KENT NATURE PARTNERSHIP BIODIVERSITY STRATEGY 2020 TO 2045



The Kent Biodiversity Strategy sets out the contribution the county of Kent, and the Kent Nature Partnership, can make to the Government's ambition to leave our environment in a better state than we found it and the aspirations set out in its 25 Year Environment Plan "A Green Future".

February 2020

Kent Nature Partnership

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ALTERNATIVE FORMATS

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FOREWORD

In the same year Kent compiled its renewed Strategy for Biodiversity, the UN published the startling and troubling statistic that globally one million animal and plant species are now threatened with extinction. This landmark report has found that nature is declining at unprecedented rates and that this decline will have grave impacts worldwide as we destroy the very foundation of economies, livelihoods, food, health and quality of life. Nature is clearly at a crisis point and we must act now if we are to halt and reverse this trend.

Clearly, tackling such a crisis requires action on a global scale. It requires our government, and governments worldwide, to transform how nature is valued and realise the importance of the health and preservation of biodiversity. But action is also needed locally within the county and we need to restore and create thriving habitats, ensuring the natural environment of Kent and Medway regains and retains good health.

The importance of nature, and the essential role it plays in our lives, is often overlooked. It provides a plethora of services vital to our very existence – the air we breathe, the water we drink and the food we eat. It provides us with raw materials; and a place for leisure, recreation and reflection. So we must take action – not just for nature's sake but for our own.

Kent is blessed with a wonderfully rich and varied biodiversity. We have globally rare habitats – the stark beauty of the vegetated shingle at Dungeness, the iconic ancient chalk grasslands of the Kent Downs and the dazzling marine chalk reef around our coast. And our Garden of England supports some equally rare and wonderful species, such as the Lizard Orchid and Shrill Carder Bee. But it's not just the rare or endangered that matter – all our biodiversity, even the most commonplace, has an important role in the natural environment and the services it provides.

The Government's 25 Year Environment Plan, A Green Future, pledges to use and manage land sustainably; to recover nature and enhance the landscape; to secure clean and biodiverse seas; and connect people with the environment to improve health and wellbeing.

This Strategy translates these policies to the local level and sets out how the county will deliver healthy, sustainable and coherent biodiversity in Kent. It looks to protect and recover threatened species and enhance the wildlife habitats that Kent is particularly important for. It also aims to provide a natural environment that inspires citizen engagement and is well used and appreciated, so that the mental and physical health benefits of such a connection can be realised by the people of Kent.

As leaders of Kent and Medway we recognise we're at a critical time to take the ambitious steps needed to secure our natural environment for generations to come. We hope this Strategy, and the actions that flow from it, will see the county recognised as a champion for the natural world so we can fully play our part in transforming biodiversity's fate and reversing its decline.

Roger Gough,
Leader of Kent County Council

Alan Jarrett,
Leader of Medway Council

EXECUTIVE SUMMARY

The Kent Biodiversity Strategy aims to deliver, over a 25- year period, the maintenance, restoration and creation of habitats that are thriving with wildlife and plants and ensure that the county's terrestrial, freshwater, intertidal and marine environments regain and retain good health.

The Strategy looks to protect and recover threatened species and enhance the wildlife habitats that Kent is particularly important for. It also aims to provide a natural environment that inspires citizen engagement and is well used and appreciated, so that the mental and physical health benefits of such a connection can be realised by the people of Kent

This will be achieved through the delivery of the following goals in Kent for 2045:

- A rich and growing terrestrial biodiversity, underpinned by more resilient and coherent ecological networks and healthy, well-functioning ecosystems.
- Clean, plentiful and biologically diverse freshwater and intertidal ecosystems underpinned by implementation of a catchment- based approach.
- A reverse in the loss of marine biodiversity and delivering clean, productive and biologically diverse oceans and seas through good management.
- The widest possible range of ages and backgrounds will be benefiting from the mental and physical health benefits of the natural environment; and we will have inspired the next generation to take on
- guardianship of the county's biodiversity.

Action will be steered by a broad spectrum of ambitious objectives.

The Strategy has identified 17 priority habitats and 13 priority species that Kent can play a significant part in the restoration of. It has also identified a handful of species that can act as indicators of the health of our ecosystems.

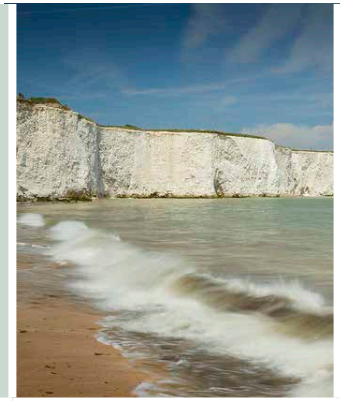
In addition, the Strategy looks to further work addressing overarching considerations affecting biodiversity recovery, including wilding, climate change, natural solutions, soil health and invasive species.

Whilst the Strategy has a 25-year timeframe, its delivery will be planned on a five-year basis with regular review to ensure it continues to respond to environmental pressures and national policy drivers. It is intended that the targets will be owned by all those that have the opportunity to drive the action needed to realise the Strategy's vision – the success of the Strategy will depend on the county's collective action.

At a time of ecological crisis, the Kent Biodiversity Strategy aims to help steer the collaborative work of conservationists, government, business and individuals to work in partnership so that the county's natural landscape can be restored and threatened species can be saved.

SOME OF THE STRATEGY'S OBJECTIVES FOR THE NEXT 25 YEARS

An ecological network of semi-natural habitat (high and low value) covering 30% of Kent (112,000 ha).



A series of Marine Protected Areas forming an ecologically coherent network that is effective in conserving marine habitats.

There is more, and better quality, accessible natural space and green infrastructure close to where people live and work, particularly in urban areas, where both people and wildlife can thrive; and all new developments will include accessible green space.

20.84% high value semi-natural habitat (74,750 ha), well managed for nature.

Kent's Marine Protected Areas will be improved and extended so that representative habitats missing from the network are featured and offered protection as required.

More people are spending more time in natural spaces and benefiting their mental health and wellbeing.

Improve 375 km (15 km per year) of waters in Kent (rivers, lakes, canals, groundwater, transitional and coastal waters).

More, bigger and less fragmented areas of wildlife-rich habitat outside the protected sites network for wildlife, with an increase in the overall extent of all priority habitats to ensure greater connectivity and resilience to climate change.

An ecological network of semi-natural habitat (high and low value) covering 30% of Kent (112,000 ha).

Restore rivers, and the natural processes that support them, through a catchment-based approach, by ensuring soils are in good condition and well managed, wetland habitats are restored and protected, and headwaters are able to support natural flows and wildlife.

Kent-specific threatened and iconic animals and plants are recovering, including those that support ecosystem services.

KENT BIODIVERSITY STRATEGY PRIORITY HABITATS

Lowland Beech and Yew Woodland

Distinctive habitat for Kent which will be vulnerable to climate changes predicted for the south east.

Lowland Mixed Broadleaved Woodland

A hugely biodiverse habitat which has been lost to clear-fell and plantation planting.

Hedgerows

Provides food and shelter for many species and act as essential corridors along which wildlife can travel.

Lowland meadow

Small, flower-rich fields supporting a plethora of wildflowers and insects.

Lowland dry acid grassland/ Lowland heathland

One of the rarest and most threatened habitats in the county.

Brownfield

Supports an extremely rich diversity of wildflowers and animals, including nationally scarce invertebrates

Ponds

Important wildlife habitats that support a variety of wetland plants and animals.

Traditional orchard

Once common across Kent, over 60% of traditional orchards have been lost since the 1960s.

Wet woodland

A rare and unique habitat that can play an important role in flood risk management.

Intertidal chalk and subtidal chalk (nominated)

The Thanet coast has the second largest unbroken stretch of chalk reef in the UK.

Rivers

Over 6500 ha of rivers in Kent.

Intertidal mudflats and coastal saltmarsh

Internationally important habitats for wintering and passage birds and breeding waders.

Coastal and floodplain grazing marsh

Increasingly rare habitat is an important home for wading birds.

Chalk grassland

Kent supports around 5% of the UK's chalk grassland habitat.

Vegetated shingle

The cuspate foreland at Dungeness is the UK's largest site of exposed shingle.

Subtidal mud (nominated)

The subtidal mud across Hythe Bay harbours a rare and very rich community of burrowing spoonworms, large shrimps and other animals.

Chalk streams

A globally rare habitat – the majority of the world's unique chalk streams are found in England.

KENT BIODIVERSITY STRATEGY PRIORITY AND INDICATOR SPECIES

Shrill carder bee

Kent is a national stronghold for one of the UK's rarest bumblebees.

Turtle dove

The UK's fastest declining bird species.

Swift

57% decrease in their breeding numbers in the UK between 1995 and 2016.

Nightingale

Kent is the UK's stronghold for this declining species.

Water vole

Britain's fastest declining mammal.

Dwarf or Kentish Milkwort

A critically endangered plant.

Adder

Suggested decline of 39% of adder distribution in Kent since 1980's.

European eel

Stock is at a historical low and continues to decline.

Adonis blue

Kent is home to 14% of the national population.

Heath fritillary

Restricted to only four locations in the UK, including a discrete population in the Blean.

True Fox-sedge

A rare plant whose Low Weald populations in Kent are of national significance.

Lady orchid

A highly sensitive indicator of well-managed coppice woodland on chalk.

Serotine bat

A widespread but declining bat species that provides a means of monitoring population trends.

Sandwich tern

The Medway Estuary colony is regionally important but threatened by disturbance and sea level rise.

Lapwing

Between 1995 and 2012, breeding lapwing declined by 47% in South East England.

Common blue

A widespread butterfly that is a good indicator of the health of the wider countryside and flower-rich habitats.

Hedgehog

In dramatic decline, with at least a quarter of the population lost in the last decade.

Harbour and Grey seals

A helpful indicator of general and wider estuarine health including habitat and prey availability.

INTRODUCTION

THE IMPORTANCE OF NATURE

Nature is remarkable and is essential to our lives. It is responsible for the air we breathe, the water we drink, the soil we live on (and off) and the food we eat. It provides us with clothes to wear, materials to build with and medicines to cure. It provides us with a place for leisure, recreation and reflection and provides great joy and interest; as such it is inextricably linked to our mental health and wellbeing.

Despite this, nature is facing a crisis – an ecological emergency. The Living Planet Report (2018) shows that wildlife populations have declined by over half in less than 50 years and that the variety of life on earth is disappearing fast[1]. Furthermore the Intergovernmental Science-Policy Platform on Biodiversity and Ecosystem Services (IPBES) reports that globally one million animal and plant species are now threatened with extinction[2]. Nationally, the 2019 State of Nature Report[3] found that 13 percent of England's species are under threat of extinction, with 35 percent having declined in number since 1970. Across the UK, 133 species have already been lost. We must act now if we are to turn around nature's fortunes – for nature's sake and for the essential role it plays in our lives.

What is biodiversity?

Biodiversity is the variety of life on Earth, in all its forms, and the interactions between them – it is the wide range of living things and the habitats they rely on. Biodiversity does not just concern rare or endangered species and habitats – everything, even the most commonplace, has an important role in the wider ecosystem and the processes they support. The abundance of a species is also crucial in maintaining a healthy ecosystem.

Kent has a wonderfully rich and varied biodiversity resource, with globally rare habitats such as the vegetated shingle of Dungeness, our ancient chalk grasslands and the marine chalk reef habitats around our Kent coast. Our wealth of varied habitat supports over 3,400 rare and threatened species, with some of these nationally rare and special species only found in Kent within the UK. The north Kent coast is one of the few remaining UK strongholds for the Shrill Carder Bee; and Kent is the only place in the south east where the Heath Fritillary is found. The specialist leafhopper Anoscopus duffieldii at Dungeness and the late spider-orchid on the chalk downland in East Kent are also unique to the county.

Because of the services and functions that biodiversity provides, this resource can also be described as our natural capital. Natural capital provides (food, raw material and growth), regulates (air, water, soil and climate) and supports us culturally with non-material benefits. It can be simply be described as the elements of nature that directly or indirectly produce value to people. Biodiversity is the "live" element of natural capital and many of the benefits that stem from natural capital are as a result of the interactions between biodiversity and non-living resources. By investing in these biodiversity assets, we are investing in our own future and wellbeing.

KENT'S BIODIVERSE ENVIRONMENT[4]

THE LARGEST UK POPULATION OF **LIZARD ORCHIDS** AT SANDWICH BAY

OVER 3,400

RARE AND THREATENED SPECIES

HAVE BEEN RECORDED IN THE COUNTY

5% OF THE UK'S AND 20% (1,658 HA) OF THE SOUTH EAST'S CHALK GRASSLAND
(the UK is thought to hold half the world's chalk grassland).

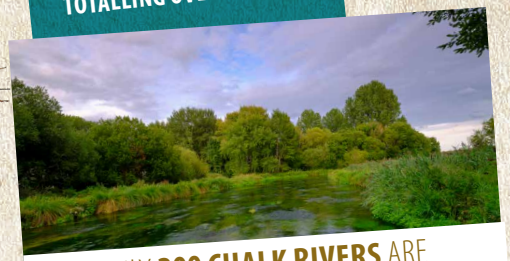
ALMOST A THIRD (27%) OF THE COUNTY IS SEMI-NATURAL HABITAT

154 ROADSIDE NATURE RESERVES, WITH A COMBINED LENGTH OF 89KM

5 OF UK'S 7 RAREST BUMBLEBEE SPECIES present in Kent, making it the most important county in the UK for bumblebee species diversity.

6
DESIGNATED AND 3 RECOMMENDED MARINE CONSERVATION ZONES TOTALLING OVER 700 KM2

22 internationally designated sites, comprising
15 Special Areas of Conservation,
7 Special Protection Areas and
6 Ramsar Sites.



ONLY **200 CHALK RIVERS** ARE KNOWN GLOBALLY, **85%** OF WHICH ARE FOUND IN THE UK IN SOUTHERN AND EASTERN ENGLAND.

2 AREAS OF OUTSTANDING NATURAL BEAUTY: THE HIGH WEALD AND KENT DOWNS

Kent has one of the largest remaining populations of Nightingales, with an estimated **1,500 singing males.** The county is also an important stronghold for the Turtle Dove, which is the UK's fastest declining bird species and threatened with extinction on a global scale.

466 LOCAL WILDLIFE SITES, COVERING **7%** OF THE COUNTY

OVER 20,000 SPECIES HAVE BEEN RECORDED IN KENT; **NEARLY 30% OF ALL UK SPECIES**

35% OF THE UK'S COASTAL CHALK; **THANET ALONE HOLDS 12% OF EUROPE'S EXPOSED COASTAL CHALK[6]**

36 BIODIVERSITY ACTION PLAN PRIORITY HABITATS

ONLY PLACE IN THE UK WHERE THE **BLACK-VEINED MOTH** IS FOUND

387 S41[5] PRIORITY SPECIES

SPECIAL INTEREST

98 SITES OF SPECIAL SCIENTIFIC INTEREST, COVERING 8.7% OF THE COUNTY

22.5% OF THE SOUTH EAST'S **ANCIENT WOODLAND RESOURCE[7]**

11% OF ENGLAND'S **ANCIENT SEMI-NATURAL WOODLAND**

40% OF THE UK'S COASTAL VEGETATED SHINGLE AT DUNGENESS

16% OF ENGLAND'S SALINE LAGOONS

NATURAL CAPITAL[8]

The Natural Capital Committee describes natural capital as "The sum of our ecosystems, species, freshwater, lands, soils, minerals, our air and our seas … These are all elements of nature that either directly or indirectly bring value to people and the country at large. They do this in many ways but chiefly by providing us with food, clean air and water, wildlife, energy, wood, recreation and protection from hazards."

In 2016, living within 500 metres of green and blue space was estimated to be worth £78 billion to UK homes, adding on average £2,800 to property prices in urban areas.

40%

OF GLOBAL GDP RELIES ON NATURAL CAPITAL.

84%

of European crops depend on wild insect pollination; the value of pollination to UK agriculture is

£440m

per year

Annual visits by UK residents to the countryside and/or villages contribute **£5.5 BILLION;** and to the coast contribute **£7.4 BILLION.**

Around **15M TONNES OF CARBON DIOXIDE** was sequestered by forestry in 2006 and reduced the UK's carbon dioxide emissions by 3%. Carbon sequestration from UK woodland is estimated to be £680m p/a.

URBAN GREEN SPACESCAN HAVE A COOLING EFFECT OF **1-2°C**

People with easy access to nature are 3 times more likely to participate in physical activity, resulting in 40% less likely to become overweight or obese.

Having a view of greenspace increases emotional wellbeing by **5%** *and general health by* **2%**

TOURISM CONTRIBUTES £2.5bn

to the Kent economy and Kent's attractive countryside is a key motivator for people choosing to visit.

In 2016, with the addition of new services, the partial asset value of UK natural capital was estimated to be nearing £1 trillion (£958 billion).

90%

of people reported an increase in self-esteem after an outdoor walk verses 17% indoors.

In 2017, around 11 billions hours were spent in the natural environment and valued at a substantial £8 billion.

A COLLABORATIVE APPROACH TO MEETING THE CHALLENGES

There are pressures on land use which are specific to Kent's location, such as its proximity to London and as a gateway to Europe, through road, rail, sea and air links. But the biggest pressure Kent faces is the significant and unprecedented levels of growth. The Kent and Medway Growth and Infrastructure Framework identifies some 178,600 additional homes and 396,300 additional people by 2031 (that's 24% and 23% growth respectively). And in addition to this is the infrastructure needed to support this – transport, education, health and social care, utilities and community facilities. This all requires space (land) and resources. The Kent Habitat Survey 2012 showed that land covered by development in Kent had increased from 10.7% in 1961 to 17.3% in 2008, an increase of around 62% of the original resource. With unprecedented growth levels predicted, land take will increase even further. And a growing population needs food and materials, with intensive food production and farming placing further pressures on the land. But the natural environment need not always be a barrier to growth; in fact, through its natural capital, biodiversity is integral to growth.

In addition to these pressures on land use, there are some general trends which, historically, have had a negative effect on the natural diversity of Kent. Some of these factors have included:

- Intensification of land management, such as use of chemical fertilisers and pesticides in farming, ploughing up of semi-natural grasslands, loss of traditional orchards.
- Direct loss of habitats through increased development, urbanisation and over-tidying, and other land uses.
- Degradation of soil health and productivity, resulting from nutrient depletion, declines in levels of humus, and erosion and compaction of soils.
- A wide range of pollutants, from many sources, threaten wildlife and have an impact on all habitats, with the most widespread current harm from excess nutrients (phosphate and compounds of nitrogen) in air and water. There has also been a rise in concern over plastics pollution, particularly in the water environment.
- Lack of appropriate management, such as the loss of woodland management as the woodland resources become uneconomic to extract; or recreational overuse of sensitive areas.

- Habitat fragmentation – species movement or migration is impaired and populations can become isolated, making them less able to survive or adapt to changing climate conditions.
- Invasive non-native species, which can out-compete native species, and pests and diseases, which can have impacts beyond the species they directly attack.
- Climate change – loss of land through sea-level rise, changes in temperature, weather and other environmental factors altering habitat composition and species movement and survival (Kent is a gateway for species colonising from Europe in a response to climate change).
- Lack of investment and a drop in public sector expenditure on biodiversity, which in the UK, as a proportion of GDP, has fallen by 42% since a peak in 2008/9[9].

Some of these challenges are beyond the influence of this Strategy and we also need to work within the confines of national government policy and direction. Our ambitions may also be tempered by resources.

Regardless, it is imperative that, at a time of immense change, we all work together to meet the demands of the county whilst safeguarding the future of our wildlife and habitats. Whilst the State of Nature report may paint a bleak picture, it has also shown that when conservationists, government, business and individuals work in partnership landscapes can be restored and threatened species can be saved. This Strategy aims to help steer this collective action.

STRATEGIC CONTEXT FOR THE KENT BIODIVERSITY STRATEGY

The national picture

The changing landscape of environmental politics and policy

At the time of writing, environmental policy, and the wider political context in which it is being developed, is very dynamic. The Government's 25 Year Environment Plan gives us some idea of the ambition and direction of travel but the mechanisms by which this will be delivered are still in development. And this development is taking place in a climate of uncertainty as a result of Brexit. Particular areas of development that will affect the delivery of this Strategy and the targets it sets, include:

- The Environment Bill
- The Agriculture Bill
- Environmental Land Management System
- Biodiversity Net Gain
- Environmental Net Gain
- Nature Recovery Network
- Local Nature Recovery Strategies
- Local Natural Capital Plans
- Glover review of National Parks and Areas of Outstanding Natural Beauty

As such, the Kent Biodiversity Strategy will need to be able to respond and adapt to each of these accordingly as more detail, policy and legislation is formalised.

The Government's 25 Year Environment Plan, A Green Future (2018), pledges that this will be the first generation to leave the environment in a better state than we found it, and pass on to the next generation a natural environment protected and enhanced for the future. The Kent Nature Partnership supports this vision and through the Kent Biodiversity Strategy sets out the county's contribution to this by delivering healthy, sustainable and coherent biodiversity in Kent. As such, the targets set by this Strategy are set within the context of the national 25-year goals and the policies that will deliver them.

The 25 Year Environment Plan looks beyond no net loss and sets ambitious goals for environmental net gain; this is further backed by policy within the 2018 revised National Planning Policy Framework (NPPF). The operational details and resources required to deliver this ambition are not yet clear but in January 2020 the Government published the Environment Bill, which legislated for a mandatory biodiversity net gain within development. In line with these goals, the Kent Biodiversity Strategy assumes maintenance of the extent of our current priority habitat resource and focusses on restoration and creation. As such it intends to provide a framework for the delivery of biodiversity net gain, providing a focus for habitats and species of local importance and priority and, as required by the NPPF and the Environment Bill's Local Nature Recovery Strategies, helps to identify areas for habitat management, enhancement, restoration and creation.

The natural capital approach, whereby consideration is given to the socio-economic value of the natural environment through the ecosystem services it provides, runs through the 25 Year Environment Plan. As the Plan's ambitions are implemented through legislation and policy, it is expected that this approach should underpin all reforms, in particular those within the Agriculture and Environment Bills and the new Environmental Land Management System, to ensure that the natural environment, and the services it provides, are optimised. Safeguarding the future of the county's biodiversity is a critical element of realising the maximum benefits of Kent's natural capital.

The rate of economic development and the associated pressures this places on the natural environment are conditioned by a wide range of national and international factors, a number of which are outside the control of local, or even central, government. As a result of Brexit, the UK is in a period of uncertainty

and potentially far-reaching changes with its largest trading partner. Particularly affected by this is the land management and agriculture sector, as all major policy for this sector is currently European Union-based and the UK replacement for these policies, nor their funding, is not yet fully clear. The environmental impacts of Brexit could be strongly positive or negative depending on future policy decisions. And as such, the delivery of a county-level Biodiversity Strategy is therefore strongly contingent on favourable outcomes to these current uncertainties.

The Kent picture

The Kent Biodiversity Strategy has been developed by the Kent Nature Partnership with the intention that the targets will over time be adopted and incorporated into relevant local policy and plans. The Kent Nature Partnership has a vision *for the Garden of England to have a healthy natural environment that is rich in wildlife, is enjoyed and valued by all and underpins our long-term economic, social and personal wellbeing.* Thriving biodiversity is key to achieving this vision.

In its strategic priorities, the Partnership recognises the need to improve the quality, extent and connectivity of our high value habitats and aims to deliver a network of good quality and high value natural and semi-natural habitats, made up of locally and nationally recognised sites, that is well managed and connected. This Strategy is the means by which this outcome, and more, will be achieved.

Because of the many functions that biodiversity provides, this Strategy must be considered alongside others; not least of all the Kent Environment Strategy. The Biodiversity Strategy provides the detail and focus needed to achieve the natural environment aspirations of the Kent Environment Strategy, in particular to *conserve and enhance the quality and supply of the county of Kent's natural and historical resources and assets.*

The 25 Year Environment Plan sets out that Local Natural Capital Plans (LNCP) will be developed to link the Plan's goals with local priorities. This Strategy will be pivotal in setting out the priorities for Kent's biodiversity within the wider strategic area of the LNCP. Likewise the Kent Biodiversity Strategy should provide a guiding framework for the delivery of biodiversity net gain, the Local Nature Recovery Strategy and Nature Recovery Networks within the county.

There are many other strategies and work programmes that the Kent Biodiversity Strategy should be cognisant of; these are listed in Appendix 4.

HOW WE HAVE CHOSEN OUR PRIORITY HABITATS AND SPECIES

Kent is home to 36 priority habitats [10] (see Appendix 2 for complete list) and 387 priority species[11] (see Appendix 3 for complete list). Whilst all remain important to the county, the Strategy has chosen to select 17 priority habitats and 13 species on which efforts should be specifically focussed and targets set. The criteria for their selection are noted in the box below.

The targets for these selected priority habitats and species are based on those set by the Kent Nature Partnership in 2014 and represent targets to be achieved from 2014 to 2025, unless otherwise indicated.

Certain individual species or species groups can provide a useful mechanism for monitoring environmental change, providing warning signs of shifts in the health of our ecosystems and providing opportunities for the general public to effect positive change at a local level. The Strategy has selected a handful of such species as indicators. Similarly, where a species is considered to be undergoing significant decline or pressures but where there is no formal monitoring or targets cannot be easily defined, indicators have been identified for these species.

Kent priority habitat selection criteria

- Habitats for which Kent is a stronghold at UK level.
- Habitats for which there is sufficient data available relating to extent and quality of current resource.
- Opportunity for the KNP to deliver gains for this target through joint working.

Kent priority species selection criteria

- Species that can act as an indicator for the broader health of the natural environment and biodiversity.
- Species for which Kent is a stronghold.
- Species that would benefit from particular attention in Kent.
- Species which will benefit from landscape scale conservation and recovery.
- Species for which data/monitoring is obtainable so targets can be measured.

IMPLEMENTATION, MEASURING PROGRESS AND REVIEW

Whilst this Strategy, and its goals, has a 25-year timeframe some of the targets will have a shorter timeframe in line with aspirations to deliver in the short to medium term. In light of the current changing landscape of environmental legislation and policy, the Strategy will initially be reviewed within two to three years (as appropriate). The Strategy will then be reviewed every five years (unless other external factors dictate earlier is required).

Given the long timeframe of the Strategy and the ambitious nature of the goals, a five-year implementation plan will sit alongside it with delivery of the targets broken down into smaller, shorter actions that will progress us towards the 25-year vision. Monitoring of the Strategy's progress, based on delivery of the implementation plan, will be every two to three years.

Delivery of this Strategy is done within a framework of ever constrained resources – public sector expenditure on biodiversity in the UK, as a proportion of GDP, has fallen by 42% since a peak in 2008/9[12]. There is also uncertainty over the Environmental Land Management strategy and other sources of finance, in the absence of funding from the EU. Some opportunity for investment may be generated by biodiversity net gain tariffs and other natural capital investment and the development of green investment bonds, but this is still largely an unknown. As such, the Strategy's ambitions have been considered alongside a pragmatic need to actually deliver. With greater resources, greater achievements could be realised and targets could be achieved quicker; therefore the objectives and targets of the Strategy should be seen as a minimum of ambition.

It is intended that the targets will be owned by all that have an opportunity to influence and impact biodiversity in the county – from statutory agencies to local planning authorities and parish councils; land owners to non-governmental organisations; those that use the land to those that benefit from its services. All have a role to play and the Kent Nature Partnership umbrella brings these players together to help deliver the Strategy's aspirations for biodiversity. In particular, the Kent Nature Partnership will work with the county's local planning authorities so that the Strategy's ambitions can be embedded and delivered through local plans that appropriately consider, protect and enhance Kent's valuable natural capital resource and the services it provides.

The natural world and sustainable growth can work well together: let us lead the way in demonstrating how this is done in Kent and Medway.

OUR 25-YEAR MISSION AND GOALS

The Kent Biodiversity Strategy aims to deliver, over a 25-year period, the maintenance, restoration and creation of habitats that are thriving with wildlife and plants, ensuring the county's terrestrial, freshwater, intertidal and marine environments regain and retain good health.

The Strategy looks to protect and recover threatened species and enhance the wildlife habitats that Kent is particularly important for. It also aims to provide a natural environment that inspires citizen engagement and is well used and appreciated, so that the mental and physical health benefits of such a connection can be realised by the people of Kent.

This will be achieved through the delivery of the following goals:

Terrestrial ecosystems, habitats and species: by 2045 Kent has a rich and growing terrestrial biodiversity, underpinned by more resilient and coherent ecological networks and healthy, well-functioning ecosystems.

Marine ecosystems, habitats and species: by 2045 Kent is making its contribution to reversing the loss of marine biodiversity and delivering clean, productive and biologically diverse oceans and seas through good management.

Freshwater and intertidal ecosystems, habitats and species: by 2045 Kent has clean, plentiful and biologically diverse freshwater and intertidal ecosystems underpinned by implementation of a catchment-based[13] approach.

Connecting people with the natural environment: by 2045 the widest possible range of ages and backgrounds will be benefiting from the mental and physical health benefits of the natural environment; and we will have inspired the next generation to take on guardianship of the county's biodiversity

A BROADER FRAMEWORK FOR BIODIVERSITY RESTORATION

Whilst the Strategy frames its actions around four goals, there are overarching considerations that run through all the objectives, which will be addressed throughout the lifetime of the Strategy.

NATURE CONSERVATION, WILDING AND A LANDSCAPE-SCALE APPROACH

Firstly, is the manner in which we deliver biodiversity restoration. Conventional conservation land management measures for specific habitat or species targets, such as those set by this Strategy, will help us preserve and protect our threatened and rare habitats and species and maximise the value of existing biodiversity rich sites. We also need to expand and buffer these core sites, through restoration, creation and connection, to ensure they can respond and adapt to a changing climate and other pressures.

However this form of traditional, prescriptive conservation management, whilst effective in the protection of specific habitats and species may not precipitate the levels of biodiversity and bio-abundance (overall biomass of species) which the recent State of Nature reports have shown remain in sharp decline. To achieve this we need to look at where we may reinstate natural processes to deliver a more dynamic, bio-diverse mosaic habitat and maximise the overall biodiversity of sites.

Naturally functioning habitat mosaics, operating to natural environmental processes (hydrology, nutrient status, soil and sediment and associated biological processes), provide the most complete and most sustainable expression of our characteristic flora and fauna. They provide a means by which we can support each of our species in ways that provide space and opportunity for all other species. Our native species have evolved to exploit niches in naturally functioning habitat mosaics, and their integrated conservation is best based on these niches as far as possible. Such habitat mosaics are particularly rich in natural capital, providing a wide range of vital ecosystem services such as carbon storage,

enhanced water quality and supply, cultural and amenity benefits, flood risk management and environmentally sensitive food production. Critically, they also provide the greatest resilience to climate change, allowing habitats and species the greatest opportunities to change and move around the landscape as climate shifts.

Wilding presents an opportunity, in the right place, to allow natural processes to occur with minimal human intervention, not only making space for nature but allowing nature to drive its own recovery, deliver landscape-scale restoration of ecosystems and establish mosaic habitats. And, where appropriate, this will include restoring keystone species as natural engineers to help shape the landscape and its habitats; the evidence from beaver reintroductions across the UK demonstrates the value in this approach and may lead to the declaration of beaver as a native species once again after a 400 year gap.

With this approach must be a recognition that sometimes species may be lost but against a backdrop of greater overall abundance. Without employing such an approach in parts of the county, we will continue to see species declines and a further breakdown of the natural processes which underpin the ecosystem services which are so important to wider society.

Over the course of the Strategy, we need to consider how the wilding approach may be developed and applied within Kent, the appropriate scales at which it can happen and measures to track the benefits it provides. And we need to ensure that any action we take in the interim doesn't preclude this as an option for the county, enabling it to form a key foundation to our Nature Recovery Networks.

CLIMATE CHANGE AND NATURAL SOLUTIONS

Climate change will have a major impact on biodiversity in Kent over the next few decades and within the actions we take, we will need to consider how we help nature to respond and effectively "climate proof" our vulnerable habitats and species. We need to move forward from putting forward strategies and practices based on resisting ecological change to ones that anticipate and accommodate that change. We are already seeing the effects; for example, breeding tern colonies are regularly lost to the effects of sea level rise and increased storm events, and woodland bird declines may be linked to changes in the emergence of caterpillars. There are also new species from warmer climes colonising the county, such as Norfolk hawker dragonflies, the Ivy Bee and European Orchard Bee. Freshwater wetlands will be more difficult to maintain due to predicted drier summers, so we will need to develop plans to ensure that we make the most of the water we have. We will need to adapt our coastline to ensure that our internationally important intertidal habitats are given room to breathe. But most importantly, we need to deliver landscape-scale recovery, creating bigger, better and more joined-up habitats that will give biodiversity the best hope of adapting to the big changes that are coming our way.

The environment presents many potential nature-based solutions to the climate emergency. Trees and hedgerows and habitats such as grassland, wetland and saltmarsh all provide natural carbon sinks that can provide a significant contribution to carbon neutrality targets. And the natural environment also provides other mitigation and adaption to the impacts of climate change, in particular for flooding and drought. In nature-based actions to tackle the climate emergency, we will be simultaneously protecting and extending biodiversity and biomass.

HEALTHY AND FERTILE SOIL

Healthy and fertile soil underpins our economically important farming and forestry sectors in Kent. It also provides a habitat for a wide range of organisms that in turn provide food for wildlife. Soils also provide nesting habitat for our important pollinator species. We need to improve our understanding of soil health in the county and will look to use the new soil health index to be developed by the Government in the context of the 25 Year Environment Plan, at both farm and county level. This will help us to support farmers to achieve good soil management practices such as the use of cover crops and grass leys in arable rotations, and rotational planned livestock grazing.

The Knepp Estate in West Sussex has pioneered a more naturalistic grazing approach, whereby conventionally farmed fields were allowed to more naturally regenerate using herds of free-roaming livestock and in Kent there are a number of farmers leading the way using rotational livestock grazing systems. Such approaches allow greatly enhanced storage of carbon and, importantly, soil biomass and organic matter. Similarly, no-tillage arable farming grows crops without disturbing the soil and this also ensures healthy soils, carbon sequestration and the build-up of soil organic matter.

The adoption of 'pop up Knepps' within Kent and also a greater move from conventional agriculture to regenerative agricultural practices[14] will improve soil health, soil biomass and carbon storage and provide a vital part of a regenerative agriculture approach within the county.

INVASIVE NON-NATIVE SPECIES

The long-term control of detrimental invasive non-native species (INNS) is a vital part of positive management across terrestrial, freshwater, intertidal and marine environments. Non-native invasive species reduce resources and habitat availability for native species; cause disease; increase flood risk; damage health, infrastructure, amenity value and our economy. Unfortunately, in Kent, there are invasive species which have already spread to a degree that we can no longer control. To safeguard our natural landscape, native species and habitats, as well as improve H&S and biodiversity, a catchment-based approach to invasive non-native species control is the only effective and long-term solution. KNP Partners are involved in the delivery of a Regional Invasive Alien Species Management Plan (RIMPS), which targets freshwater aquatic, riparian and coastal waters and supports the Non Native Species Secretariat's 'Check, Clean, Dry' campaign, which aims to promote good biosecurity practices.

TERRESTRIAL ECOSYSTEMS, HABITATS AND SPECIES

By 2045 Kent has a rich and growing terrestrial biodiversity, underpinned by more resilient and coherent ecological networks and healthy, well-functioning ecosystems.

Over the last few decades, we have lost significant areas of many of our most precious habitats. We now need to restore those degraded habitats, replenish our depleted soils and arrest the decline of native species to deliver robust ecological networks that are sustainable, ecologically coherent and resilient to climate change. We will expand our use of natural processes and natural solutions to ensure more sustainable use and management of habitats, to provide biodiversity net gains, and to protect and grow our natural capital.

Our objectives for terrestrial ecosystems, habitats and species are, by 2045:

- 20.84% high value semi-natural habitat (74,750 ha) well managed[15] for nature[16] (from the 2015 baseline of 14.6% and 54,640 ha).
- An ecological network of semi-natural habitat (high and low value) covering 30% of Kent (112,000 ha) [17] (from the 2015 baseline of 27% and 100,872 ha).
- 75% Sites of Special Scientific Interest restored to favourable condition, securing their wildlife value for the long term (from the 2019 baseline of 68%).
- Over half of Local Wildlife Sites in good management[10], securing their local wildlife value for the long term (from the 2019 baseline of 43%).
- More, bigger and less fragmented areas of wildlife-rich habitat outside the protected sites network for wildlife, with an increase in the overall extent of all priority habitats to ensure greater connectivity and resilience to climate change.
- New development to better provide for a greener urban environment, through increased urban tree planting, the inclusion of integral wildlife niches, and green building and landscape design.
- Protect and restore existing trees, hedgerow and woodland, whilst increasing the county's tree cover with the right trees in the right places, which supports the recovery of wildlife, delivers natural climate solutions and enriches people's lives.
- Kent-specific threatened and iconic species of terrestrial animals and plants are recovering, including those that support ecosystem services (for details, see Species table below).

The following have been selected as terrestrial priority habitats and priority and indicator species. The targets for each of these are detailed in Appendix 1.

Priority habitats	Priority species	Indicator species
Lowland Beech and Yew Woodland	Shrill Carder Bee	Hedgehog
Lowland Mixed Broadleaved Woodland	Turtle Dove	Serotine bat
Chalk grassland	Nightingale	Common Blue
Lowland meadow	Swift	Lady Orchid
Lowland dry acid grassland / Lowland heathland	Adder	
Hedgerows	Adonis Blue	
Brownfield	Heath Fritillary	
Traditional orchard	Dwarf or Kentish Milkwort	

FRESHWATER AND INTERTIDAL ECOSYSTEMS, HABITATS AND SPECIES

By 2045 Kent has secured clean, plentiful and biologically diverse freshwater and intertidal ecosystems underpinned by implementation of a catchment-based approach.

The freshwater and intertidal habitats of Kent and Medway represent a tiny proportion of their former extent[19,20] , , with many lost through factors such as agricultural intensification and drainage, and degraded through abstraction and pollution. They are also particularly sensitive to climate change impacts and recreational pressures and disturbance (this latter pressure is addressed under Connecting people with the natural environment). We need to secure the long-term sustainable management of these fragile ecosystems by rebuilding and developing ecological networks that are sustainable, ecologically coherent and resilient to climate change. To do this, we will need to ensure that we replace like for like habitat lost to coastal realignment and make innovative use of natural flood and drought management solutions. Only then can we also ensure that these habitats are able to support vital ecosystem services such as carbon storage, groundwater recharge and flood control.

Our objectives for terrestrial ecosystems, habitats and species are, by 2045:

- 75% freshwater SSSIs restored to favourable condition, securing their wildlife value for the long term.
- Over half of Local Wildlife Sites in good management[21], securing their local wildlife value for the long term.
- Reaching or exceeding objectives for rivers, lakes, coastal and ground waters that are specially protected, whether for biodiversity or drinking water as per our River Basin Management Plans[22].
- No deterioration in the status of any water body in Kent. If deterioration of any element's classified status occurs, actions will be implemented to reverse the decline .
- Improve 375 km (15 km per year) of waters in Kent (rivers, lakes, canals, groundwater, transitional and coastal waters). The enhancements include work to improve ecological, chemical and/or physical quality, e.g. reducing pollution, restoring flows and improving habitat[24].

The following have been selected as freshwater and intertidal priority habitats and species. The targets for each of these are detailed in Appendix 1.

Priority habitats	Priority species
Rivers	European eel
Chalk streams	Lapwing
Ponds	Sandwich tern
Coastal and floodplain grazing marsh	Water vole
Intertidal mudflats and coastal saltmarsh	True Fox-sedge
Wet woodland	
Vegetated shingle	

MARINE ECOSYSTEMS, HABITATS AND SPECIES

By 2045 Kent is making its contribution to reversing the loss of marine biodiversity and delivering clean, productive and biologically diverse oceans and seas through good management.

The seas around the coast of Kent and Medway contribute to the wider UK marine environment – home to 'the widest range of marine habitats of any coastal waters in Europe'[25]– yet they have been badly neglected and depleted over the last few decades. Whilst plastics in the aquatic environment has recently received public attention, and subsequently government action, this is just one of many issues facing the marine waters off Kent's coastline. These pressures include water quality, invasive non-native species, habitat destruction from fisheries and other offshore activities and land-based pressures such as pollution and disturbance. Our seas and coastal waters do not follow political or regional boundaries and so, to ensure that we have marine habitats which can support healthy, sustainable ecosystems, we need to complete our ecologically coherent network of well-managed Marine Protected Areas (MPAs), as well as working more closely with local stakeholders to ease the impacts of human activity from source to sea.

Our objectives for terrestrial ecosystems, habitats and species are, by 2045:

- A series of Marine Protected Areas off the coast of Kent, forming an ecologically coherent network that is effective in conserving marine habitats.
- There will be no further decline of Kent's Marine Protected Areas, which will be showing signs of recovery as a result of regular monitoring[26] and well-informed management that limits damaging activities.
- Kent's Marine Protected Areas will be improved and extended so that representative habitats missing from the network are featured and offered protection as required.
- Pressures will be assessed and appropriate management identified and implemented for the entirety of Kent's Marine Protected Areas to adequately protect the features for which those areas were designated (it is the intention that this objective will be achieved within the shorter timeframe of 2025).
- The South East and South Marine Plans are being applied and have been integrated within relevant local plans.
- We will be managing shellfish stocks sustainably and harvesting shellfish in a non-environmentally damaging way.
- There is better understanding of the subtidal and tidal environment and ephemeral marine features, with the development of spatial management plans and strategic action for those areas at most pressure.
- The natural capital value of the marine environment as a carbon sink is better understood and being managed to realise this contribution.

The following have been selected as marine priority habitats (nominated). Due to the innate difficulty of undertaking meaningful monitoring of marine species at a county level, no targets have been set for marine species; however harbour and grey seals have been included as an indicator species for the health of the estuarine environment. The targets for each of these are detailed in Appendix 1.

Priority habitats	Indicator species
Intertidal chalk and subtidal chalk (nominated)	Harbour and Grey Seals
Subtidal mud (nominated)	

CONNECTING PEOPLE WITH THE NATURAL ENVIRONMENT

By 2045 the widest possible range of ages and backgrounds will be benefiting from the mental and physical health benefits of the natural environment, and we will have inspired the next generation to take on guardianship of the county's biodiversity.

Fundamental to the recovery of Kent and Medway's habitats and wildlife is the need to reconnect local people with their natural environment and to rekindle their enthusiasm for, and appreciation of, nature: many of us only value and protect what we care about. We need to work with all generations, and young people especially, to ensure local people have the opportunity for regular contact with our natural world, and have the tools and vision to regain the biodiversity that has been lost.

Kent is a densely populated part of the country, which is a pressure on our sensitive wildlife sites that are vulnerable to disturbance; and not all areas of high biodiversity value and importance are suitable for public access for this very reason. But the close proximity of these sites to the population is also an opportunity for people to experience nature, learn to love it and protect it, and to improve their own wellbeing. The challenge is to mitigate the risks and unlock the opportunities in a way which allows people to access nature in a low impact manner but which still provides a wildlife enhanced experience.

The England Coastal Path will provide people in Kent with a greater opportunity to access the county's special coastal margins and connect with nature; and within Kent this access is extended further by linking up with the Thames Path. To ensure the increased access does not impact on these vulnerable habitats and species, regular monitoring needs to take place which will not only enable protection of these areas but also increase our knowledge of them.

Our objectives for engagement are, by 2045[27]:

- An increase in the number of health initiatives, bringing more people into contact with the natural environment.
- An increase in the number of people taking action that benefits biodiversity, including citizen science projects, with 23% of Kent's residents participating in environmental volunteering[28].
- An increase in the number of opportunities for children and young adults to engage with environmental issues, in and out of school.
- There is more and better quality, accessible natural space and green infrastructure close to where people live and work, particularly in urban areas, where both people and wildlife can thrive; and all new developments will include accessible green space[29].
- More people are spending more time in natural spaces and benefiting their mental health and wellbeing[30].
- Create a network of visitor "hubs" in key locations in Kent, including North Kent Marshes, Blean Woods and North Downs, that enable an enhanced visitor experience without negatively impacting wildlife and provide a gateway for people to get involved and take action for nature.
- People are using the increased coastal access rights to gain a better connection with, and understanding of, the coastal margins and marine environment.
- Whilst there is an increase in the number and quality of opportunities for Kent's residents to connect with the natural environment, this access is appropriately managed, and impacts from disturbance monitored, so that the health and wellbeing benefits realised are not to the detriment of the natural environment through increased use and associated recreational disturbance.
- Kent's population is supported in making the right environmental choices and are empowered to take direct action for the recovery of nature with their own informed actions.

DELIVERING GAINS – CASE STUDIES FROM AROUND THE COUNTY

TITLE OF PROJECT	RAISING THE PROFILE OF THE COPPICE INDUSTRY IN KENT
Lead partner	Kent Coppice Workers' Co-operative
District	Kent
Description	Rotational coppice is a woodland management technique that has been practiced for centuries and Kent remains the stronghold for the industry. In addition to directly supporting around 450 rural jobs it provides a wider range of habitats that high forest management and a specific wildlife community has co-evolved and is adapted to the structural diversity it creates. Continuation and expansion of the industry is affected by planning, specifically loss of work places as these are brown field sites and so ripe for development, biomass policies and – potentially – by Brexit.
Habitat	Lowland broadleaved woodland
Funding	Commercially viable value-added industry, particularly sweet chestnut
Key outcomes	Coppice woodlands provide rural livelihoods and have associated benefits for wildlife including priority species such as dormice (Muscardinus avellanarius), butterflies such as the Heath Fritillary (Melitaea athalia) and the Duke of Burgundy (Hamearis Lucina) as well as birds such as the woodcock (Scolopax rusticola) and nightingale (Luscinia megarhynchos).
People	Rural livelihoods, recreational access including dog-walking, healthy living walks, and provide opportunities for research.
Challenges	Housing costs, work yards and low product costs. Brexit poses a serious threat to coppice management.
Natural Capital	Natural Capital Accounts for woodland have been prepared by the Forestry Commission, by Forest Enterprise for the estate they manage and the Office of National Statistics; none consider coppice in detail and lack of data on the area of woodland managed as coppice is a contributory factor.
Monitoring / indicators	Surveys have been carried out in the past to determine the area of coppice in active management, but this is complex as the rotation length depends on product and can be up to 80 years, so it is very difficult to determine when woodland is not in active management. The best indicator is the area cut per year as this can then be multiplied by approximate rotation determined by the ratio of products. Many woodlands are monitored as part of the National Dormouse Monitoring Project; annual data produced by the People's Trust for Endangered Species.

TITLE OF PROJECT	INTRODUCTION OF HAYMAKING TO YALDING LEES TO RESTORE SPECIES-RICH LOWLAND MEADOW
Lead partner	Medway Valley Countryside Partnership
Other organisations involved /partners	Yalding Parish Council, Medway Valley Countryside Partnership, local landowners, Saving our Magnificent Meadows (SOMM) HLF Project (Plantlife)
District	Maidstone Borough Council
Description	Yalding Lees is a 6 ha grassland site. It was classified as rank neutral grassland (GN31) in the 2012 Habitat Survey, and the historical management was a summer cut with the cuttings left on the grassland. The Lees lie at the confluence of three main rivers - the Medway, the Teise and the Beult – and are part of the flood prevention for the local village as a water storage area in times of high river flow. Advice in 2014 from the SOMM Project led to a change of management to hay making (cuttings removed).
Habitat	Lowland Meadow
Funding	HLF (SOMM Project); Yalding Parish Council; the hay is now of sufficiently good quality that it can be sold and offset against management costs.
Key outcomes	Restoration of 3 ha in the area of species-rich floodplain lowland meadow.
People	Recreational access including dog-walking; volunteering for conservation tasks with MVCP; school education groups, healthy living walks, and environmental education for adults and Higher Education students. Location for dissertation study.
Challenges	Like many areas of Kent, Yalding has housing allocation targets set centrally. There are no development pressures at present but they can't be discounted in the future despite the area's low-lying nature and propensity to flood annually.
Monitoring / indicators	Species: Indicators of species-rich meadow or grazing marsh e.g. pepper-saxifrage, lady's-bedstraw, salad burnet; also red-shanked carder bee, barn owl. Open public access via PROW so thousands of visitors per annum. Practical conservation work carried out by contractors for parish council.

TITLE OF PROJECT	KENT TURTLE DOVE FRIENDLY ZONES (TDFZS) PROJECT
Lead partner	RSPB
Other organisations involved /partners	Local Kent farming community and local landowners, Campsites, Natural England, Environment Agency and the National Trust.
District	12 TDFZs across Kent
Description	Turtle doves are the UK's fastest declining bird species and they are threatened with global extinction (IUCN Red List of Endangered Species). Kent is the stronghold for turtle dove in the UK. Within Kent, 12 important core turtle dove areas have been identified as the highest priority for the species. These areas are known as Turtle Dove Friendly Zones (TDFZs) and are the areas where the RSPB is prioritising its work. Working with landowners to develop on the ground habitat for the species and engaging with the local community to highlight the plight of the species and promote community habitat delivery for this species.
Habitat	Turtle doves have three habitat requirements: • Foraging areas consisting of native arable wildflowers (they feed primarily on seed) • Dense scrub and hedgerows for nesting • A freshwater drinking source
Funding	This project is funded by the RSPB, Natural England and the Roger De Haan Charitable Trust. Many of the farmers in the project are also supported by Countryside Stewardship.
Key outcomes	• Advice delivered to at least 75% of land area within each TDFZ • At least 1 farmer/land manager per TDFZ enrolled as a Turtle Dove Farmer Champion • 2-3 ha of open seed rich foraging habitat per 1 km2 in each TDFZ, located within 300 m of suitable nesting habitat. • At least 3 accessible clean water sources per km2 • 4000 people positively engaged across the TDFZ network • At least one Turtle Dove Community Champion in place within each active TDFZ to drive forward local action • Establish a network of Turtle Dove Community Champions across the TDFZ network who are linked up and aware of the project as a whole and therein driving forward local action • Establish 0.5 ha of seed rich feeding habitat delivered by focal communities in TDFZs
People	A network of local volunteers recruited as part of the project, including Turtle Dove Community Champions, Habitat Advisors and Survey volunteers. Engaging the local community with the plight of the turtle dove and highlighting the importance of Kent for this species. Working with the community to deliver on the ground conservation measures for this species (such as supplementary feeding).
Challenges	Loss of suitable habitat because of local developments in Kent. Changes in agri-environment schemes following Brexit.
Natural Capital	The creation of feeding areas for turtle doves will benefit pollinating insects and contribute to good soil management.
Monitoring / indicators	A team of local volunteers have been recruited to conduct randomly generated turtle dove surveys within the TDFZs to see if the conservation measures we have put in place are actually having an impact on turtle dove populations within the TDFZs. We are also conducting specific turtle dove surveys on many of the sites we are working with as part of the project. This includes the use of trail cameras to monitor turtle dove usage of supplementary feeding areas.

TITLE OF PROJECT	GREAT BELLS FARM, ISLE OF SHEPPEY
Lead partner	Environment Agency and the RSPB
District	Swale
Description	The 193 ha farm is located on the southern half of the Isle of Sheppey, adjacent to Elmley Marshes National Nature Reserve, and is protected by a sea wall. Great Bells would have been a grazing marsh in the past but was converted to arable more recently. Grazing marsh is a very important wetland habitat for breeding waders, such as lapwing and redshank, wintering waterfowl, water voles and a range of scarce invertebrates. Much of this habitat has either been lost through conversion to arable, or damaged through drainage or poor management. The grazing marsh in North Kent is particularly special because of its proximity to estuarine habitats: saltmarsh and mudflats. Many bird species use both habitats for feeding or roosting. Due to sea-level rise, saltmarsh habitat is increasingly under pressure as it becomes squeezed up against the very sea wall defences that protect the grazing marsh. These saltmarsh losses were identified in the Medway Estuary and Swale Shoreline Management Plan (MEAS SMP) and the Environment Agency has developed plans to compensate for these losses elsewhere in the estuary. At some point in the future this might involve the re-alignment of flood defences to allow the estuary to 'breathe', but this could be at the expense of grazing marsh behind the sea wall. This is where the Great Bells Farm project comes in. Great Bells Farm was purchased by the Environment Agency to provide new grazing marsh habitat to replace predicted future losses. Environment Agency commissioned the RSPB to design and build the new wetland habitats due to their experience of designing and managing wetlands, such as at Medmerry and Wallasea. The project was awarded the CIEEM 'NGO Impact Award' in 2014.
	The RSPB and Environment Agency worked closely together to produce a design that would capture the best elements of grazing marsh sites that we know are good for wildlife, such as Elmley Marshes. The design needed to incorporate three main elements: 1. Livestock infrastructure, such as gates and cattle handling facilities, so that the site could be appropriately grazed. 2. Predator exclusion fencing around the key areas, so that ground-nesting birds would be able to produce enough chicks to maintain their populations, something which is a particular issue for breeding waders. 3. Hydrological infrastructure, such as dams, sluices and rills (surface features that hold water), to enable the wetland element to be created. The last of these, the hydrological infrastructure, is potentially the most difficult and costly, so we used LiDAR and digital mapping to ensure that water could be held within the site, that we could move water around in the easiest way, that there would be enough surface water to attract breeding waders and that the spoil that would be created could be managed in the most efficient way. The plan also incorporated additional habitat for water vole and bumblebees as part of the Buzz for the Coast project. For the site to be effective as a wetland, water levels needed to be safely managed at a higher level than surrounding farmland, so an automatic pumping system was installed, designed to reduce staff resource required to manage water levels. This digital map was then used to guide the GPS-equipped machinery on site to create a near-replica of the plan on the ground. All excavated material was reused on site.
Habitat	Coastal and Floodplain Grazing Marsh
Funding	Great Bells Farm was purchased by the Environment Agency

Key outcomes	• In 2010 the site had 1 pair of lapwing and 7 pairs of redshank breeding on site. By 2017 this had increased to 47 pairs of lapwing and 24 pairs of redshank. Thanks to the anti-predator fence, lapwing chick productivity has been well above the level required to sustain the population for 6 consecutive years (i.e. greater than 0.7 fledged chicks per pair). This means that Great Bells is putting more lapwings back into the world. • Wintering waterfowl numbers have also increased, with the site regularly holding large flocks of wigeon, teal, curlew and golden plover. • The Maid of Kent Beetle, known only from two locations in the UK previously, has now been found on Great Bells. This large rove beetle is a predator of dung invertebrates and needs chemical-free cow pats to prosper.
Challenges	There are a number of issues and learning points involved with a project of this type, including: • The site was close to a former World War II air base and the presence of unexploded ordnance (UXO) was discovered prior to excavation. Because of this, we had to closely monitor UXO during the excavation phases of the project using magnetometer surveys, specialist site investigation and army specialists. • There is a lot of history around the Thames, and the project was careful to ensure that we took steps to avoid damaging local archaeology. • It is important to manage costs and risks on a project of this size, and close cooperation between the RSPB, Environment Agency and site contractors was essential.
Monitoring / indicators	Pairs of breeding lapwing; Lapwing chick productivity

TITLE OF PROJECT	SHINGLE ON THE CUSP
Lead partner	Kent Wildlife Trust
Other organisations involved /partners	Ministry of Defence, RSPB, NE, Romney Marsh Countryside Partnership, EDF, Kent & Medway Biological Records Centre
District	Shepway District Council
Description	Vegetated shingle has been lost over the last few decades due to development and conversion to arable (in the past) and, more recently, gravel extraction, visitor pressure, military activities, beach replenishment activities, flood defence works, and invasive species (mostly from garden escapes). This project is enabling us to test methods of restoring degraded shingle habitats. Brash has been piled at different heights in plots on RSPB and MoD land and is being monitored for vegetation recolonisation and changes in invertebrate assemblage. In addition invasive species are being controlled and leaflets and web content produced to inform local residents on how to protect these habitats.
Habitat	Vegetated shingle
Funding	HLF (Fifth Continent Landscape Partnership Scheme) - £57,957 for this project; various small match funding pots.
Key outcomes	Shingle habitats will be better protected and methods for doing so better understood. Burden of invasive species reduced.
People	Land managers will have access to better advice; Kent Wildlife Trust and RSPB volunteers involved in set up and monitoring; new resources (online and printed) for local residents on how to protect shingle habitats.
Challenges	Shingle vegetation develops very slowly and is very susceptible to disturbance; the project must continue to run for many years and land use may change over that time.
Monitoring / indicators	Increased coverage of pioneer shingle species i.e. Nottingham catchfly, broom, wood sage, lichens. Monitored yearly. Invertebrates monitored via pitfall trapping in 2018, to be repeated in 2020.

TITLE OF PROJECT	MAKING A BUZZ FOR THE COAST AND THE SHORT-HAIRED BUMBLEBEE RE-INTRODUCTION PROJECTS
Lead partner	Bumblebee Conservation Trust
Other organisations involved /partners	Kent Wildlife Trust, RSPB, Environment Agency, Natural England, Thames Water, Kent County Council, Swale BC, Thanet DC
District	North Kent Coast (Dartford to Deal), South Kent and East Sussex (High Weald, up to Ashford across to Hythe)
Description	Kent is the most important county in the UK for bumblebee species diversity (22 out of the 24 UK species present) with 5 of UK's 7 rarest bumblebee species present including the reintroduction efforts of an extinct species – the Short-haired bumblebee (Bombus subterraneus). The north Kent coast is one of the few remaining UK strongholds for the Shrill Carder Bee (Bombus sylvarum), one of the UK's rarest bumblebees. Since 2009, Bumblebee Conservation Trust (BBCT) has created, restored, advised on and improved management on approx. 1600 ha in south Kent and 400 ha grassland restoration and management is underway in north Kent (deliver by 2020).
Habitat	Grazing marsh, arable land, semi-improved or unimproved grassland, field margins and hay meadows, orchards, seawalls, native hedgerows, B roadside verges, bee-friendly gardens, soft cliffs, shingle and sandbanks.

Funding	National Lottery Heritage Fund, Thames Water, KCC, RSPB, Natural England and various smaller match funding pots.
Key outcomes	• Protect and safeguard the nationally important populations of bumblebees found in Kent including Shrill carder and attempted reintroduction of Short-haired bumblebee. • Conserve, manage and restore suitable habitats where bumblebee populations can flourish, providing stepping stones and habitat corridors to re-connect fragmented populations. 1600 ha in south Kent and over 400 ha grassland restoration in north Kent. • Working with over 100 farmers and landowners giving bespoke advice across Kent. • 15 roadside nature reserves managed for bumblebees.
People	• Partners, farmers and landowners, councils etc are advised and work is carried out to habitat and bumblebee populations. • Volunteers carry out bumblebee and wild flower monitoring using the BeeWalk methodology (citizen science); volunteers undertake practical habitat works; many public outreach activities undertaken every year (events, IS courses, workshops, art activities and competitions); Kent Wildlife Trust's Wild about Gardens volunteers undertake bee-friendly gardening. • Thousands of people of all backgrounds and ages engaged and enthused.
Challenges	Habitat loss and lack of suitable management, development pressure, intensive agriculture.
Natural Capital	Bumblebees, as wild pollinators, are much loved and intrinsically linked to the horticultural and food-growing history, economy and culture of the county. Pollinator eco-services.
Monitoring / indicators	Using BeeWalk transect recording data, increase in sites and abundance of key bumblebee species including Shrill carder, ruderal, red shanked, moss and brown-banded carder. Monitoring wild flower species by % cover, seasonal length forage and species diversity.

TITLE OF PROJECT	IMPROVING THE RIVER BEULT SSSI FOR PEOPLE AND WILDLIFE
Lead partner	Environment Agency
Other organisations involved /partners	Natural England and local stakeholders
District	Maidstone and Ashford
Description	The River Beult is a tributary of the River Medway. It is designated as an SSSI because it is one of the few slow-flowing clay rivers in the country that still supports some of the flora and fauna expected in this kind of water body. The river is a vital natural asset because it is a source of fresh water for wildlife and agriculture. It also naturally controls and stores flood waters, supports crop pollination, breaks down pollutants and helps the wellbeing of the local community through interests such as fishing and walking. However, this resource is compromised by issues such as historic modifications made to change the shape of the river channel and control water levels. These impede fish passage and have resulted in flash flooding, poor water quality, reduced flows and excessive weed growth, resulting in loss of habitat and a decline in angling. The project has been working in partnership with local stakeholders, as part of the Medway Flood Action Plan, to understand what services the River Beult SSSI currently provides or supports and how these benefits for people and wildlife can be improved. This has helped us to form a plan to improve the River Beult and we want to work with the community to put this plan into action to develop a more natural river and floodplain which are resilient to pressures including climate change.
Habitat	Slow-flowing clay rivers

Key outcomes	To create a River Beult that provides: • Natural flood management. • A healthy fishery with good angling participation. • A secure, clean water supply. • An attractive, resilient landscape that supports sustainable agriculture, flourishing wildlife and recreation.
Challenges	Historic modifications changed shape of the river channel and water levels, impeding fish passage and resulting in flash flooding, poor water quality, reduced flows and excessive weed growth.

TITLE OF PROJECT	GUARDIANS OF THE DEEP
Lead partner	Kent Wildlife Trust
Other organisations involved /partners	Medway Swale Estuary Partnership (Medway Council), Thanet Coast Project (Thanet District Council), Kent County Council, Natural England.
District	Kent and Medway
Description	Giving everyone the chance to learn more about the astonishing wildlife that lives around Kent's shores, providing lots of ideas and activities in which people can help to look after it. Establishing a network of 360 volunteer Coastal Guardians (eyes and ears of the coast); training for volunteers in shore survey techniques and species identification; establishment of a team of trained Coastbusters (volunteers to help tackle the invasion of the non-native Pacific oyster); promotion of Marine Conservation Zones to the wider public. For schools and young people: six-week WildBeach programmes at the coast and Undersea Explorer snorkelling workshops (in swimming pools).
Habitat	Coastal – intertidal including chalk reef, shingle spits, clay exposures, biogenic reefs.
Funding	HLF, Uren Foundation, D'Oyly Carte Charitable Trust, Kent Wildlife Trust Flourish Fund.
Key outcomes	Increased understanding and support for marine protected areas. A more skilled and active volunteer network taking action to help protect coastal areas. Coastal Guardians actively observing areas of coast, supporting the enforcement work undertaken by Kent and Essex Inshore Fisheries and Conservation Authority (KEIFCA).
People	This is a people-focussed project. To date (October 2018) volunteers have contributed over 800 days of volunteer time taking action to protect Kent's coast. Activities have ranged from general observation and reporting of unusual sightings or illegal activity to beach cleans and seaweed surveys.
Challenges	Constant pressure on the marine environment from industry. Huge challenge for KEIFCA in patrolling vast areas of sea to enforce the designated protection.
Monitoring / indicators	• 360 volunteer Coastal Guardians • 60 school groups undertaking WildBeach activities • 500 children trained in snorkelling skills • 30 non-native control sessions • 75 volunteer surveys events (intertidal habitats and species/marine litter) • 180 people trained in intertidal survey techniques • 180 people trained in an additional course (e.g. marine mammal identification, coast bird identification) • 60,000 people engaged in the project • 150,000 exposed to project information

TITLE OF PROJECT	ECOLOGY ISLAND MENTAL WELLBEING GROUP
Lead partner	North West Kent Countryside Partnership and North Kent Mind
Other organisations involved /partners	Dartford Borough Council, Public Health
District	Dartford Borough Council
Description	Ecology Island is a secluded woodland site in the middle of Dartford's Central Park, with the River Darent running alongside. The wellbeing group participants are referred into the project by NKMind and are in recovery from mental health issues or emotional trauma. Each week they carry out conservation, bush craft and natural craft activities which not only improve the site for wildlife, but significantly benefit the mental wellbeing of the group. NKMind staff are present each week to provide emotional support, and NWKCP lead the activities – each organisation plays to its own strengths to provide a fully-supported service.
Habitat	Secondary woodland and riparian
Funding	Various sources: Porchlight, Public Health, KCC Members' Grants, DEFRA Wrap fund, Saving Lives Innovation Fund.
Key outcomes	Wellbeing improvements for participants. Better managed woodland. Access and interpretation improvements.
People	The site is used and maintained by a group of approx. 12 people who are in recovery from mental health issues. Several of them have gone on to pursue further outdoor volunteering opportunities and one participant has gained employment in the countryside sector through this project.
Challenges	Project funding is a constant challenge – no long-term funding solution has yet been found. The site is prone to fly tipping which can be disheartening for the group, although their regular use of the site seems to have improved the issue.
Monitoring / indicators	Participant wellbeing is monitored through Warwick Edinburgh Mental Wellbeing Scale questionnaires.

APPENDIX 1

KENT BIODIVERSITY STRATEGY PRIORITY HABITATS, PRIORITY SPECIES AND INDICATOR SPECIES

TERRESTRIAL HABITATS AND SPECIES

Priority habitat	Champion	Current resource (Kent Habitat Survey 2012[31])	2025 target	Rationale
Lowland Beech and Yew Woodland	Natural England / Forestry Commission	613 ha UK BAP priority habitat	Restore 92 ha; create 49 ha	Lowland beech and yew woodland is particularly distinctive in Kent with notable examples existing within the High Weald and Kent Downs Areas of Outstanding Natural Beauty. However beech is sensitive to drought and is likely to be particularly vulnerable to the projected changes in rainfall and temperature in the south-east of England, with beech and yew woodland on free-draining calcareous soils being most at risk. To build resilience, an increase of 15% is desirable by 2025 through a combination of restoration of conifer plantations on ancient woodland sites and new woodland creation. Currently agri-environment schemes are a key funding mechanism for this work and the proposals set out in the 25 YEP to design a new woodland creation grant scheme, involving landowners, farmers and stakeholders would suggest that some form of funding will continue, with a clear drive set out to incentivise larger scale creation to meet carbon goals and wider environmental benefits at a landscape scale. There are also likely to be opportunities for woodland creation and restoration as part of the environmental net gain principle taken forward through development.

Priority habitat	Champion	Current resource (Kent Habitat Survey 2012[31])	2025 target	Rationale
Lowland Mixed Broadleaved Woodland	Natural England / Forestry Commission	153 ha UK BAP priority habitat	Restore 30 ha; create 16 ha	Lowland mixed deciduous woodland can have a hugely biodiverse canopy layer and ground flora and is a robust habitat with respect to future climates. Much of this woodland has been lost through clear-fell and plantation planting. By 2025 an increase of 30% is desirable through a combination of restoration of conifer plantations on ancient woodland sites and new woodland creation. Agri-environment schemes are a key funding stream for this work but there may also be opportunities for woodland creation and restoration as a result of future development through mandatory net gain.
Chalk grassland	Natural England	1159 ha UK BAP priority habitat	730 ha creation; 770 ha enhancement and restoration of semi-improved chalk grassland	Kent supports around 5% of the UK's chalk grassland habitat with around 2000 ha in total; 1159 ha being of the highest quality and a further 770 ha being semi-improved chalk grassland. There are currently 4 projects underway in Kent targeting management, restoration and maintenance: Old Chalk New Downs hosted by Kent County Council; Natural England's East Kent Focus Area; Darent Valley Partnership hosted by the Kent Downs AONB; White Cliffs Partnership hosted by Dover District Council.
Lowland meadow	Kent Wildlife Trust	27 ha UK BAP priority habitat	25 ha creation; 100 ha enhancement and restoration	Kent supports 27 ha of BAP priority habitat quality grassland and a further 430 ha of species-rich neutral grassland, which meets Farm Environment Plan criteria. The Saving our Magnificent Meadows (Plantlife / MVCP) and Ashford Meadows (KWT) projects have delivered 11 ha of meadow creation and approximately 50 ha of meadow restoration and enhancement on sites such as Alex Farm Pastures SSSI and Moat Farm. In addition, there will be new opportunities for meadow creation or enhancement work through agri-environment schemes and projects delivered by KNP partners and others.

Priority habitat	Champion	Current resource (Kent Habitat Survey 2012[31])	2025 target	Rationale
Lowland dry acid grassland / Lowland heathland	Kent Wildlife Trust	261 ha Lowland dry acid grassland UK BAP priority habitat / 74 ha Lowland heathland UK BAP priority habitat	Enhancement and restoration of 5 ha heathland; 20 ha acid grassland.	Identifying acid grassland as UK BAP priority habitat type is difficult outside of the optimal survey season, which has led to widely varying figures for the extent of this habitat in Kent. However, it is clear that both heathland and acid grassland are some of the rarest and most threatened habitats in the county, that opportunities for habitat creation are limited, and that poor management of acid grassland is frequently a key factor in the loss of this habitat. The focus therefore needs to be on supporting existing landowners with ongoing management advice and identifying new sites where these habitats can be restored and enhanced, either through removal of scrub and secondary woodland or through improvements to more established habitats. These targets include work within the Sevenoaks Greensand Commons HLF project and sites such as Stelling Minnis Common and Ashford Warren.
Hedgerows	Medway Valley Countryside Partnership	Approx. 11,734 km[32]	Restore 2250 km and plant 2250 km new species-rich hedgerow	From 1990 onwards the decrease in managed hedgerows in Kent has been predominantly through inappropriate management rather than actual hedgerow removal. The targets for planting new hedgerows and restoring relict hedgerows and woodland shaws aim to reverse this trend, and will principally be delivered by the KNP partners and others through mechanisms such as agri-environment schemes.

Priority habitat	Champion	Current resource (Kent Habitat Survey 2012[31])	2025 target	Rationale
Brownfield	Buglife and Kent County Council	Exact resource unknown but key sites in North Kent	To map and maintain the county's best and significant brownfield sites and manage them appropriately for their significant species.	The county has some significant brownfield sites that support an extremely rich diversity of wildflowers and animals, including nationally scarce invertebrates, but often brownfield is prioritised for development. Within the county we need to better understand and quantify the brownfield resource so that, through planning, the best examples can be retained and managed; and where sites are lost, the value is understood and consequently they are properly mitigated for.
Traditional orchard	Kent Downs AONB Unit	1699 ha (source Natural England) UK BAP priority habitat	Maintain in favourable condition 39 ha; restore 8 ha and create 67 ha	Traditional orchards are scattered across Kent with many cherry orchards sited within the Faversham Fruit Belt. Through supporting and accurately assessing the extent, condition and composition of these traditional orchards, there are opportunities to take forward potential orchard conservation and restoration projects. There is a growing interest in community orchards with several in existence and new plantings appearing within new developments giving our target of 67 ha. Many existing orchards have been adopted by the local communities, passionate about retaining their heritage. Projects for the maintenance, restoration and creation of traditionally managed orchards will be supported where they form part of wider projects for the restoration of wildlife habitats at a landscape scale.

Priority species	Champion	Status	2025 target	Rationale
Shrill Carder Bee	Bumblebee Conservation Trust	One of the UK's rarest bumblebees, which has declined rapidly in its national distribution in last 50 years. Kent remains a national stronghold; recent Kent records (2008-2019) show the species present in 17 10 km x 10 km (79 2 km x 2 km tetrads). Key sites with good numbers found along the north Kent coast in Dartford, Hoo peninsula and Swale. Records beyond Seasalter on the north Kent coast are much fewer and more scattered. Records from east Kent sites have been very few over the last decade (in single figures).	By 2020, an increase in the distribution of SCB bees in recording hectads (10 km x 10 km) in Kent. In addition, by 2023, male and/or queen shrill carder bees are recorded on all Beewalk transects where the species is known to occur.	With bumblebees, presence alone is not necessarily a good indicator of how populations are faring, and one needs to take into account effective population size (numbers of males and queens, which are the reproductive castes, as opposed to the workers). This target cannot be an annual target: the males and queens can sometimes be hard to detect and may not always get picked up on any transects. This data will be collected as part of the national monitoring scheme for bumblebees (BeeWalk).
Turtle Dove	RSPB	The Turtle Dove is the UK's fastest declining bird species and is threatened with global extinction (IUCN Red List of Endangered Species). Breeding populations, both in England and in Europe, have collapsed in recent decades and the decline is continuing. The latest UK Breeding Bird Survey data shows a 93% fall in breeding abundance between 1995 and 2014. The species is now included on the UK Red List of Conservation Concern.	To maintain the population of turtle doves in the 7 highest priority Turtle Dove Friendly Zones by 2020 (out of a total of 13 TDFZs in the South East) and for activity to have begun in the remaining 6 Turtle Dove Friendly Zones.	For species that are declining rapidly, the best option is to apply science-based conservation solutions in the areas where they still breed in reasonable densities. This means that the most effective conservation action will be delivered in the most effective places. For turtle doves, the RSPB has used Breeding Bird Atlas data to identify 'Turtle Dove Friendly Zones' and works with Natural England and local farmers to provide feeding habitat and supplementary feeding. We have good evidence to suggest that a lack of quality food is the primary cause of decline in turtle doves.
Nightingale	RSPB	The nightingale is one of our most severely-threatened birds – its population has declined by more than 90% in the last 50 years. Fewer than 5,500 pairs now remain across the country. The range of nightingales has also contracted dramatically, so they are now found only in the south and east of England. With an estimated population of 1,450 to 1,550 singing males, Kent is now the stronghold for this species in the UK.	1,450 to 1,550 singing males.	For a species declining so rapidly, just maintaining the existing population is ambitious. We need to ensure that existing nightingale breeding habitat is protected from development and managed appropriately, ensuring that dense scrub is available and invertebrate food is abundant. We also need to plan ahead and ensure that new woodland planting schemes are designed to provide good habitat for nightingales.

Priority species	Champion	Status	2025 target	Rationale
Swift	RSPB	The 57% decrease in their breeding numbers in the UK between 1995 and 2016 has made swifts an amber-listed species. Swifts are difficult to monitor, but the most recent population estimate for Kent was 3,000 to 7,000 pairs.	To stop the decline of swifts by ensuring that every new house built in Kent contains one swift-box or nest-brick.	We still do not fully understand the reasons for the collapse in swift numbers, but the loss of nest sites is at least partly responsible. These migrant birds return from their wintering grounds in Africa to the same spot each year to breed – usually in buildings, in gaps under roof tiles and eaves. Due to our tendency to seal up buildings during renovation or knock them down, swifts are returning to discover their nest site has gone or access is blocked. Declines in aerial invertebrates, which are food for swifts, are also likely to be a key factor, and the Kent Biodiversity Strategy's aspirations for wetland habitat creation will help with this.
Adder	Kent Reptile & Amphibian Group	There is evidence of a considerable decline in adder distribution. In the period 1980 to 2005, 15,154 monads were recorded as occupied by the species. In 2006 to 2011 this fell to 9,237. This amounts to a potential decline of 39%.[33]	Increase by 2.5% per annum in the adder range (number of monads occupied) and overall frequency of recording.	The interpretation of data will take into account results from long-term monitoring in Kent that will indicate how prevailing conditions have influenced adder detectability and hence affected the potential recording rate. The baseline will be provided by records received by the Kent Reptile and Amphibian Group in 2018.
Adonis Blue	Butterfly Conservation	The National Status is Near Threatened. Butterfly Conservation's county priority for this butterfly is High, because Kent is home to 14% of the national population.	To retain Adonis Blue on all known sites and locate more sites, to show an increase in the known distribution of 73 1 km squares. The Adonis Blue population trend (monitored by the UK Butterfly Monitoring Scheme) is Stable or Increasing.	Adonis Blue is restricted to, and representative of, good quality chalk grassland habitat, and as such is an indicator of wider habitat quality and a healthy, functioning and managed landscape.

Priority species	Champion	Status	2025 target	Rationale
Heath Fritillary	Kent Wildlife Trust	Heath fritillary is one of the UK's most restricted and most threatened butterflies. It is restricted to only four locations in the UK, including a discrete population in The Blean, Kent. It is listed in Section 41 the NERC Act as being a species of principal importance. It is a UK High Priority species for Butterfly Conservation and is one of the seven top priority butterflies in Butterfly Conservation's Regional Conservation Strategy for South East England 2016 to 2025. Heath fritillary would almost certainly have become extinct in the UK were it not for conservation efforts over the past three decades. Extensive targeted habitat management is undertaken within the Blean woodland complex.	Maintain a minimum of 25 interconnected colonies in Kent. Increase the area of suitable interconnected habitat within the Blean complex through active coppice, non-native tree removal, and grazing, to create and maintain open areas, enhance food plant distribution in the Blean to 1980 levels by 2010 and then maintain (30 ha per year). Establish new populations outside of the current distribution to safeguard and enhance the status of the population.	Heath fritillary is restricted to the Blean woodland complex in Kent, and to the distribution of the food plant (common cow wheat). The Blean is one of the largest areas of ancient woodland in England – over 2,800 ha. Management for heath fritillary delivers additional and wide-ranging benefits for other woodland species and habitat quality, and acts as a driver for positive outcomes for biodiversity.
Dwarf or Kentish Milkwort (Polygala amarella)	Kent Botanical Recording Group	The rarest Milkwort; when treated as subsp. austriaca, it is considered critically endangered.	Mapping and monitoring and action to move towards removal of this species from the brink of extinction by 2050.	The Species Recovery Trust has been focussing on this species in recent years and is targeting its removal from the brink of extinction by 2050. Optimum habitat requires continued appropriate management at the three current locations where the plant is known to survive. The Species Recovery Trust has been working on re-introduction, with a focus on site(s) which appear suitable but do not have records (so that introduction cannot give rise to confusion with any possible natural reappearance at old sites).

Indicator species	Champion	Status	Indicator measure	Rationale
Hedgehog	Kent Mammal Group	The population now appears to be in dramatic decline, with at least a quarter of the population lost in the last decade[34].	Number of tetrads where this species is recorded.	There are no official monitoring schemes for this species and the current Kent mammal distribution atlas (2015) is based on ad hoc records and the Kent Mammal Group's voluntary mammal recording projects. KNP partners and others will continue to increase awareness of this species, to promote campaigns such as the People's Trust for Endangered Species' Hedgehog Street[35] and to promote advice to land managers, including farmers and gardeners.

Indicator species	Champion	Status	Indicator measure	Rationale
Serotine bat	Kent Bat Group	Widespread but declining[36].	Colony counts of maternity roosts at known Kent serotine roosts.	This indicator provides a means of monitoring population trends and can be monitored effectively and with a good degree of accuracy as part of the National Bat Monitoring Programme. Ensuring no net loss of roosts is difficult, in part as a major contributing factor in roost loss (all known serotine maternity roosts are in buildings, mainly houses) appears to be changes of temperature regimes. However, there is also a difficulty in finding the maternity roosts as this is not easy and requires manpower. Gaining roosts will depend on good relationships with landowners, favourable landscape management i.e. agri-environment schemes, and access to good land management advisors.
Common Blue	Butterfly Conservation	Widespread across Kent and most of the UK. Its Conservation status is Low.	Monitored via the UK Butterfly Monitoring Scheme transect system and through casual recording. This will provide data on the distribution and abundance of the butterfly and this can also be compared with national trends.	A widespread butterfly found in a variety of habitats. The caterpillar feeds on widespread plants, primarily Common Bird's-foot-trefoil (Lotus corniculatus), but also Greater Bird's-foot-trefoil (Lotus pedunculatus), Black Medick (Medicago lupulina), Common Restharrow (Ononis repens), and White Clover. This butterfly is therefore a good indicator of the health of the wider countryside and also abundance/connectivity/isolation of flower-rich habitats, particularly within towns.
Lady Orchid (Orchis purpurea)	Kent Botanical Recording Group	Kent has the main national populations, which occur across the breadth of the chalk in Kent, although more in the east. Most populations are small, and it is suspected that many are gradually declining.	Number of records of this species.	The Lady orchid is a highly sensitive indicator of well-managed coppice woodland on chalk.

FRESHWATER AND INTERTIDAL HABITATS AND SPECIES

Priority habitat	Champion	Current resource (Kent Habitat Survey 2012[37])	2025 target	Rationale
Rivers	Environment Agency	6592 ha[38]	Improve 105 km of waterways (15 km per year x 7 years)	This target is based on the Key Performance Indicator of 'length improved' used by the Environment Agency. However, this figure is based on the Environment Agency's area which includes East Sussex, part of Surrey, South London and Kent and it is therefore difficult to give a precise figure for Kent only. The target is therefore a conservative figure.
Chalk streams	South East Rivers Trust	104.5 km	Raise the profile and prioritise the restoration of this globally rare freshwater habitat	A globally rare habitat; there are only about 250 chalk streams in the world, about 160 of them are in England, with some raising from the chalk aquifer of the North Downs under Kent, inc. River Darent, Great Stour, Little Stour, Nailbourne, Dour and North and South Streams. Characterized by stable flow and temperature regimes, low energy and sediment inputs from groundwater spring sources, which has made them productive environments rich in aquatic ecology that has evolved and specially adapted to this character. Chalk streams of Kent are impacted by ground water abstraction for drinking water supply, due to high population densities in the South East.
Ponds	Natural England	19,206 ponds[39] with a total area of 7,039,121 m^2	By 2021, 322 additional ponds with a total area of 161,000 m^2	The two year target for additional ponds to be created or restored in Kent is based on the requirement under the district level licensing for great crested newts (GCN) across Kent considering development at a landscape scale. This requirement has been used as a target for the habitat as it represents a focus on the enhancement of the conservation status of the wider GCN population and is a delivery of net gain in relation to the numbers of ponds across the county. All the ponds will be created or restored to very tight specifications ensuring that they are located in the most suitable habitat with the inclusion of buffer zones thereby linking "stepping stone" ponds and increasing the benefits for not only GCN but other wildlife as well.

Priority habitat	Champion	Current resource (Kent Habitat Survey 2012[37])	2025 target	Rationale
Coastal and floodplain grazing marsh	RSPB	14,174 ha UK BAP priority habitat	Restore 2000 ha	The most likely opportunities up to 2025 will be restoring existing grazing marsh. This target includes habitat creation at Higham Marsh, Harty Marshes, Lydden Valley, Seasalter Levels and the Environment Agency's Flood and Coastal Risk Management programme. In addition to the restoration target for this habitat, the Strategy also aims to ensure that sensitive areas and the species they support are protected from recreational disturbance.
Intertidal mudflats and coastal saltmarsh	Environment Agency	10,078 ha UK BAP priority habitat Intertidal mudflats; 1338 ha UK BAP priority habitat coastal saltmarsh	Create 50 ha of net gain for both habitats combined.	The KNP partners are committed to protecting these habitats where feasible and through shoreline management plans and strategies. The target of 50 ha for coastal saltmarsh & intertidal mud (a shared target) is based on coastal squeeze affecting designated sites; this target requires considerable landowner cooperation and therefore requires a suitably lengthy timeframe for delivery. In addition to the creation target for this habitat, the Strategy also aims to ensure that sensitive areas and the species they support are protected from recreational disturbance.
Wet woodland	Environment Agency	662 ha UK BAP priority habitat	Creation of 10 ha of wet woodland.	Wet woodland can play an important role in flood risk management – a role that is set to increase in years to come as greater use is made of natural flood management solutions. This target is based on work currently taking place to make stream corridors wetter in the Medway catchment; however, reaching the target relies on funding being obtained to continue work beyond 2021.

Priority habitat	Champion	Current resource (Kent Habitat Survey 2012[37])	2025 target	Rationale
Vegetated shingle	Natural England	2104 ha UK BAP priority habitat	Maintain total extent of coastal vegetated shingle habitat; ensure no net loss; and restore all coastal vegetated shingle to favourable condition (or unfavourable to recovering).	Shingle is a finite resource. In southern England, much of it is composed of flint eroded out of chalk cliffs and moved by longshore drift along the coast. Shingle in Kent takes the form of the cuspate foreland at Dungeness, which is by far the largest site in the UK at over 2000 ha of exposed shingle. The remaining areas in Kent are fringing shingle beaches exposed to storm action and display temporary and mobile strandline communities. Being a finite resource, the target is to maintain the coastal vegetated shingle habitat in Kent, ensuring no net loss. Opportunities to create shingle habitat are extremely limited and of limited success.

Priority species	Champion	Status	2025 target	Rationale
European Eel	Environment Agency	Abundance of the European eel stock is at a historical low and continues to decline. The current level of recruitment of glass eel (juvenile eel) to Europe is at its lowest level in recent decades, at less than 5%. Average glass eel recruitment to fisheries in Europe has declined by 97%. The decline in eel stocks is an international concern. In 2007, the European Union adopted a Council Regulation[40] which charged the UK and other member states to take specific actions. Accordingly, Defra brought in our own domestic legislation "the Eels (England and Wales) Regulations 2009"[41], which gave us new powers to protect eels from exploitation and entrainment and require improvements in passage to assist their migration over barriers and weirs.	Demonstrable progress to silver eel escapement targets in all catchments that we influence; secure access for eel to an additional 200 km of habitat.	The over-arching aim is to secure sustainable eel populations. This can be achieved by addressing man-made pressures on eel to prevent a further decline and to support recovery of this species. We should be aiming towards an escapement of silver eel to a minimum of 40% historic levels in all of the catchments we influence. Our aim is to see eel fulfilling its role in the aquatic ecosystem and providing social and economic benefits from recreational fishing. Annual escapement is the outward migration of silver eels (mature eels which have undertaken a change in readiness for migration). The aim of this action is to reduce the obstacles which prevent eels moving downstream to migrate, therefore increasing the number of silver eels that escape from inland and coastal waters and contribute to the spawning stock. At the end of the growing period, the eels mature, males on average 12 years and females on average about 18 years old, and return to the Atlantic Ocean; this stage is known as the silver eel. Eels residing in freshwaters usually initiate their spawning migration as silver eels during autumn. In European eel, the metamorphosis from yellow to silver eels before the marine migration to the spawning area in the Sargasso Sea includes morphological, anatomical, as well as physiological changes and occurs during summer. Estimated annual escapement (outward migration) of silver eels from English waters currently amounts to a total of approximately 977 tonnes.

Priority species	Champion	Status	2025 target	Rationale
Lapwing	RSPB	Between 1995 and 2012, breeding lapwing declined by 47% in South East England. They have been lost from much of the wider countryside due to changes in agriculture, but populations on wet grassland have increased over this time due to habitat creation and enhancement, particularly on the North Kent Marshes. The estimated population of breeding lapwing in Kent in 2013 was 980 to 1,200 pairs.	> 1,000 pairs of breeding lapwing populations.	Breeding lapwing are a good proxy for wet grassland management. There are approximately 800 pairs of breeding lapwing in North Kent, and this area should be the focus for landscape-scale conservation management, involving improvements to hydrological management and grazing management. The target of 1,000 pairs by 2025 would be delivered by more farms entering agri-environment schemes and more habitat enhancement and creation projects.
Sandwich tern	RSPB	Sandwich terns in Kent are restricted to the islands in the Medway Estuary, where a population of 300 to 500 pairs has bred since 1996. The colony is under immediate threat from disturbance and sea-level rise.	To retain the colony of 300 to 500 pairs in the Medway Estuary in the short-term and to identify sustainable breeding habitat in North Kent in the long-term.	The Medway Estuary colony of Sandwich terns is regionally important and under imminent threat from sea level rise and disturbance. In the short-term, we need to bolster the existing nesting habitat, seeking to increase the height of the islands to prevent over-topping on high tides. In the long-term, we need to identify new habitat in North Kent, which could be new, bespoke habitat creation, or as part of a coastal re-alignment scheme. Wherever Sandwich terns breed, they are reliant on marine habitats for food, primarily small surface-feeding fish within 15 km of the nest site. The effects of availability of fish in relation to tern productivity are poorly understood, but over-fishing and the impacts of climate change are likely to have a significant effect.

Priority species	Champion	Status	2025 target	Rationale
Water Vole	Kent Wildlife Trust	The water vole is Britain's fastest declining mammal. Despite continued conservation efforts, the latest analysis of data undertaken by the National Water Vole Database and Mapping Project estimates the ongoing overall decline of this species was 30% between 2006 and 2015 across England and Wales. Water vole populations in Kent are now largely concentrated within the county's extensive coastal and floodplain grazing marshes which feature complex habitats including ditch networks and reedbeds.	To retain water vole populations on all known sites and demonstrate progress in assessing county-specific status through encouraging involvement in the National Water Vole Monitoring Programme (evidenced by all existing sites being monitored and the addition of new sites to the register). This will enable subsequent assessment of the population across Kent and enable specific actions to be identified.	Water vole populations in Kent are of national importance, with the county home to 3 National Key Sites at Elmley, the North Kent Marshes and Stodmarsh. Water voles are an excellent indicator of landscape connectivity. Water voles are also ecological engineers, enhancing habitat heterogeneity through their burrowing and grazing activities creating rich bankside environments capable of supporting a wide variety of insects, other small mammals (inc. bats), reptiles and amphibians. People's Trust for Endangered Species (PTES) established the National Water Vole Monitoring Programme in 2015. KNP partners and others can raise awareness of this scheme.
True Fox-sedge (Carex vulpine)	Kent Botanical Recording Group	A rare plant whose Low Weald populations in Kent are of national significance.	Update monitoring data for this species, with a view to verifying any decline and what management action might appropriately address this (e.g. by managing the invasive growth of trees and scrub around pond and ditch margins).	A rare plant of Low Wealden ditch and waterbody margins. Ponds and ditches are a defining feature of the Low Weald and if attention is given to this species, then it is likely that other Wealden wetland species will be encouraged, to the benefit of biodiversity.

MARINE HABITATS AND SPECIES

Priority habitat	Champion	Current resource (Kent Habitat Survey 2012[4])	2025 target	Rationale
Intertidal chalk and subtidal chalk (nominated)	TBC	1145.58 ha (total current mapped extent of SAC designated chalk reef)	To identify suitable locations and establish scientific reference areas for specific areas of chalk reef (by 2022).	There are currently no reference areas and so this will be done along the lines of the Education Conservation Areas that have been established by the Sussex IFCA in the Beachy Head West Marine Conservation Zone. These have been designed as intertidal gathering no-take zones, which provide a valuable education resource and improved understanding of the populations of species in areas where there is no gathering.
Subtidal mud (nominated)	TBC	TBC	TBC	The subtidal mud across Hythe Bay harbours a rare and very rich community of burrowing spoonworms, large shrimps and other animals, that supports fish populations which are commercially important to local fishing fleets. There is a recognised gap in the MPA network in the south east for subtidal mud, and surveys in 2012 showed that some of the key burrowing species have declined since the 1980s. Work with local stakeholders is needed to identify ways to ensure this rare community is able to persist in the Bay.

Indicator species	Champion	Status	Indicator measure	Rationale
Harbour and Grey Seals	Zoological Society of London	Widespread across the Greater Thames Estuary. In Kent, the Greater Thames Estuary includes the coastline from Gravesend to Deal, sandbanks and Medway and Swale estuaries. Populations of both species for the entire Greater Thames Estuary appear to be increasing.	Harbour and grey seal population estimates for Greater Thames Estuary.	Harbour and grey seals are monitored annually (where funding allows) by aerial surveys covering the Greater Thames Estuary. The surveys consistently take place during the first two weeks of August to coincide with the harbour seal moult when more animals will be reliably ashore for counting. Counts are converted to population estimates. These estimates contribute to a long-term dataset that allows for seal population trends to be monitored. Seals are helpful indicators of general and wider estuarine health including habitat and prey availability.

APPENDIX 2

PRIORITY HABITATS – BASELINE FIGURES

There are 36 habitat types that are in need of conservation and recovery in Kent and Medway and in Kent's waters, all of which are nationally important and some of which are rare and threatened on a global scale.

Many of the habitats listed below were not selected for inclusion within the main targets for this iteration of the Strategy because there are currently limited opportunities for what can be achieved, either through partnership working or through the constraints pertaining to that particular habitat type. Nevertheless, partners will continue to undertake work to manage, enhance, extend and reconnect these habitats, where feasible. The Kent Nature Partnership may decide in years to come to select new priority habitats from those listed below if the latter require greater focus and work.

Priority Habitat	Current UK BAP habitat resource (Kent Habitat Survey 2012)[42] unless otherwise indicated
Arable field margins	2751 ha[43] – not recorded during 2012 KHS.
Blue mussel beds on sediment	Baseline data not currently available as extremely costly to identify spatial extent of subtidal habitats
Coastal and floodplain grazing marsh	14,174 ha
Coastal saltmarsh	1338 ha
Coastal sand dunes	455 ha
Coastal vegetated shingle	2104 ha
Fragile sponge and anthozoan communities on subtidal rocky habitats	Baseline data not currently available as extremely costly to identify spatial extent of subtidal habitats
Hedgerows	Approx. 11,734 km (including but not limited to BAP habitat type hedgerow)[44]
Honeycomb worm (Sabellaria alveolata) reefs	Baseline data not currently available as extremely costly to identify spatial extent of subtidal habitats
Intertidal chalk / Subtidal chalk	415 ha / Baseline data not currently available as extremely costly to identify spatial extent of subtidal habitats
Intertidal mudflats	10,078 ha
Intertidal underboulder communities	Baseline data not currently available as extremely costly to identify spatial extent of subtidal habitats
Lowland beech and yew woodland	613 ha
Lowland calcareous grassland	1159 ha
Lowland dry acid grassland	262 ha
Lowland fen	12 ha
Lowland heathland / Purple moor grass and rush pasture	74 ha / 11 ha
Lowland meadow	27 ha

Lowland mixed deciduous woodland	153 ha
Maritime cliffs and slopes	221 ha
Mud habitats in deep water (?)	Baseline data not currently available as extremely costly to identify spatial extent of subtidal habitats
Open mosaic habitats on previously developed land	Baseline data not available
Peat and clay exposures with piddocks	Baseline data not currently available as extremely costly to identify spatial extent of subtidal habitats
Ponds	Baseline data not available
Reedbeds	545 ha
Rivers	Current resource: 6592 ha. No recorded areas of UK BAP priority or Annex1 habitats within KHS 2012.
Rossworm (Sabellaria spinulosa) reefs	Baseline data not currently available as extremely costly to identify spatial extent of subtidal habitats
Saline lagoons	286 ha
Seagrass beds	29 ha
Sheltered muddy gravels / Subtidal sands and gravels	9 ha / Baseline data for 'Subtidal sands and gravels' not currently available as extremely costly to identify spatial extent of subtidal habitats
Spoonworms and burrowing megafauna	Baseline data not currently available as extremely costly to identify spatial extent of subtidal habitats
Traditional orchard	1676 ha
Wet woodland	662 ha
Wood pasture and parkland	3176 ha

APPENDIX 3

PRIORITY SPECIES

There have been 387 priority species recorded in Kent (UK species identified as being the most threatened and requiring conservation action); these are listed below. It should be noted that whilst recorded in Kent, not all are necessarily still present in the county; but all priority species recorded serves to illustrate not only how rich our environment is but how rich it indeed has been and could be, and provides inspiration for projects to see their return to the county.

Latin name	Common name
Aceras anthropophorum	Man Orchid
Acronicta psi	Grey Dagger (moth)
Acronicta rumicis	Knot Grass
Adonis annua	Pheasant's Eye (plant)
Adscita statices	Forester (moth)
Agabus brunneus	Brown Diving Beetle
Agonopterix capreolella	Fuscous Flat-body (moth)
Agonum scitulum	Agonum scitulum (beetle)
Agrochola helvola	Flounced Chestnut (moth)
Agrochola litura	Brown-spot Pinion (moth)
Agrochola lychnidis	Beaded Chestnut (moth)
Agroeca cuprea	Golden Lantern (spider)
Agrotera nemoralis	Beautiful Pearl (moth)
Ajuga chamaepitys	Ground-Pine
Aleucis distinctata	Sloe Carpet (moth)
Allophyes oxyacanthae	Green-brindled Crescent (moth)

Latin name	Common name
Ammodytes marinus	Raitt's Sand eel
Ammodytes tobianus	Sand eel
Ampedus rufipennis	Red-horned Cardinal Click Beetle
Amphipoea oculea	Ear Moth
Amphipyra tragopoginis	Mouse Moth
Anaciaeschna isoceles	Norfolk Hawker (dragonfly)
Anania funebris	White-spotted Sable (moth)
Andrena ferox	Oak Mining Bee
Andrena tarsata	Tormentil Mining Bee
Anergates atratulus	Dark Guest Ant
Anguilla anguilla	European Eel
Anguis fragilis	Slow-worm
Anisodactylus poeciloides	Saltmarsh Short-spur (beetle)
Anisus vorticulus	Little Whirlpool Ram's-horn Snail
Anthophora retusa	Potter Flower Bee
Apamea anceps	Large Nutmeg (moth)

Latin name	Common name
Apamea remissa	Dusky Brocade (moth)
Aplasta ononaria	Rest Harrow (moth)
Aporophyla lutulenta	Deep-Brown Dart (moth)
Arabis glabra	Tower Mustard
Archanara neurica	White-mantled Wainscot (moth)
Arctia caja	Garden Tiger (moth)
Arctosa fulvolineata	Yellow-striped Bear-spider
Argynnis adippe	High Brown Fritillary (butterfly)
Artemisia campestris	Field Mugwort
Arvicola amphibius	European Water Vole
Arvicola terrestris	Water Vole
Asilus crabroniformis	Hornet Robberfly
Asparagus officinalis subsp. prostratus	Wild Asparagus
Aspitates gilvaria gilvaria	Straw Belle (moth)
Asteroscopus sphinx	Sprawler (moth)
Atethmia centrago	Centre-barred Sallow (moth)
Atrichum angustatum	Lesser Smoothcap (plant)
Austropotamobius pallipes	White-clawed Freshwater Crayfish
Bacidia incompta	(lichen)
Baetis niger	Southern Iron Blue (mayfly)
Balaenoptera acutorostrata	Minke Whale
Balaenoptera physalus	Fin Whale
Barbastella barbastellus	Western Barbastelle (bat)
Baryphyma duffeyi	Duffey's Bell-head Spider
Battarraea phalloides	Sandy Stiltball (fungus)

Latin name	Common name
Bembecia chrysidiformis	Fiery Clearwing (moth)
Bembidion argenteolum	Silt Silver-spot (beetle)
Bembidion quadripustulatum	Scarce Four-dot Pin-palp (beetle)
Blepharita adusta	Dark Brocade (moth)
Blysmus compressus	Flat-sedge
Boloria euphrosyne	Pearl Bordered Fritillary (butterfly)
Boloria selene	Small Pearl-bordered Fritillary (butterfly)
Bombus humilis	Brown-Banded Carder Bee
Bombus muscorum	Moss Carder Bee
Bombus ruderarius	Red-shanked Carder Bee
Bombus ruderatus	Large Garden Bumble Bee
Bombus subterraneus	Short Haired Bumble Bee
Bombus sylvarum	Shrill Carder Bee
Bombylius minor	Heath Bee-fly
Brachylomia viminalis	Minor Shoulder-Knot (moth)
Bromus interruptus	Interrupted Brome (plant)
Bryum gemmiparum	Welsh Thread-moss
Bryum warneum	Warne's Thread-moss
Bufo bufo	Common Toad
Bupleurum rotundifolium	Thorow-wax (plant)
Bupleurum tenuissimum	Slender Hare's-ear (plant)
Byctiscus populi	Poplar Leaf-rolling Weevil
Caloplaca aractina	Placodium fuscoatrum (lichen)
Caloplaca flavorubescens	Caloplaca flavorubescens (lichen)
Caloplaca luteoalba	Orange-fruited Elm-lichen
Campanula rapunculus	Rampion Bellflower

Latin name	Common name
Campsicnemus magius	Fancy-legged Fly
Carabus monilis	Necklace Ground Beetle
Caradrina morpheus	Mottled Rustic (moth)
Carex divisa	Divided Sedge
Carex ericetorum	Rare Spring-Sedge
Carex vulpina	True Fox-Sedge
Carum carvi	Caraway
Catocala promissa	Light Crimson Underwing (moth)
Catocala sponsa	Dark Crimson Underwing (moth)
Celaena haworthii	Haworth's Minor (moth)
Celaena leucostigma	Crescent (moth)
Centaurea calcitrapa	Red Star-thistle
Centaurea cyanus	Cornflower
Cephalanthera damasonium	White Helleborine
Cephalanthera longifolia	Narrow-Leaved Helleborine
Cephaloziella baumgartneri	Chalk Threadwort
Ceramica pisi	Broom Moth
Cerceris quadricincta	Four-banded Weevil-wasp
Cerceris quinquefasciata	Five-banded Weevil-wasp
Cetorhinus maximus	Basking Shark
Chamaemelum nobile	Chamomile
Chara connivens	Convergent Stonewort
Chenopodium urbicum	Upright Goosefoot (plant)
Chenopodium vulvaria	Stinking Goosefoot (plant)
Chesias legatella	Streak (moth)
Chesias rufata	Broom-Tip (moth)

Latin name	Common name
Chiasmia clathrata	Latticed Heath (moth)
Chlaenius tristis	Black Night-runner (beetle)
Chlorita viridula	Sea-wormwood Leafhopper
Chrysis fulgida	Shimmering Ruby-tail (wasp)
Clinopodium acinos	Basil Thyme
Clupea harengus	Herring
Coenonympha pamphilus	Small Heath (butterfly)
Colletes halophilus	Sea Aster Bee
Cosmia diffinis	White-Spotted Pinion (moth)
Cossus cossus	Goat Moth
Crepis foetida	Stinking Hawk's-beard (plant)
Crepis mollis	Northern Hawk's-beard (plant)
Cryptocephalus coryli	Hazel Pot Beetle
Cryptocephalus punctiger	Blue Pepper-pot Beetle
Cupido minimus	Small Blue (butterfly)
Cyclodictyon laetevirens	Bright Green Cave-Moss
Cyclophora porata	False Mocha (moth)
Cymatophorima diluta	Oak Lutestring (moth)
Cynoglossum germanicum	Green Hound's-tongue (plant)
Decticus verrucivorus	Wart-biter (cricket)
Delphinus delphis	Common Dolphin
Dermochelys coriacea	Leathery Turtle
Dianthus armeria	Deptford Pink
Diarsia rubi	Small Square-spot (moth)
Dicranum undulatum	Waved Fork-moss
Dictyna pusilla	Small Mesh-weaver (spider)

Latin name	Common name
Diloba caeruleocephala	Figure of Eight (moth)
Doratura impudica	Large Dune Leafhopper
Dorycera graminum	Phoenix Fly
Dromius vectensis	Dromius vectensis (beetle)
Dryopteris cristata	Crested Buckler-fern
Ecliptopera silaceata	Small Phoenix (moth)
Ennomos erosaria	September Thorn (moth)
Ennomos fuscantaria	Dusky Thorn (moth)
Ennomos quercinaria	August Thorn (moth)
Entoloma bloxamii	Big Blue Pinkgill (fungus)
Epirrhoe galiata	Galium Carpet (moth)
Erinaceus europaeus	West European Hedgehog
Eryngium campestre	Field Eryngo (plant)
Erynnis tages	Dingy Skipper (butterfly)
Eucera longicornis	Long-horned Bee
Eugnorisma glareosa	Autumnal Rustic (moth)
Eulithis mellinata	Spinach
Euphrasia anglica	Eyebright
Euphrasia anglica	Small-flowered Sticky Eyebright
Euphrasia pseudokerneri	Eyebright
Eurysa douglasi	Chalk Planthopper
Euxoa nigricans	Garden Dart (moth)
Euxoa tritici	White-line Dart (moth)
Fallopia dumetorum	Copse-Bindweed
Filago lutescens	Red-Tipped Cudweed
Filago pyramidata	Broad-Leaved Cudweed

Latin name	Common name
Formicoxenus nitidulus	Shining Guest Ant
Gadus morhua	Atlantic Cod
Galeopsis angustifolia	Red Hemp-nettle
Galeorhinus galeus	Tope Shark
Galium pumilum	Slender Bedstraw
Galium tricornutum	Corn Cleavers (plant)
Gentianella anglica	Early Gentian
Gentianella campestris	Field Gentian
Globicephala melaena	Pilot Whale
Gnorimus nobilis	Noble Chafer (beetle)
Grampus griseus	Risso's dolphin
Graphiphora augur	Double Dart (moth)
Grapholita pallifrontana	Liquorice Piercer (moth)
Gryllotalpa gryllotalpa	Mole Cricket
Hadena albimacula	White Spot (moth)
Haliclystus auricula	Stalked Jellyfish
Hamearis lucina	Duke of Burgundy (butterfly)
Haplodrassus dalmatensis	Heath Grasper (spider)
Harpalus punctatulus	Set-aside Downy-back (beetle)
Heleobia stagnorum	Lagoon Spire Snail
Heliophobus reticulata	Bordered Gothic (moth)
Hemaris tityus	Narrow-Bordered Bee Hawk (moth)
Hemistola chrysoprasaria	Small Emerald (moth)
Hepialus humuli	Ghost Moth
Hericium coralloides	Coral Tooth (fungus)
Hericium erinaceus	Bearded Tooth (fungus)

Latin name	Common name
Herminium monorchis	Musk Orchid
Hipparchia semele	Grayling (butterfly)
Hippocampus hippocampus	Short-snouted Seahorse
Hohenbuehelia culmicola	Marram Oyster
Hoplodrina blanda	Rustic (moth)
Hordeum marinum	Sea Barley
Hydnellum concrescens	Zoned Tooth (fungus)
Hydnellum ferrugineum	Mealy Tooth (fungus)
Hydnellum scrobiculatum	Ridged Tooth (fungus)
Hydnellum spongiosipes	Velvet Tooth (fungus)
Hydraecia micacea	Rosy Rustic
Hydraecia osseola subsp. huche-rardi	Marsh Mallow Moth
Hydrometra gracilenta	Lesser Water Measurer
Hydroporus rufifrons	Oxbow Diving Beetle
Iberis amara	Wild Candytuft
Idaea dilutaria	Silky Wave (moth)
Idaea ochrata subsp. cantiata	Bright Wave (moth)
Illecebrum verticillatum	Coral Necklace (plant)
Juniperus communis	Juniper
Lacerta agilis	Sand Lizard
Lactuca saligna	Least Lettuce
Lagenorhynchus albirostris	White-Beaked Dolphin
Lasiommata megera	Wall Brown (butterfly)
Lecania chlorotiza	Lecania chlorotiza (lichen)
Lecidea erythrophaea	Lecidea minuta (lichen)

Latin name	Common name
Leptidea sinapis	Wood White (buuterfly)
Leptothorax interruptus	Long-spined Ant
Lepus europaeus	Brown Hare
Limenitis camilla	White Admiral (butterfly)
Lipsothrix nervosa	Southern Yellow Splinter (cranefly)
Lithostege griseata	Grey Carpet (moth)
Lolium temulentum	Darnel
Lucanus cervus	Stag Beetle
Lucernariopsis campanulata	Lucernariopsis campanulate (stalked jellyfish)
Lucernariopsis cruxmelitensis	St. John's Jellyfish
Lutra lutra	European Otter
Lycia hirtaria	Brindled Beauty (moth)
Lymnaea glabra	Mud Snail
Lythrum hyssopifolium	Grass Poly
Malachius aeneus	Scarlet Malachite Beetle
Malacosoma neustria	Lackey (moth)
Megalospora tuberculosa	Lecidea tuberculosa (lichen)
Meioneta mollis	Thin Weblet (spider)
Melampyrum cristatum	Crested Cow-Wheat
Melanchra persicariae	Dot Moth
Melanotus punctolineatus	Sandwich Click Beetle
Melanthia procellata	Pretty Chalk Carpet (moth)
Melittis melissophyllum	Bastard Balm (plant)
Mellicta athalia	Heath Fritillary (butterfly)
Meloe proscarabaeus	Black Oil-beetle
Meloe rugosus	Rugged Oil-beetle

Latin name	Common name
Meloe violaceus	Violet Oil-beetle
Mentha pulegium	Pennyroyal
Merlangius merlangus	Whiting
Mesoligia literosa	Rosy Minor (moth)
Metaiulus pratensis	Kentish Snake Millipede
Microglossum olivaceum	Olive Earthtongue (fungus)
Micromys minutus	Harvest Mouse
Minoa murinata	Drab Looper (moth)
Minuartia hybrida	Fine-leaved Sandwort
Molva molva	Ling
Monocephalus castaneipes	Broad Groove-head Spider
Monotropa hypopitys	Yellow Bird's-nest
Monotropa hypopitys subsp. hypophegea	Bird's-nest
Muscardinus avellanarius	Hazel Dormouse
Muscari neglectum	Grape-hyacinth
Mustela putorius	Polecat
Myotis bechsteinii	Bechstein's Bat
Myriostoma coliforme	Pepper Pot (fungus_
Mythimna comma	Shoulder-striped Wainscot (moth)
Natrix helvetica	Grass Snake
Natrix natrix	Grass Snake
Nemophora fasciella	Horehound Long-horn (moth)
Neotinea ustulata	Burnt Orchid
Noctua orbona	Lunar Yellow Underwing (moth)
Nomada armata	Armed Nomad Bee

Latin name	Common name
Nyctalus noctula	Noctule Bat
Odynerus melanocephalus	Black Headed Mason Wasp
Oenanthe fistulosa	Tubular Water-dropwort
Opegrapha prosodea	Opegrapha prosodea (lichen)
Ophonus (Metophonus) melletii	Mellet's Downy-back (beetle)
Ophonus (Metophonus) puncti-collis	Ophonus (Metophonus) puncticollis (beetle)
Ophrys insectifera	Fly Orchid
Orchestes (Orchestes) testaceus	Alder Flea Weevil
Orchis simia	Monkey Orchid
Orcinus orca	Killer Whale
Orobanche picridis	Oxtongue Broomrape
Orthodontium gracile	Slender Thread-moss
Orthonama vittata	Oblique Carpet (moth)
Orthosia gracilis	Powdered Quaker (moth)
Osmerus eperlanus	Smelt
Osmia (Melanosmia) xanthome-lana	Cliff Mason Bee
Ostrea edulis	European oyster
Ozyptila nigrita	Southern Crablet
Pallavicinia lyellii	Ribbonwort
Paracolax tristalis	Clay Fan-foot (moth)
Pareulype berberata	Barberry Carpet (moth)
Pechipogon strigilata	Common Fan-foot (moth)
Pelurga comitata	Dark Spinach
Perizoma albulata albulata	Grass Rivulet
Phellodon confluens	Fused Tooth (fungus)

Latin name	Common name
Phellodon melaleucus	Grey Tooth (fungus)
Phellodon niger	Black Tooth (fungus)
Phellodon tomentosus	Woolly Tooth (fungus)
Philodromus fallax	Sand Running-spider
Philodromus margaritatus	Lichen Running-spider
Philorhizus vectensis	Philorhizus vectensis (beetle)
Phoca vitulina	Common Seal
Phocoena phocoena	Harbour Porpoise
Pholiota astragalina	Conifer Scalycap (fungus)
Photedes extrema	Concolorous (moth)
Phyllonorycter sagitella	Scarce Aspen Midget (moth)
Phyllonorycter scabiosella	Surrey Midget (moth)
Phylloporus pelletieri	Gilled Bolete (fungus)
Physeter catodon	Sperm Whale
Pipistrellus pygmaeus	Soprano Pipistrelle (bat)
Piptoporus quercinus	Oak Polypore (fungus)
Platanthera bifolia	Lesser Butterfly-Orchid
Plecotus auritus	Brown Long-eared Bat
Pleuronectes platessa	Plaice
Podoscypha multizonata	Zoned Rosette (fungus)
Polia bombycina	Pale Shining Brown (moth)
Polyzonium germanicum	Boring Millipede
Potamogeton acutifolius	Sharp-Leaved Pondweed
Pseudanodonta complanata	Depressed (or Compressed) River Mussel
Pseudeuophrys obsoleta	Whelk-shell Jumper (spider)
Pseudorchis albida	Small-White Orchid

Latin name	Common name
Puccinellia fasciculata	Borrer's Saltmarsh-grass
Pulsatilla vulgaris	Pasqueflower
Pyrenula nitida	Pyrenula nitida (lichen)
Pyrgus malvae	Grizzled Skipper (butterfly)
Raja batis	Skate
Raja undulata	Undulate Ray
Ranunculus arvensis	Corn Buttercup
Ranunculus tripartitus	Three-lobed Water-crowfoot
Rhizedra lutosa	Large Wainscot (moth)
Rhytidiadelphus subpinnatus	Scarce Turf-moss
Saaristoa firma	Triangle Hammock-spider
Salmo trutta	Sea Trout
Salsola kali subsp. kali	Prickly Saltwort
Sarcodon scabrosus	Bitter Tooth (fungus)
Sarcodon squamosus	Scaly Tooth (fungus)
Sarcodontia crocea	Orchard Tooth (fungus)
Sarcosphaera coronaria	Violet Crowncup (fungus)
Satyrium w-album	White-letter Hairstreak (butterfly)
Scandix pecten-veneris	Shepherd's-needle (plant)
Schoenoplectus triqueter	Triangular Club-rush
Sciota hostilis	Scarce Aspen Knot-horn (moth)
Scirpoides holoschoenus	Round-headed Club-rush
Sciurus vulgaris	Eurasian Red Squirrel
Scleranthus annuus	Annual Knawel
Scomber scombrus	Mackerel
Scopula marginepunctata	Mullein Wave (moth)

Latin name	Common name
Scotopteryx bipunctaria	Chalk Carpet (moth)
Scotopteryx chenopodiata	Shaded Broad-bar (moth)
Segmentina nitida	The Shining Ram's-horn (snail)
Semiothisa wauaria	V-Moth
Silene gallica	Small-flowered Catchfly
Siona lineata	Black-veined Moth
Sitticus caricis	Sedge Jumper (spider)
Sitticus distinguendus	Distinguished Jumper (spider)
Sium latifolium	Greater Water-parsnip
Solea solea	Dover Sole
Spartina maritima	Small Cord-grass
Spilosoma lubricipeda	White Ermine (moth)
Spilosoma luteum	Buff Ermine (moth)
Stellaria palustris	Marsh Stitchwort
Stigmella zelleriella	Sandhill Pigmy (moth)
Stilbia anomala	Anomalous (moth)
Tapinoma erraticum	Erratic Ant
Tephroseris integrifolia subsp. integrifolia	Field Fleawort
Thalera fimbrialis	Sussex Emerald (moth)
Thecla betulae	Brown Hairstreak (butterfly)
Tholera decimalis	Feathered Gothic (moth)
Timandra comae	Blood-vein (moth)
Torilis arvensis	Spreading Hedge-parsley
Tortula vahliana	Chalk Screw-moss
Trachurus trachurus	Scad (fish)

Latin name	Common name
Trichiura crataegi	Pale Eggar (moth)
Trichopteryx polycommata	Barred Tooth-Striped (moth)
Trisateles emortualis	Olive Crescent (moth)
Triturus cristatus	Great Crested Newt
Tursiops truncatus	Bottle-Nosed Dolphin
Tyria jacobaeae	Cinnabar moth
Tyta luctuosa	Four-Spotted (moth)
Usnea articulata	Usnea articulate (lichen
Usnea florida	Witches' Whiskers Lichen
Veronica triphyllos	Fingered Speedwell
Vertigo moulinsiana	Desmoulin's Whorl Snail
Vipera berus	Adder
Watsonalla binaria	Oak Hook-tip (moth)
Weissia sterilis	Sterile Beardless-moss
Weissia tortilis	Curly Beardless-moss
Xanthia gilvago	Dusky-Lemon Sallow (moth)
Xanthia icteritia	Sallow (moth)
Xanthorhoe ferrugata	Dark-Barred Twin-Spot Carpet (moth)
Xestia agathina	Heath Rustic (moth)
Xestia castanea	Neglected Rustic (moth)
Zootoca vivipara	Common Lizard

APPENDIX 4

SOUTH EAST STRATEGIES AND PLANS OF RELEVANCE TO THE KENT BIODIVERSITY STRATEGY

South East Local Enterprise Partnership Economic Plan
South East Industrial Strategy
South East Tri-LEP Energy Strategy
South East Clean Growth Strategy

KENT STRATEGIES AND PLANS OF RELEVANCE TO THE KENT BIODIVERSITY STRATEGY

Kent Downs AONB Management Plan
High Weald AONB Management Plans
Kent Environment Strategy
NE Kent European Marine Sites Management Scheme
South East Marine Plan

Ashford Borough Council Local Plan
Canterbury City Council Local Plan
Dartford Borough Council Local Plan
Dover District Council Local Plan
Folkestone and Hythe District Council Local Plan
Gravesham Borough Council Local Plan
Maidstone Borough Council Local Plan
Medway Council Local Plan
Sevenoaks District Council Local Plan
Swale Borough Council Local Plan
Thanet District Council Local Plan
Tonbridge and Malling Borough Council Local Plan
Tunbridge Wells Borough Council Local Plan

Kent and Medway Growth and Infrastructure Framework
Local Transport Plan
Rights of Way Improvement Plan
Active Travel Strategy
Joint Strategic Needs Assessment
Kent Joint Health and Wellbeing Strategy
Kent Housing Group
Kent and Medway Energy and Low Emissions Strategy
Ash die back Plan
Local Flood Risk Management Strategy
Shoreline Management Plan 9 River Medway & Swale Estuary
Shoreline Management Plan 10 Isle of Grain to South Foreland
Shoreline Management Plan 11 South Foreland to Beachy Head
Kent's River Basin Management Plans
Kent Climate Change Risk and Impact Assessment

APPENDIX 5

GLOSSARY

BIODIVERSITY

As defined in the Defra Biodiversity Strategy 2020, biodiversity is the diversity, or variety, of plants, animals and other living things in a particular area or region. It encompasses habitat diversity, species diversity and genetic diversity.

BIODIVERSITY NET GAIN

Biodiversity Net Gain is development that leaves biodiversity in a better state than before. [45]

CHAMPION FOR PRIORITY HABITATS

The role of Champion is defined by the KNP as follows:

- Act as main point of contact for that priority habitat.
- Review and agree the rationale for the targets (consulting with any other key/relevant partners and/or stakeholders).
- Review and agree the targets (consulting with any other key/relevant partners and/or stakeholders).
- Review and agree the baseline figure and source from which it is derived.
- Be prepared to report on progress against that target, collecting relevant data from partners (every two years).
- Assist in preparing information as relevant for the district information on that particular priority habitat.
- Ideally be selected as champion because they are an agency/organisation with either statutory or other responsibility/interest for that particular priority habitat i.e. already well linked in to its protection, restoration and/or creation.

ECOLOGICAL NETWORK

'…an ecological network comprises a suite of high quality sites which collectively contain the diversity and area of habitat that are needed to support species and which have ecological connections between them…' [46]

ECOSYSTEM

An ecosystem includes all of the living things (plants, animals, and organisms) in a given area that interact with each other, as well as the non-living environments (weather, earth, sun, soil, climate, atmosphere) that surround the living things. [47]

ECOSYSTEM SERVICE

The benefits people obtain from ecosystems. These include provisioning services such as food and water; regulating services such as flood and disease control; cultural services such as spiritual, recreational, and cultural benefits; and supporting services such as nutrient cycling that maintain the conditions for life on Earth. [48]

ENVIRONMENTAL NET GAIN

A development that enhances biodiversity and natural capital could be considered to be delivering environmental net gains. [49]

GREEN INFRASTRUCTURE (GI)

Green Infrastructure is a strategically planned and delivered network comprising the broadest range of high quality green spaces and other environmental features. It should be designed and managed as a multifunctional resource capable of delivering those ecological services and quality of life benefits required by the communities it serves and needed to underpin sustainability. Its design and management should also respect and enhance the character and distinctiveness of an area with regard to habitats and landscape types.

Green Infrastructure includes established green spaces and new sites and should thread through and surround the built environment and connect the urban area to its wider rural hinterland. Consequently it needs to be delivered at all spatial scales from sub-regional to local neighbourhood levels, accommodating both accessible natural green spaces within local communities and often much larger sites in the urban fringe and wider countryside. [50]

HIGH VALUE HABITAT

Within the context of the Kent Nature Partnership Biodiversity Strategy, 'high value' refers to land which is designated as SSSI, SPA, SAC, LWS; ancient semi-natural woodland as identified within Natural England's Ancient Woodland Inventory; all BAP priority habitats; and land in the Higher Level/Tier/Countryside Stewardship schemes with Maintain/Manage or Restore options.

LOCAL WILDLIFE SITES (LWS)

A suite of semi-natural habitats that have been recognised for their wildlife importance. While they are not protected by statutory conservation designations, they are often just as rich in wildlife value. Occupying a significant area (7%) of Kent, they collectively contain some of the most important, distinctive and threatened species and habitats within a national, regional and local context. Furthermore, and importantly, they act as stepping stones between surrounding areas, providing a crucial opportunity for connecting habitats which otherwise would be isolated and unable to support viable populations of wildlife. Local Wildlife Sites therefore provide vital support to the plants and animals occurring in our gardens, parks and protected areas, are an important component of the county's ecological network and provide critical ecosystem services which benefit the people of Kent.

NATIONAL PLANNING POLICY FRAMEWORK (NPPF)

The National Planning Policy Framework set out government's planning policies for England and how these are expected to be applied. It provides guidance for local planning authorities and decision-takers, both in drawing up plans and making decisions about planning applications.

NATURAL CAPITAL

The air, water, soil and ecosystems that support all forms of life, including natural assets such as forests, rivers, land, minerals and oceans.

NATURAL HABITAT

Natural habitats retain ecological assemblages, functions and species composition that are attributable to natural evolutionary processes and have not been substantially modified by human activities. Truly natural and unaltered habitats are increasingly rare and those that remain are likely to be a high priority for conservation. [51]

PRIORITY HABITAT

UK BAP priority habitats were those that were identified as being the most threatened and requiring conservation action under the UK Biodiversity Action Plan (UK BAP). The original list of UK BAP priority habitats was created between 1995 and 1999, and was revised in 2007, following publication of the Species and Habitats Review Report. Following this review, the list of UK BAP priority habitats increased from 49 to 65. As a result of devolution, and new country-level and international drivers and requirements, much of the work previously carried out by the UK BAP is now focussed at a country-level rather than a UK-level, and the UK BAP was succeeded by the 'UK Post-2010 Biodiversity Framework' in July 2012. The UK list of priority habitats, however, remains an important reference source and has been used to help draw up statutory lists of priority habitats which, in England, was required under Section 41 of the Natural Environment and Rural Communities (NERC) Act 2016. [52]

Regenerative Agriculture is a system of farming principles and practices that increases biodiversity, enriches soils, improves watersheds, and enhances ecosystem services. It aims to capture carbon in soil and aboveground biomass, reversing current global trends of atmospheric accumulation. At the same time, it offers increased yields, resilience to climate instability, and higher health and vitality for farming and ranching communities. The system draws from decades of scientific and applied research by the global communities of organic farming, agroecology, Holistic Management, and agroforestry (http://www.regenerativeagriculturedefinition.com/). Regenerative agriculture practices restore landscape function, increase nutrient and water cycling and sequester carbon in the soil. These practices increase biodiversity, productivity and are

profitable and low risk while being personally sustainable for farmers and their communities and a significant ameliorant to climate change. Research has shown farm and family businesses using regenerative agriculture principles have similar levels of profit to traditional businesses but with lower risk. Family members have higher physical and mental wellbeing, and land that is healthier, with more ground cover (Mark Gardner, Vanguard Business Services, Australia).

SEMI-NATURAL HABITAT

Semi-natural habitats have ecological assemblages that have been substantially modified in their composition, balance or function by human activities. They may have evolved through traditional agricultural, pastoral or other human activities and depend on their continuation to retain their characteristic composition, structure and function. Despite not being natural, these habitats and ecosystems often have high value in terms of biodiversity and the services they provide[53]. Examples might include most, if not all, of our Kent BAP priority habitats, but also other species-rich and semi-improved grasslands, recently planted broadleaved woodland and secondary woodland. It excludes habitats such as arable, improved grassland (rye grass) and coniferous woodland plantation.

APPENDIX 6

REFERENCES AND NOTES

1 https://www.wwf.org.uk/sites/default/files/2018-10/wwfintl_livingplanet_full.pdf

2 https://www.ipbes.net/news/Media-Release-Global-Assessment#_By_the_Numbers

3 https://nbn.org.uk/stateofnature2019/reports/

4 Facts and figures provided by Kent & Medway Biological Records Centre

5 Section 41 (S41) of 2006 Natural Environment and Rural Communities (NERC) Act

6 English Nature. 2001. North East Kent European marine sites Management Scheme.

7 From Butterfly Conservation data

8 Values taken from Securing the Value of Nature in Kent, 2011, David Pape and Jacklyn Johnson; and the UK Natural Capital Accounts 2019: Estimates of the financial and societal value of natural resources to people in the UK https://www.ons.gov.uk/economy/environmentalaccounts/bulletins/uknaturalcapitalaccounts/2019

9 State of Nature Report 2019, https://nbn.org.uk/stateofnature2019/reports/

10 UK priority habitats were selected using one or more of the following criteria: for which the UK has international obligations; are at risk (rare or high rate of recent decline); functionally important for species inhabiting wider environments; and/or important for species of conservation concern.

11 UK species identified as being the most threatened and requiring conservation action.

12 State of Nature Report 2019, https://nbn.org.uk/stateofnature2019/reports/

13 ' Catchment Based Approach' (CaBA) is the current Defra initiative that facilitates catchment management and the restoration of rivers by grassroots groups, industry and government agencies.

4 Regenerative Agriculture is a system of farming principles and practices that increases biodiversity, enriches soils, improves watersheds, and enhances ecosystem services.

5 "Well managed/good management" in respect of this priority refers to: SSSIs in favourable or unfavourable recovering condition; SPAs/SACs with formal management plans or where potentially damaging activities are being managed; land parcels managed under options for Maintain/Manage or Restore under the Higher Level/Tier of an agri-environment/land management scheme; land in a Woodland Grant Scheme or which has a Forestry Commission Woodland Management Plan; LWS in management; NNRs, LNRs, RSPB, National Trust, KWT, Woodland Trust, Plantlife reserves.

16 In order to deliver net gain, we need to increase the proportion of existing semi-natural habitat in good management. In 2015, 20.84% of the county or 74,750 ha (total Kent area = 373,600 ha) was identified as high value, semi-natural habitat (for definitions of semi-natural and high value, please see Glossary). However, only two thirds of this was identified as high value and well-managed (in effect 14.6% of the county or 54,640 ha). The remaining 6.2% is either in poor management or status unknown.

17 20.84% (74,050 ha) of the county is high value, semi-natural habitat (for definitions, please see Glossary). In order to deliver net gain, we need to not only also increase the proportion of existing high value, semi-natural habitat in good management but to increase the extent of semi-natural habitat and improve connectivity. Current coverage of high and low value semi-natural habitat is estimated at 27%. A recent Kent Wildlife Trust review, the Landscape Scale Connectivity Literature Review (written in 2010 by Natural Values and commissioned by KWT) concluded that in order to provide the necessary ecological connectivity, the county should be aiming for a target of 30% of high and low value semi-natural habitat (112,000 ha). It is this long term (25 year) target that the KNP is aspiring towards, using as its basis the Biodiversity Opportunity Area mapping work which took place in 2008, was revised in 2014 and is due to be updated in 2019. In Kent, there are 98 SSSIs and over 466 Local Wildlife Sites alone, which together cover 15.7% of the county. However, there are also areas of ancient woodland and broadleaved

woodland which fall outside any designation, but can be considered as a fairly secure wildlife habitat, so 30% is a less ambitious target than it seems. In addition, semi-natural habitats can include habitat which does not meet BAP priority habitat criteria, such as semi-improved grassland.

18 'Catchment Based Approach' (CaBA) is the current Defra initiative that facilitates catchment management and the restoration of rivers by grassroots groups, industry and government agencies.

19 Environment Agency. Wetlands: our role in their conservation and creation. Doc No 123_04. Version 3. Issued 09/09/2015

20 http://www.wetlandvision.org.uk/userfiles/File/Technical%20Document%20Website%20Version.pdf

20 "Well managed/good management" in respect of this priority refers to: SSSIs in favourable or unfavourable recovering condition; SPAs/SACs with formal management plans or where potentially damaging activities are being managed; land parcels managed under options for Maintain/Manage or Restore under the Higher Level/Tier of an agri-environment/land management scheme; land in a Woodland Grant Scheme or which has a Forestry Commission Woodland Management Plan; LWS in management; NNRs, LNRs, RSPB, National Trust, KWT, Woodland Trust, Plantlife reserves.

22 Any investment in waterbody improvements associated with river basin management planning will need to demonstrate that the benefits brought by carrying out the measures are proportionate to the costs.

23 The Water Framework Directive (WFD) requires that member states "implement the necessary measures to prevent deterioration of the status of all water bodies…." (Article 4.1). Water body status is based upon the assessed class of a range of variables known as 'elements', such as dissolved oxygen, macro invertebrates, fish, water balance, chemical tests, …'. All practicable action must be taken to prevent the deterioration in the status of individual elements of water bodies in England and Wales. Deterioration assessments are made of all elements as monitored and reported on by the Environment Agency following the Water Framework Directive guidelines. Element status at the start of each WFD cycle is used as the baseline against which deterioration is assessed. True deteriorations are determined by the Environment Agency and are set using baseline data from the beginning of each 6-year River basin management plan which commence: 2009, 2015, 2021 and 2027.

24 The length improved target presents a simple and meaningful indicator of the progress partners are making to improve the water environment. This measure complements the Water Framework Directive (WFD) classification status/potential. It covers all water body types (groundwater, river, lake, estuary and coast) and focusses on the length of water body enhanced in kilometres. The kilometres enhanced is from actions reported via publicly available information. The Environment Agency corporate scorecard measure, "the water environment is healthier", covers this objective. Kilometres enhanced does not take into account, or give, an environmental, economic or social benefit for the actions. An "enhancement" will result from action taken to reduce a known pressure/Reasons for Not Achieving Good status on the water environment by anyone, within the Environment Agency or externally, regardless of Environment Agency involvement or influence. The action must be a real physical change that will contribute towards achieving an agreed environmental objective.

25 https://assets.publishing.service.gov.uk/government/uploads/system/uploads/attachment_data/file/693158/25-year-environment-plan.pdf

26 Based on a 6 year cycle.

27 Baseline figures and measures of engagement with the natural environment are lacking currently. Compiling a baseline understanding against which to measure progress will be an action within the first five year implementation plan for the Strategy.

28 To be measured using Kent Environment Strategy indicator, based on Kent Environment Strategy public perceptions survey; measured at 18% in 2016.

29 In line with the 25 Year Environment Plan promoted national framework of green infrastructure standards.

30 To be measured using Kent Environment Strategy indicator, based on Kent Environment Strategy public perceptions survey; measured at 80% of residents using the natural environment at least once a fortnight and 55% using it at least once a week.

31 http://www.archnature.eu/the-kent-habitat-survey-2012-final-report.html. The Kent Habitat Survey provides the most comprehensive data regarding the extent of priority habitats in the county. However, the criteria for classifying habitat types as Priority Habitat (BAP) type were very strict and the data were not verified neither have they been updated since 2012.

32 Because no consistent methodology was in place, nor accurate survey data recorded in the 2003 Kent Habitat Survey, no like for like comparison is possible with the 2012 Kent Habitat Survey and extreme caution should be applied when using these targets. In 1995 there was estimated to be 1144 km of Species Rich and Ancient Hedgerow in Kent from a national survey by English Nature. This equated to some 0.9% of the total England resource, while Kent covers 2.8% of England's landmass. No reliable data from 2003 seems to exist or can be found. 2012 Kent Habitat Survey did not specifically survey for Species Rich and Ancient Hedgerows. It can be interpolated from habitat polygon data however that there are some 14,905 km of hedgerows and lines of trees habitat (combined) in Kent. Earlier studies from UKBAP in 2007 have determined that 42% of hedgerows may be Species Rich and Ancient. Therefore if just hedgerow data (LF11) are used this equates to 11734 km of hedgerow. 42% of that would be 4928 km so either the 1995 figure is wrong or the current methodology gives a falsely high result. That being said it is proposed that the targets are based around the 11734 km figure.

33 Gleed-Owen C. and Langham S. (2012) A conservation condition assessment of the adder (Vipera berus) in England, with recommendations for future monitoring and conservation policy. Report to Amphibian and Reptile Conservation. Pp 79.

34 Young, J S., Ryan, H., Thompson, S., Newcombe, M., and Puckett, J. (Eds.). (2015). Mammals of Kent. Published by Kent Mammal Group, Kent Bat Group, East Kent Badger Group and Kent Field Club.

35 https://www.hedgehogstreet.org/wp-content/uploads/2018/02/Hedgehog-10-year-strategy-master-document-v5.pdf

36 http://www.kentbatgroup.org.uk/bats-in-kent/

37 http://www.archnature.eu/the-kent-habitat-survey-2012-final-report.html. The Kent Habitat Survey provides the most comprehensive data regarding the extent of priority habitats in the county. However, the criteria for classifying habitat types as Priority Habitat (BAP) type were very strict and the data were not verified neither have they been updated since 2012.

38 There are no recorded areas of UK BAP priority or Annex1 habitats within the 2012 KHS as rivers and streams were not a target for this survey. This figure represents the extent of all running water in Kent.

39 Source Natural England 2019

40 https://eur-lex.europa.eu/LexUriServ/LexUriServ.do?uri=OJ:L:2007:248:0017:0023:EN:PDF

41 http://www.legislation.gov.uk/uksi/2009/3344/made

42 http://www.archnature.eu/the-kent-habitat-survey-2012-final-report.html. The Kent Habitat Survey provides the most comprehensive data regarding the extent of priority habitats in the county. However, the criteria for classifying habitat types as Priority Habitat (BAP) type were very strict and the data were not verified neither have they been updated since 2012.

43 Habitat extent calculated from options in Environmental Stewardship agreements with start dates 2005-2010 and 2011-2013.

44 Because no consistent methodology was in place, nor accurate survey data recorded in the 2003 Kent Habitat Survey, no like for like comparison is possible with the 2012 Kent Habitat Survey and extreme caution should be applied when using these targets. In 1995 there was estimated to be 1144 km of Species Rich and Ancient Hedgerow in Kent from a national survey by English Nature. This equated to some 0.9% of the total England resource, while Kent covers 2.8% of England's landmass. No reliable data from 2003 seem to exist or can be found. 2012 Kent Habitat Survey did not specifically survey for Species Rich and Ancient Hedgerows. It can be interpolated from habitat polygon data however that there are some 14,905 km of hedgerows and lines of trees habitat (combined) in Kent. Earlier studies from UKBAP in 2007 have determined that 42% of hedgerows may be Species Rich and Ancient. Therefore if just hedgerow data (LF11) are used this equates to 11734 km of hedgerow. 42% of that would be 4928 km so either the 1995 figure is wrong or the current methodology gives a falsely high result. That being said it is proposed that the targets are based around the 11734 km figure.

45 https://cieem.net/i-am/current-projects/biodiversity-net-gain/

46 2010 report to Defra, 'Making Space for Nature: A review of England's wildlife sites and ecological network'

47 https://www.maximumyield.com/definition/483/ecosystem

48 UK National Ecosystem Assessment http://uknea.unep-wcmc.org/EcosystemAssessmentConcepts/EcosystemServices/tabid/103/Default.aspx

49 Defra Net Gain Consultation proposals December 2018

50 Natural England. (2009). Green Infrastructure Guidance. Catalogue Code NE176.

51 European Investment Bank Environmental and Social Standards: http://www.eib.org/attachments/strategies/environmental_and_social_practices_handbook_en.pdf

52 http://jncc.defra.gov.uk/page-5706)

53 European Investment Bank Environmental and Social Standards: http://www.eib.org/attachments/strategies/environmental_and_social_practices_handbook_en.pdf

APPENDIX 7

PHOTO CREDITS

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