing the risk of isolated meadow species and declines in species richness.**		**GL3.1** Maintain and enhance core, high quality and good condition lowland meadow sites through the application of grazing/cutting regimes sensitive to the existing and potential flora and fauna of the site.
		**GL3.2** Increase the extent of high quality, connected lowland meadow by creating new lowland meadow sites, in close proximity to core/good condition sites.
		**GL3.3** Increase connectivity of, and provision for wildlife in, lowland meadows by leaving field margins uncut, varied sward heights, hedgerows well-connected and integrate some bare patches or banks within the grassland site.
		**GL3.4** Establish neutral grasslands on floodplains, to create resilience to flooding and drought and protect water quality.
		Preference (in order of priority) for allowing natural regeneration and colonisation, then for use of green hay, and finally local provenance seed or other plant material.
		Develop an improved evidence base of the county's core species-rich lowland meadow[18] sites.
		Shrill Carder Bee Barn Owl Dark Green Fritillary butterfly Dingy Skipper butterfly Grizzled Skipper butterfly Wall butterfly Pink Waxcap Rufous Grasshopper Brown Hare Serotine Bat West European Hedgehog Green-winged Orchid Adder

[18] Defined as species-rich if it has more than 15 plant species per square metre; more than 30% cover of wildflowers and sedges (excluding white clover, creeping buttercup and injurious weeds); less than 10% cover of white clover and perennial rye grass.

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Priority GL4 **Retain, restore and extend the county's acid grassland and heathland habitat mosaics, to improve the species diversity that these habitats, with limited extent in Kent and Medway, support.**		**GL4.1** Implement appropriately designed management that prevents succession into secondary woodland and scrub encroachment and ensures that acid grassland is maintained and retained but not at the expense of the mosaic's heathland resource. Grazing regime provides maximum diversity and a combination of larger open areas and smaller mosaic "glades" to provide habitat for breeding birds, reptiles and invertebrates. Climate resilience is built into management.
		**GL4.2** Create new acid grassland sites from improved grassland and former arable sites.
		▪ Control/remove early successional species and invasive, over abundant or non-native species. ▪ Where succession to secondary woodland has occurred, return to wood pasture habitat. ▪ Avoid nutrient enrichment by protecting sites from agricultural and road runoff.
		▪ Develop an improved evidence base of the county's core lowland heathland and acid grassland sites. ▪ Identify and map lowland heathland and acid grassland areas that have been neglected (and other potential areas), for connectivity and restoration.
		Four-banded Weevil-wasp Moss Carder Bee Anthicus bimaculatus (Beetle) Linnet Nightjar Yellowhammer Forester moth Adder Heath Dog-violet

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Priority GL5 **Safeguard, restore and increase fields with a diversity and abundance of arable wild plants.**		**GL5.1** Management of field margins to provide graduated field edges, with wider and cultivated margins. **GL5.2** Management of fields, with mixed times of cultivation to encourage a diversity of arable wild plants.
		**GL5.3** Design and deliver location and soil appropriate projects, targeted in the richest arable plant areas and on a variety of soil types, to create new, large areas dedicated to the promotion of arable wild plant diversity and abundance.
		▪ Integrate grazing livestock into conservation arable farming, including grazing of over-winter cover crops. ▪ Removal of chemicals, mixed timings of cultivating areas will benefit different species.
		▪ Develop an improved evidence base of sites of arable wild plants. ▪ Map and identify priority species of arable wildflowers specific to soil types in Kent.
		Shrill Carder Bee *Omphalapion beuthini* (Beetle) Barn Owl Corn Bunting Linnet Tree Sparrow Turtle Dove Yellowhammer
		Brown Hare West European Hedgehog Adder Ground-pine

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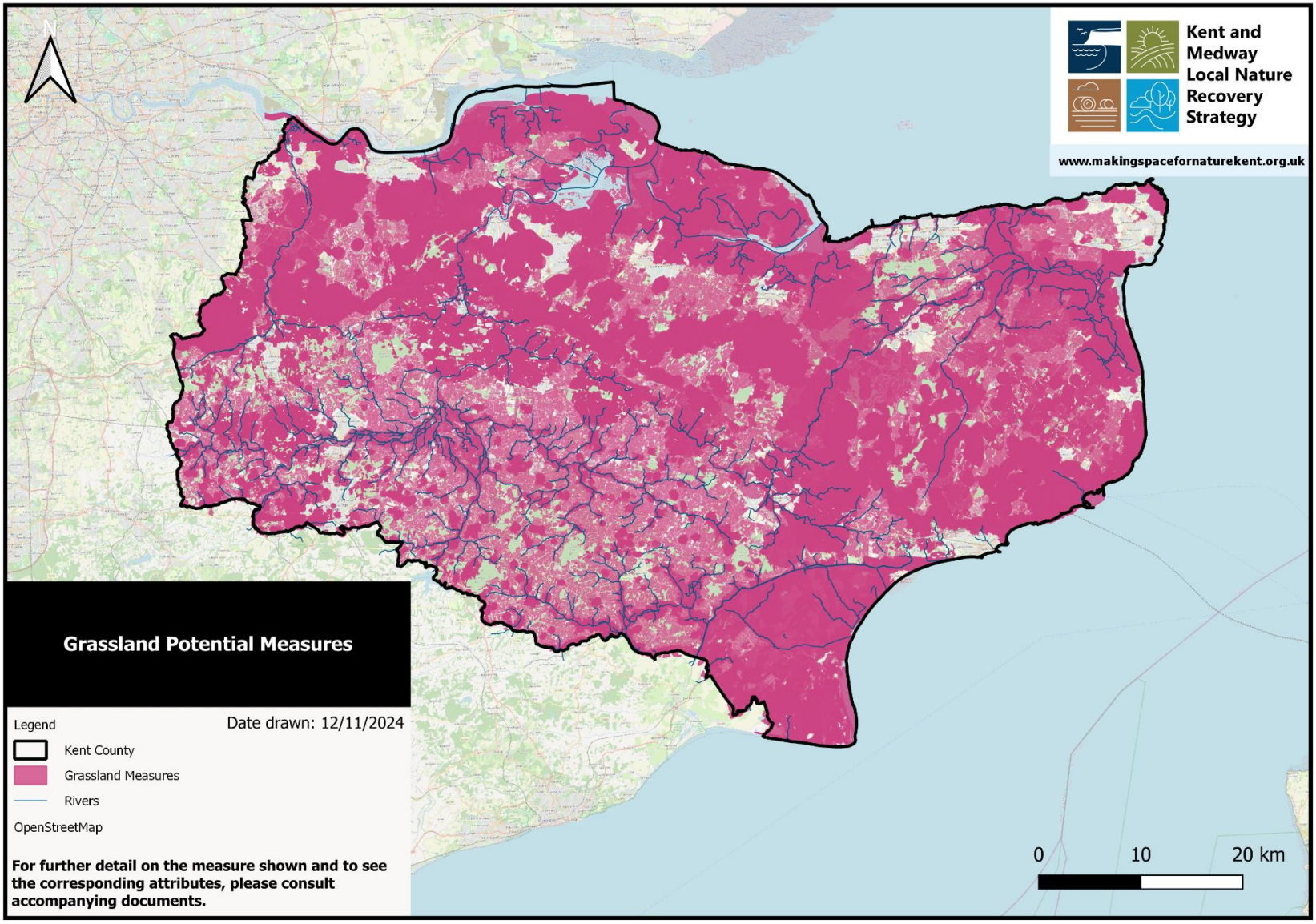
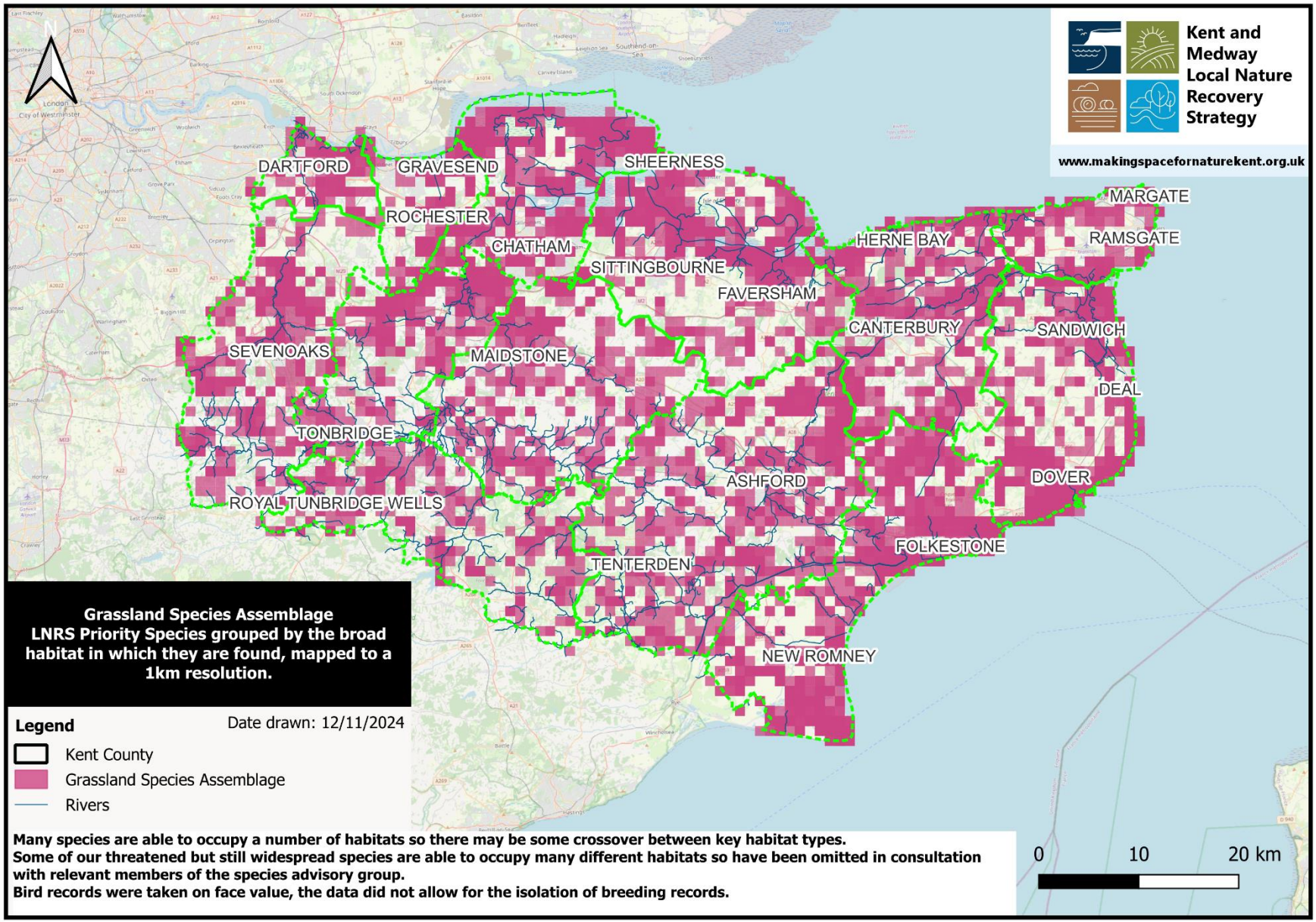
9.6 Grassland habitat priority maps

9.6.1 Map of grassland habitat priority areas



9.5.2 *Map of grassland species assemblage*



10. Successional habitat priorities and potential measures

10.1 Ambition for successional habitat in Kent and Medway

The structural diversity of open mosaic habitat found on previously developed land and low-level scrub is safeguarded from loss and damage, for the benefit of species that rely on early successional habitats.

10.2 An overview of the county's successional habitat, pressures and threats, and the importance of, and opportunities for, recovering this habitat.

Successional habitats are dynamic and change over time. An example of successional habitat is scrub, which is vital for nightingales and reptiles, but only at a certain height and structure, after which the value for particular species declines as scrub transitions to woodland.

Open mosaic habitats found on previously developed land often support an extremely rich diversity of wildflowers and animals, including nationally scarce invertebrates. Often these areas are low in nutrients, which suits these species, but can also mean that scrub stabilises.

Often these valuable areas for wildlife are underappreciated or unprotected and can be at risk from development. Increasing the awareness of the importance of these sites and the need for their retention and management, to protect the important features that support some of our rarest and most threatened species is a crucial basis to any action.

10.3 Nature-based solution opportunities from successional habitat

Successional and mosaic habitats provide more resilience to climate change. The more varied the habitats and species are, the less the shock to the ecosystem will be in changes of temperatures, extreme weather events and new diseases. Allowing these habitats to naturally regenerate rather than forcibly 'improving' them, will allow habitats to adapt to our changing environment.

10.4 Wider benefits of healthy and functioning successional habitat

This habitat is often close to, or amongst, urban populations so there are health and connection with nature benefits to maintaining and managing these areas.

This could range from the experience they provide (if accessible) to opportunities for community and volunteer groups to be involved in the management of these areas, through activities such as scrub management.

When located close to urban populations and with access, successional habitats provide a crucial health role, particularly for deprived communities where health

issues may be prevalent. People need to feel safe and welcome however and often there are psychological barriers to overcome.

10.5 Successional habitat priorities and potential measures

For the mapped successional habitat potential measures see Part 3 or view online at [Kent & Medway LNRS Measures]

Priority SH1 **Safeguard from loss and damage, open mosaic habitats found on previously developed land, that support priority species which rely on early successional habitats.**		**SH1.1** Appropriate management plans in place for key sites, with measures that support the succession of habitats to occur naturally, increase edge habitat, create a graded profile of mixed habitat and provide features that support the species of interest most strongly tied to open mosaic habitats and, in particular, any species that the particular site in question is notable for.
		▪ Design enlargement and connectivity of open mosaic habitats to wider landscape by consideration of how important species associated with the site make use of other adjacent land.
		▪ Maintain open areas through vegetative management. ▪ Preserve and create water features. ▪ Prevent recreational disturbance.
		▪ Survey the county's open mosaic habitats found on previously developed land/brownfield sites to identify the county's best and most significant sites. ▪ Review abandoned railways as potential long corridors of open mosaic habitat.
		▪ Increase awareness and understanding of the importance of successional habitats and the worth and vulnerability of open mosaic habitats found on previously developed land.
		Shrill Carder Bee Wall Butterfly Rufous Grasshopper Brown Hare Hazel Dormouse West European Hedgehog
		Distinguished Jumper Lizard Orchid

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Priority SH2

Increase the extent of low level, scrub/successional habitat, providing a mix of young and mature scrub to enable structural diversity and the support of a wide range of species. Link this scrub habitat with hedgerows, woodland and other habitats to support wildlife corridors.

	**SH2.1** Selective grazing by cattle of areas within the scrub to create open areas and allow for natural regeneration.	
	**SH2.2** Maintain and integrate areas of scrub within arable land, woodlands, grasslands, wetlands and urban habitats to encourage successional habitats and provide wildlife corridors. **SH2.3** Open glades and rides between scrub, to break it up and allow wildlife to move between habitats.	
	▪ Cut and removal when encroaching on other habitats. ▪ Preserve and create water features alongside scrub and foraging areas and ensure they are in close proximity.	
	▪ Increase awareness and understanding of the importance of scrub habitats.	
	Moss Carder Bee Oak Mining Bee Shrill Carder Bee Grasshopper Warbler Linnet Nightingale Turtle Dove Yellowhammer	Brown Hairstreak Butterfly White-letter Hairstreak Butterfly Hazel Dormouse West European Hedgehog Liquorice Piercer Moth Adder

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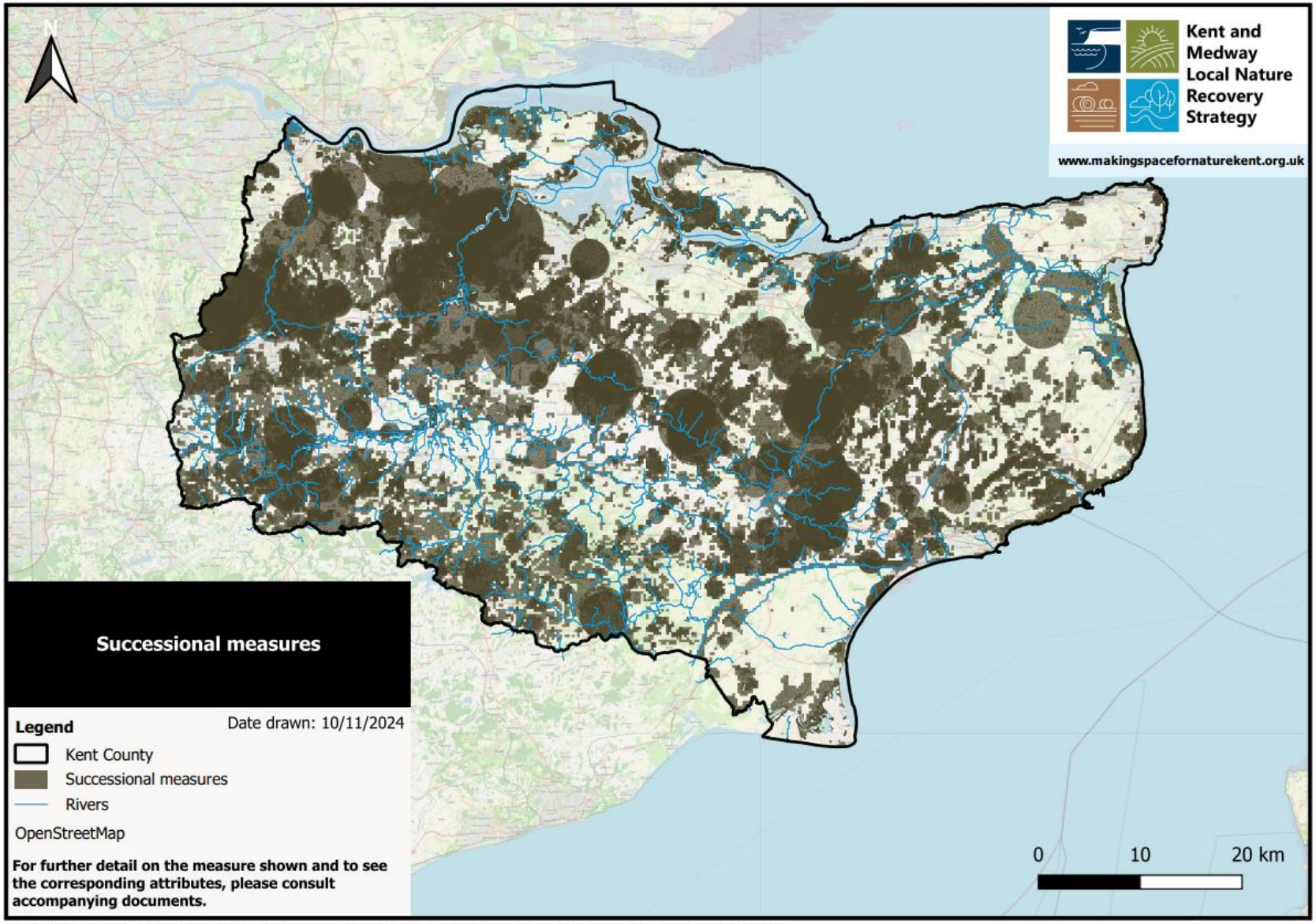
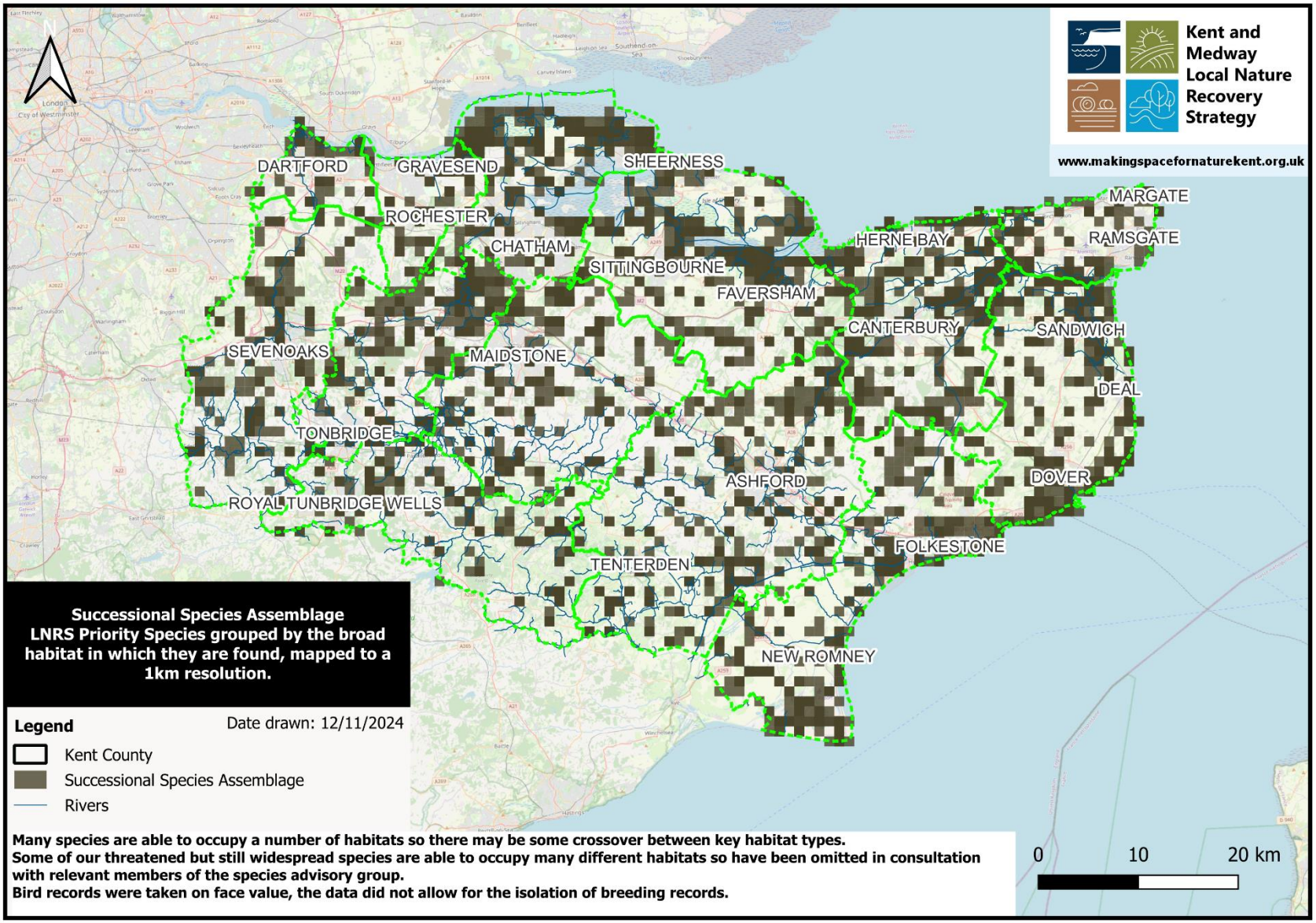
10.6 Successional habitat priority maps

10.6.1 Map of successional habitat priority areas



10.6.2 Map of successional habitat species assemblage



11. Woodland, trees and hedgerows priorities and potential measures

11.1 Ambition for woodland, trees and hedgerows in Kent and Medway

Kent and Medway's native woodland, trees and hedgerows are safeguarded from loss and under appropriate and active management, delivering robust ground flora and soil structures. A mixture of natural regeneration and new establishment, improves connectivity and provides an even greater contribution to climate change mitigation and resilience.

11.2 An overview of the county's woodland, trees and hedgerows, pressures and threats, and the importance of, and opportunities for, recovering this habitat.

A recent tree canopy assessment (July 2023) calculated the county had 64,751ha of tree cover, with an average tree canopy cover of 17% and an urban tree cover average also at 17%. In terms of distribution across the county, west Kent districts have a far greater canopy cover (28-30%) than those in east Kent (4-9%). Areas such as Thanet and Romney Marsh have particularly low canopy cover.

Our two National Landscapes are heavily wooded. The High Weald has the most wooded landscape in the country with 28% woodland cover and is particularly important for Gill woodland, a habitat, scarce elsewhere in the south-east of England. The Kent Downs has 23% cover, with the majority of this, 70%, being irreplaceable ancient woodland.

Kent has 11% of England's ancient semi-natural woodland, with more ancient woodland than any other county in the UK. Broadleaved, mixed and yew woodland is the county's largest semi-natural habitat, covering 44,490ha and 11% of Kent[19]. – over half of this can be found in the Kent Downs and High Weald National Landscapes in Kent.

The county also has areas of wet woodlands – the 2012 figure of 662.2ha was considered an underestimation because of survey difficulties. Wet woodland supports a range of uncommon species, with ground flora that require wet or humid conditions, such as mosses, liverworts, ferns and sedges. Dead wood within the woodland sites can be frequent, and its association with water provides specialist habitats not found in dry woodland.

In Kent, coniferous woodland is mostly plantation woodland, with non-native species grown for timber production – this covers just 0.9% of the county.

The county also has wood pasture and parkland, a mosaic of habitats comprising trees and scrub in grassland, where the trees are most often ancient or veteran.

[19] Kent Habitat Survey, 2012

This habitat is not just important in terms of its natural heritage but also the landscape history associated with its creation.

Trees in hedgerows and trees outside woodland are an important part of the picture for trees in the county and hedgerows are recognised as a key habitat for many species, which can also help connect fragmented areas of woodland.

A history of fruit production has also left us with another habitat important for wildlife – traditional orchards. However, many of these orchards have been lost in the past half century and are now seen as unprofitable compared to commercial orchards and the recorded 1,676ha of traditional orchards recorded in 2012 by the Kent Habitat Survey is now likely further reduced.

Our woodlands are home to a vast array of wildlife, including some nationally threatened woodland species. The county is one of a small handful of locations where the woodland butterfly, Heath Fritillary, is found and the increasingly rare and now threatened Duke of Burgundy. Our woodlands are also important for some rare moths and spiders, including the Heart Moth and Money Spider, with Blean Woods being the only site in Britain where the latter is found. Kent is also a stronghold for the Hazel Dormouse and our ancient broadleaved woodlands are hugely important for bats, with Kent's woodlands being home to one of the UK's rarest mammals, the Bechstein's bat.

Most woodland requires some form of management, however many remain without and traditional practices, such as coppicing, are considered unprofitable, with the practice declining to the detriment of wildlife.

Wood lotting (the dividing up of woodland for sale) has been a particular problem for the county, resulting in habitat fragmentation, inconsistent management and sometimes inappropriate use. Close linear planting is not good for wildlife, creating woodland with little understory for flowers and butterflies and no deadwood for invertebrates.

Deer are problematic for woodland habitats and are increasing in number across Kent. Their damaging activities include bark stripping and eating saplings in woodlands, preventing natural regeneration. They also can destroy newly planted saplings and feathers, requiring costly and wasteful tree guards.

Given its proximity to the continent, Kent is particularly vulnerable to invasive species and disease. Ash dieback, caused by a fungus which originated in Asia, is a prime example of how the county is often impacted by new pests and diseases first, with this disease having had a massive impact on ash trees in the county in recent years.

Climate change is another pressure on our trees and woodland, particularly for wet woodland, a rare and unique habitat, found in various sites across the country, but suffering the impacts of drought.

In recognition of the importance of woodland, trees and hedgerows to not only biodiversity but also the services they provide, the county adopted a target of extending tree cover by 1.5 million new trees and increasing the county's average

canopy cover to 19%. Kent Plan Tree also aims to improve existing woodland and trees' health and safeguard it from degradation and loss. Underpinning woodland, tree and hedgerow expansion and creation in the county is the principle of “right tree, in the right place, for the right reason, with the right management and right monitoring”.

11.3 Nature-based solution opportunities from woodland, trees and hedgerows

Increasing tree canopy cover in Kent would bring a variety of benefits. Woodland trees and hedgerows are natural solutions to storing carbon, cleaning air, absorbing surface water and regulating temperatures in urban settings.

Woodlands are important for carbon storage, with broadleaf and mixed woodland sequestering the most carbon in their trunks, roots and leaves. Well-managed, biodiverse woodlands provide an opportunity to deliver many other benefits alongside a nature-based solution to carbon sequestration.

Efforts to improve air quality through nature-based solutions could target the 43 Air Quality Management Areas (AQMA) throughout the county and specific roads with high emissions, by establishing roadside woodland and hedgerows.

Woodland, trees and hedgerows give structure to soil and having these on higher land helps to absorb water and slow the flow of any run-off, preventing flooding downstream. Deep rooted trees allow for more stable soil with improved structure and quality, thus improving water retention and the climate resilience of the trees.

Wet woodland can play an important role in flood risk management if managed for this purpose, by the use of a technique called slowing the flow – using cut timber to hold water across the woodland floor. Use of this nature-based solution presents an opportunity to extend this rare habitat.

In urban areas, trees provide a regulatory function, cleansing and cooling the air, but they also provide shelter and shade. In agriculture the establishment of the trees can also offer shade benefits for livestock.

11.4 Wider benefits of healthy and functioning woodland, trees and hedgerows

In an urban setting, trees provide mental health benefits though the experience they provide and the opportunity to connect with nature. They also provide physical health benefits, through their temperature and air quality regulating serviced.

When located close to urban populations and with access, woodland provides a crucial health role, particularly for deprived communities where health issues may be prevalent. People need to feel safe and welcome however and often there are psychological barriers to overcome.

11.5 Woodland, trees and hedgerow priorities and potential measures

For the mapped woodland, trees and hedgerow potential measures see Part 3 or view online at [Kent & Medway LNRS Measures]

Priority WTH1 **Retain the extent, and improve the condition, of existing woodland and trees outside woodland through active management, improving habitat provision for woodland species.**	**WTH1.1** Holistic management of woodlands and transitional open spaces to sensitively consider the understory, ground flora and soil; allow a variety of successional states and variety of species, developing to mature, providing different canopy layers; management of internal edge, including creation of glades and rides; preserve natural decay stages of woodland including old growth, dead and dead standing wood; where appropriate reinstate and increase coppicing as a management measure; deliver targeted management in order to provide habitats for vulnerable woodland species.	
	WTH1.2 Restoration and extension of lowland and upland wood pasture and parkland.	
	WTH1.3 Safeguard and enhance small pockets of woodland to provide key stepping stones for species movement and connect with hedgerows and scrub.	
	▪ Management and/or removal of invasive and inappropriate non-native species[20]. ▪ No conversation of natural and semi-natural woodlands into intensive woodland plantations or monocultures. ▪ Removal of diseased trees and tree species targeted in disease control efforts. ▪ Control of damaging deer and grey squirrel populations at a landscape scale.	
	Identification of woodlands in need of improved management.	
	Fringe-horned Mason Bee Shining Guest Ant Phoenix Clown Beetle *Pseudeuparius sepicola* (Beetle) Red-horned Cardinal Click-beetle Southern Oyster Mushroom Beetle Barn Owl Lesser Spotted Woodpecker	Purple Webcap (Fungi) Sweet Webcap (Fungi) Enterographa elaborate (lichen) Hazel Dormouse Bechstein's Bat Brown Long-eared Bat Noctule Bat Boring Millipede

[20] All control measures to adhere to latest guidance and statutory requirements.

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		Marsh Tit Nightjar Dingy Skipper Butterfly Duke of Burgundy Butterfly Grizzled Skipper Butterfly Heath Fritillary Butterfly White Admiral Butterfly White-letter Hairstreak Butterfly *Tinodes pallidulus* (Caddisfly) Brilliant Emerald Dragonfly	Aspen Knot-horn Moth Daisy Case-bearer Moth Drab Looper Moth Forester Moth Liquorice Piercer Moth Scarce Goldenrod Plume Moth White-spotted Sable Moth Adder Lady Orchid

Priority WTH2 **Increase the average canopy cover of Kent through woodland and trees outside woodland.**		**WTH2.1** Extension of existing woodland through natural colonisation and planting.
		**WTH2.2** Conversion of unproductive land for arable into woodland. **WTH2.3 Plant** more trees in hedgerows.
		**WTH2.4** Use tree and hedgerow establishment and scrub to increase connectivity, provide wildlife corridors and address fragmented areas of woodland.
		**WTH2.5 Plant** more urban trees and create urban forests and orchards, ideally siting tree planting to where they will provide flood management, air quality and temperature regulation benefits.
		Increase trees and hedgerows on agricultural land, siting to also provide additional benefit of increased shade for livestock.
		▪ All tree establishment to follow the Kent Plan Tree principles of the right tree, in the right place, for the right reason, with the right management and right monitoring[21]. ▪ Any action to increase canopy cover to consider existing habitats to ensure there is no detrimental impact to other high value habitats; appropriate soil types; a diversity of species; and landscape character. ▪ Retain, replace and plant more highway trees.

[21] Kent Plan Tree – our tree establishment strategy - Kent County Council

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		▪ Woodland creation to be species-rich and use resilient species. ▪ Active and long-term aftercare and monitoring to ensure planting sites survive. ▪ Greater integration of trees in worked landscapes – agroforestry and silvopasture.
		Mapping to establish appropriate sites, and suitable trees, for woodland creation/expansion, to identify nature-based solution opportunities and to set tree targets at local level.
		Increase in the number of local tree nurseries.
		See species listed under WTH1

Priority WTH3 **Return the ecological function provided by native trees previously prolific in Kent, by restoring those lost to disease, pests, climate change and drought.**		Replace trees as they are lost from woodlands and hedgerows with a diversity of resilient species, and planted appropriately and with the context carefully considered; to include: aspen, alder, small-leaved lime, sessile oak, field maple, wild cherry, bird cherry, rowan, buckthorn, pedunculate oak, sycamore, birch.	
		Targeted and strategic establishment, and natural colonisation, of resilient tree species, with focus on beech, black poplar, hornbeams, oaks, juniper, disease resilient Ulmus cultivars (elm), ash, Wild service and county varieties such as Kentish cob.	
		▪ Careful procurement of tree stock, from local provenance where possible, and with consideration of biosecurity measures. If trees are succumbing to disease, it might be provident to source trees from elsewhere to increase the genetic diversity. ▪ Retain standing and lying dead wood.	
		Establish a better understanding of areas where restoration of lost trees should be targeted.	
		Red-horned Cardinal Click-beetle Southern Oyster Mushroom Beetle White-letter Hairstreak Butterfly Enterographa elaborate (Lichen)	Bechstein's Bat Hazel Dormouse Aspen Knot-horn Moth

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Priority WTH4 **Ensure the resilience of the county's woodlands.**	 **WTH4.1** Management that facilitates and enables the natural regeneration of woodlands, by reducing grazing pressures.
	 **WTH4.2** Where appropriate, promote the restoration of Plantations on Ancient Woodland Sites (PAWS) sites to a more species rich woodland.
	 **WTH4.3** Increase connectivity of woodland habitats by creating semi-natural habitat buffers strips, which reduce the gaps between patches and extend woodland edge habitats and provide links through trees outside the woodland. **WTH4.4** Establish green bridges to connect woodlands fragmented by road and rail.
	 ▪ When establishing new woodlands, and extending existing, use a diversity of appropriate tree species to safeguard against pest and diseases and include species that will be more resilient to climate impacts. ▪ Remove invasive species.
	 See species listed under WTH1

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Priority WTH5 **Ancient woodland, and ancient and veteran trees, are safeguarded from loss, with damaged areas restored through natural processes, management and the removal of invasive trees and plants. Areas of ancient woodland are buffered and better connected.**	 **WTH5.1** Appropriate and targeted management of ancient woodland, in order to retain and enhance specific features of ancient woodland and enhance biodiversity.
	 **WTH5.2** Establishment of wide buffer zones around ancient woodland that are linked to hedgerows, to extend habitat connectivity.
	 **WTH5.3** Solitary ancient and veteran trees buffered with open space, with further protections offered with establishment of neighbouring wood pasture and agroforestry of mixed habitats.
	 **WTH5.4** Connectivity of ancient woodland improved by links to hedgerows, establishment of standard trees and increased standing deadwood. **WTH5.5** Target isolated blocks of ancient woodland for improved connectivity.
	 ▪ Management to include (as appropriate) coppicing, deer and grey squirrel management, retention of deadwood, veteranisation, succession techniques and removal of tree species that are subject to disease control measures, invasive or of low ecological value. ▪ Buffer strips to be provided by scrub or grasslands, ditches, or natural woodland regeneration; should not include built elements (including back gardens).
	 Detailed mapping and identification of all veteran and ancient trees, through combined efforts between landowners, community, local authorities and land managers.
	 Purple Webcap Sweet Webcap

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Priority WTH6 **Increase the extent of high quality wet woodland in the county and improve connectivity with the freshwater habitat network.**		**WTH6.1** Establish and implement long-term management plans for wet woodland and surrounding land, which ensures connectivity between waterways and woodland and incorporates nature-based water management solutions, such as leaky dams, felling, blocking drainage channels to allow for seasonal flooding.
		**WTH6.2** Creation of ponds within woodlands, and naturally regenerated riparian zones.
		▪ Consider downstream impacts when creating new wet woodlands. ▪ Take into consideration existing habitats to ensure there is no detrimental impact to other high value habitats and respect the landscape character. ▪ Where appropriate, use ecosystem engineers to maintain and enhance wet woodlands, ensuring these are combined with a clear communication, landowner engagement and management strategy before any action commences.
		Lesser Spotted Woodpecker Beaver Bechstein's Bat Kentish snake millipede
Priority WTH7 **Retain and safeguard the High Weald's unique gill woodland and the plant species they support and the important functions they provide for the wider river catchment.**		**WTH7.1** Create buffer zones around the gill woodland to ensure they remain largely undisturbed.
		Restore the natural function and geomorphology of gill streams that have been the subject of historical man-made interventions.
		▪ Avoid management approaches that would harm the special character and species found in the woodland and its wetland features. ▪ Maintain the natural functioning and water quality of gill streams running through gill woodlands. ▪ Control of invasive species that may impact gill woodlands.

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Priority WTH8 **The extent of species-rich hedgerows throughout the county is increased, with lost hedgerows replaced, gaps filled and management of existing hedgerows improving the quality as well as quantity. Hedgerows providing a coherent network of shelter, nesting and forage for wildlife across the landscape and allowing other habitats to be linked.**		**WTH8.2**[22] Actively manage the county's hedgerows, fill gaps and remove invasive species; rejuvenate and restore hedgerows that have declined in structural condition. Increase the extent of hedgelaying, coppicing and gapping up within this management.
		**WTH8.3** Buffer hedgerows with grass margins, scrub and headlands.
		**WTH8.4** Strategic siting of new and extended hedgerows to aid habitat connectivity and support species forage, shelter and movement; restore links to copse and woodland.
		Preserve and restore ancient hedgerows along ancient field patterns, in association with ditches and banks.
		▪ Maintain a varied structure so there are some taller, denser areas and emergent trees, with tree root systems contributing to soil health, mycorrhiza and biophytes.
		▪ Map and survey existing hedgerows to determine condition and quality and better target management. ▪ Map historic hedgerows to identify lost hedgerows and potential areas for establishment.
		"Hedgeucation" to support all aspects of planting, managing and restoring hedgerows; the funding available; and the benefits of hedgerows.
		Linnet Nightingale Tree Sparrow Turtle Dove Yellowhammer
		Brown Hairstreak Butterfly White-letter Hairstreak Butterfly Hazel Dormouse West European Hedgehog Lappet Moth

[22] Mapping numbers for WTH8 starting at WTH8.2 is correct – no potential measure or map is missing

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Priority WTH9 **An increase in traditional orchards, under sensitive management, supporting an abundance and diversity of wildlife.**		**WTH9.1** restore and bring established traditional orchards back into positive management, including long sward length, wildflower meadow strips between trees, limited or no spraying, sensitive pruning and dead wood/ dying trees retained.
		**WTH9.2** Establish new community orchards, in appropriate areas and with a focus on urban locations.
		Identify areas for the establishment of new community and reestablishment of traditional orchards.
		Noble Chafer Beetle Orchard Tooth Fungi Brown Hare West European Hedgehog

Priority WTH10 **Appropriate and coordinated deer management in woodland and connecting areas, on a landscape scale, to reduce impacts and support new planting and natural regeneration.**		Implement culling activity in priority control areas, to achieve and maintain populations to a level of acceptable impact on the natural landscape. Install fences and other physical barriers to prevent deer damaging ecologically sensitive areas.
		• Cross landownership/landscape scale approach to deer control. • Ensure any infrastructure installations to address habitat fragmentation (e.g. wildlife crossings) do not enable unintended increased movement of deer.
		Improve understanding of deer numbers and distribution in Kent with surveys and assessment of impact. Establish ongoing monitoring to develop a clear and up to date understanding and establish priority areas for control.

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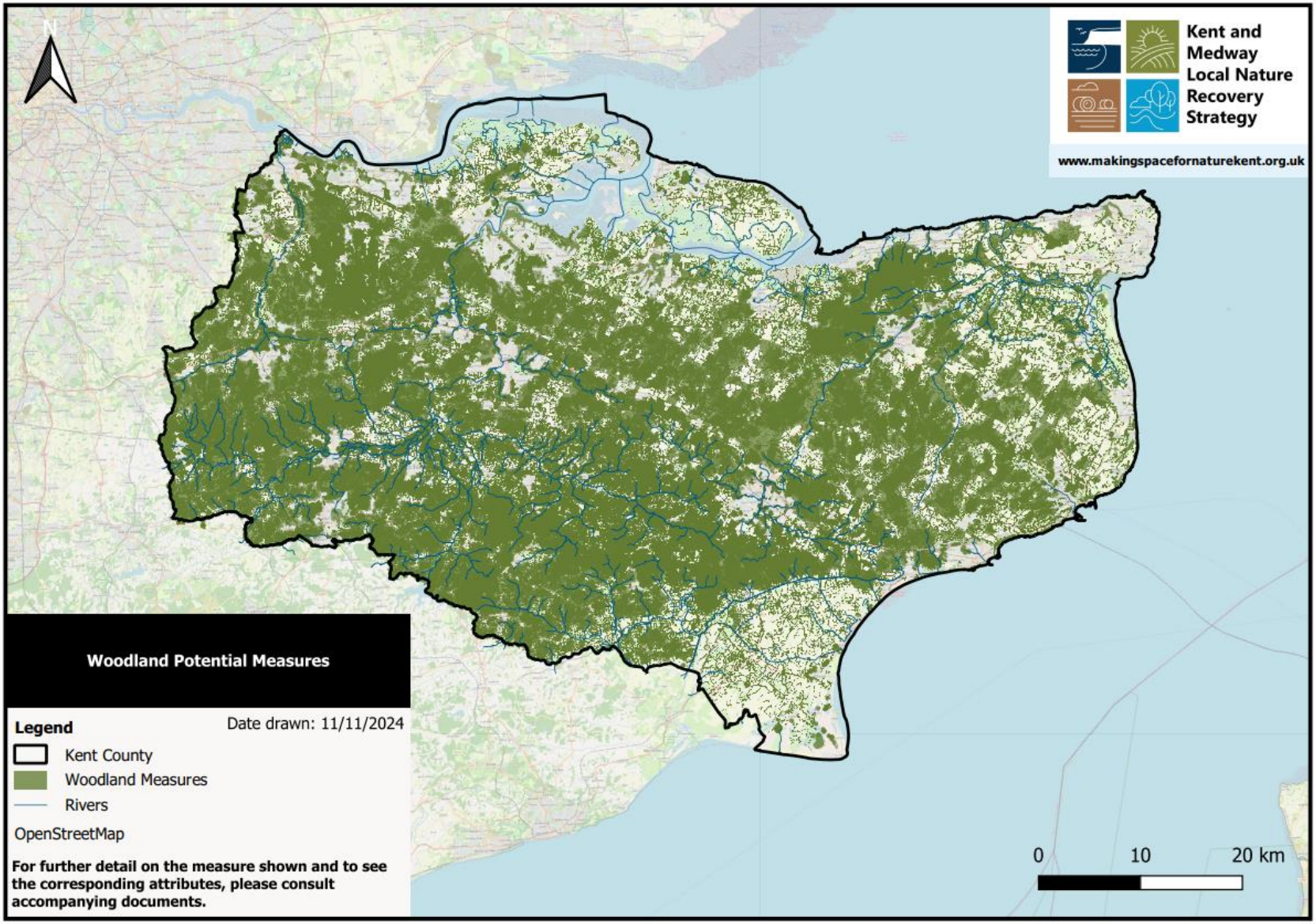
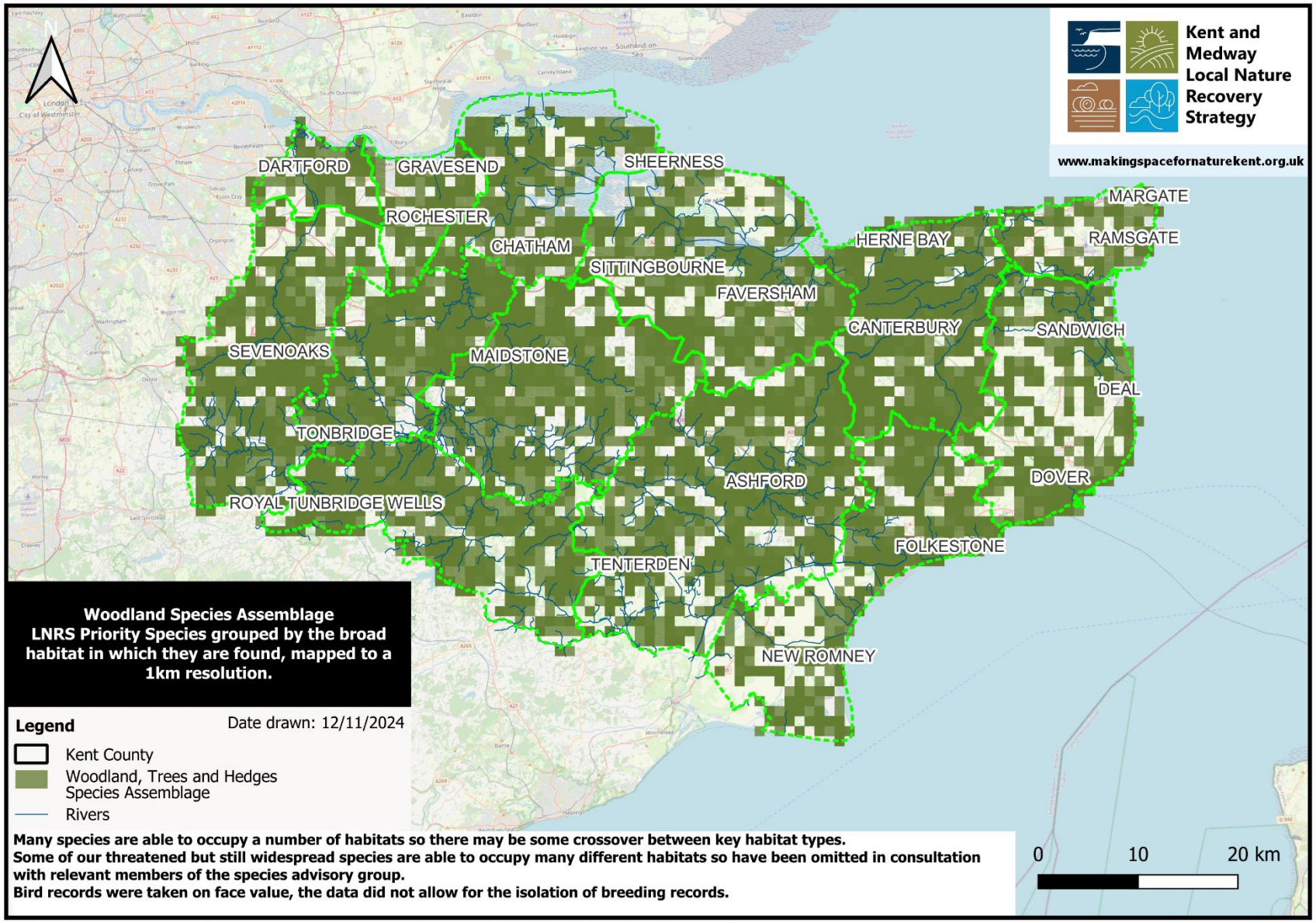
11.6 Woodland, trees and hedgerows priority maps

11.6.1 Map of woodland, trees and hedgerows priority areas



11.5.2 Map of woodland species assemblage



12. Freshwater habitat priorities and potential measures

12.1 Ambition for freshwater habitat in Kent and Medway

Our freshwater habitats are clean, sufficient and stable, in a healthy and good ecological state the supports an abundance and diversity of species. Catchments' functions are restored to deliver a connected mosaic of wet habitats, improving water quality and managing flood risk across the county.

12.2 An overview of the county's freshwater habitat, pressures and threats, and the importance of, and opportunities for, recovering this habitat.

The county's freshwater catchments are wide and varied, featuring rivers and streams with their associated floodplains, and range of habitats from chalk streams and reedbeds, to fen and valley mires. These habitats are home to some specialist and iconic freshwater species, including Bullhead Fish, Kingfisher, Grey Wagtail and Water Vole.

The main rivers in Kent are the Medway, the Great Stour, the Darent, the Thames and the Swale, the latter two being regarded as part of the Greater Thames Estuary.

Chalk streams are a globally rare habitat, with only 250 in the world – approximately 65% of these are in England. Kent is particularly important due to its chalk geology, with chalk streams emerging from the North Downs and forming the source of the rivers Darent, Cray, Shuttle, Dour, Nailbourne and stretches of the Great Stour, Little Stour and North Stream. These rivers are typically characterized by their stable flow conditions, clear high-quality water and associated vegetation communities, as well as supporting wild brown trout populations.

Other important rivers in Kent include those on clay geology including the River Beult, the only riverine Site of Special Scientific Interest (SSSI) in Kent. Despite this designation, it is in unfavourable condition due to water quality impacts and physical modification of the river channel.

Reedbed, whilst not extensive can be found across Kent, with 545ha in total[23]. However fen, which prefers more acidic conditions, is as a consequence of Kent's geology, a rare habitat of just 12ha.

Ponds are important stillwater wildlife habitats that support a variety of wetland plants and animals, but many have been filled in to facilitate human land uses or neglected over decades and are much less common now. There is 4,628ha of standing open water in Kent, covering 1.2% of the county. This includes natural systems of open water areas such as lakes, ponds and pools, as well as man-made water bodies such as ditches, canals, reservoirs, gravel pits and flooded mineral workings.

[23] Kent Habitat Survey 2012

The pressures of water scarcity and water pollution are high in Kent when compared to other parts of England, or indeed the South East. The impact of this is increased due to multiple pressures including climate change, growing population, aging and over-burdened water and wastewater infrastructure, and increased water demand. Within the county, river channels and riparian areas including floodplains, have been heavily modified to support human activities, water use and infrastructure.

Water quality is chronically impacted by nutrients, with the levels of nitrates and particularly phosphates in most Kent and Medway waterbodies being higher than in other parts of the country due to treated and untreated wastewater discharges. Only the River Darent doesn't receive wastewater discharges, and this is the only river in Kent meeting its Environmental Quality Standards for nutrients. With increasing summer droughts, nutrient levels will increase due to reduced dilution.

Increased nutrients cause Eutrophication resulting in reduced biodiversity of aquatic plants, invertebrates and fishes. In extreme situations, algal blooms can cause depleted oxygen levels, which cause fish and invertebrate mortality. Untreated sewage discharges present an additional intermittent pressure and can have severe acute impacts due to toxic levels of ammonia, which is usually removed by the treatment process.

Another effect of drought in summer is that natural riverbank habitats dry out, resulting in habitat loss for water voles and a range of other species.

Improvements to safeguard water supply in Kent include allowing for proper recharge for chalk aquifers and holding water back/hydration of freshwater habitats including nature reserves and protected areas. A consequence of over abstraction, is that chalk aquifers often don't recharge sufficiently, resulting in low summer flows and a lack of dilution for pollutants, which then become more concentrated.

In recent years it has become increasingly apparent that with such a range of landowners, farmers and other organisations managing land in and around catchments, that a more joined up approach to tackling water quantity and quality is needed. The Catchment Based Approach (CaBA) is a community-led approach that engages people, groups and organisations from across society to help improve the water environment on a landscape scale through Catchment Partnerships. CaBA Catchment Partnerships are operating in every river catchment across Kent and Medway and taking forward work to address impacts on rivers.

A wide range of management measures need to be deployed, ranging from changes of land use, river restoration, planting of reedbeds and the removal of artificial barriers that are impeding fish migrations and movements.

12.3 Nature-based solution opportunities from freshwater habitat

Nature-based solutions in freshwater habitats often provide multiple benefits, addressing a number of different issues and requiring little maintenance or operational resources, making them efficient and cost effective.

Naturalising rivers, where appropriate, and reinstating wetlands not only increases the quality and quantity of habitats available, but can also improve the water quality, slow the flow of water and trap sediment in the wetland vegetation, reducing the amount that entering rivers.

Restoring wetlands allows water to be held within the landscape and released slowly over time, reducing downstream flooding and maintaining summer low flows. The Ramsar Convention considers that the conservation of wetlands should form part of drought management policies (RCS, 2015) due to the key role they play in harnessing water in the landscape and releasing it slowly into the natural groundwater system. With our climate changing to wetter winters and drier summers, it is important to consider these natural options to cope with extreme weather events.

Wetland and wet grassland habitat are also significant carbon stores. When arable and neutral grassland is turned into wetland through damning ditches and restoring historic floodplains, it can increase carbon sequestration by up to 120 tonnes CO_2/ha.

Sustainable Urban Drainage Systems (SuDS) can help to reduce flood risk. They intercept surface water and provide temporary water storage, which reduces water entering drains and increases water infiltration into the ground. Integrating SuDS into planning for new developments in urban areas will significantly improve Kent's resilience to climate change as surface water run-off will be decreased. SuDS can also be retrofitted into existing green infrastructure as a means of improving surface water management[24].

Restoration of urban wetlands have also been shown to help regulate temperatures, reducing ambient temperatures in the built environments that surround the wetlands. Creating SuDS, ponds and swales not only helps to mitigate water run off built environments but helps to cool it too.

12.4 Wider benefits of healthy and functioning freshwater habitat

In Kent 73% of our public water supply is taken from groundwater with the remainder from rivers or storage reservoirs. Chalk aquifers are key in terms of groundwater supply in Kent, and while demand and climate change may seem, beyond our control, healthy and functioning freshwater habitats above ground can have very positive effects on the health and well-being of the local population.

Nature rich rivers and streams in urban environments are vital in terms of the mental health benefits they bring, providing an opportunity to connect with nature. They are also the location of many recreational pursuits – a number of which rely on clean and healthy water.

[24] Community Forests, 2011

When located close to urban populations and with access, freshwater habitats, provide a crucial health role, particularly for deprived communities where health issues may be prevalent.
However, often riverside access is poor and where it is provided, people need to feel safe and welcome and often there are other psychological barriers to overcome too.

12.5 Freshwater habitat priorities and potential measures

For the mapped freshwater habitat potential measures see Part 3 or view online at Kent & Medway LNRS Measures

Priority FW1 **All rivers and streams and their associated floodplains[25] have a more natural form, free from physical modifications and barriers, allowing them to achieve at minimum good ecological status or potential and supporting natural processes. All freshwater habitats support a diverse native flora and fauna.**	 **FW1.1** Monitor, manage, control expansion and remove invasive species, including Himalayan balsam, mink, from ponds, lakes, wetlands, rivers and streams and lowland drains.
	 **FW1.2** Undo historical physical modifications[26] which have disconnected rivers and floodplains and restore natural processes through a range of approaches including installing a supply of woody material and allowing this to remain in the channel where not causing flood risk, restoring channel stage zero[27], restoration of historic meanders, bed raising, regrading banks to create shallow edges and establishing mosaics of water meadows, wet grasslands and wet woodlands, to allow inundation of floodplains above Q10 flows[28]. **FW1.3** Restore more natural shape of channels by narrowing overwide channels, especially where siltation, uniform and low flows and lack of habitat diversity are a pressure. **FW1.4** Open up and daylight culverted rivers, streams and ditches including ephemeral/seasonal streams where modification is redundant.
	 **FW1.5** Increase longitudinal connectivity in rivers by removing redundant barriers and making remaining barriers passable for fish, riverine mammals and natural sediment[10]. **FW1.6** Support the delivery of protected freshwater sites restoration plans, through addressing drought and water quality impacts across the wider catchment.
	 Identify priority areas where channel shape needs restoration. Identify catchment areas where drought and water quality are impacting protected freshwater sites.

[25] Areas surrounding rivers and streams, which can experience flooding when water levels rise.
[26] Avoid removing downstream in-river structures where these are protecting White-clawed Crayfish from invasive Signal Crayfish and other non-native crayfish species.
[27] The philosophy of Stage Zero restoration is to work with natural processes to rehabilitate a modified and incised, or aggrading, channel network and restore the water connection to its floodplain – for more information see Resetting our rivers – how taking them back to 'stage zero' could help nurture nature – Creating a better place
[28] The flow in cubic metres per second which was equalled or exceeded for 10% of the specified term – a high flow parameter which, when compared with the Q 95 flow provides a measure of the variability, or 'flashiness', of the flow regime Derived Flow Statistics | National River Flow Archive

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		County-wide/catchment-wide management strategy for freshwater invasives, including addressing distribution from headwaters and through vessels such as houseboats in the estuary.	
		*Tinodes pallidulus* (Caddisfly) Grey Wagtail Kingfisher White-clawed Crayfish	Common Eel European Water Vole Frogbit Opposite-leaved Pondweed

Priority FW2 **Ensure freshwater habitats and groundwater bodies are supplied with clean water, safeguarded from, and able to withstand, the impacts of pollution.**		**FW2.1** Discharge agricultural land drains into interception features in buffers, rather than the stream network. **FW2.2** Reduce input of diffuse phosphate and nitrate pollution to surface and groundwater bodies[29].
		**FW2.3** Establish and manage functional buffer strips and other interception features for all flow pathways to hold runoff and remove pollutants including chemicals, nutrients and sediment, before it enters rivers and streams from farms, livery yards and similar land uses.
		**FW2.4** Prevent road runoff entering rivers through the installation of SuDS, downstream defenders, or similar interception features on highways, local roads, and existing and new developments. **FW2.5** Reduce the risk of combined sewer overflows by reducing surface water entering the drainage system for example through the use of SuDS, natural flood management measures or similar.
		▪ Address water on a whole farm basis and in the context of the catchment.
		▪ Increase the extent of water quality monitoring across rivers (including those not included in the WFD monitoring) and habitats. ▪ Clearly map source of pollution incidents including sewage, litter and pesticides to directly address issues at source.
		Protect reaches currently least affected by effluent from new discharge points. Provide a water toolkit for landowners and farmers and provide opportunities for peer-to-peer learning.

[29] For example, through the use of integrated constructed wetlands on small treatment works; and reedbeds, nutrient stripping and tertiary treatment for treated effluent discharge before it enters the river or stream.

Click here to view Key to symbols

		See species listed under FW1

Priority FW3 **Freshwater habitats and groundwater bodies are supplied with sufficient water and resilient flows, supporting their natural hydrological and hydrogeological regime.**		**FW3.1** Safeguard rivers from disproportionate impacts of abstraction by managing abstraction and water use in catchments which suffer from drought or water scarcity and improving habitats to provide resilience.
		**FW3.2** Retain and enhance habitats that support infiltration such as grasslands and woodland and avoid sealing of surfaces through development, compaction or inappropriate management of habitats and reduction of infiltration in key recharge areas and around chalk stream winterbournes.
		**FW3.3** Slow the flow and store water in the catchment in areas of low agricultural productivity or where there is space in urban areas, working with natural processes, to implement natural flood management e.g. through installation of large woody material, creation of wet woodlands, lowland meadows, reedbeds, flood attenuation ponds and similar, especially where they can reduce flood risk and provide clean recharge to the groundwater body. **FW3.4** Use nature-based solutions to improve recharge to chalk aquifers, for example through creation of catchment and interception woodlands on clay caps, cross-slope hedges, chalk grassland, and similar. **FW3.5** Hold and slow water in headwater streams through nature-based solutions (leaky woody dams and large woody debris, reedbeds, etc), and approaches such as stage zero to restore more natural channel shape and processes especially where this can provide flood risk benefits and improve stable flows.
		Manage natural habitats and farmlands to maintain and restore infiltration ability by prioritising soil health and groundcover.
		Identify and map drought and low flow hot spots.
		Reduce demand for water through increasing water efficiency measures, more sustainable use of water and use of alternative sources of water.

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		See species listed under FW1

Priority FW4 **Rivers, streams and springs and associated waterbodies have wide, more natural buffer strips with a diverse vegetation structure, which allow natural processes, provide a balance of light and shade, mosaics of wetland habitats, and safeguard from pollution and drought.**		**FW4.2**[30] Establish and maintain wide areas of semi-natural, complex habitats along banks of rivers and streams (including seasonal and headwater reaches), allowing light grazing of wet grassland areas with a focus on native livestock breeds, and encouraging woodland particularly where there is need for more shading of rivers to provide cooler temperatures, increasing riparian tree cover to 30%[31]. Allow natural regeneration of habitats and recolonisation. **FW4.3** Use re-development of old infrastructure as an opportunity to re-naturalise river corridors (e.g. old industrial sites).
		**FW4.4** Combine buffers with the use of nature-based solutions to hold water on floodplains and in areas upstream of communities at risk of flooding, and clean water. This could include for example large woody debris, sediment traps, floodplain wetlands.
		Break field drains and block ditches where habitats next to the stream network can wet up permanently, ensuring agricultural land drainage is not impacted.
		Identify key sites which would benefit from permanent wetting.
		*Tinodes pallidulus* (Caddisfly) See also species listed under FW1

[30] Mapping numbers for FW4 starting at FW4.2 is correct – no potential measure or map is missing
[31] keeping-rivers-cool.pdf

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Priority FW5 **Headwater streams have a natural form and natural processes, functioning as part of a mosaic of (seasonally) wet habitats including grasslands and woodlands, providing resilient flows to rivers and supporting a wide range of wildlife.**	 **FW5.1** Safeguard headwater streams from agricultural pollution, erosion, and road runoff through the use of semi-natural buffer strips and interception features.
	 **FW5.2** Restore and establish wetlands in headwater areas and around natural springs, by reversing and preventing further drainage of springs and seepage areas
	 Re-naturalise urban and modified sections of headwaters[32].
	 ▪ Identify and map clearly headwater streams and associated drainage areas. ▪ Identify and map sections of headwaters which require modifications to be reversed. ▪ Improve monitoring and understanding of the county's headwater systems and their water quality, flow and biodiversity.
	 *Tinodes pallidulus* (Caddisfly) See also species listed under FW1

[32] including ephemeral streams such as winterbournes (e.g. where they have been straightened and deepened to drain woodlands and agricultural land) including through approaches such as stage 0 restoration.

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Priority FW6 **Chalk streams reach, at minimum, Good Ecological Status or Potential, and provide high quality river habitat with a natural channel form and processes, supporting characteristic flora and fauna, natural and resilient flows along their permanent length, and well managed ephemeral headwater streams. Quality and quantity of water supporting chalk steams and the groundwater bodies they rely on is safeguarded.**	**FW6.1** Safeguard winterbourne streams and key recharge zones for aquifers feeding chalk streams. **FW6.2** Establish good farming practices for chalk streams, including cover crops, minimum till, infield buffer strips and green swales, restoration of hedges across slopes, woodland and pond restoration in fields.
	FW6.3 Restore natural processes and form, rewetting river corridors to safeguard recharge and mitigate against low flows and create habitat, including through encouraging braided channels and a saturated floodplain.
	FW6.5[33] Nature-based solutions in the wider catchment to reduce nutrient input to groundwater body and safeguard aquifer recharge.
	Restore gravel stream beds using material similar to that found locally.
	Improve soil health and structure and restore grasslands to support recharge.
	▪ Identify and better map extent of chalk streams across the county, including the small streams and tributaries. ▪ Monitor abstraction and flow of streams.

[33] Mapping numbers for FW6 are correct – no potential measure FW6.4 or associated map is missing

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		Opposite-leaved Pondweed

Priority FW7 **Clay rivers have a more natural channel form and processes, without physical modifications and the impacts of historic alterations, and are connected to a mosaic of wetland habitats along the floodplain and headwater streams.**		**FW7.1** Restore banks and channel, through regrading and creation of more shallow banks and associated wetland areas, to undo historic physical modification. **FW7.2** Remove physical obstructions and restore a natural channel shape[34]. **FW7.3** Riparian tree planting and natural regeneration along sections of the river lacking canopy cover.
		**FW7.5**[35] Increase extent of wetland habitats associated with headwater streams and floodplains, to retain water for longer, create resilience to drought and improve water quality.
		Introduce gravel riffles.
		Reduce livestock stocking density along clay rivers.

[34] Avoid removing downstream in-river structures where these are protecting White-clawed Crayfish from invasive Signal Crayfish and other non-native crayfish species.
[35] Mapping numbers for FW7 are correct – no potential measure FW7.4 or associated map is missing

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Priority FW8 **Maintain and enhance ponds with high ecological value and restore those lost or degraded. Enhance lake habitats and create new ponds, especially as part of a mosaic of habitats. Safeguard all pond habitats from run-off pollutants and invasive species, while allowing successional habitats to develop where appropriate.**		**FW8.1** Restore ghost ponds, including restoration of dew ponds and dip slope ponds, hammer and furnace ponds. **FW8.4**[36] Enhance online lakes to include a mosaic of habitats and watercourses.
		Safeguard ponds from agricultural runoff and road runoff by implementing and maintaining wide buffers around them, including consideration of livestock fencing and to reduce access for people and dogs. Restore native and appropriate plant and fish communities, considering removal of carp or planktivores.
		Connect ponds through associated habitats and ensure their connectivity in the landscape as part of a mosaic. Use this to reduce distance between waterbodies.
		Create ponds as nature-based solutions, including a treatment train for runoff and to capture rainfall events for example on farmland and in new developments to reduce flood risk.
		Common toad Great crested newt Kingfisher Pochard Shoveler Common Tern
		Brilliant Emerald Dragonfly European Water Vole Shining Ram's-horn Snail True Fox-sedge

[36] Mapping numbers for FW8 are correct – no potential measure FW8.2-8.3 or associated map is missing

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Priority FW9 **Lowland mire sites (fen and valley mires) and lowland peat habitats are well managed and enhanced, with the provision of buffers to allow the habitat extent to increase.**		**FW9.1** Manage existing fen and bog sites to reduce encroachment, including through scrub management and appropriate grazing.
		**FW9.2** Create and maintain wide buffers around existing fen and bog sites to safeguard them from diffuse pollution. **FW9.4**[37] Restore lowland peat habitats by reversing drainage and supporting re-wetting of areas.
		Maximise opportunities for water retention including through the creation of bunds and management of water levels in associated drainage systems.
		Confirm extent of existing of fen habitat and identify suitable areas for opportunities to create.
		Moss Carder Bee Shrill Carder Bee Black Night-runner Beetle *Haliplus variegatus* (Beetle)
		Beaver European Water Vole Kentish snake millipede Marsh Mallow Moth

Priority FW10 **High quality natural reedbeds across Kent are increased, and existing reedbeds are in appropriate management.**		**FW10.1** Manage reedbeds to prevent encroachment of woodland, and by managing associated ditches and dykes, conservation grazing, minimal chemical interventions, consider management of saline flooding.
		Reedbed creation on lakesides with shallow edges, in disused quarry sites or similar open water sites.
		Create natural reedbeds along river corridors and integrate them with the wider landscape, allowing them to connect sites.
		Identify suitable project sites across the county for reedbed creation, including floodplains, industrial sites, quarries.

[37] Mapping numbers for FW9 are correct – no potential measure FW9.3 or associated map is missing

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		Bearded Tit Bittern Marsh Harrier	Beaver European Water Vole

Priority FW11 **Enhance and restore wildlife-rich and functioning freshwater wetlands across the county, providing not only shelter, nurseries and breeding grounds but also carbon sinks and water management.**		**FW11.1** Enhance reservoirs and similar waterbodies to provide better wildlife habitat. Ensure any such water bodies include features that enable wildlife to get out of water.
		**FW11.2** Manage, restore and expand river valley wetlands, for example floodplain meadows, floodplain grazing marshes, reedbeds and mudflats.
		**FW11.3** Create wetlands through seasonal inundation, providing habitats for waders and creating storage opportunities for rainfall.
		**FW11.4** Connect existing wetlands through a mosaic of habitats.
		▪ Allow a mosaic of habitats to develop within wetlands. ▪ Design new wetlands to function as water storage and retention areas, retaining water in high flows and releasing it slowly in dry periods.
		Identify freshwater wetland areas affected by saltwater intrusion and prioritise areas for action to restore freshwater habitats, while maintaining a balance between saltwater and freshwater marshes.
		Brown Long-eared Bat True Fox-sedge

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Priority FW12 **Restore and enhance semi-natural lowland drains and associated marshlands through integrated water level management and habitat restoration to reduce flood risk, mitigate drought impacts and promote biodiversity.**	 **FW12.1** Manage more sensitively by following natural cycles, including consideration of retaining in-channel vegetation, woody material, and partial desilting to create shallow margins where possible.
	 Adapt vegetation management in channels to account for species present, including reducing or delaying cutting regime, and implementing alternative bank cutting on priority reaches and leaving a marginal fringe.
	 Enhance lowland drains by introducing meanders, backwaters and associated ponds. Restore lost watercourses that have been infilled in the fens and marshes. Remove redundant barriers and ensure passability of remaining structures for eels and other fish and riverine mammals.
	 Allow floodplain reconnection without removing floodbanks where this is likely to cause issues, e.g. through the use of culverts and sluices.
	 True Fox-sedge

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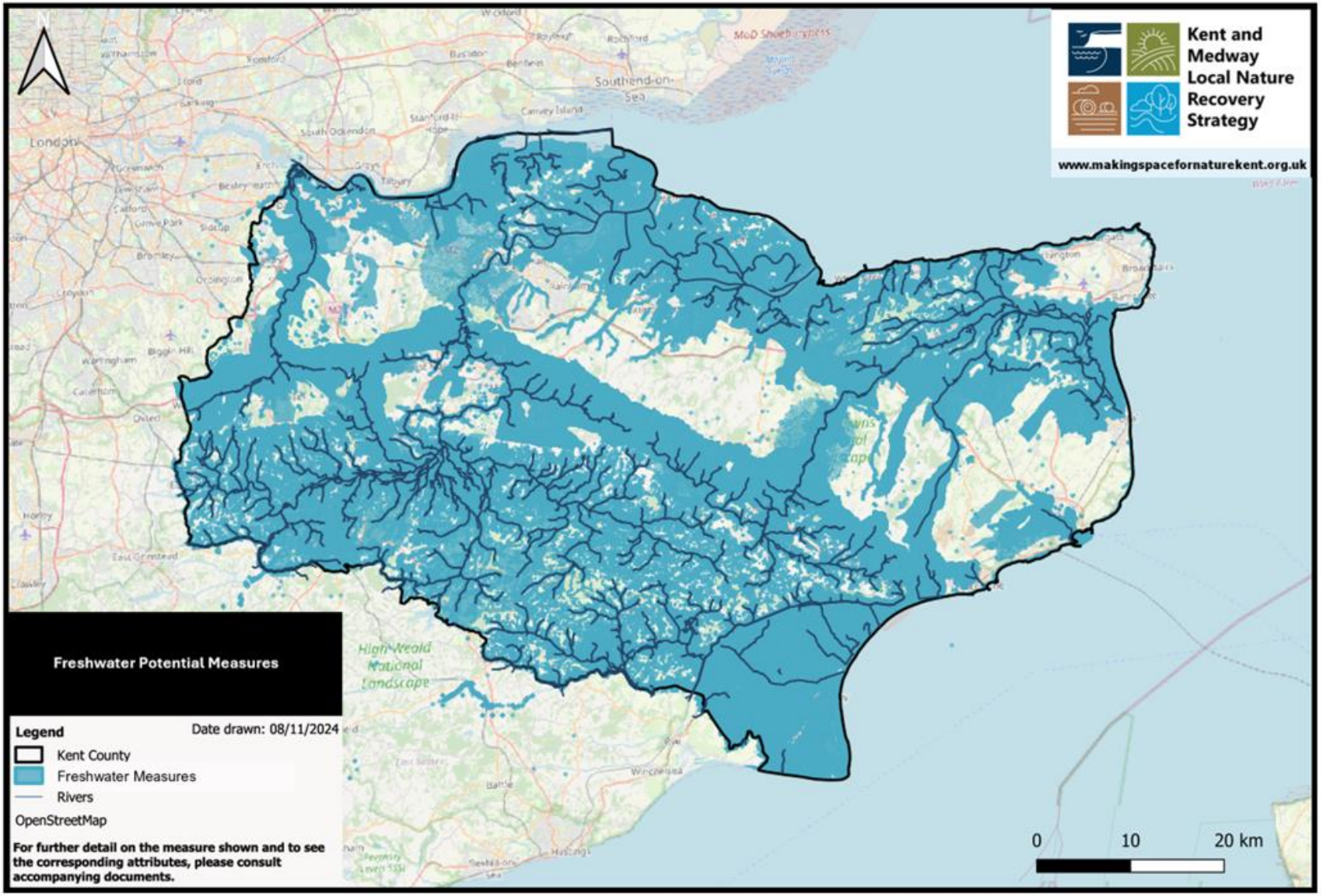
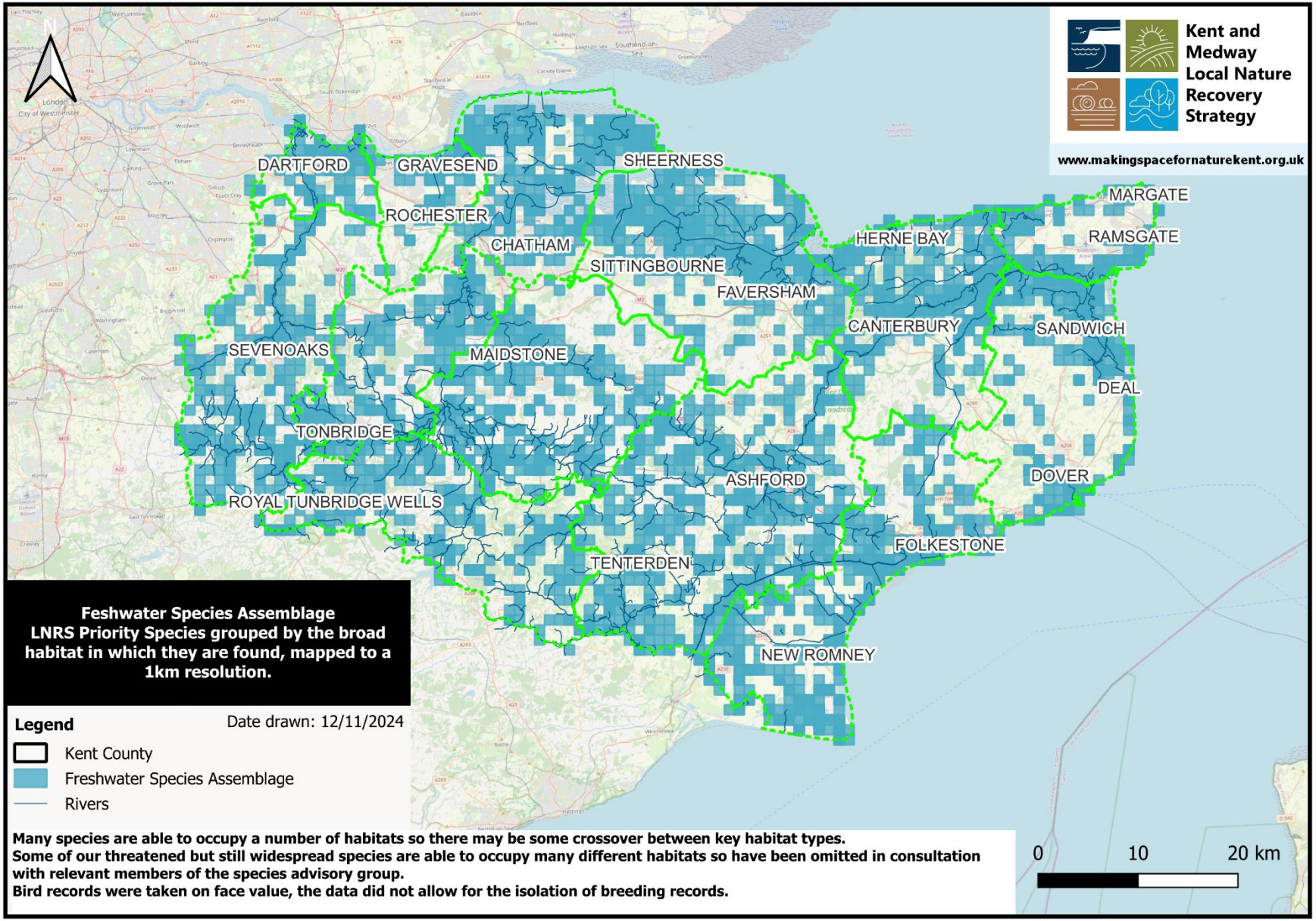
12.6 Freshwater habitat priority maps

12.6.1 Map of freshwater habitat priority areas



12.5.2 Map of freshwater species assemblage



13. Urban priorities and potential measures

13.1 Ambition for urban habitat in Kent and Medway

Nature plays a central role in shaping the county's built-up environments, with wildlife provided for in a network of connected green and blue spaces, which are also designed and managed to provide nature-based solutions to the challenges facing those living in urban areas.

13.2 An overview of the county's urban environment, pressures and threats, and the importance of, and opportunities for, recovering this habitat.

With 16% of the county built on or urban habitats, it's critical that any nature recovery work considers the role of these areas within nature recovery. Habitats in the urban environment are varied but provide a lifeline for a range of wildlife. However, many green spaces are not well managed for nature. They are often over-mown and manicured, with planting that offers no or little food source or shelter, and tree planting can be inappropriate and without the long term management needed to reach maturity.

Residential greenspace is also being lost. In many areas there is notable loss of natural grassed areas to parking spaces, artificial grass, paving stones, decking, gravel and impermeable plastic layers. And often hedgerows are replaced with impenetrable fencing. This loss of "green" not only affects urban wildlife but also leads to a reduction in soil health and the increased pollution of water bodies.

New developments present significant opportunities for nature through good design of green and blue infrastructure, and the newly mandated Biodiversity Net Gain when delivered on-site. Opportunities in existing urban areas largely relate to improving the management green space, linking together urban and rural green spaces to improve connectivity, addressing fragmentation across the urban landscape and increasing the amount of green space, trees and hedgerows.

In both scenarios the opportunities to provide enhancements for certain species, such as nest sites for swifts and access for hedgehogs, or approaches such as "No Mow May" are considerable, and the public often respond very well to such initiatives.

13.3 Nature-based solution opportunities for urban environments

Within urban environments, there is a cross over with other habitat related nature-based solutions. For example, the previously mentioned planting of trees and hedgerows in urban areas and alongside major roads to tackle air quality, temperature regulation and carbon sequestration. Another opportunity for carbon capture and temperature and air quality regulation in urban spaces is provided by green walls, balconies and roofs, retrofitting to existing and designing into new developments.

Sustainable Urban Drainage Systems (SuDS) and swales are another freshwater management option which addresses water drainage issues in built environments. SuDS provides an effective way of alleviating flood and drainage issues for both existing urban areas and new developments, through the incorporation of swales, wetland and pond features. Green roofs can also offer water management benefits, absorbing rainwater and reducing run-off as well as neutralising acid rain. Permeable pavements and gardens are another way to reduce run-off and slow the amount of water entering combined sewerage systems.

Landscaping and planting can also provide nature corridors throughout built environments with the inclusion of grasses, wildflowers, trees and hedgerows. This provides forage and shelter and also increases opportunities for the migration of species, particularly pollinators, through the urban environment, increasing pollination for areas outside towns and cities as a result.

13.4 Wider benefits of healthy and functioning urban environments

A healthy and functioning natural environment including clean and plentiful water, good air quality and suitable green and blue infrastructure, should be the first consideration before any housing development goes ahead, as these wider benefits are essential to providing good conditions for people as well as wildlife.

Biodiversity supports people's health and wellbeing through day to day connection with nature, bringing benefits to mental and physical health, but also through the regulating services it provides – including contributing to clean air and temperature regulation. These wider benefits can reach people most readily in the urban environment, but only if nature is properly considered as part of infrastructure and the benefits of existing habitats and green spaces recognised.

Connection with nature and health and wellbeing benefits can be realised in urban environments with plenty of green space/wildlife corridors, but particularly when habitats have been improved, increased, added to or joined up close to populations lacking in natural greenspace.

Opportunities to deliver for both people and wildlife include:

- Green transport routes, allowing both people and wildlife to navigate through the urban landscape.
- Access and stepping stone green sites give variety of experience of natural green space from town to countryside, with health and well-being benefits for people and habitat provision for wildlife.
- Allotments and orchards provide healthy activity for people and connection with nature.
- Community projects focused on improving green areas for nature offer health benefits and combat loneliness and isolation, whilst also benefiting wildlife.
- Gardens, parks, verges, window boxes, SuDS, tree planting, green roofs all help to bring nature close to people in urban environments.

13.5 Urban priorities and potential measures

For the mapped urban potential measures see Part 3 or view online at [Kent & Medway LNRS Measures]

Priority URB1 **Address habitat fragmentation of the urban environment, ensuring urban species can freely move about and developed areas and infrastructure does not impede passage.**		**URB1.1** Employ conservation cuts, and minimise mowing, on verges and grass areas in areas known to be of importance for pollinators connectivity.
		**URB1.2** Enhance and safeguard existing greenspace and trees that provide key stepping stones between larger natural spaces that are either within or at the edge of urban areas. **URB1.3** Enhance, increase and create green spaces, ponds, canopy cover, green roofs and walls and wild verges/swathes to establish wildlife corridors and provide habitat stepping stones across urban and developed landscapes. **URB1.4** Replace hard river banks with native buffer verges and tree planting and divert some river networks to form long, linear habitats for the benefit of wildlife.
		▪ Establish native mixed hedgerow and street trees to link urban greenspaces and to connect these areas to the wider landscape and rural fringes. ▪ Green bridges and tunnels installed (or existing crossings modified) to traverse new and existing barriers to wildlife movement in the urban environment. ▪ Use green roofs, walls and other features at bus shelters, bus and train stations and bridges to extend the wildlife network. ▪ Mobilise the population of Kent to help support connectivity through wildlife friendly gardening measures, retention of grass, hedgerows and trees, and ensuring any boundary features are passable.
		Identify and map existing barriers to wildlife movement in the county's major towns.
		Moss Carder Bee Shrill Carder Bee House Martin Swift
		Brown Long-eared Bat Hazel Dormouse Leisler's Bat Serotine Bat West European Hedgehog

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Priority URB2 **Deliver benefits for wildlife through urban public greenspace and land management.**		**URB2.1** Areas of urban greenspace[38] managed specifically for nature recovery, to provide a greater complexity of habitats, with year round shelter, forage and food, focussing on where benefits are most needed. **URB2.2** Employ conservation cuts, minimise mowing and leave wild strips, buffers and corners on verges and grass areas in areas known to be of importance for pollinators.
		**URB2.3** Restore and enhance urban rivers, with river corridors naturalised.
		**URB2.4** Target tree establishment to areas of low canopy cover.
		Install appropriate ecological features, including swift bricks[39], house martin artificial nest cups, bat tiles, bird boxes, hedgehog highways, bug hotels, reptile refugia etc, especially where there are known key or declining populations.
		▪ Reduced use of pesticides and herbicides. ▪ Plant the right trees, in the right place and with appropriate management to ensure their successful establishment. ▪ Ensure any measures taken are in keeping with the local landscape setting and character.
		▪ Use of interpretation/public information to increase understanding of wildlife features and wild management. ▪ Installation of ecological features a standard practice for all new builds across the county.
		Moss Carder Bee Shrill Carder Bee House Martin Swift Brown Long-eared Bat Hazel Dormouse Leisler's Bat Serotine Bat West European Hedgehog

[38] Including but not limited to - community gardens, allotments, church yards, village greens, schools, golf courses, cricket grounds, sports pitches, railway embankments, car parks and hospitals.
[39] Swift bricks should be installed in accordance with best-practice guidance such as BS 42021 or CIEEM; swift bricks are a universal nest brick for cavity-nesting small bird species.

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Priority URB3 **Safeguard and increase the extent of green space, trees and hedgerows within urban areas to not only provide more habitat for wildlife but also deliver other benefits including urban cooling, air and noise pollution regulation and surface water management.**		**URB3.1** Trees and hedgerows specifically planted to deliver air quality, temperature regulation/cooling and surface water management benefits and targeted to areas where it is most needed and will deliver the greatest impact. **URB3.2** Prioritise the use of natural flood management/nature-based solutions over engineered, hard solutions, to manage areas at high risk from surface water flooding. **URB3.3** New and retrofitted green walls and roofs to enhance biodiversity, whilst also providing temperature regulation in settings most at risk from urban heat island effects. **URB3.4** Naturalise urban river corridors, with areas of the banks preserved as wildlife refuge, and reconnect to floodplains to assist with flood management, temperature cooling and nutrient neutrality. **URB3.5** Increased green and blue infrastructure, and more natural space, is targeted to communities where it is most needed to deliver health and wellbeing benefits and greater connection with nature.
		▪ Ensure any measures taken are in keeping with the local landscape setting and character.
		Identify and map priority areas that have severe heat stress, in order to target the use of green infrastructure.
		▪ Use of interpretation/public information to increase understanding of how nature is being used to deliver services and benefits. ▪ Nature-based solutions installed with long term management in place that ensures the retention and maintenance of the benefiting features.
		See species listed under URB1 and URB2

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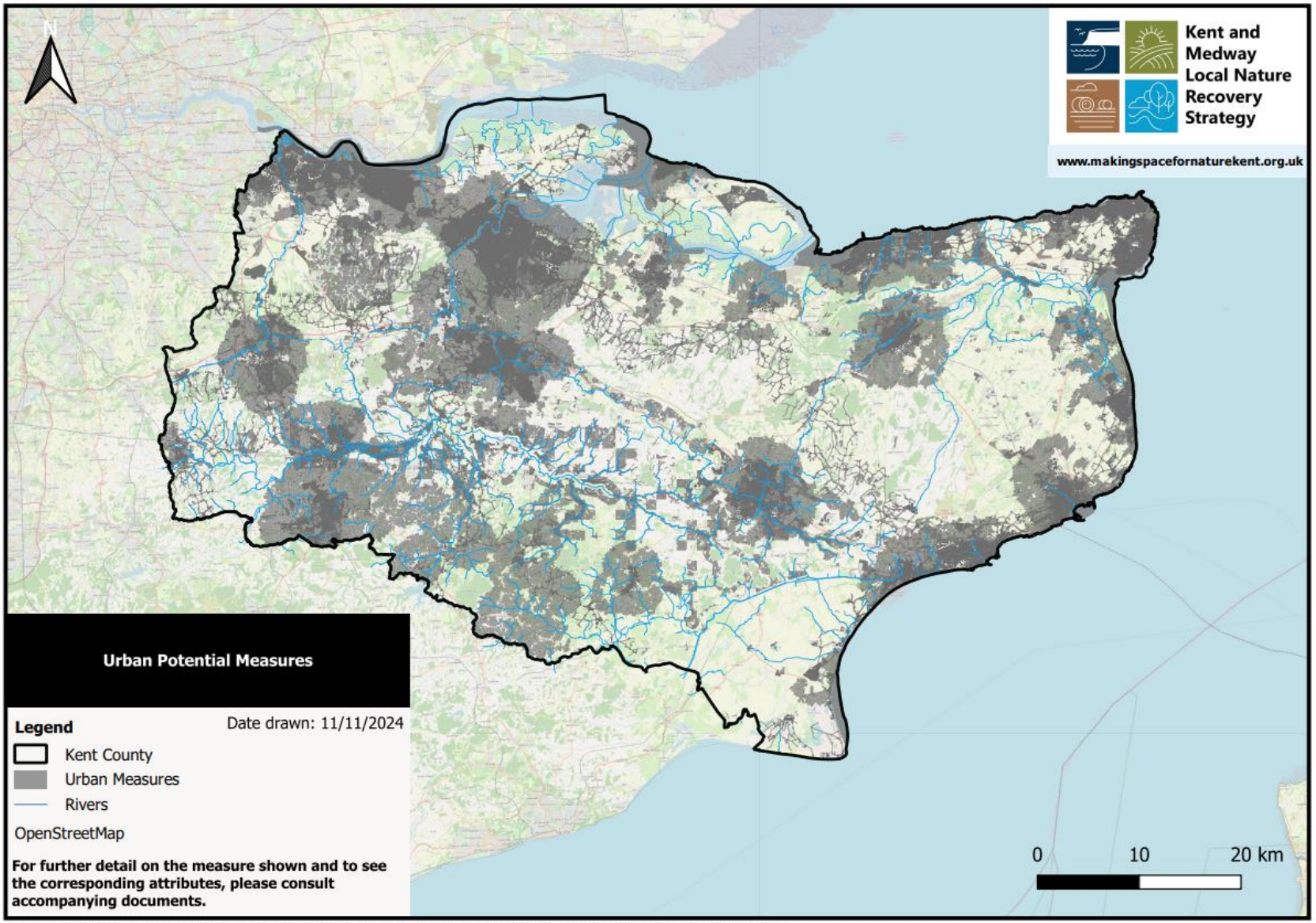
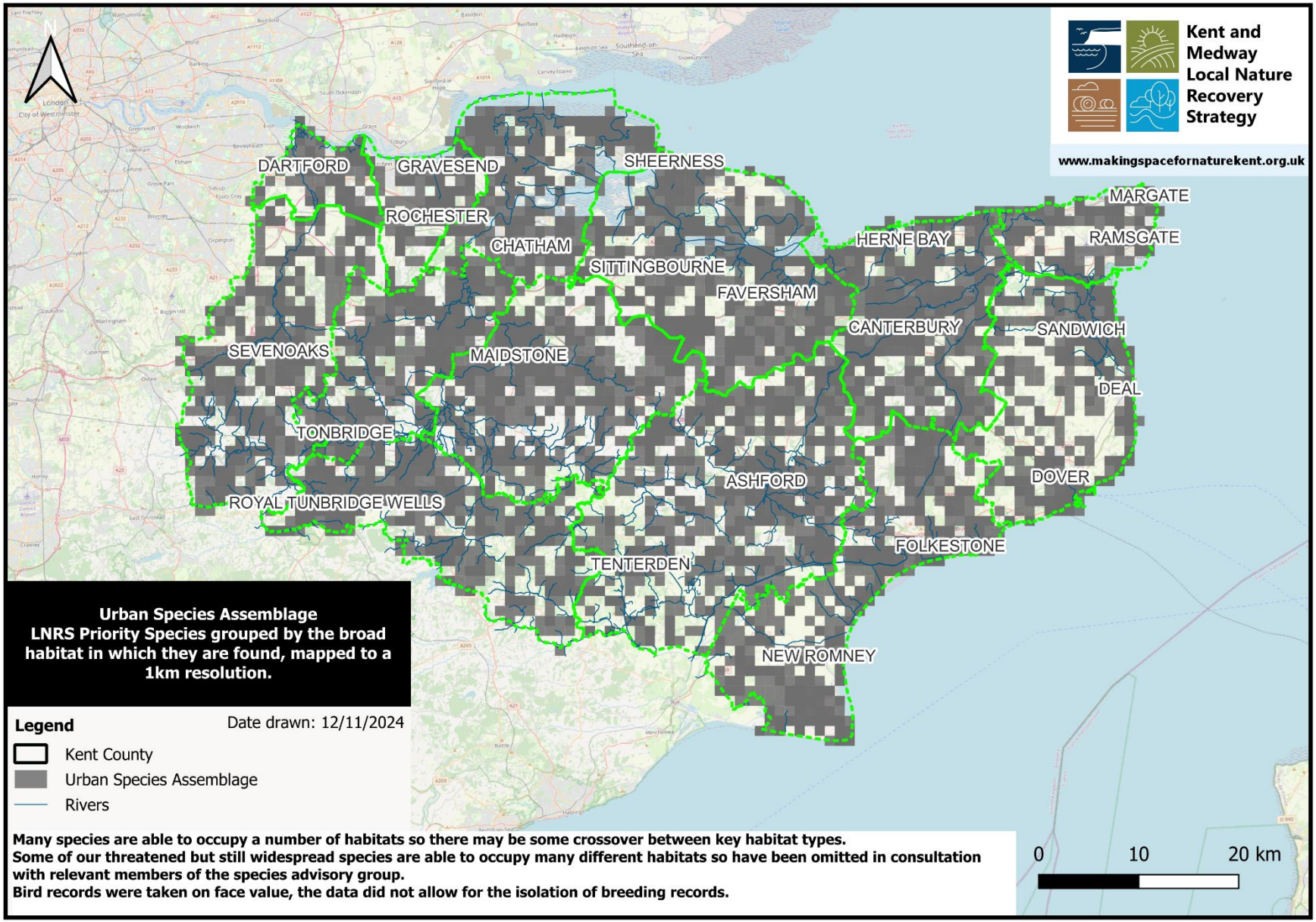
13.6 Urban priority maps

13.6.1 Map of urban priority areas



13.5.2 Map of urban species assemblage



14. Coastal priorities and potential measures

14.1 Ambition for coastal habitat in Kent and Medway

Coastal and estuarine areas are allowed to evolve, with natural processes and progression restored, to enable adaption and resilience to climate change. Management of habitat succession is delivered strategically and holistically, to minimise loss and support a range of high functioning, connected coastal habitats[40].

14.2 An overview of the county's coastal habitat, pressures and threats, and the importance of, and opportunities for, recovering this habitat.

The Kent and Medway marine, intertidal and coastal area is extensive and rich in biodiversity, with habitats ranging from blue mussel beds and ross worm reefs to saltmarsh, mudflats, chalk reefs and vegetated shingle. This contributes to the wider UK marine environment, which has the widest range of marine habitats of any coastal waters in Europe.

The intertidal area, exposed as the tide moves in and out, often takes the form of mudflats around the Kent coast and in particular across North Kent. Mudflats have a high biological productivity with abundant invertebrates such as ragworms, lugworms, sandhoppers, cockles and *Hydrobia* snails that provide food for internationally important populations of migrant and wintering wading birds. Coastal saltmarsh is another habitat of the intertidal area, again mainly found around the North Kent and east Kent. It is rich in rare and scarce plant assemblages, but it is also an important resting and feeding area for wading birds. Over 80% of the intertidal area in Kent is designated and protected.

Across the North Kent Marshes, there is an association between the intertidal habitats and freshwater grazing marsh behind the sea walls – with wildfowl and wading birds commuting between the two areas, depending on the state of the daily tides.

Saline lagoons are a rare and restricted habitat. Cliffe Pools near Gravesend, managed by the RSPB, is the most notable example in the county but there are other smaller, isolated sites which all together make up the 286ha of resource. These sites are important for an assemblage of specialist lagoon invertebrates, breeding terns, Avocets and wintering wildfowl and waders.

Seagrass beds are a rare habitat nationally – the 2012 Kent Habitat Survey recorded just 29.4ha, with more than half of this found in water off Medway. Seagrass need good levels of light to photosynthesise, so they grow in shallow waters and sheltered areas, such as estuaries, bays and inlets. Seagrass is the food plant of the Brent Goose which winters in Kent.

[40] Note that the priority and potential measures for grazing marsh can be found under grassland habitats (GL2).

Native oysters fuse together as they grow, forming rock-like reefs that provide another habitat for other marine animals and plants. Native oyster reefs are mainly found in the Thames estuary.

Generally vegetated shingle occurs mainly in small, narrow strips at various locations along the Kent coastline. Narrow bands of shingle may support annual vegetation of drift lines, and in some places, perennial vegetation of shingle may develop. At Dungeness, however, an extensive cuspid shingle foreland has been formed by the action of storms over many centuries. This extensive area of around 2,000ha, supports a unique series of habitats[41] and is the UK's largest shingle structure (there are only five other structures over 100 ha in extent in the UK) making it both nationally and internationally important. A variety of rare invertebrates and plants are dependent on vegetated shingle, their concentrations varying dependent on the extent to which the normal tide limit reaches these areas, but the whole habitat is dependent on dynamic coastal processes.

Chalk defines a lot of Kent geology and ecology and for the coast this is no exception, with both maritime chalk cliffs and chalk reef providing important habitat.

There is 415ha of intertidal chalk around the coastline of Kent, accounting for 56% of England's chalk coastline[42]. The Thanet coast has the second largest unbroken stretch of chalk reef in the UK, at 23km, which offers up a large area of intertidal and subtidal habitats, including chalk caves that are home to unique algal species. The diverse substrates – ranging from sand and coarse sediments to chalk rock, support a variety of marine life including the rare Stalked Jellyfish.

Kent has a number of other marine habitats including, clay, greensand, intertidal rock, offshore sandbanks, Blue Mussel beds and Ross worm reefs.

The Kent coast and marine area is facing a range of pressures. Sea levels in England have risen by 16cm since 1900[43]. For Kent, the sea level is expected to rise by up to 30cm by 2040 and 80cm by 2080[44]. The impact of sea level rise is exacerbated for habitats such as saltmarsh and mudflat, which are gradually lost as they are squeezed against the man-made walls that are put in place to prevent inundation by the sea. In certain areas, sea walls can be removed as part of a managed realignment, so saltmarsh and mudflat can migrate landward. The impacts on habitats such as freshwater grazing marsh and saline lagoons on the landward side of sea walls also need to be managed.

Another effect of the urban coast and man-made/hard infrastructure is that habitats cannot always act in a natural dynamically functioning way. Vegetated shingle requires longshore drift to replenish itself, a process which is disrupted by our coastal infrastructure.

[41] Kent Habitat Survey, 2012
[42] UK BAP, 2008
[43] UK Climate Risk, 2021
[44] Kent County Council, 2020

Increased sea temperature and reduced oxygen levels have a significant impact on a range of species, including cold water fish, while acidification negatively affects calciferous species. Increasing temperatures may also create a more hospitable environment for pests, diseases and invasive non-native species. The latter, such as the carpet sea squirt, have colonised, at the expense of some native species, in areas where they were previously unable to survive.

Coastal waters in Kent are polluted by a number of factors, including agriculture, land management, sewage and fuel and other spillages from shipping

The human population in Kent is considerable and growing and the coast is an obvious place for recreation, both on land and water. This is having a negative impact on wildlife in some areas, particularly for birds which are easily disturbed. Disturbance reduces the birds' feeding opportunities, meaning they may have insufficient energy to survive the winter or to complete their migratory journey to their breeding sites, leading to a reduction in the bird populations.

14.3 Nature-based solution opportunities from coastal habitat

Our coastal habitats are the first line of defence for the effects of climate change. Coastal saltmarshes can help buffer increased storminess, by absorbing the energy of powerful waves. Studies that have modelled the benefits of saltmarsh habitat to reduce wave impacts, suggest that up to 50% of wave energy can be attenuated in the first 10-20 metres of vegetated saltmarsh, which in turn would reduce the scale of artificial defences needed on the landward side[45].

Saltmarshes, seagrass, sand dune grasses and kelp beds, as well as coastal grazing marsh, sequester carbon and reduce soil and sand erosion from coastal sites. Most blue carbon is stored in the soil, below ground which differs from forests. Erosion of these sites is a considerable problem, releasing stored carbon into the atmosphere when damaged. Estuarine expansion could provide additional carbon storing habitats[46].

14.4 Wider benefits of healthy and functioning coastal habitat

Access to coastal habitats near coastal urban populations provide mental health benefits and the opportunity to connect with nature. Coastal and marine areas are also the location of many recreational pursuits – a number of which rely on clean and healthy water. However, some recreational pursuits in these areas do conflict with the wildlife that relies on these coastal habitats.

Fisheries industries benefit from healthy and functioning marine and coastal habitats, but sustainable fishing practices are also part of the answer to some of the pressures facing marine species.

[45] Climate Change Committee, 2017
[46] Alonso et al., 2012

14.5 Coastal habitat priorities and potential measures

For the mapped coastal habitat potential measures see Part 3 or view online at [Kent & Medway LNRS Measures]

Priority CL1 **Sustainable and strategic management of estuaries and open coast to create functionally linked coastal habitats that are allowed evolve, creating areas for wildlife to thrive. Natural dynamic processes and progression is restored, to enable adaption and resilience to climate change and minimise the loss of intertidal habitats.**		**CL1.1** Where hard defences must remain, apply the "greening the grey" approach, softening edges to encourage wildlife[47]. **CL1.2** Refuges for wildlife created with either 'no go' or restricted areas.
		**CL1.3** Hard defences removed where appropriate[48], to allow space for tidal ingress and enable the managed realignment of the coastline, to mitigate coastal squeeze and allow intertidal habitats to be more resilient to climate change.
		**CL1.4** Create areas for saltmarsh restoration, seagrass regeneration and high tide roosts as well as breeding areas for seabirds and waders, with appropriate measures to prevent or reduce disturbance and predation.
		**CL1.5** Hard defences removed where appropriate to enable reconnection of fragmented habitats through managed realignment.
		Establish a strategic management approach which recognises, minimises and mitigates the likely loss of one habitat over another as a result of managed realignment.
		Four-banded Weevil-wasp Long-spined Ant *Longitarsus aeruginosus* (Beetle) *Ophonus puncticollis* (Beetle) Dune tiger beetle East Coast Dune-walker Beetle Sandwich click beetle Little Tern Oystercatcher Ringed Plover Sand Martin Wall Butterfly Marram Oyster Fungus Forester Moth Sand Running Spider Greater Streaked Shieldbug *Prostemma guttula* (True Bug) Bur Medick Bedstraw Broomrape Ox-tongue Broomrape

[47] Following Estuary Edges design principles https://www.estuaryedges.co.uk/design-principles/
[48] To ensure that both natural and built environment is not at risk of inundation, damage or loss as a result of the action.

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		Sandwich Tern	

Priority CL2 **Reduce small scale loss, improve condition and increase connectivity of saltmarsh and mudflats, providing functioning ecosystems that are safeguarded from recreational disturbance.**		**CL2.1** Maintain high roosts and nesting sites, with key sites fenced off, to limit disturbance and safeguard inland feeding, breeding and overwintering areas.	
		**CL2.5**[49] Link areas with other wetland habitats to form a landscape mosaic of wetlands to reduce the tendency for waders and seabirds to be concentrated at key hotspots and reserves.	
		To support fish nurseries, use embryonic structures and channels to create natural drainage channels (ripples, eddies, pools and meanders), saltmarsh islands, and minimise over-engineered structures.	
		Work with landowners to create more space for nesting seabirds to avoid competition and predation.	
		Create areas for saltmarsh restoration by raising the height of the coastline through managed realignment and the “beneficial use of dredged sediment”.	
		Identify and monitor saltmarsh and mudflat recreational disturbance in order to better target preventative measures.	
		Sea Aster Bee Brent Goose Redshank Waders & Wildfowl	Duffey's Bell-head Spider Yellow-striped Bear-spider Borrer's Saltmarsh-grass

[49] Mapping numbers for CL2 are correct – no potential measure CL2.2-2.4 or associated map is missing

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Priority CL3 **Reverse the decline in seagrass off Kent's coast to safeguard this important habitat for marine species and their breeding grounds and nurseries; and to preserve its vital function as a blue carbon store.**		**CL3.1** Reduce pollution which is causing smothering of seagrass by intercepting with reedbed filtration. **CL3.2** Remove invasive spartina to reduce smothering of seagrass.
		**CL3.3** Increase areas of existing seagrass beds.
		Identify priority areas for sampling of water quality and corrective action.
		Requires the pollution of coastal waters to be addressed.
		Brent Goose Short-snouted Seahorse Spiny Seahorse

Priority CL4 **Chalk cliffs and reef communities thrive in their natural state and are safeguarded from damage from recreational and leisure activities, development and bottom fishing methods.**		**CL4.1** Management of problematic non-native species. **CL4.2** Control leisure boat and other recreational activity in chalk reef areas.
		Identify new sections of profile where natural erosion can be allowed to occur, forming new sea caves and chalk reef.

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Priority CL5 **Sustainable management of native oyster beds to allow them to reach their habitat building potential.**		**CL5.1** Safeguard established areas with no take zones. **CL5.2** Remove invasive, non-native species from the native beds.
		**CL5.3** Create suitable substrate for native oysters to colonise, focussing on existing/historic areas.
		Map and monitor the native oyster beds.

Priority CL6 **Saline lagoons are appropriately safeguarded and managed to increase their resilience and adaptation to climate change and secure their ecological functions, including the role they will play as transitional habitats.**		**CL6.1** Safeguard existing saline lagoons from loss and damaging activities that harm and/or pollute the lagoons.
		**CL6.2** Establish buffer zones and/or adjust site features and topography, to ensure ecological function of saline lagoon is not undermined by disturbance; enhance marginal habitat.
		**CL6.3** Create new saline lagoons to connect wetland sites in transitional areas that are likely to flood, taking into account proximity to sources of recreational disturbance.
		Identify where future new saline lagoons will be required to ensure provision of their ecological function as transitional habitat at the coast.
		Tentacled Lagoon Worm

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Priority CL7 **Safeguard and restore vegetated shingle, ensuring there is no unavoidable loss and areas remain in, or are returned to, a favourable condition.**		
	CL7.1. Manage encroachment through scrub and invasive flora removal and where appropriate, apply non-intervention management so that natural processes such as wind and waves can maintain the various successional stages from bare mobile shingle to more stable vegetated shingle and allow habitat features to develop and evolve. Safeguard existing habitat through restricted access and management/interventions (e.g. allocated routes and boardwalks) that minimise the impact of footfall on this delicate habitat.	
	CL7.2 Safeguard and extend supporting habitats, such as species-rich grasslands, next to coastal shingle that can act as seepage areas and support a mosaic of habitats for important coastal shingle species.	
	Long-spined Ant *Smicronyx coecus* (Beetle) Spangled Button Beetle Oystercatcher Ringed Plover Wheatear	*Cladonia mitis* (Lichen) Brown Hare Sussex Emerald moth

Priority CL8 **Reduction in coastal wildlife disturbance resulting from leisure pressures at coast.**	
	CL8.1 Develop zoned recreational areas that limit, restrict or prevent leisure activities which can disturb wildlife and damage sensitive habitats; safeguard offshore islands.
	CL8.2 Building up of existing and creation of new seal haul out sites, which are adequately managed to provide safe areas seals.
	Identify and map key and vulnerable sites in order to better target preventative measures.
	▪ Support management measures by increasing wardens at key sites.
	See all species listed under Coastal priorities

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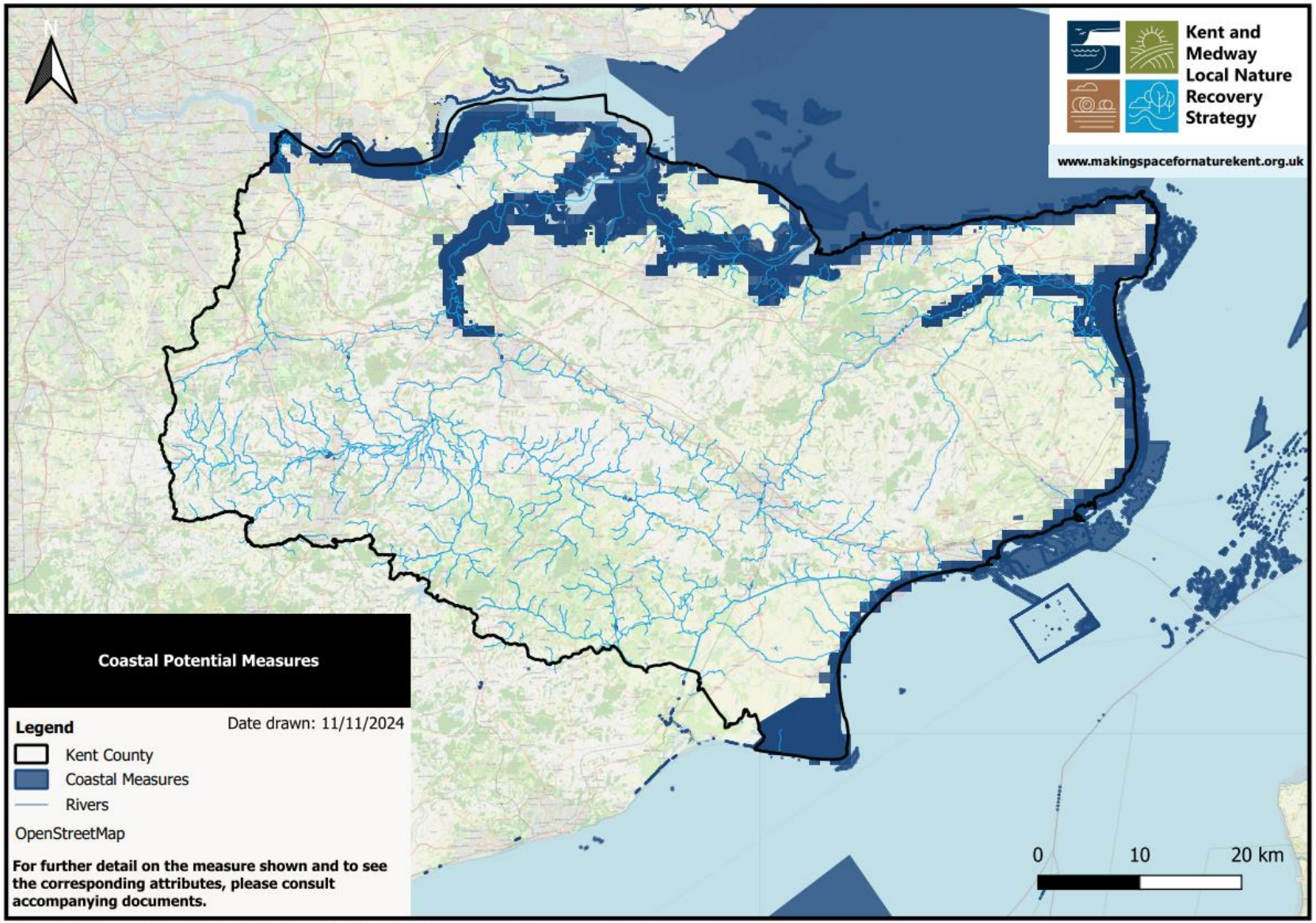
14.6 Coastal habitat priority maps

14.6.1 Map of coastal habitat priority areas



14.6.2 Map of coastal species assemblage