

NATURE RECOVERY BY LANDSCAPE TYPE

Guidance for Nature Recovery in the 19 Landscape Character Types of the South Downs National Park

SOUTH DOWNS NATIONAL PARK

DECEMBER 2022

Guidance for Nature Recovery in the 19 Landscape Character Types of the South Downs National Park



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SECTION 1: BACKGROUND

The South Downs National Park Authority (SDNPA) has 3 linked corporate priorities for 2022-2024 these are set out in the Corporate plan as Nature Recovery, Climate Change and A National Park for All. This guidance will support and inform Nature Recovery (NR) work across the South Downs National Park (SDNP) for partners, landowners, land managers, communities, individuals, developers and other businesses. As such this guidance could inform delivery and design of (for example):

- Biodiversity Net Gain, (especially NSIPs).
- Nutrient & carbon off-setting,
- Whole estate plans,
- Farm cluster and farming/conservation priorities,
- Community and individual nature projects,
- South Downs Trust charitable funded projects as part of the renature campaign,
- Wider environmental outcomes eg Nature based solutions,
- Contribute to the Local Nature Recovery Strategy (LNRS) process with a single parkwide approach for the responsible authorities which cover the SDNP.

The use of this guidance will be explored with stakeholders and partners over 2023/24 and refined where necessary to ensure that it is easy to use and helpful. Feedback from all user groups will be sought to understand how the guidance works both in terms of the user experience in accessing the information but also in terms of how the guidance can be translated into on site assessment, design and delivery of nature

recovery. The aim being to design and deliver nature recovery with the Right Habitat in the Right Place for the Right Reasons.

DESCRIPTION OF THIS GUIDANCE

This information on Nature Recovery has been added to the 2020 online South Downs Integrated Character Assessment (SDILCA). Each of the 19 Landscape Character Types (LCT) now have a new section on Nature Recovery. This document is a compilation of those individual LCT pages as an additional reference resource. The online pages for nature recovery within the SDILCA also include mapped information for nature recovery derived from the Natural England Combined Habitat Connectivity mapping and the Priority Habitats within each LCT.

Please refer to the mapping on the Nature Recovery pages for each of the Landscape Character types within the <u>SDILCA</u>.

ADVICE ON USING THE GUIDANCE

This guidance can be used in combination with the SDNP Nature Recovery Network map LINK and also the SDNP Woodland Opportunity Mapping Link. It provides the next level of detailed information about the full range of priority habitats within each of the Landscape types. To follow are further advisory notes for using the guidance. Users are advised to use this guidance as part of a first scoping or research for nature recovery projects.

- The descriptive sections for the Nature by Landscape Type guidance have been created locally with specialist input and advice from SDNPA Rangers, Countryside managers and Strategy leads and reflect local knowledge and many years of experience working within the SDNP.
- The mapped data used is national data, and this has been used so that it can be included within the SDILCA and available publicly for all users. For this reason, the mapping should be used as a guide and should not be relied upon to accurately reflect conditions on the ground. Requests for local data which have not been included in the public map in the SDILCA can be made to the relevant biodiversity records centre.
- The Nature by Landscape Type guidance will support the development of nature recovery schemes as part of a suite of information gathering around each individual project. It is not intended to be a standalone reference. In particular it will not substitute for individual site assessments but provide a framework of advice in which site assessments can be considered.
- The Nature by Landscape Type Guidance (like nature) does not relate to land ownership or administrative boundaries. It is likely that individual landholdings, parishes or estates, for example, will have more than one Landscape Type within them. In these situations, it is suggested that all the relevant Landscape Types are referred to and the guidance for them separately incorporated into the nature recovery approach for the land holding.
- The Nature by Landscape Type guidance can be used as a strategic framework for nature recovery within a land holding by using the LCTs as a basis for subdivision of the project area. This approach may be most useful for larger landholdings.
- The mapping included within the SDILCA Nature Recovery pages shows nature connectivity areas in adjacent LCTs and this is particularly useful where land holdings

have a range of LCTs within them, and also when the relevant LCTs are narrow, or the land holding is on the edge of an LCT. To see the detailed Nature recovery information for adjacent LCTs users will need to go to the relevant LCT online page or refer to this document.

INFORMATION ABOUT PRIORITY HABITATS IN THE SDNP

Priority Habitats are habitats of principal importance in England identified within section 41 of the Natural Environment and Rural Communities (NERC) Act 2006. The SDNP has 16 out of 56 possible countrywide priority habitats recorded on the Priority habitat inventory. The 16 priority habitats which are recorded as present in the SDNP are not distributed equally and several only have niche locations (see figure 1). Nonetheless this is an extensive range of habitats within a relatively small part of the busy Southeast. The range of priority habitats present in the SDNP is directly related to the equally diverse range of 19 geophysical landscape types within the SDNP. This diverse, interconnected range of habitats and landscapes makes nature recovery quite complicated to set out clearly. It is hoped that this guidance will explain this relationship clearly and provide a useful reference framework for landowners, land managers, farmers, communities, planning officers, partners, and staff.

Nature Recovery actions for each of the 16 priority habitats in the SDNP are listed in the LCT sections where they are relevant to that LCT. Actions for nature recovery are given for 2 scenarios:

- Nature friendly actions around existing land uses (eg farming) or
- Restoration, creation and connection of habitats ie a change of use/focus to nature conservation.

No

ADDITIONAL MAPPED INFORMATION ABOUT NATURE RECOVERY ACTIONS IN THE ONLINE SDILCA

In the online SDILCA these 2 action types have been included in the online map using 2 zones which have been devised from the Natural England (Combined) Habitat Connectivity Mapping categories as follows.

SDNP Nature by LCT Zone	NE Habitat (combined) Connectivity Zone
Actions to create and restore habitat	Restorable habitat. Habitat creation and restoration. Fragmentation action zone. Network enhancement zone 1.
Nature friendly actions to improve	Network enhancement zone 2.
and connect existing habitat	Network expansion zone.

The NE habitat (Combined) Connectivity Mapping sits underneath the SDNPA Actions layer and is also visible beyond the boundary of the LCT so that connectivity can be considered across multiple LCTs if required.

LANDSCAPE CHARACTER TYPES

There are 19 geophysical landscape types in the SDNP, and they are defined by geology, topography, hydrology, soils, land use and land cover. Within each of them there is a unique combination of priority habitats, and this coupled with the unique geophysical landscape types creates a complicated and highly varied range of habitats and species to incorporate into nature recovery projects. It is hoped that this guidance together with the online sections for Nature recovery in the SDILCA will help users to understand this complex range.

FIGURE 1: PRIORITY HABITATS IN THE SOUTH DOWNS NATIONAL PARK.

Reedbeds	5.00						
Coastal vegetated shingle	6.70						
Saline lagoons	10.80						
Mudflats	20.40						
Coastal saltmarsh	22.60						
Purple moor grass and rush pastures	30.40						
Low and dry acid grassland	62.10						
Traditional orchard	97.80						
Maritime cliff and slope	159.30						
Lowland meadows	235.20						
Lowland fens	347.20						
Lowland heathland	960.80						
Coastal and floodplan grazing marsh	3,2	201.90					
main habitat but additional habitats present		4,108.00					
Lowland calcareous grassland		5,413.50					
Good quality semi-improved grassland		6,284.	80		26.572	.20	
Deciduous woodland							
000's) 4	5 1	0 1	5 2	0 2	5 3	С

A Open Downland K Greensand Terrace B Wooded Estate Downland L Mixed Farmland and Woodland Vales C Clay Plateau M Wealden Farmland and Heath Mosaic D Downland Mosaic N Valley Farmland E Chalk Valley Stystems O Greensand Hills F Major Chalk River Floodplains P Low Weald G Major Chalk Valley Sides Q Wooded Claylands H Wealden River Floodplains R Upper Coastal Plain WINCHESTER I Major Scarps S Shoreline J Scarp Footslopes PETERSFIELD HAYWARDS HEATH EASTLEIGH LEWES HAVANT CHICHESTER BRIGHTON WORTHING PORTSMOUTH BOGNOR REGIS EASTBOURNE SEAFORD 10 15 20 km 0 5 Scale 1:440,000 © Crown copyright and database rights 2024 Ordnance Survey 100050083

FIGURE 2: MAP OF THE 19 LANDSCAPE TYPES IN THE SDNP

Each of the 19 Landscapes have been described in this guidance in terms of Nature in this Landscape Type .

- Ambitions for Nature Recovery,
- Vulnerabilities,
- Target species for recovery,
- Statistics about priority habitats and SSSI including condition,
- Actions to create and restore habitats,
- Nature Friendly actions to connect existing habitats,
- Sources of further info.

Figure 3 shows the areas of Landscape types as a percentage of the whole SDNP. This is helpful to considerations of significance when combined with other data – such as public access (ANG data), SSSI Condition, catchment condition, species targeting etc.

Figure 4 sets out the relationship between the area of each LCT and the percentage of that area which is priority habitat. For example, Type I the Major Scarps is only 2.8% of the SDNP but it is recorded as being 86% priority habitat.

Figure 5 shows the relationship per LCT between priority habitats, SSSI and SSSI condition.

Please go to Section 2 for the individual Landscape type descriptions.







FIGURE 5: PRIORITY HABITAT (PH) & SSSI PER LCT



SECTION 2: NATURE RECOVERY BY LANDSCAPE TYPE DESCRIPTIONS

Nature recovery within the 19 landscape types in the SDNP are described in the following section as follows:

Туре	Name	Page number	Colour key
Α	Open Downland	10	
В	Wooded Estate Downland	16	
С	Clay Plateau	22	
D	Downland Mosaic	28	
E	Chalk Stream Systems	34	
F	Major River Floodplains	40	
G	Major Valley Sides	47	
н	Wealden River Floodplains	54	
I	Major Scarps	62	
J	Scarp Footslopes	67	

Туре	Name	Page number	Colour key
К	Greensand Terrace	73	
L	Mixed Farmland and Woodland Vales	80	
Μ	Wealden Valley and Heath Mosaic	88	
Ν	Valley Farmland	97	
0	Greensand Hills	104	
Ρ	Low Weald	111	
Q	Wooded Claylands	118	
R	Upper Coastal Plain	131	
S	Shoreline	124	



LANDSCAPE TYPE A

NATURE RECOVERY IN LANDSCAPE TYPE A: OPEN DOWNLAND

DESCRIPTION

The Open Downland character area is the iconic open and rolling downland of the chalk ridge, clad with a large-scale patchwork of arable fields, chalk downland, and linear patches of scrubby woodland where the land is unsuitable for agriculture. This character type is home to a distinctive and iconic range of downland flora and fauna despite much of the land being given over to arable production. Arable areas, conversely, provide valuable habitat for farmland birds, arable plants and invertebrates. Ongoing management of calcareous grassland is a constant problem where sites are often under grazed and will scrub over quickly if left resulting in a loss of the biodiverse sward and associated wildlife. The porosity of the chalk sub strata creates a dry landscape and the occasional dew pond on the upper slopes of the downs provides rare access to water.

BIODIVERSITY OPPORTUNITY AREAS IN THIS LCT:

- 7 Sussex BOAs: Seaford to Eastbourne Downs; East Brighton Downs; Adur to Newtimber including Mill Hill; Central Downs Adur – Arun; North East Worthing Downs; Clapham to Burpham Downs; Stanmer and Ditchling Downs.
- ▶ 1 Hampshire BOA: St Catherines Hill to Beacon Hill.

NATURE RECOVERY AMBITIONS FOR LANDSCAPE TYPE A: OPEN DOWNLAND

- Build on the nature recovery and Lawton based work undertaken for the South Downs Way Ahead Nature Improvement Area project. Expand the areas of chalk downland where possible and establish habitat connectivity along the length of the chalk spine from the River Arun to the Eastbourne Scarp slope, and also across the outlier area of open downland type to the east of Winchester.
- Where possible create permanent headlands along fence lines to link uncultivated areas which are too steep to plough and where remnant chalk downland exists.
- Respect and enhance the rolling curves of the topography when land management changes are being planned. Avoid creating vast straight lines in the landscape or lines which are vertical up and down slopes as these will interrupt the sinuous ancient quality of the downland. Winding tracks & boundaries which traverse the downs are the typical and cultural pattern of lines in this landscape character type.
- Increase habitat for farmland birds like lapwing, skylark, corn bunting, grey partridge, turtle dove. Create nesting habitat, which is safe from cultivation late into the summer, use buffer strips, conservation headlands and seed rich wild bird cover crops to provide food. Spray and cultivate stubbles as late as possible.
- Map and protect the areas of unploughed soils in the character area to conserve the microbiology of these rare soils. Undertake research to explore the soil structure and microbiology to increase knowledge and understanding of their importance.

- Where possible and financially viable manage chalk downland with regular grazing. Alternatively, where grazing isn't possible use a 'cut and collect' machine to mimic grazing. Investigate new/old markets and business models for livestock grazing eg sheep walk (fertilizer) and wool path base reinforcement.
- Maximise the ecological value of dew ponds and chalk pits by conserving them and enhancing the range of habitats they offer. Conserve water in the chalk landscape by using swales, ditches and grips to reduce surface water run off – particularly along tracks and bridleways.
- Carefully integrate any new woodland plantings into the landscape & enhance the linear patterns of existing woodland which often follow the topography rather than field boundaries.
- Improve the management of existing woodland areas by creating open glades and filtered woodland edges – aim for a mosaic of woodland, scrub and chalk downland in these zones. Where possible replant coniferous woodland with deciduous stock.

TARGET SPECIES

Many orchid species, juniper, 100's of invertebrates including the Adonis, small and chalk hill blue butterflies, old grassland fungi including wax cap assemblages, reptiles such as adder and viviparous lizard. Chalk heath is a particularly rare habitat. Arable areas in the open downland are important nesting and feeding areas for farmland birds eg corn bunting, turtle dove, lapwing, skylark, grey partridge where sympathetic management and headland areas are provided for food and nesting areas.

MONITOR AND CONTROL

Invasive species; Cotoneaster which is invasive on chalk downland, INNS in some Dew Ponds, especially Parrots feather and Crassula.

VULNERABILITY IN LANDSCAPE TYPE A OPEN DOWNLAND

HABITATS

The large areas of internationally rare chalk downland and heath which as semi natural habitats require grazing and management to avoid scrubbing over. Limited naturally occurring grazing animals means that these areas are dependent on livestock grazing to prevent scrubbing over and to retain the species rich sward.

Significant loss of woodland, hedgerows and trees due to ash dieback affecting the already limited tree cover in this character area.

Perceptual Qualities

Tranquillity, wildness and remote qualities associated with the high rolling topography, lack of human activity, rich habitats and presence of wildlife.

ACCESS

Chalk downland sites are coincidentally often registered as open access land. The sensitivity of these sites means that they are vulnerable to recreational pressure from people and pets. Visitors can cause erosion, disturb wildlife and have impacts on ground nesting birds. All of which can lead to loss of species diversity. There are many visitors to the downs from the surrounding urban areas, particularly to the south where there is a general deficit of natural greenspace.

HERITAGE

There is a vast archaeological resource within the downland which reflects human activity over millennia. Bronze age barrows, iron age hillforts, WWII artefacts and numerous areas of ancient field systems known as lynchets – many of which were lost in the 1940-50's when much of the downland was deep ploughed and put to arable production.

WATER

Dewponds are small oasis for biodiversity in the dry chalk landscape and occur mainly along the top of the scarp slope. They are human made and need regular maintenance to keep the linings leak proof and to manage aquatic vegetation which can quickly choke up a pond.

CARBON

Woodland, hedgerows and soils are vitally important for sequestering and storing carbon. There are existing threats to native woodland species from pathogens, and climate change impacts so woodland carbon calculations need to factor in these losses – eg ash dieback.

The push for more tree planting in response to net zero and nitrate offsetting commitments could affect the opportunities for expanding the networks of other priority habitats and this should be carefully considered– reference the SDNP Woodland Opportunity Mapping for guidance on this and other factors when considering woodland plantings and natural regeneration.

Grazing and livestock could also impact on the carbon footprint of this LCT.

WOODLAND, SCRUB

Threats to woodland species from pathogens and climate change.

Potential for more tree planting in response to net zero commitments, this could create pressure on scrub habitats for new forestry plantings.

PRIORITY HABITATS IN LANDSCAPE TYPE A: OPEN DOWNLAND (30798.024 HA)



.TABLE SHOWING THE PERCENTAGES OF PRIORITY HABITAT AND SSSI IN LANDSCAPE TYPE A OPEN DOWNLAND

LCT A – Open Downland	Priority Habitats (PH) in the LCT SSSI in the LCT: 1310.5 (h				LCT: 1310.5 (ha)⁵	
30798.0 (ha) ¹	Existing PH	% of LCT	% of Parkwide	PH which is	% of PH which	% of SSSI in
	In LCT ²	% of LCT	PH in LCT⁴	SSSI ⁶	Is SSSI ⁷	favourble state ⁸
Total area (ha) & percentages within the LCT:	10316.4	33.50%	21.72 %	1275.9	12.37 %	56.86 %
Good quality semi-improved grassland.	3141.7	10.20%	49.99%	5.8	0.19%	53.74%
Lowland calcareous grassland.	2904.1	9.43%	53.65%	882.3	30.38%	52.24%
Deciduous woodland.	2374.3	7.71%	8.95%	249.3	10.50%	65.33%
No main habitat but additional habitats present.	1711.5	5.56%	41.66%	8.1	0.48%	38.91%
Maritime cliff and slope.	101.3	0.33%	63.55%	99.1	97.87%	85.43%
Lowland meadows.	55.6	0.18%	23.62%	10.5	18.85%	68.29%
Lowland heathland.	20.7	0.07%	2.16%	20.7	100.00%	0.00%
Traditional orchard.	4.2	0.01%	4.34%			
Coastal and floodplain grazing marsh.	2.9	0.01%	0.09%	0.0	0.05%	

Footnotes

- 1 Area (ha) of land within the LCT.
- 2* Area (ha) of Priority Habitat (PH) within the LCT.
- 3* Percentage of the LCT area, which is classified as Priority Habitat.
- 4^{*} Priority Habitat area within the LCT as a percentage of the Priority Habitat in the SDNP.
- 5 Area (ha) of land within the LCT, which is designated as SSSI.
- 6* Area (ha) of Priority Habitat (PH), which is also designated as SSSI. NB: not all SSSI land is PH, which is why headline figures 5 and 6 differ.
- 7* Area of Priority Habitat (PH), which is also SSSI, as a percentage of PH in the LCT.
- 8* Percentage of the SSSI in the LCT, which is classified as being in Favourable condition.

Top value = all SSSI in favourable condition; then by 'favourable' SSSI also classed as Priority Habitat.

* Figures are given for the whole LCT first, then by Priority Habitat (main) type.

SOURCES OF FURTHER INFORMATION

FORESTRY COMMISSION ENGLAND

- South Downs Forest Design Plan
- Climate change: impacts and adaptation in England's woodlands Research Note, Forestry Commission (forestresearch.gov.uk)

DEFRA

Environmental land management schemes: overview – GOV.UK (www.gov.uk)

NATURAL ENGLAND

- Carbon Storage and Sequestration by Habitat 2021 NERR094 (naturalengland.org.uk)
- Habitat Networks (England) data.gov.uk
- Habitat Network Mapping Guidance.pdf (defra.gov.uk)

TABLE OF NATURE RECOVERY ACTIONS FOR PRIORITY HABITATS IN LANDSCAPE TYPE A OPEN DOWNLAND:

The following table is the list of actions for nature recovery by each priority habitat which is included in the mapping in the SDILCA in Landscape type A Open Downland.

Priority habitats	Actions to restore and create new priority habitat areas
Deciduous woodland & hedgerows	Manage broadleaved woodlands to achieve good condition, age and species diversity. Improve woodland connectivity with new plantings/natural regeneration and targeted woodland management to reflect typical linear woodland patterns in this landscape and where it would not compromise chalk downland expansion and connectivity. To increase connectivity plant scattered scrub along verges and other uncultivated areas in locations and layouts which maintain the open landscape character and echo the sweeping lines of the landscape. Replace coniferous woodland plantings and trees with deciduous species as felling is undertaken and particularly along woodland edges. But retain coniferous habitats for particular bird species such as Goshawk, redpoll, siskin and Firecrest.
Semi Improved grassland	Increase species diversity through appropriate management and species re-introductions where desirable. Expand existing sites and create buffer zones aiming for a network of grassland sites. Targeted scrub removal to expand grassland habitats.

Priority habitats	Actions to restore and create new priority habitat areas
Calcareous grassland (LCG)	Manage core chalk grassland areas to achieve good condition. Expand existing sites and create buffer zones. Reconnect chalk grasslands and heath sites to create species corridors. Maintain a scrub mosaic.
Dew Ponds	Restore or create dew ponds.
Priority habitats	Nature Friendly Actions within existing land uses
Deciduous woodland	Manage broadleaved woodlands to achieve good condition, age and species diversity. Improve woodland connectivity with new plantings/ natural regeneration and targeted woodland management to reflect typical linear and sinuous woodland patterns in this landscape and where it would not compromise chalk downland expansion and connectivity. Replace coniferous woodland plantings and trees with deciduous species where possible and particularly along woodland edges.
Semi Improved grassland	Increase species diversity through appropriate management and species re-introductions where desirable. Targeted scrub removal.
Calcareous grassland (LCG)	Manage core chalk grassland areas to achieve good condition. Expand existing sites and create buffer zones. Reconnect chalk grasslands and heath sites to create species corridors. Maintain a scrub mosaic.

Priority habitats	Nature Friendly Actions within existing land uses
Arable farmland	Create new conservation headlands to connect up habitats beyond arable land. Create arable margins and pollinator species corridors. Maintain winter cover feed crops or stubbles.
Scattered scrub	Where desirable for connectivity – plant scattered scrub (or allow natural regeneration) along tracks and boundaries in locations and layouts which maintain the open landscape character and provide connectivity. Allow shrubs to grow out at junctions and field corners.
Ponds	Maintain existing dew ponds for their ecological value.

LANDSCAPE TYPE B

NATURE RECOVERY IN LANDSCAPE TYPE B: WOODED ESTATE DOWNLAND

Woodland provides a bold natural structure to this LCT and it is integrated with pasture and arable fieldscapes. The landscape owes it's wooded character in part to the presence of the large privately owned estates – eg Goodwood, Stansted, and Arundel, planting and maintaining woodland cover as a source of fuel and timber. Woodlands are typically managed for coppice, often sweet chestnut and high forest of beech, ash yew and oak which is often Ancient Semi-Natural Woodland (ASNW). Natural woodlands are often present on mini scarps and slopes where they are too steep to cultivate. Habitats in this LCT are well connected by the extent of woodland cover, interspersed within a network of arable and pasture fields. The LCT is bisected by the Ems and Lavant and the western streams catchment is noted as being in poor condition. Land management actions within this LCT could support ecological recovery of the western chalk streams.

BIODIVERSITY OPPORTUNITY AREAS (BOAS) IN THIS LCT:

- Sussex BOAs: Western Escarpment; Western chalk streams to Compton Tributaries; Lavant Watershed; Arundel Park.
- Hampshire BOAs: East Hampshire South Downs.

NATURE RECOVERY AMBITIONS FOR LANDSCAPE TYPE B: WOODED ESTATE DOWNLAND

Increase positive woodland management for biodiversity benefits & reduce management neglect – the greatest threat to ancient woodland.

- Increase connectivity between ancient woodland through targeted management of existing (coniferous and plantation) woodlands, woodland and hedgerow plantings and natural regeneration and woodland creation.
- Protect and allow Yew woodland to expand, through felling selected adjacent species to create open areas and space for yew to colonise through natural regeneration.
- Predominantly beech woodland plantations (62% of woodland in the LCT B) make these more diverse in age and species through selective felling and allowing natural regeneration.
- Where possible and timely restore coniferous PAWS to native broadleaved woodland though felling and replanting and/or allowing natural regeneration.
- Create open areas within woodlands to encourage chalk grassland habitat particularly on archaeological sites.
- Seek to encourage the creation of species rich grassland for pollinators, bats and birds linking other semi natural habitat.
- Retain native broadleaves during felling operations to provide a source of seed for natural regeneration.
- Promote hedgerow reinstatement and management to increase connectivity in the landscape along hedgerow corridors. Create and manage headlands for maximum biodiversity benefits.

TARGET SPECIES

Yew woodland, woodland plant species, lichens, fungi, breeding birds, moths and butterflies, juniper, hedgerow network and overall connectivity for priority habitats,

barn owl, nightingale, turtle dove, nightjar, 14 bat species (especially barbastelle and Bechstein's)are key species, native bluebell, tawny owl, dormouse, hedgehog. Pearl bordered fritillary.

MONITOR AND CONTROL

INVASIVE SPECIES

Grey squirrel, deer (fallow and muntjac), rhododendron, snowberry, turkey oak and cherry laurel.

TREE PATHOGENS

Follow guidance for management of woodlands.

VULNERABILITY IN LANDSCAPE TYPE B WOODED ESTATE DOWNLAND

HABITATS (OR FIELDSCAPES)

Large areas of Ancient Woodland, including distinctive yew forests. Chalk grassland with scrub and nationally scarce juniper. The pattern of mixed land use with intact hedge network, large scale mosaic of woodland (41%), both species rich and lowland chalk grassland and arable habitats for farmland birds. Agricultural practice and responses to climate change including Net Zero driven changes to land use.

PERCEPTUAL QUALITIES

Tranquillity, wildness and remote qualities which native deciduous woodland provides. The extensive enclosure and structure provided by woodland around pasture and arable fieldscapes. The variety of woodland scale within the landscape which can reflect land ownership patterns and also changes in topography and soils.

ACCESS

Manage recreational pressure in sensitive woodland habitats to limit disturbance to wildlife, soils and habitats. Where possible and desirable allow access to woodland particularly where new routes would provide connectivity on the PROW network, or where there is a local under-provision of natural greenspace.

HERITAGE

Ancient semi-natural woodland, veteran trees, historic hedgerows, parish and other boundary plantings, wood pasture, medieval deer parks and parkland priority habitat, woodland archaeology, deserted medieval villages, extensive field systems from bronze age to medieval, Saxon churches, burial mounds.

WATER

This LCT is generally in the upper catchment for chalk streams and larger rivers – eg Meon, Lavant, Ems, Rother and Arun which flow to the south coast. Woodland can benefit upstream flood management and groundwater quality in the right locations by retaining and slowing the flow of water within the catchments.

CARBON

Woodland, hedgerows and soils are vitally important for sequestering and storing carbon.

There are existing threats to native woodland species from pathogens, and climate change impacts so woodland carbon calculations need to factor in these losses – eg ash dieback.

The push for more tree planting in response to net zero and nitrate offsetting commitments could affect the opportunities for expanding the networks of other priority habitats. This should be carefully considered– reference the SDNP Woodland Opportunity Mapping for guidance on this and other factors when considering woodland plantings.



PRIORITY HABITATS IN LANDSCAPE TYPE B: WOODED ESTATE DOWNLAND (19931.633 HA)

TABLE SHOWING THE PERCENTAGES OF PRIORITY HABITAT AND SSSI IN LANDSCAPE TYPE B WOODED ESTATE DOWNLAND

LCT B – Wooded Estate Downland	Priority Habitats (PH) in the LCT				SSSI in the LCT: 662.7 (ha)		
19931.6 (ha) ¹	Existing PH	% of LCT	% of Parkwide	PH which is	% of PH which	% of SSSI in	
	In LCT ²	% of LCT	PH in LCT⁴	SSSI ⁶	Is SSSI ⁷	favourble state ⁸	
Total area (ha) & percentages within the LCT:	7228.1	36.26%	15.22%	633.3	8.76 %	63.13%	
Deciduous woodland.	5998.9	30.10%	22.61%	422.5	7.04%	61.83%	
No main habitat but additional habitats present.	422.8	2.12%	10.29%	30.9	7.31%	99.52%	
Good quality semi-improved grassland.	413.0	2.07%	6.57%	7.8	1.90%	99.47″/4	
Lowland calcareous grassland.	384.3	1.93%	7.10%	171.1	44.52%	55.50%	
Lowland meadows.	4.1	0.02%	1.75%	1.0	25.11%		
Traditional orchard.	3.9	0.02%	4.03%				
Lowland meadows.	1.0	0.01%	0.11%				

Footnotes

- 1 Area (ha) of land within the LCT.
- 2* Area (ha) of Priority Habitat (PH) within the LCT.
- 3* Percentage of the LCT area, which is classified as Priority Habitat.
- 4^{*} Priority Habitat area within the LCT as a percentage of the Priority Habitat in the SDNP.
- 5 Area (ha) of land within the LCT, which is designated as SSSI.
- 6* Area (ha) of Priority Habitat (PH), which is also designated as SSSI. NB: not all SSSI land is PH, which is why headline figures 5 and 6 differ.
- 7* Area of Priority Habitat (PH), which is also SSSI, as a percentage of PH in the LCT.
- 8* Percentage of the SSSI in the LCT, which is classified as being in Favourable condition.

Top value = all SSSI in favourable condition; then by 'favourable' SSSI also classed as Priority Habitat.

* Figures are given for the whole LCT first, then by Priority Habitat (main) type.

TABLE OF NATURE RECOVERY ACTIONS FOR PRIORITY HABITATS IN TYPE B WOODED ESTATE DOWNLAND:

The following table is the list of actions for nature recovery by each priority habitat which is included in the mapping in the SDILCA in Landscape type B Wooded Estate Downland.

Priority habitats	Nature friendly actions to improve and connect existing habitats.
Deciduous woodland	Manage vegetation along rides and tracks to increase the range of habitats. Create new meadow strips along woodland edges. Manage for species and age diversity.
Semi Improved grassland	Increase species diversity of grasslands through improved management and targeted grazing cycles. Create meadow buffer strips along hedgerows and woodland edges.
Calcareous grassland (LCG)	Manage grassland grazing for improving soil health and species diversity.
Wood pasture and Parkland	Protect veteran trees from browsing. Leave dead wood where it is. Replace fallen trees with new plantings at the optimum spacings. Protect new plantings from browsing. Establish optimum grazing pattern (species/density/timings) for biodiversity. Take expert advice where possible to avoid unintended impacts and loss of biodiversity– this habitat type has an extensive range of species associated with it and many rare species are only known in the UK in this habitat.

Priority habitats	Nature friendly actions to improve and connect existing habitats.			
Coniferous Plantations	Manage vegetation along rides and tracks to increase the range of habitats. Create new meadow strips along woodland edges. Manage coniferous woodland for age and species diversity and to support bird species such as Firecrest, goshawk, siskin and redpoll. Manage coniferous woodland for age and species diversity with			
	deciduous woodland.			
Arable farmland	Create new hedgerows and conservation headlands to connect up habitats beyond arable land. Create plots of wild seed bird mixture to support farmland bird populations. Create arable margins and pollinator species corridors. Maintain winter cover, feed crops or stubbles.			
Ponds	Restore existing and create new ponds.			

Priority habitats	Actions to restore and create new habitats
Deciduous	Manage broadleaved woodlands to achieve good condition,
woodland	age and species diversity.
including	Improve woodland connectivity with new plantings/natural
Ancient	regeneration and targeted woodland management.
Woodland	Manage and protect the ancient yew woodlands by creating buffer plantings.
Hedgerows	Manage and maintain hedgerows, replanting hedgerow trees
	and new hedgerows to improve and connect the hedgerow
	network. Allow hedges to grow out at junctions and field corners.

Priority habitats	Actions to restore and create new habitats
Semi Improved grassland	Increase species diversity through appropriate management and species re-introductions where desirable. Targeted scrub removal.
Calcareous grassland (LCG)	Manage chalk grassland areas and seek to expand and connect in combination with opening up woodland through selective rides and glades.
Wood pasture and Parkland	Create new wood pasture from arable reversion. Establish optimum grazing management and long-term management plan. Identify veteran trees and any management for health requirements.

Section 2: Nature Recovery by Landscape Type descriptions

SOURCES OF FURTHER INFORMATION

FORESTRY COMMISSION ENGLAND

- South Downs Forest Design Plan
- Climate change: impacts and adaptation in England's woodlands Research Note, Forestry Commission (forestresearch.gov.uk)
- UK Forestry Standard

DEFRA

Environmental land management schemes: overview – GOV.UK (www.gov.uk)

NATURAL ENGLAND

- Carbon Storage and Sequestration by Habitat 2021 NERR094 (naturalengland.org.uk)
- Habitat Networks (England) data.gov.uk
- Habitat Network Mapping Guidance.pdf (defra.gov.uk)

ENVIRONMENT AGENCY

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WOODLAND TRUST

Agroforestry

LANDSCAPE TYPE C

NATURE RECOVERY IN LANDSCAPE TYPE C: CLAY PLATEAU

DESCRIPTION

The Clay Plateau is a large LCT which is in the Hampshire area of the National Park. It is a rolling landscape typical of the dipslope landscape, although with significantly less chalk downland cover than the eastern parts of the National Park because of clay with flints soils which cap the underlying chalk. The predominant priority habitat is the network of deciduous woodlands including ancient woodlands and wooded hedgerow field boundaries. There are small areas of semi-improved grassland and chalk downland. Field ponds in the clay soils are also noted. Agricultural land is an important (non-priority) habitat for farmland birds when it is managed sympathetically for them. There are extensive arable and permanent pasture field systems and also plantings which support field sports, game bird production and other outdoor recreational pursuits. Despite the good network of woodland the landscape type does not have a high level of national biodiversity designations, although all of the ancient semi natural woodland is designated at a County level.

BIODIVERSITY OPPORTUNITY AREAS (BOAS) WITHIN THIS LCT:

- Sussex BOAs: none.
- Hampshire BOAs: none.

NATURE RECOVERY AMBITIONS FOR LANDSCAPE TYPE C: CLAY PLATEAU

- Expand the areas of chalk grassland where possible and establish habitat connectivity for chalk grassland across this large landscape character type.
- Increase positive woodland management for biodiversity benefits & reduce management neglect –the greatest threat to ancient woodland. Traditional management in LCT C would have been coppicing.
- Increase connectivity between ancient woodland through targeted management of existing (and plantation) woodlands, woodland and hedgerow plantings natural regeneration and woodland creation.
- Create open areas within woodlands to encourage chalk grassland habitat particularly on archaeological sites. Connect chalk grassland areas through widening rides through woodland and managing them appropriately.
- Seek to encourage the creation of and better management for species rich grassland, for pollinators, bats and birds linking to other semi natural habitats.
- Promote hedgerow reinstatement and management to increase connectivity in the landscape along new hedgerow corridors.
- Create and manage headlands for maximum biodiversity benefits and connectivity.
- Increase habitat for farmland birds like lapwing, skylark, corn bunting, grey partridge, and turtle dove. Create nesting habitat which is safe from cultivation late into the summer, use buffer strips, conservation headlands and seed rich wild bird cover crops to provide food. Spray and cultivate stubbles as late as possible.

- Create pollinator strips in arable fields to support invertebrate populations.
- Where possible (and financially viable) manage chalk downland with regular grazing. Alternatively where grazing isn't possible use a 'cut and collect' machine intermittently to mimic grazing. Investigate new/old markets and business models for livestock grazing eg sheep walk (fertilizer) and wool path base reinforcement.

Manage existing field ponds with tall herbs to the north to provide open water for birds like Turtle doves and a wide range of invertebrates. Where possible create new field ponds and connect them up with headlands and pollinator strips.

TARGET SPECIES

- Woodland plant species, lichens, fungi, breeding birds, moths and butterflies, barn owl, nightingale, turtle dove, 14 bat species (especially barbastelle and Bechstein's), native bluebell, tawny owl, dormouse, hedgehog.
- Chalk downland species: Many orchid species, juniper,100's of invertebrates including the Adonis, small and chalk hill blue butterflies, old grassland fungi including wax cap assemblages, reptiles such as adder and viviparous lizard.
- Arable areas in the Clay Plateau have potential to be important nesting and feeding areas for farmland birds eg corn bunting, turtle dove, lapwing, skylark, grey partridge.

MONITOR AND CONTROL

INVASIVE SPECIES

Grey squirrel, deer (fallow and muntjac), rhododendron, snowberry, turkey oak and cherry laurel, cotoneaster in chalk downland areas.

TREE PATHOGENS

Follow guidance for management of woodlands.

VULNERABILITY IN LANDSCAPE TYPE C CLAY PLATEAU

HABITATS (OR FIELDSCAPES)

Areas of Ancient Woodland, particularly in the northern part of this type. Chalk grassland with scrub and nationally scarce juniper. The pattern of mixed land use with intact hedge network, variable scale mosaic of woodland, both species rich and lowland chalk grassland and arable habitats for farmland birds and rare arable flora. Agricultural practice and responses to climate change including Net Zero driven changes to land use.

PERCEPTUAL QUALITIES

Tranquillity, wildness and remote qualities within the undulating mosaic of woodland, arable farming and pasture. Woodland around pasture and arable fieldscapes creates an enclosed landscape in places, more open with extensive views in other areas, often in the more elevated locations.

ACCESS

Access in this LCT is largely along the local public footpath network as there are no accessible areas of natural greenspace in this LCT.

HERITAGE

Ancient woodland and associated archaeology, veteran trees, historic hedgerows parish and other boundary plantings.

WATER

This LCT is in two catchments. The majority of the LCT is in the catchment for the north branch (Caker Stream) of the River Wey which runs through Alton and onwards to Farnham and the Thames beyond. The southern part of the LCT is within the Itchen catchment The LCT is partly within a nitrate vulnerable zone and a drinking water safeguarding zone.

Woodland can benefit upstream flood management and groundwater quality in the right locations refer to EA mapping: **Working with Natural Processes: Map** (jbahosting.com).

CARBON

Woodland, hedgerows and soils are vitally important for sequestering and storing carbon.

There are existing threats to native woodland species from pathogens, and climate change impacts so woodland replacement and additional plantings are targeted. Carbon calculations need to factor in these losses – eg ash dieback.

The push for more tree planting in response to net zero and pollution offsetting commitments could affect the opportunities for expanding the networks of other priority habitats and this should be carefully considered– reference the SDNP Woodland Opportunity Mapping for guidance on this and other factors when considering woodland plantings.

PRIORITY HABITATS IN LANDSCAPE TYPE C: CLAY PLATEAU (5085.803 HA)



TABLE SHOWING THE PERCENTAGES OF PRIORITY HABITAT AND SSSI IN LANDSCAPE TYPE C CLAY PLATEAU

LCT C – Clay Plateau	Priority Habitats (PH) in the LCT				SSSI in the LCT: 6.7 (ha)⁵		
5085.8 (ha) ¹	Existing PH	% of LCT	% of Parkwide	PH which is	% of PH which	% of SSSI in	
	In LCT ²	% of LCT	PH in LCT⁴	SSSI ⁶	Is SSSI ⁷	favourble state ⁸	
Total area (ha) & percentages within the LCT:	557.5	10.96%	1.17%	6.4	1.15%	58.93%	
Deciduous woodland.	478.8	9.41%	1.80%	6.4	1.34%	57.40%	
Good quality semi-improved grassland.	35.6	0.70%	0.57%				
Lowland calcareous grassland.	27.5	0.54%	0.51%				
No main habitat but additional habitats present.	15.0	0.29%	0.37%	0.0	0.26%	99.89%	
Traditional orchard.	0.5	0.01%	0.55%				

Footnotes

- 1 Area (ha) of land within the LCT.
- 2* Area (ha) of Priority Habitat (PH) within the LCT.
- 3* Percentage of the LCT area, which is classified as Priority Habitat.
- 4^{*} Priority Habitat area within the LCT as a percentage of the Priority Habitat in the SDNP.
- 5 Area (ha) of land within the LCT, which is designated as SSSI.
- 6* Area (ha) of Priority Habitat (PH), which is also designated as SSSI. NB: not all SSSI land is PH, which is why headline figures 5 and 6 differ.
- 7* Area of Priority Habitat (PH), which is also SSSI, as a percentage of PH in the LCT.
- 8* Percentage of the SSSI in the LCT, which is classified as being in Favourable condition.

Top value = all SSSI in favourable condition; then by 'favourable' SSSI also classed as Priority Habitat.

* Figures are given for the whole LCT first, then by Priority Habitat (main) type.

TABLE OF NATURE RECOVERY ACTIONS FOR PRIORITY HABITATS IN TYPE C CLAY PLATEAU:

The following table is the list of actions for nature recovery by each priority habitat which is included in the mapping in the SDILCA in Landscape type C Clay Plateau.

Priority habitats	Nature friendly actions to improve and connect existing priority habitats.
Deciduous woodland	Manage vegetation along rides and tracks to increase the range of habitats. Create new meadow strips along woodland edges.
Semi Improved grassland	Increase species diversity of grasslands through management and targeted grazing cycles. Create meadow buffer strips along hedgerows and woodland edges to connect up with other habitats.
Calcareous grassland (LCG)	Manage grassland with grazing for improving soil health and species diversity.
Wood pasture and Parkland	Protect veteran trees from browsing. Identify veteran trees and any management for health requirements. Leave dead wood where it is. Replace fallen trees with new plantings at the optimum spacings. Protect new plantings from browsing. Take an Agroforestry approach to productive land.
Arable farmland	Create arable margins and pollinator species corridors. Maintain winter cover, feed crops or stubbles.
Hedgerows	Manage and maintain hedgerows, replanting hedgerow trees and new hedgerows to improve and connect the hedgerow network. Allow hedges to grow out at junctions and field corners.

Priority habitats	Nature friendly actions to improve and connect existing priority habitats.				
Ponds	Keep ponds maintained with areas of clear water and ground level access for birds on the south side. Taller vegetation can be allowed to establish on the northern side of ponds.				
Priority habitats	Actions to restore and create new priority habitats				
Deciduous woodland including Ancient Woodland	Manage broadleaved woodlands to achieve good condition, age and species diversity. Improve woodland connectivity with new plantings/natural regeneration and targeted woodland management. Manage and protect the ancient yew woodlands & use new woodland plantings to create buffers around them.				
Semi Improved grassland	Increase species diversity through appropriate grazing/hay management and species re-introductions where desirable. Targeted scrub removal where needed.				
Calcareous grassland (LCG)	Manage chalk grassland areas and seek to expand and connect them in combination with opening up woodland with rides and glades and establishing new areas of this habitat.				
Wood pasture and Parkland	Create new wood pasture in variety eg parkland or wooded scrub grassland mosaic approach. Establish optimum grazing management and long-term management plan. Take expert advice where possible to avoid unintended impacts and loss of biodiversity– this habitat type has an extensive range of species associated with it and many rare species are only known in the UK in this habitat.				
Arable farmland	Create plots of wild seed bird mixture to support farmland bird populations. Create permanent arable margins and pollinator species corridors.				

Priority habitats	Actions to restore and create new priority habitats
Hedgerows	Create new hedgerows and conservation headlands to connect up habitats beyond arable land.
Ponds	Restore existing and create new ponds, particularly in turtle dove targeted zones.
Ancient woodland plantations	Selectively thin or clear fell plantations on Ancient woodland sites as appropriate and replant with native species or allow natural regeneration to occur. Manage for rides and glades within new woodland areas from the outset.

SOURCES OF FURTHER INFORMATION

FORESTRY COMMISSION ENGLAND

- South Downs Forest Design Plan
- Climate change: impacts and adaptation in England's woodlands Research Note, Forestry Commission (forestresearch.gov.uk)
- UK Forestry Standard

DEFRA

Environmental land management schemes: overview – GOV.UK (www.gov.uk)

NATURAL ENGLAND

- Carbon Storage and Sequestration by Habitat 2021 NERR094 (naturalengland.org.uk)
- Habitat Networks (England) data.gov.uk
- Habitat Network Mapping Guidance.pdf (defra.gov.uk)

ENVIRONMENT AGENCY

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WOODLAND TRUST

Agroforestry

LANDSCAPE TYPE D

NATURE RECOVERY IN LANDSCAPE TYPE D: DOWNLAND MOSAIC

DESCRIPTION

This is a large LCT which covers a lot of the Hampshire areas of the National Park. It is a rolling landscape typical of the dipslope landscape, although with significantly less chalk downland cover than the eastern parts of the National Park. This is due in part to the wide variety of chalk & clay soils across the landscape type. The predominant priority habitat is the network of woodlands including ancient woodlands and wooded hedgerow field boundaries. But there are also extensive arable and permanent pasture field systems and plantings to support field sports, game bird production and other outdoor recreational pursuits. Despite the good network of woodland, the landscape type does not have a high level of national biodiversity designations, although all of the ancient semi natural woodland is designated at a County level. Agricultural land is important habitat for farmland birds where it is managed sympathetically for them. Biodiversity Opportunity Areas in this LCT

- Sussex BOAs: None.
- Hampshire BOAs: East Hampshire South Downs; St Catherine's Hill to Beacon Hill; Hamble Valley; East Hampshire Hangars.

NATURE RECOVERY AMBITIONS FOR LANDSCAPE TYPE D: DOWNLAND MOSAIC

Build on the nature recovery and Lawton based work undertaken for the South Downs Way Ahead Nature Improvement Area project. Expand the areas of chalk grassland where possible and establish habitat connectivity for chalk grassland across this large landscape character type particularly within the 4 Hampshire **Biodiversity Opportunity Areas** (BOAS) in this LCT.

- Where possible (and financially viable) manage chalk downland with regular grazing. Alternatively, where grazing isn't possible use a 'cut and collect' machine intermittently to mimic grazing. Investigate new/old markets and business models for livestock grazing eg sheep walk (fertilizer) and wool path base reinforcement.
- Increase positive woodland management for biodiversity benefits & reduce management neglect –the greatest threat to ancient woodland.
- Increase connectivity between ancient woodland through targeted management of existing (coniferous and plantation) woodlands, woodland and hedgerow plantings natural regeneration and woodland creation.
- Predominantly beech woodland plantations (make these more diverse in age and species through selective felling and allowing natural regeneration.
- Where possible and timely restore coniferous plantings to native broadleaved woodland though felling and replanting and/or allowing natural regeneration.
- Create open areas within woodlands to encourage chalk grassland habitat particularly on archaeological sites. Connect chalk grassland areas through widening rides through woodland and managing them appropriately.
- Seek to encourage the creation of and better management for species rich grassland, for pollinators, bats and birds linking to other semi natural habitats.
- Promote hedgerow reinstatement and management to increase connectivity in the landscape along new hedgerow corridors.

- Create and manage headlands for maximum biodiversity benefits and connectivity.
- Increase habitat for farmland birds like, lapwing, skylark, corn bunting, grey partridge, and turtle dove. Create nesting habitat which is safe from cultivation late into the summer, use buffer strips, conservation headlands and seed rich wild bird cover crops to provide food. Spray and cultivate stubbles as late as possible.
- Create pollinator strips in arable fields to support invertebrate populations.

TARGET SPECIES

- Woodland plant species, lichens, fungi, breeding birds, moths and butterflies, barn owl, nightingale, turtle dove, 14 bat species (especially barbastelle and Bechstein's), native bluebell, tawny owl, dormouse, hedgehog.
- Chalk downland species: Many orchid species, juniper,100's of invertebrates including the Adonis, small and chalk hill blue butterflies, old grassland fungi including wax cap assemblages, reptiles such as adder and viviparous lizard.
- Arable areas in the downland mosaic are important nesting and feeding areas for farmland birds eg corn bunting, turtle dove, lapwing, skylark, grey partridge.

MONITOR AND CONTROL

INVASIVE SPECIES

Grey squirrel, deer (fallow and muntjac), rhododendron, snowberry, turkey oak and cherry laurel.

TREE PATHOGENS

Follow guidance for management of woodlands.

VULNERABILITY IN LANDSCAPE TYPE D DOWNLAND MOSAIC

HABITATS (OR FIELDSCAPES)

Large areas of Ancient Woodland, including distinctive yew forests. Chalk grassland with scrub and nationally scarce juniper. The pattern of mixed land use with intact hedge network, variable scale mosaic of woodland, both species rich and lowland chalk grassland and arable habitats for farmland birds and rare arable flora. Agricultural practice and responses to climate change including Net Zero driven changes to land use.

PERCEPTUAL QUALITIES

Tranquillity, wildness and remote qualities within the undulating mosaic of woodland, arable farming and pasture. Woodland around pasture and arable fieldscapes creates an enclosed landscape in places, more open with extensive views in other areas, often in the more elevated locations.

ACCESS

Recreational pressure in sensitive habitats in this LCT causes erosion and disturbance to wildlife, soils and habitats. This is exacerbated where there is a local under provision of natural greenspace in particular in the western part of this character type.

HERITAGE

There are many aspects of historic landscape in this character type all of which are vulnerable to land use change and changes in land management: Ancient woodland, veteran trees, historic hedgerows, parish and other boundary plantings, wood pasture, medieval deer parks and parkland priority habitat, woodland archaeology, extensive field systems from bronze age to medieval, Saxon churches, burial mounds.

WATER

This LCT is in the upper catchment for the rivers Meon and Itchen (both chalk streams) which flow to the south coast (Solent). The chalk stream catchments are particularly vulnerable to ground water pollutants. All of the Solent catchments are subject to Nitrate Neutrality controls and the River Itchen catchment is subject also to phosphorous neutrality. Both mechanisms offer delivery opportunities for nature recovery through offsetting.

Woodland can benefit upstream flood management and groundwater quality in the right locations refer to EA mapping: **Working with Natural Processes: Map** (jbahosting.com).

CARBON

WOODLAND, HEDGEROWS AND SOILS ARE VITALLY IMPORTANT FOR SEQUESTERING AND STORING CARBON

There are existing threats to native woodland species from pathogens, and climate change impacts so woodland replacement and additional plantings are targeted. Carbon calculations need to factor in these losses – eg ash dieback.

The push for more tree planting in response to net zero and pollution offsetting commitments could affect the opportunities for expanding the networks of other priority habitats and this should be carefully considered – reference the SDNP Woodland Opportunity Mapping for guidance on this and other factors when considering woodland plantings.

PRIORITY HABITATS IN LANDSCAPE TYPE D: DOWNLAND MOSAIC (24248.739 HA).



TABLE SHOWING THE PERCENTAGES OF PRIORITY HABITAT AND SSSI IN LCT D DOWNLAND MOSAIC

LCT D – Downland Mosaic	Priority Habitats (PH) in the LCT			SSSI in the LCT: 259.3 (ha)⁵		
24248.7 (ha) ¹	Existing PH	% of LCT	% of Parkwide	PH which is	% of PH which	% of SSSI in
	In LCT ²	% of LCT	PH in LCT⁴	SSSI ⁶	Is SSSI ⁷	favourble state ⁸
Total area (ha) & percentages within the LCT:	3476.9	14.34%	7.32%	251.9	7.24 %	88.95 %
Deciduous woodland.	2730.7	11.26%	10.29%	136.1	4.98%	92.54%
Lowland calcareous grassland.	305.7	1.26%	5.65%	81.1	26.54%	98.71%
Good quality semi-improved grassland.	213.4	0.88%	3.40%	0.9	0.43%	69.96%
No main habitat but additional habitats present.	158.0	0.65%	3.85%	18.9	11.97%	96.52%
Traditional orchard.	26.4	0.11%	26.98%			
Coastal and floodplain grazing marsh.	23.8	0.10%	0.74%			
Purple moor grass and rush pastures.	6.6	0.03%	21.75%	6.6	100.00%	
Lowland fens.	5.8	0.02%	1.67%	5.8	99.98%	0.01%
Lowland meadows.	3.3	0.01%	1.40%	2.2	65.46%	26.43%
Lowland dry acid grassland.	3.3	0.01%	5.26%	0.3	8.67%	100.00%

Footnotes

- 1 Area (ha) of land within the LCT.
- 2* Area (ha) of Priority Habitat (PH) within the LCT.
- 3* Percentage of the LCT area, which is classified as Priority Habitat.
- 4^{*} Priority Habitat area within the LCT as a percentage of the Priority Habitat in the SDNP.
- 5 Area (ha) of land within the LCT, which is designated as SSSI.
- 6* Area (ha) of Priority Habitat (PH), which is also designated as SSSI. NB: not all SSSI land is PH, which is why headline figures 5 and 6 differ.
- 7* Area of Priority Habitat (PH), which is also SSSI, as a percentage of PH in the LCT.

8 Percentage of the SSSI in the LCT, which is classified as being in Favourable condition.

Top value = all SSSI in favourable condition; then by 'favourable' SSSI also classed as Priority Habitat.

* Figures are given for the whole LCT first, then by Priority Habitat (main) type.

TABLE OF NATURE RECOVERY ACTIONS FOR PRIORITY HABITATS IN TYPE D DOWNLAND MOSAIC:

The following table is the list of actions for nature recovery by each priority habitat which is included in the mapping in the SDILCA in Landscape Type D Downland Mosaic:

Priority habitats	Nature friendly actions to improve and connect existing habitats.
Deciduous woodland	Manage vegetation along rides and tracks to increase the range of habitats. Create new meadow buffer strips along woodland edges.
Semi Improved grassland	Increase species diversity of grasslands through management and targeted grazing cycles. Create meadow buffer strips along hedgerows and woodland edges to connect up with other habitats.
Calcareous grassland (LCG)	Manage grassland with grazing for improving soil health and species diversity.
Wood pasture and Parkland	Protect veteran trees from browsing. Identify veteran trees and any management for health requirements. Leave dead wood where it is. Replace fallen trees with new plantings at the optimum spacings. Protect new plantings from browsing. Take an Agroforestry approach to productive land.
Arable farmland	Create arable margins and pollinator species corridors. Maintain winter cover, feed crops or stubbles.
Coniferous Plantations	Manage vegetation along rides and tracks to increase the range of habitats. Create new meadow strips along woodland edges.

Priority habitats	Nature friendly actions to improve and connect existing habitats.
Hedgerows	Manage and maintain hedgerows, replanting hedgerow trees and new hedgerows to improve and connect the hedgerow network. Allow hedges to grow out at junctions and field corners.
	
Priority habitats	Actions to restore and create new habitats
Deciduous	Manage broadleaved woodlands to achieve good condition,
woodland	age and species diversity.
including Ancient	Improve woodland connectivity with new plantings/natural
Woodland	regeneration and targeted woodland management.
	Manage and protect the ancient yew woodlands & use new woodland plantings to create buffers around them.
Semi Improved	Increase species diversity through appropriate grazing/hay
grassland	management and species re-introductions where desirable. Targeted scrub removal where needed.
Calcareous	Manage chalk grassland areas and seek to expand and
grassland (LCG)	connect them in combination with opening up woodland with
	rides and glades and establishing new areas of this habitat.
Wood pasture	Create new wood pasture in variety eg parkland or wooded
and Parkland	scrub grassland mosaic approach.
	Establish optimum grazing management and long-term
	Take expert advice where possible to avoid unintended
	impacts and loss of biodiversity – this habitat type has an
	extensive range of species associated with it and many rare
	species are only known in the UK in this habitat.

Priority habitats	Actions to restore and create new habitats
Arable farmland	Create plots of wild seed bird mixture to support farmland bird populations. Create permanent arable margins and pollinator species corridors.
Hedgerows	Create new hedgerows and conservation headlands to connect up habitats beyond arable land.
Ponds	Restore existing and create new ponds, particularly in turtle dove targeted zones.
Coniferous plantation	Manage vegetation along rides and tracks to increase the range of habitats. Create new meadow strips along woodland edges. Manage coniferous woodland for age and species diversity with deciduous woodland and to support bird species such as Firecrest, goshawk, siskin and redpoll.

SOURCES OF FURTHER INFORMATION

FORESTRY COMMISSION ENGLAND

- South Downs Forest Design Plan
- Climate change: impacts and adaptation in England's woodlands Research Note, Forestry Commission (forestresearch.gov.uk)
- UK Forestry Standard

DEFRA

Environmental land management schemes: overview – GOV.UK (www.gov.uk)

NATURAL ENGLAND

- Carbon Storage and Sequestration by Habitat 2021 NERR094 (naturalengland.org.uk)
- Habitat Networks (England) data.gov.uk
- Habitat Network Mapping Guidance.pdf (defra.gov.uk)

ENVIRONMENT AGENCY

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WOODLAND TRUST

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LANDSCAPE TYPE E

NATURE RECOVERY IN LANDSCAPE TYPE E: CHALK VALLEY SYSTEMS

DESCRIPTION

The *Chalk Valley Systems* are branching valley systems that drain the dipslope of the chalk downs and contain a river along at least part of their length. They often follow the lines of faults in the chalk and are winterbournes in their upper reaches. The valleys consist of valley sides which are generally arable, with more pastoral character to the valley floor/floodplain.

BIODIVERSITY OPPORTUNITY AREAS (BOAS) IN THIS LCT:

- Sussex BOAs: Westbourne chalk streams to Compton tributaries; Walderton to Welldown including Kingley Vale; Lavant Watershed; Western Escarpment.
- Hampshire BOAs: Meon Valley; East Hampshire South Downs.

NATURE RECOVERY AMBITIONS FOR LANDSCAPE TYPE E: CHALK VALLEY SYSTEMS

- Restore Calcareous grassland on the valley sides to contribute to biodiversity and to improve water quality (over arable).
- Achieve river buffer areas in priority areas to exclude access for people and domestic animals to protect bank edge vegetation, wet woodland and water meadows.
- Naturalise & restore river corridors where they have been modified, to slow the flow, increase the health and extent of aquatic & wetland habitats and provide natural flood management.

- Maximise the ability of the rivers to provide flood storage capacity, reduce soil erosion and through slowing the flow allow the rivers to release silt and pollution.
- Create new priority habitat through and along the river corridors to increase the connectivity of riparian habitats, wet woodland, flood plain grazing marsh, lowland fen, wet hedges (ditches) in the floodplains and calcareous grassland. (See SDNPA River buffers).
- Consider catchment scale implications of all actions and work to integrate different sectors and interests in the whole catchment both within and beyond the SDNP.
- Explore the potential to work collaboratively to restore sustainable flows, especially in the Ems and Lavant.

TARGET SPECIES

Water vole, brown trout, southern damselfly, white clawed crayfish, otter, black poplar, water crowfoot.

VULNERABILITY IN LANDSCAPE TYPE E CHALK VALLEY SYSTEMS

LANDSCAPE

Protect the existing priority habitat grasslands on the valley sides & conserve the pastoral and tranquil character of the stream corridors and floodplains.
ACCESS

Manage recreational pressure in sensitive habitats to limit disturbance to wildlife. Protect riverbanks and bankside vegetation from erosion by people and animals.

HERITAGE

Conserve and restore historic water meadows and parkscapes for their heritage and biodiversity importance.

WATER

The habitats within the riparian environment are highly susceptible to changes in hydrology due both to climate change and human activity. Water pollution and siltation impede the natural functions of rivers affecting water quality and subsequently the health of riparian habitats and species.

CARBON

Floodplain grazing marsh, wet woodland and lowland Fen habitats provide high levels of soil carbon storage.

PRIORITY HABITATS IN LANDSCAPE TYPE E: CHALK VALLEY SYSTEMS (8572.055 HA)



TABLE SHOWING THE PERCENTAGES OF PRIORITY HABITAT AND SSSI IN LANDSCAPE TYPE E CHALK VALLEY SYSTEMS

LCT E – Chalk Valley Systems	Priority Habitats (PH) in the LCT SSSI in the LCT: 139.6 (ha			LCT: 139.6 (ha)⁵		
8572.1 (ha) ¹	Existing PH	% of LCT	% of Parkwide	PH which is	% of PH which	% of SSSI in
	In LCT ²	% of LCT	PH in LCT⁴	SSSI ⁶	Is SSSI ⁷	favourble state ⁸
Total area (ha) & percentages within the LCT:	1800.7	21.01%	3.79 %	133.8	7.43%	27.57%
Deciduous woodland.	1129.6	13.1 S%	4.26%	87.7	7.76%	30.11%
Coastal and floodplain grazing marsh.	227.3	2.65%	7.10%	1.1	0.4B%	92.38%
Good quality semi-improved grassland.	187.4	2.19%	2.98%	0.4	0.21%	100.00%
No main habitat but additional habitats present.	135.5	1.62%	3.37%	0.9	0.64%	
Lowland calcareous grassland.	80.3	0.94%	1.4B%	13.3	16.62%	18.65%
Lowland fens.	27.6	0.32%	7.96%	24.8	\$9.63%	19.21%
Purple moor grass and rush pastures.	5.6	0.07%	18.34%	5.6	100.00%	47.95%
Traditional orchard.	4.5	0.05%	4.56%			

Footnotes

- 1 Area (ha) of land within the LCT.
- 2* Area (ha) of Priority Habitat (PH) within the LCT.
- 3* Percentage of the LCT area, which is classified as Priority Habitat.
- 4^{*} Priority Habitat area within the LCT as a percentage of the Priority Habitat in the SDNP.
- 5 Area (ha) of land within the LCT, which is designated as SSSI.
- 6* Area (ha) of Priority Habitat (PH), which is also designated as SSSI. NB: not all SSSI land is PH, which is why headline figures 5 and 6 differ.
- 7* Area of Priority Habitat (PH), which is also SSSI, as a percentage of PH in the LCT.

8* Percentage of the SSSI in the LCT, which is classified as being in Favourable condition.

Top value all SSSI in favourable condition; then by 'favourable' SSSI also classed as Priority Habitat.

* Figures are given for the whole LCT first, then by Priority Habitat (main) type.

TABLE OF NATURE RECOVERY ACTIONS FOR PRIORITY HABITATS IN TYPE E CHALK VALLEY SYSTEMS:

The following table is the list of actions for nature recovery by each priority habitat which is included in the mapping in the SDILCA in Landscape Type E Chalk Valley Systems.

Priority habitats	Nature friendly actions to improve and connect existing habitats.
Chalk Rivers, streams and	Create buffers along watercourse corridors to extend the riparian corridor habitat and control access by livestock/people
winterbournes	and dogs to the streamside edges.
Semi improved	Increase species diversity of grasslands through management
grassland	and targeted grazing cycles along the river corridors. Create meadow buffer strips along riverbanks, ditches and other wetland habitats.
	Create meadow buffer strips along hedgerows and woodland edges to connect up with other habitats. Restore ponds.
	Monitor and control invasive species.
Coastal and	Maintain light grazing March-Sept, preferably with cattle to
floodplain	allow plants to flower & provide pollen & nectar.
grazing marsh	Dung is important for invertebrates but avoid worming livestock on the land and argzing for 10 days afterwards
	Clean drainage ditches in rotation so some become almost choked before clearing.
	Do not over dig ditches & ensure they have shallow sloped
	edges in some places (cattle will create these if the ditches aren't
	too deep and steep sided for them).
	Manage scrub and carr invasion.

Priority habitats	Nature friendly actions to improve and connect existing habitats.
Lowland Calcareous Grassland	Increase species diversity of semi-improved grasslands. Manage grassland for improving soil health and species diversity. Create meadow buffer strips along hedgerows and woodland edges. No additional drainage work should be undertaken.
Lowland Fen	Lightly graze between May and September to allow plants to flower and set seed. Cut areas which are under grazed by cattle on advice only. Existing drains and ditches may need clearing occasionally. Maintain scrub cover at 10-20%. No additional drainage work should be undertaken. Establish buffer areas to protect water quality and the main habitat area.
Deciduous (wet) woodland	Leave standing or fallen dead wood as habitat for insects and birds. Aim for high structural and age diversity through coppicing or selective felling of mature trees (artificial windblow). Monitor and control invasive non-native species. Replant/ natural regeneration of woodland lost due to ash dieback. Manage stock access to allow natural regeneration. Link wet woodland with other wetland habitats – eg ditches, hedgerows, other woodland & trees. No further drainage works. Connect boundary ditches, hedgerows and woodland features across the valley floor.

Priority habitats	Actions to restore and create new habitats	Priority habitats	Actions to restore and create new habitats			
Semi improved grassland	Identify key land parcels for arable reversion or management changes where grassland would provide good habitat connectivity. Combine with nutrient neutrality approach to maximise payment options.	Deciduous woodland	Create new woodland areas where they will support a natural flood management approach within the floodplain by 'slowing the flow' downstream. Areas of new woodland could also provide shaded water areas			
Coastal and floodplain grazing marshCreate ponds, berms and shallows, to vary the habitat opportunities within the ditches.Aim to maintain high water levels throughout the year. Arable reversion may be possible on artificially drained soils where natural hydrology is established within the floodplain, through blocking or reducing previous field drainage. Target fields which provide connectivity with adjacent grazing		 of the river see 'keeping rivers cool'. Target new plantings where they will provide habitat connectivity between other areas of woodland within and beyond the valley floor. Manage broadleaved woodlands to achieve good condition, age and species diversity. Improve woodland connectivity with new plantings. Manage wet woodlands and plant additional areas with suitable species. 				
	Marsh to build a network for biodiversity. Design a management plan to rotate ditch clearances, to maintain a variety of vegetation heights and densities within the ditches and to lightly graze only between March and September when the grazing marsh is not too wet. Targeted large scale reversion to chalk grassland to join up LCG within the landscape. Manage chalk grassland to achieve a mosaic of downland and scrub habitats. Create wildflower meadows.		Establish scrapes, ponds and swales to hold water on the land and reduce the water burden during extreme rainfall. Stablish berms and shallows within the river to vary flows and aerate the water to provide a variety of watery habitats within the			
Lowland Calcareous Grassland Lowland Fen			river. Manage riverside buffers to maintain species diversity in rotation to vary the height of the buffers for habitat diversity. Restore the river floodplain function by allowing the land to flood naturally which will increase the health, extent and variety of aquatic and wetland habitats whilst also providing flood			
	provide connectivity to other fen sites. Arable land reversion may qualify for nutrient neutrality payments. Restore/re-wet existing Fen sites and develop management plans for them. Seek to join up habitats with ditches, headlands, pollinator strips, hedgerow and wet woodland. Target carbon sequestration function.		capacity.			

SOURCES OF FURTHER INFORMATION

CATCHMENT PLANS

- East-Hampshire-Catchment-Partnership-Mgmt.-Plan-21-27-v2-16.03.21.pdf (catchmentbasedapproach.org)
- CFMP-TEST ITCHEN 77081-05-09 (publishing.service.gov.uk) (Also refer to the draft 2021 plan)

ENVIRONMENT AGENCY

Environment Agency – Catchment Data Explorer

DEFRA

Environmental land management schemes: overview – GOV.UK (www.gov. uk)

NATURAL ENGLAND

- Site Improvement Plan: River Itchen SIP193 (naturalengland.org.uk)
- Carbon Storage and Sequestration by Habitat 2021 NERR094 (naturalengland.org.uk)
- Habitat Networks (England) data.gov.uk
- Habitat Network Mapping Guidance.pdf (defra.gov.uk)

WWF

- wwf_chalkstreamreport_final_lr.pdf
- Catchment Based Approach (CABA) Chalk Stream Restoration Strategy 2021 CaBA CSRG Strategy MAIN REPORT FINAL 12.10.21 (catchmentbasedapproach. org)

LANDSCAPE TYPE F

NATURE RECOVERY IN LANDSCAPE TYPE F: MAJOR RIVER FLOODPLAINS

DESCRIPTION

The major river floodplains occur where the Rivers Itchen, Arun, Adur, Ouse and Cuckmere pass through the chalk ridge in deep valleys which have been eroded through the chalk. The floodplains, or valley floors as they are also known, are distinct habitat zones created by the periodic flooding of the flat alluvial land alongside the rivers themselves. The tidal reach of the rivers, the floodplain ditch networks and adjacent floodplain create a wide variety of saline/freshwater/wetland habitat types leading to an equally wide range of flora and fauna along the valley floor. Seasonal flooding has generally restricted agricultural activity in the floodplains and they are mostly put to permanent pasture for seasonal livestock grazing. This creates a distinct and uniform character to the valley floors. All of the floodplains have nationally designated biodiversity areas. They form significant parts of the nature recovery network for the SDNP due to their large scale and importance for biodiversity. Their north south orientation through the SDNP provides connectivity across the National Park while the river catchments extend out to wider landscapes within and beyond the SDNP boundary.

BIODIVERSITY OPPORTUNITY AREAS (BOAS) IN THIS LCT:

- Sussex BOAs: Lower Cuckmere Reaches; Seaford to Eastbourne Downs; Lewes Brooks and the Ouse Valley; North Bramber Floodplain; Climping to Houghton.
- Hampshire BOAs: Itchen Valley.

NATURE RECOVERY AMBITIONS FOR LANDSCAPE TYPE F: MAJOR RIVER FLOODPLAINS

- Restore the natural function of the floodplains where possible by re naturalising the river course to increase the health, extent and variety of aquatic & wetland habitats and to provide natural flood management.
- Conserve existing and create new priority habitat through and along the valley floors to increase the connectivity of riparian habitats, wet woodland, flood plain grazing marsh, lowland fen, wet hedges (ditches) in the floodplains. (See SDNPA River buffers) to reflect the super-connectivity potential of the floodplains within and beyond the SDNP.
- Maximise the ability of the river floodplains to provide flood storage capacity, reduce soil erosion and through 'slowing the flow' allow the rivers to release silt and pollution.
- Ensure that the historic ditch systems & vegetation within them are regularly maintained on a rotational basis to maximise their habitat value and maintain their flood capacity.
- Work with partners to take action to pre-empt the positive and negative effects on biodiversity of a rising saline wedge in the rivers and floodplains due to climate change.
- Maintain higher water levels in the floodplain later in the year as this would help sustain invertebrate levels and breeding waders which feed on the softer ground.

Other standing water features eg scrapes, ponds and swales would help other water birds for example wildfowl such as the rare Garganey.

- Enhance broad habitat connectivity across the valleys and up the valley sides (LCT G) particularly in relation to other priority habitats on the valley sides and along the scarp slopes to maximise the network opportunities across the SDNP.
- Consider the catchment scale implications of all actions and continue to work with partners to integrate different sectors and interests in the whole catchment both within and beyond the SDNP.

TARGET SPECIES

- Invertebrates including water beetles, rare snails, flies and moths. The varying salinity of ditches produces a mosaic of habitats which support a wide variety of invertebrates. Ditch flora including crowfoot, hornwort, water dropwort. Willow species and hawthorn also establish along the ditch & riverbanks, black poplar.
- Lapwing, redshank, snipe, curlew and black tailed odwit, garganey, reed warbler,
- Over wintering birds such as Bewick's swan (designation feature of the Arun Valley SPA), brent geese, wigeon and golden plover. beaver, otter and water vole.

MONITOR AND CONTROL

INVASIVE SPECIES

Giant hogweed, Himalayan balsam, floating pennywort.

TREE PATHOGENS

Follow guidance for management of woodlands.

VULNERABILITY IN LANDSCAPE TYPE F MAJOR RIVER FLOODPLAINS.

HABITATS (OR FIELDSCAPES)

Historic canalisation of the main rivers has disconnected the vast majority of the floodplain from the flow of the rivers. With the rivers contained by levees, water levels within the floodplains are controlled by sluices. This drying of the floodplain has enabled it's greater use for agriculture. But the capacity of the flood plain to hold flood waters has been reduced. The wetland habitats within the floodplain have also been affected by reduced water levels and changes to natural hydrology. Climate change effects in terms of salination, increased extreme weather events and lack of habitat connectivity for species migration is increasingly affecting the floodplain landscape. The increasing demands for water from abstraction and the opportunities for carbon storage from habitats like salt marsh are also strong drivers for the river valleys and their floodplains to be de-engineered and allowed to function naturally.

The historic ditch systems – or wet hedges (innings) within the river valley floor are vulnerable to silting up and becoming overgrown both of which reduce their distinctive habitat value, but also reduce the flood capacity of the ditch system in the flood plain. The flat open valley floors are distinctive features where the riparian character is reinforced with meandering channels, floodplain meadows, wetland trees, ponds and other wetland habitats.

PERCEPTUAL QUALITIES

The river floodplains are tranquil and remote, largely undeveloped and still. All of these qualities are fragile & vulnerable to change from a range of pressures – land use & changes to agricultural practices, climate change affecting the vegetation and habitat quality of the river channels and floodplains.

ACCESS

Manage recreational pressure in sensitive habitats to limit disturbance to wildlife. Protect river edges, edge vegetation and wetland habitat from erosion and disturbance by people and animals. If naturalisation of rivers is achieved this will affect public access through the loss of footpaths and bridleways which run along levees and further infrastructure may be needed to support access requirements – eg bridges.

HERITAGE

Conserve and restore historic water meadows and parkscapes for their heritage, biodiversity importance and value for natural flood management. The ditch systems are important historic landscape features which are often overlooked. Consider heritage in any re-naturalisation pf the river valleys.

WATER

Changes to seasonal hydrology, salination and pollution are all significant risk factors for the major floodplains. The habitats within the riparian environment are highly susceptible to changes in hydrology due both to climate change and human activity. Water pollution and siltation impede the natural functions of rivers affecting water quality and subsequently the health of riparian habitats and species. Abstraction, extreme weather events and domestic water demands are all having cumulative impacts on riparian habitats.

CARBON

Floodplain grazing marsh, wet woodland and lowland fen habitats provide very high levels of soil carbon storage. Salt marsh conversion (which also provides high levels of soil carbon sequestration) maybe an option in areas within the floodplain which become inundated and cannot be preserved as freshwater land.

PRIORITY HABITATS IN LANDSCAPE TYPE F: MAJOR RIVER FLOODPLAINS (3831.225 HA)



TABLE SHOWING THE PERCENTAGES OF PRIORITY HABITAT AND SSSI IN LCT F MAJOR RIVER FLOODPLAINS

LCT F – Major Chalk River Floodplains	Priority Habitats (PH) in the LCT SSSI in the LCT: 1054.0 (ha)				.CT: 1054.0 (ha)⁵	
3831.2 (ha) ¹	Existing PH	% of LCT	% of Parkwide	PH which is	% of PH which	% of SSSI in
	In LCT ²	% of LCT	PH in LCT ⁴	SSSI ⁶	Is SSSI ⁷	favourble state ⁸
Total area (ha) & percentages within the LCT:	2883.5	75.26 %	6.07%	947.6	32.86%	33.69 %
Coastal and floodplain grazing marsh.	1775.1	46.33%	55.44%	547.8	30.86%	34.52%
Good quality semi-improved grassland.	606.0	15.82%	9.64%	38.7	6.39%	89.13%
Lowland fens.	169.5	4.42%	48.82%	163.7	96.55%	4.74%
Deciduous woodland.	141.9	3.70%	0.53%	74.0	52.15%	31.62%
Lowland meadows.	61.1	1.60%	25.99%	58.5	95.71%	31.21%
No main habitat but additional habitats present.	39.3	1.03%	0.96%	10.4	26.48%	15.81%
Coastal saltmarsh.	22.6	0.59%	99.91%	11.3	50.13%	81.72%
Mudflats.	20.0	0.52%	98.18%	4.5	22.53%	20.67%
Purple moor grass and rush pastures.	12.7	0.33%	41.61%	12.5	98.59%	95.87%
Saline lagoons.	10.8	0.28%	100.00%	10.7	98.95%	99.27%
Maritime cliff and slope.	7.5	0.20%	4.71%	7.5	99.89%	19.53%
Lowland calcareous grassland.	6.7	0.18%	0.12%	4.5	67.52%	84.38%
Coastal vegetated shingle.	6.5	0.17%	97.70%	0.7	10.91%	0.10%
Reedbeds.	3.5	0.09%	69.93%	2.9	82.11%	
Traditional orchard.	0.3	0.01%	0.27%			

Footnotes

- 1 Area (ha) of land within the LCT.
- 2* Area (ha) of Priority Habitat (PH) within the LCT.
- 3* Percentage of the LCT area, which is classified as Priority Habitat.
- 4^{*} Priority Habitat area within the LCT as a percentage of the Priority Habitat in the SDNP.
- 5 Area (ha) of land within the LCT, which is designated as SSSI.
- 6* Area (ha) of Priority Habitat (PH), which is also designated as SSSI. NB: not all SSSI land is PH, which is why headline figures 5 and 6 differ.
- 7* Area of Priority Habitat (PH), which is also SSSI, as a percentage of PH in the LCT.
- 8* Percentage of the SSSI in the LCT, which is classified as being in Favourable condition.

Top value = all SSSI in favourable condition; then by 'favourable' SSSI also classed as Priority Habitat.

* Figures are given for the whole LCT first, then by Priority Habitat (main) type.

TABLE OF NATURE RECOVERY ACTIONS FOR PRIORITY HABITATS IN TYPE F MAJOR RIVER FLOODPLAINS:

The following table is the list of actions for nature recovery by each priority habitat which is included in the mapping in the SDILCA in Landscape.

Priority habitats	Nature friendly actions to improve and connect existing habitats.
Semi improved grassland	Increase species diversity of grasslands through management and targeted grazing cycles along the river corridors. Create meadow buffer strips along riverbanks, ditches and other wetland habitats. Create meadow buffer strips along hedgerows and woodland edges to connect up with other habitats. Restore ponds. Monitor and control invasive species.
Coastal and floodplain grazing marsh	Maintain light grazing March- Sept, preferably with cattle to allow plants to flower & provide pollen & nectar. Dung is important for invertebrates but avoid worming livestock on the land and grazing for 10 days afterwards. Clean drainage ditches in rotation so some become almost choked before clearing. Do not over dig ditches & ensure they have shallow sloped edges in some places (cattle will create these if the ditches aren't too deep and steep sided for them). Manage scrub and carr invasion.
Coastal salt marsh	Undertake baseline survey or monitoring to determine extent, erosion, accretion of existing salt marsh and determine the optimum management approach. This may be grazing, cutting or protecting from erosion or doing nothing. No additional drainage work should be undertaken.

Priority habitats	Nature friendly actions to improve and connect existing habitats.
Lowland Fen	Lightly graze between May and September to allow plants to flower and set seed. Cut areas which are undergrazed by cattle on advice only. Existing drains and ditches may need clearing occasionally. Maintain scrub cover at 10-20%. No additional drainage work should be undertaken.
Deciduous (wet) woodland	Leave standing or fallen dead wood as habitat for insects and birds. Aim for high structural and age diversity through coppicing or selective felling of mature trees (artificial windblow). Manage stock access to allow natural regeneration. Link wet woodland with other wetland habitats – eg ditches, hedgerows, other woodland & trees
	No further drainage works.
Rivers & watercourses	Allow standing water to percolate naturally – do not increase drainage of the land.
	Create buffer zones along the river channels to protect bankside vegetation from livestock and control where livestock gain access to the water. Control invasive species within the river corridor & take a 'whole river' approach to this.

Priority habitats	Actions to restore and create new habitats
Semi improved grassland	Identify key land parcels for arable reversion or management changes where grassland would provide good habitat connectivity. Combine with nutrient neutrality approach to maximise payment options.
Coastal and floodplain grazing marsh	Create ponds, berms and shallows, to vary the habitat opportunities within the ditches aim to maintain high water levels throughout the year. Arable reversion may be possible on artificially drained soils where natural hydrology is established within the floodplain, through blocking or reducing previous field drainage. Target fields which provide connectivity with adjacent grazing marsh to build a network for biodiversity. Design a management plan to rotate ditch clearances, to maintain a variety of vegetation heights and densities within the ditches and to lightly graze only between March and September when the grazing marsh is not too wet.
Coastal salt marsh	Salt marsh creation involves inundation of land by tidal waters and the complexities of doing this would require advice from the Environment Agency and Natural England.
Lowland Fen	Identify key land parcels for fen restoration where they would provide connectivity to other fen sites. Arable land reversion may qualify for nutrient neutrality payments. Restore existing fen sites and develop management plans for them. Seek to join up habitats with ditches, headlands, pollinator strips, hedgerow and wet woodland.

Priority habitats	Actions to restore and create new habitats
Deciduous woodland	Create new woodland areas where they will support a natural flood management approach within the floodplain by 'slowing the flow' downstream. Areas of new woodland could also provide shaded water areas of the river see 'keeping rivers cool'. Target new plantings where they will provide habitat connectivity between other areas of woodland within and beyond the valley floor.
Rivers and watercourses	Establish scrapes, ponds and swales to hold water on the land and reduce the water burden during extreme rainfall. Stablish berms and shallows within the river to vary flows and aerate the water to provide a variety of watery habitats within the river. Manage riverside buffers to maintain species diversity in rotation to vary the height of the buffers for habitat diversity. Restore the river floodplain function by allowing the land to flood naturally which will increase the health, extent and variety of aquatic and wetland habitats whilst also providing flood capacity.

SOURCES OF FURTHER INFORMATION

CATCHMENT PLANS

All catchment plans can be found at this link Catchment Management Plans – CaBA (catchmentbasedapproach.org)

ENVIRONMENT AGENCY

Environment Agency – Catchment Data Explorer

DEFRA

Environmental land management schemes: overview – GOV.UK (www.gov.uk)

NATURAL ENGLAND

- Carbon Storage and Sequestration by Habitat 2021 NERR094 (naturalengland.org.uk)
- Habitat Networks (England) data.gov.uk
- Habitat Network Mapping Guidance.pdf (defra.gov.uk)

WIDLIFE TRUSTS

- Habitat-management-leaflet-wet-woodland.pdf (dbrc.org.uk)
- Habitat-management-leaflet-lowland-fen-2016.pdf (dbrc.org.uk)

CABA

Saltmarsh_Restoration_Handbook_FINAL_20210311.pdf (catchmentbasedapproach.org)

WWF

wwf_chalkstreamreport_final_lr.pdf

WOODLAND TRUST

Keeping Rivers Cool – Woodland Trust

BUGLIFE

Coastal and floodplain grazing marsh – Buglife

LANDSCAPE TYPE G

NATURE RECOVERY IN LANDSCAPE TYPE G: MAJOR VALLEY SIDES

DESCRIPTION

This LCT contains a wide range of habitats which reflect its transitional location between the wetlands of the river floodplains and the chalk grassland, arable and woodland habitats of the higher land above the valleys. The wide range of habitat types includes wet grasslands/marsh, chalk grassland, species rich grassland, wet woodland, deciduous woodland, arable land & permanent pasture together with a variable network of hedgerows The valley sides offer many opportunities for habitat connectivity both along the river valleys north to south and across the river valleys to east and west. In contrast to the valley floor (LCT F), the valley sides are more settled and farmed although the aspect and slope of the valley sides has an impact on the degree to which they are farmed and also the habitat types which are present. The contrast between opposite valley sides can be significant – eg Arun Valley. & nature recovery actions will vary enormously in this case from the western to eastern valley side. The interface between the valley floor wetland habitats and the valley sides is especially important to biodiversity and hydrology and opportunities to extend wetland habitats within the valley side LCT should be developed. Actions to slow the flow and retain water on the land will provide these opportunities and emerging markets for nutrient and water neutrality my provide suitable funding sources for this in time.

BIODIVERSITY OPPORTUNITY AREAS (BOAS) IN THE LCT:

- Sussex BOAs: Seaford to Eastbourne Downs; East Brighton Downs; Adur to Newtimber including Mill Hill; Central Downs Arun to Adur; Clapham to Burpham Downs; Arundel Park.
- Hampshire BOAs: Itchen Valley.

NATURE RECOVERY AMBITIONS FOR LANDSCAPE TYPE G: MAJOR VALLEY SIDES

- Improve the lateral connectivity to adjacent LCTs across the valley sides.
- Create measures to slow the flow of surface water off the land into the rivers to improve river water quality, soil structure and infiltration into the land.
- Make the land surface 'rougher' through tree planting and allowing natural regeneration, reduced grazing on pasture and hedgerow restoration.
- Keep water on the land by creating leaky dams on drainage ditches and streams, create additional flood water storage with scrapes and swales, and increase the presence of wetland habitats on the lower valley sides.
- Retain long-standing permanent pasture, because of its high soil carbon content, undisturbed soil profiles, and botanical, fungal and invertebrate communities.
- Retention and restoration of hedgerows through appropriate fencing and cutting regimes, promote hedgerow reinstatement and management to increase connectivity in the landscape along new hedgerow corridors.
- Expand the areas of chalk grassland where possible and establish habitat connectivity for chalk grassland across this landscape character type.

- Increase positive woodland management for biodiversity benefits & reduce management neglect – the greatest threat to ancient woodland. Traditional management in LCT G would have been coppicing/pollarding.
- Seek to encourage the creation of and better management for species rich grassland, for pollinators, bats and birds linking to other semi natural habitats.
- Create pollinator strips and headlands in arable fields to support invertebrate populations and farmland birds.
- Where possible (and financially viable) manage chalk downland with regular grazing.
- Manage existing field ponds with tall herbs to the north to provide open water for birds like Turtle doves and a wide range of invertebrates. Where possible create new field ponds and connect them up with headlands and pollinator strips.
- Rivers, streams and ditches to remain as natural as possible with good tree cover, large woody debris to mitigate climate change impacts and allow for torpidity and diversity of flow.

TARGET SPECIES

- Woodland plant species, lichens, fungi, breeding birds, moths and butterflies, barn owl, nightingale, turtle dove, 14 bat species (especially barbastelle and Bechstein's), native bluebell, tawny owl, dormouse, hedgehog.
- Chalk downland species: Many orchid species, juniper,100's of invertebrates including the Adonis, small and chalk hill blue butterflies, old grassland fungi including wax cap assemblages, reptiles such as adder and viviparous lizard.
- Arable areas on the Valley sides have potential to be important nesting and feeding areas for farmland birds eg corn bunting, turtle-dove, lapwing, skylark, grey partridge.
- Aquatic areas Often chalk springs and tributaries can be spawning areas for salmonids (trout, salmon) and other species such as bullheads as well as a wide

range of aquatic invertebrates and plants. These areas are also used by water vole and otter.

MONITOR AND CONTROL

Invasive species – grey squirrel, deer (fallow and muntjac), rhododendron, snowberry, turkey oak and cherry laurel, cotoneaster in chalk downland areas.

TREE PATHOGENS

Follow guidance for management of woodlands.

VULNERABILITY IN LANDSCAPE TYPE G MAJOR VALLEY SIDES

HABITATS (OR FIELDSCAPES)

Wetland habitats which extend beyond the valley floor are vulnerable to agricultural improvements. The pattern of mixed land use with intact hedge network, variable scale mosaic of woodland, both species rich and lowland chalk grassland and arable habitats for farmland birds and rare arable flora is vulnerable to land use changes and development pressure. Agricultural practice and responses to climate change including Net Zero driven changes to land use may increase pressure for more wooded valley sides.

PERCEPTUAL QUALITIES

The valleys retain tranquillity, wildness and remote qualities within an enclosed large scale natural landscape feature. The undulating and sloped mosaic of woodland, arable farming and pasture has a timeless quality. Woodland around pasture and arable fieldscapes creates an enclosed landscape in places, more open with extensive views in other areas along the valleys, often in the more elevated locations.

ACCESS

Access in this LCT is along the local public footpath network and there are sizeable areas of accessible areas of natural greenspace with open access land and permissive access land along the valley sides in all areas with the exception of the Itchen Valley where access is more limited.

HERITAGE

Ancient woodland and associated archaeology, veteran trees, historic hedgerows parish and other boundary plantings. Historic water management features – eg ditches and sluices.

WATER

This LCT is in the lower catchments of the 5 major rivers (Itchen, Arun, Adur, Ouse, Cuckmere) which are orientated north/south across the length of the SDNP. Good management of the land on the valley sides can contribute to reducing downstream flooding by holding water back and slowing the flow; soil health by moderating the extremes of rainfall and drought, and water quality through reducing siltation and minimising pollution from fertilizers (nitrates and phosphates), pesticides and manure. All main river water courses in the SDNP are impacted by sewage overflows. Achieving good water quality in tributaries, ditches and other water bodies which drain towards the main river is a catchment priority.

Woodland can benefit upstream flood management and groundwater quality in the right locations refer to EA mapping: **Working with Natural Processes: Map** (jbahosting.com).

CARBON

Woodland, hedgerows and soils are vitally important for sequestering and storing carbon. Permanent pasture, grazing marsh and wet woodland are also important habitats for carbon sequestration.

There are existing threats to native woodland species from pathogens, pests and climate change impacts so woodland replacement and additional plantings are targeted. Carbon calculations need to factor in these losses – eg ash dieback.

The push for more tree planting in response to net zero and pollution/ carbon offsetting commitments could affect the opportunities for expanding the networks of other priority habitats and this should be carefully considered– reference the SDNP Woodland Opportunity Mapping for guidance on this and other factors when considering woodland and offsetting plantings.



PRIORITY HABITATS IN LANDSCAPE TYPE G: MAJOR VALLEY SIDES (5002.227 HA)

TABLE SHOWING THE PERCENTAGES OF PRIORITY HABITAT AND SSSI IN LCT G MAJOR VALLEY SIDES

LCT G - Major Chalk Valley Sides				SSSI in the	SSSI in the ICT: $2/1.5$ (ha) ⁵	
Let 6 - Major chark valley sides		Fliority Habita			3331 III III e	
5002.2 (ha) ¹	Existing PH	% of LCT	% of Parkwide	PH which is	% of PH which	% of SSSI in
	In LCT ²	% of LCT	PH in LCT⁴	SSSI ⁶	Is SSSI ⁷	favourable state ⁸
Total area (ha) & percentages within the LCT:	1091.3	21.82%	2.30%	216.7	19.85%	63.58%
Deciduous woodland.	543.6	10.87°/4	2.05%	88.6	16.29%	64.20%
Good quality semi-improved grassland.	237.6	4.75%	3.78%	2.4	1.00%	99.10%
Lowland calcareous grassland.	179.4	3.59%	3.31%	102.8	57.27%	69.45%
Coastal and floodplain grazing marsh.	61.0	1.22%	1.90%	0.6	1.01%	57.69%
No main habitat but additional habitats present.	41.6	0.83%	1.01%	0.2	0.53%	6.21%
Lowland fens.	20.9	0.42%	6.02%	20.0	95.71%	6.14%
Traditional orchard.	3.1	0.06%	3.13%			
Lowland meadows.	1.8	0.04%	0.76%	0.7	38.62%	14.28%
Maritime cliff and slope.	1.5	0.03%	0.96%	1.4	95.09%	93.57%
Purple moor grass and rush pastures.	0.4	0.01%	1.42%	0.0	0.23%	100.00%
Mudflats.	0.4	0.01%	1.82%			

Footnotes

- 1 Area (ha) of land within the LCT.
- 2* Area (ha) of Priority Habitat (PH) within the LCT.
- 3* Percentage of the LCT area, which is classified as Priority Habitat.
- 4^{*} Priority Habitat area within the LCT as a percentage of the Priority Habitat in the SDNP.
- 5 Area (ha) of land within the LCT, which is designated as SSSI.
- 6* Area (ha) of Priority Habitat (PH), which is also designated as SSSI. NB: not all SSSI land is PH, which is why headline figures 5 and 6 differ.

- 7* Area of Priority Habitat (PH), which is also SSSI, as a percentage of PH in the LCT.
- 8* Percentage of the SSSI in the LCT, which is classified as being in Favourable condition.

Top value = all SSSI in favourable condition; then by 'favourable' SSSI also classed as Priority Habitat.

* Figures are given for the whole LCT first, then by Priority Habitat (main) type.

TABLE OF NATURE RECOVERY ACTIONS FOR PRIORITY HABITATS IN TYPE G MAJOR VALLEY SIDES:

The following table is the list of actions for nature recovery by each priority habitat which is included in the mapping in the SDILCA in Type G Major Valley Sides.

Priority habitats	Nature friendly actions to improve and connect existing priority habitats.
Deciduous woodland, hedgerows and woodland edges	Manage vegetation along rides and tracks to increase the range of habitats. Create new meadow strips along woodland edges. Manage and maintain hedgerows, replanting hedgerow trees where they are lost – eg Ash dieback. Allow hedges to grow out at junctions and field corners.
Semi Improved grassland	Increase species diversity of grasslands through management and targeted grazing cycles. Create meadow buffer strips along, ditches, streams and other wetland habitats. Create meadow buffer strips along hedgerows and woodland edges to connect up with other habitats. Monitor and control invasive species.
Calcareous grassland (LCG)	Manage grassland with grazing, cut and collect or cut for hay to improve soil health and species diversity.
Wood pasture and Parkland	Protect veteran trees from browsing. Identify veteran trees and any management for health requirements. Leave dead wood where it is where possible. Replace fallen trees with new plantings at the optimum spacings. Protect new plantings from browsing.
Arable farmland	Create arable margins and pollinator species corridors. Maintain winter cover, feed crops or stubbles.

Priority habitats	Nature friendly actions to improve and connect existing priority habitats.
Ponds	Keep ponds maintained with areas of clear water, tall vegetation on the northside only where possible and ground level access for birds on the south side.
Priority habitats	Actions to restore and create new priority habitats
Deciduous woodland including Ancient Woodland And hedgerows	Manage broadleaved woodland stands to achieve good condition, age and species diversity. Improve woodland connectivity with new plantings/natural regeneration and targeted woodland management. Manage for rides and glades within new woodland areas from the outset. Selectively thin or clear fell plantations on Ancient woodland sites as appropriate and replant with native species or allow natural regeneration to occur. Create new hedgerows along historic lines together with conservation headlands to provide connectivity between other habitats and arable land.
Semi Improved grassland	Increase species diversity through appropriate grazing/hay management and species re-introductions where desirable. Targeted scrub removal where needed.
Calcareous grassland (LCG)	Identify areas of chalk grassland which may have been lost and become scrubbed over. Bring them back into management, targeting those areas which provide greatest habitat connectivity. Manage chalk grassland areas by grazing, cut and collect, or cutting for hay (no inputs). Expand and connect chalk downland areas in combination with opening up woodland with rides and glades and establishing new areas of this habitat through the landscape.

Priority habitats	Actions to restore and create new priority habitats
Wood pasture and Parkland	Create new wood pasture in variety eg grazed parkland or a wooded scrub grassland mosaic approach. Take an agroforestry approach to productive land where appropriate and possible. Target areas for new plantings to create connectivity between habitats and to extend connectivity to adjacent LCTs. Create new wood pasture in variety eg parkland or wooded scrub grassland mosaic approach. Establish optimum grazing management and long-term management plan. Seek expert advice where possible to avoid unintended impacts and loss of biodiversity. This habitat type has an extensive range of species associated with it including many rare UK species that are specific to this habitat.
Ponds	Create new ponds where possible, particularly on farmed land where they will provide additional ecological variety. Design them with farmland birds' needs – ie keep the bank open on the southside for access to the water, and taller plants on the northside and maintain them this way.

SOURCES OF FURTHER INFORMATION

FORESTRY COMMISSION ENGLAND

- South Downs Forest Design Plan
- Climate change: impacts and adaptation in England's woodlands Research Note, Forestry Commission (forestresearch.gov.uk)
- UK Forestry Standard

DEFRA

Environmental land management schemes: overview – GOV.UK (www.gov. uk)

NATURAL ENGLAND

- Carbon Storage and Sequestration by Habitat 2021 NERR094 (naturalengland.org.uk)
- Habitat Networks (England) data.gov.uk
- Habitat Network Mapping Guidance.pdf (defra.gov.uk)

ENVIRONMENT AGENCY

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WOODLAND TRUST

Agroforestry

LANDSCAPE TYPE H

NATURE RECOVERY IN LANDSCAPE TYPE H: WEALDEN RIVER FLOODPLAINS

DESCRIPTION

The Wealden floodplains type are distinct habitat zones created by the periodic flooding of the flat alluvial land alongside the rivers themselves. The source of the Wealden rivers is a mix of surface and ground water, a combination of chalk streams, lower greensand springs and surface runoff of Wealden/Gault clay. The tidal reach of the rivers, the floodplain ditch networks, and adjacent floodplain create a wide variety of saline/freshwater/wetland habitat types leading to an equally wide range of flora and fauna along the valley floor. This variety creates a mosaic of flood plain marsh, ditches, waterside trees and wet woodland, and sometimes narrow river channels (particularly river Rother). The wide floodplain north of the downs at Amberley wildbrooks is internationally important for overwintering birds.

Seasonal flooding (and heavy soils) has generally restricted agricultural activity in the floodplains and they are mostly put to permanent pasture for seasonal livestock grazing. This creates a distinct and uniform character to the valley floors. All of the floodplains have designated biodiversity areas. They form significant parts of the nature recovery network for the SDNP due to their large scale and importance for biodiversity which extend for long lengths within the SDNP and beyond its boundary. Notably few areas of the rivers themselves are included in the priority habitat inventory as priority habitats.

Much of the River Rother in Hampshire is within the **River Rother Biodiversity Opportunity Area (BOA) no 16** and highlights that the majority of the Hampshire Rother Watershed lies on mudstone thus making soils prone to erosion which has a high impact on river ecology. There is a series of wet woodlands and rushy fen meadows between Petersfield and Liss and extending into the adjacent LCT (Type M Wealden Farmland and Heath Mosaic).

BIODIVERSITY OPPORTUNITY AREAS (BOAS) IN THIS LCT:

- Sussex BOA : The Mens Buffer and associated Barbastelle flightlines; Parham to Fittleworth; Western Rother; Stedham, Iping, Woolbeding Crescent; Hampshire Rother Watershed; Houghton to Coldwaltham.
- Hampshire BOA: River Rother.

NATURE RECOVERY AMBITIONS FOR LANDSCAPE TYPE H: WEALDEN RIVER FLOODPLAINS

- Restore the natural function of the floodplains where possible by re-naturalising the river course to increase the health, extent and variety of aquatic & wetland habitats and to provide natural flood management.
- Conserve existing and create new priority habitat through and along the valley floors to increase the connectivity of riparian habitats, wet woodland, flood plain grazing marsh, lowland fen, wet hedges (ditches) in the floodplains, lowland meadow and reedbed (See SDNPA River buffers) to reflect the super-connectivity potential of the floodplains within and beyond the SDNP.
- Maximise the ability of the river floodplains to provide flood storage capacity, reduce soil erosion and through 'slowing the flow' allow the rivers to release silt and pollution.

- Ensure that the historic ditch systems & vegetation within them are regularly maintained on a rotational basis to maximise their habitat value and maintain their flood capacity.
- Work with partners to take action to pre-empt the positive and negative effects on biodiversity of a rising saline wedge in the rivers and floodplains due to climate change.
- Maintain higher water levels in the floodplain later in the year as this would help sustain invertebrate levels and breeding waders which feed on the softer ground. Other standing water features eg scrapes, ponds and swales would help other water birds.
- Consider the catchment scale implications of all actions and continue to work with partners to integrate different sectors and interests in the whole catchment both within and beyond the SDNP.
- Improve the lateral connectivity to the very varied adjacent LCTs across the valley floors (LCT's J Scarp footslopes, M Rother Farmland and Heath Mosaic, N Valley Farmland, O Greensand Hills, L Mixed Farmland and Woodland Vales).
- Create measures to slow the flow of surface water off the land into the rivers to improve river water quality, soil structure and infiltration into the land.
- Keep water on the land by creating leaky dams on drainage ditches and streams and create additional flood water storage with scrapes and swales, and increase the presence of wetland habitats on the lower valley sides.
- Retain long-standing permanent pasture, because of its high soil carbon content, undisturbed soil profiles, and botanical, fungal and invertebrate communities.
- Retention and restoration of hedgerows through appropriate fencing and cutting regimes, promote hedgerow reinstatement and management to increase connectivity in the landscape along new hedgerow corridors.

Increase positive woodland management and establishment for biodiversity benefits & reduce management neglect – the greatest threat to ancient woodland. Use traditional tree management techniques in LCT H such as coppicing/pollarding.

TARGET SPECIES

- Invertebrates including water beetles, rare snails, flies and moths. The varying salinity and Ph of ditches produces a mosaic of habitats which support a wide variety of invertebrates. Flora including crowfoot, hornwort, water dropwort, opposite leaved golden saxifrage
- willow species, alder, oak and hawthorn also establish along the ditch & riverbanks, black poplar, marsh stitchwort.
- Vertebrates Lapwing, redshank, snipe, curlew and black tailed godwit, garganey, reed warbler, nightingale, barn owl, hobby. Over wintering birds such as Bewick's swan, brent geese, wigeon, teal and golden plover. Beaver, otter and water vole. Sea trout, bullhead.

MONITOR AND CONTROL

INVASIVE SPECIES

▶ Giant hogweed, Himalayan balsam, floating pennywort.

TREE PATHOGENS

Follow guidance for management of woodlands.

VULNERABILITY IN LANDSCAPE TYPE H WEALDEN RIVER FLOODPLAINS

HABITATS (OR FIELDSCAPES)

Wetland habitats which extend beyond the valley floor are vulnerable to agricultural improvements. Changes in land use which affect the consistent and distinctive seasonally wetland habitat range would impact on biodiversity and wildlife. Increased drainage of the floodplains for example would have a detrimental effect on the habitat range within them.

The historic ditch systems – or wet hedges (innings) within the river valley floor are vulnerable to silting up and becoming overgrown both of which reduce their distinctive habitat value, but also reduce the flood capacity of the ditch system in the flood plain. The flat open valley floors are distinctive features where the riparian character is reinforced with meandering channels, floodplain meadows, wetland trees, ponds and other wetland habitats.

PERCEPTUAL QUALITIES

The valley floors retain tranquillity, wildness and remote qualities within the wider valleys which vary in size. The floodplain north of the downs at Amberley Brooks for example extends over a large area and is notable for it's natural beauty, the River Rother valley floor in contrast is often narrow and confined to a much smaller area within surrounding arable and mostly farmed land.

ACCESS

Access in this LCT is along the local public footpath network, although riparian access in general is limited (Rotherlands Nature Reserve in Petersfield being an exception to this as well as Pulborough Brooks Nature Reserve (RSPB) on the Arun/Rother floodplain. Increased riparian access is very desirable from a visitor/ PROW user perspective.

HERITAGE

Ancient woodland and associated archaeology, veteran trees, historic hedgerows, parish and other boundary plantings. Historic water management features – eg water meadows, ditches and sluices. Existing natural river courses. The historic (natural) alignment of watercourses where they have been modified. The natural watercourse alignment can be found on historic maps and by studying the soils of the floodplain.

WATER

Changes to seasonal hydrology, salination and pollution are all significant risk factors for the Wealden floodplains. The habitats within the riparian environment are highly susceptible to changes in hydrology due both to climate change and human activity. Water pollution and siltation impede the natural functions of rivers, affecting water quality and subsequently the health of riparian habitats and species. Abstraction, extreme weather events and domestic water demands are all having cumulative impacts on riparian habitats. The Rother is particularly vulnerable to flashing in periods of extreme rainfall and surface water. The power of the water gauges out the river channel making it deeper, less oxygenated and stripped of it's marginal edge vegetation and habitats. It also increases the flow of water downstream which can exacerbate flood events. Significant impact from sewage.

Woodland can benefit upstream flood management and groundwater quality in the right locations refer to EA mapping: **Working with Natural Processes: Map** (jbahosting.com).

CARBON

Floodplain grazing, marsh, wet woodland and lowland fen habitats provide very high levels of soil carbon storage. Woodland, hedgerows and healthy soils are vitally important for sequestering and storing carbon. The push for more tree planting/salt marsh/grazing marsh in response to net zero and pollution & carbon offsetting commitments provides opportunities for expanding the networks of priority habitats and this should be carefully considered (reference the SDNP Woodland Opportunity Mapping for guidance on this and other factors when considering woodland plantings).

PRIORITY HABITATS IN LANDSCAPE TYPE H: WEALDEN RIVER FLOODPLAINS (2036.599 HA)



TABLE SHOWING THE PERCENTAGES OF PRIORITY HABITAT AND SSSI IN LANDSCAPE TYPE H WEALDEN RIVER FLOODPLAINS

LCT H – Wealden River Floodplains	Priority Habitats (PH) in the LCT				SSSI in the LCT: 537.6 (ha)⁵	
2036.6 (ha) ¹	Existing PH	% of LCT	% of Parkwide	PH which is	% of PH which	% of SSSI in
	In LCT ²	% of LCT	PH in LCT⁴	SSSI ⁶	Is SSSI ⁷	favourable state ⁸
Total area (ha) & percentages within the LCT:	1442.3	70.82%	2.04%	502.5	34.84%	30.81%
Coastal and floodplain grazing marsh.	852.0	41.83%	26.61%	175.6	20.61%	2.08%
Good quality semi-improved grassland.	364.7	17.91%	5.80%	288.5	79.11%	50.69%
Deciduous woodland.	158.9	7.80%	0.60%	12.5	7.88%	39.60%
No main habitat but additional habitats present.	42.7	2.10%	1.04%	7.4	17.25%	
Lowland meadows.	14.2	0.70%	6.02%	10.1	71.15%	
Lowland fens.	9.7	0.47%	2.78%	8.4	87.40%	
Traditional orchard.	0.2	0.01%	0.18%			

Footnotes

- 1 Area (ha) of land within the LCT.
- 2* Area (ha) of Priority Habitat (PH) within the LCT.
- 3^* Percentage of the LCT area, which is classified as Priority Habitat.
- 4^{*} Priority Habitat area within the LCT as a percentage of the Priority Habitat in the SDNP.
- 5 Area (ha) of land within the LCT, which is designated as SSSI.
- 6* Area (ha) of Priority Habitat (PH), which is also designated as SSSI. NB: not all SSSI land is PH, which is why headline figures 5 and 6 differ.
- 7* Area of Priority Habitat (PH), which is also SSSI, as a percentage of PH in the LCT.
- 8* Percentage of the SSSI in the LCT, which is classified as being in Favourable condition.

Top value = all SSSI in favourable condition; then by 'favourable' SSSI also classed as Priority Habitat.

* Figures are given for the whole LCT first, then by Priority Habitat (main) type.

TABLE OF NATURE RECOVERY ACTIONS FOR PRIORITY HABITATS IN TYPE H WEALDEN RIVER FLOODPLAINS:

The following table is the list of actions for nature recovery by each priority habitat which is included in the mapping in the SDILCA in Landscape Type H Wealden River Floodplains.

Priority habitats	Nature friendly actions to improve and connect existing habitats.
Semi improved grassland	Increase species diversity of grasslands through management and targeted grazing cycles along the river corridors. Create meadow buffer strips along riverbanks, ditches and other wetland habitats. Create meadow buffer strips along hedgerows and woodland edges to connect up with other habitats. Restore ponds. Monitor and control invasive species.
Coastal and floodplain grazing marsh	Maintain light grazing March- Sept, preferably with cattle to allow plants to flower & provide pollen & nectar. Dung is important for invertebrates but avoid worming livestock on the land and grazing for 10 days afterwards. Clean drainage ditches in rotation so some become almost choked before clearing. Do not over dig ditches & ensure they have shallow sloped edges in some places (cattle will create these if the ditches aren't too deep and steep sided for them). Manage scrub and carr invasion.
Lowland Fen	Lightly graze between May and September to allow plants to flower and set seed. Cut areas which are undergrazed by cattle on advice only. Existing drains and ditches may need clearing occasionally. Maintain scrub cover at 10-20%. No additional drainage work should be undertaken.

Priority habitats	Nature friendly actions to improve and connect existing habitats.
Deciduous	Leave standing or fallen dead wood as habitat for insects and
(wet)	birds.
woodland	Aim for high structural and age diversity through coppicing/ pollarding or selective felling of mature trees (artificial windblow). Manage stock access to allow natural regeneration. Link wet woodland with other wetland habitats – eg ditches, hedgerows, other woodland & trees. No further drainage works.
Rivers & watercourses	Allow standing water to percolate naturally – do not increase drainage of the land.
	Create buffer zones along the river channels to protect bankside vegetation from livestock and control where livestock gain access to the water Control invasive species within the river corridor & take a 'whole river' approach to this.

Priority habitats	Actions to restore and create new habitats	Priority habitats	Actions to restore and create new habitats
Semi improved grassland	Identify key land parcels for arable reversion or management changes where grassland would provide good habitat connectivity. Combine with nutrient neutrality approach to maximise payment options.	Rivers and watercourses	Establish scrapes, ponds and swales to hold water on the land and reduce the water burden during extreme rainfall. Establish berms and shallows within the river to vary flows and aerate the water to provide a variety of watery habitats within the
Coastal and floodplain grazing marsh	Create ponds, berms and shallows, to vary the habitat opportunities within the ditches aim to maintain high water levels throughout the year. Arable reversion may be possible on artificially drained soils where natural hydrology is established within the floodplain, through blocking or reducing previous field drainage. Target fields which provide connectivity with adjacent grazing		river. Manage riverside buffers to maintain species diversity in rotation to vary the height of the buffers for habitat diversity. Restore the river floodplain function by allowing the land to flood naturally which will increase the health, extent and variety of aquatic and wetland habitats whilst also providing flood capacity.
	marsh to build a network for biodiversity. Design a management plan to rotate ditch clearances, to maintain a variety of vegetation heights and densities within the ditches and to lightly graze only between March and September when the grazing marsh is not too wet.		
Lowland Fen	Identify key land parcels for fen restoration where they would provide connectivity to other fen sites. Arable land reversion may qualify for nutrient neutrality payments. Restore existing Fen sites and develop management plans for them. Seek to join up habitats with ditches, headlands, pollinator strips, hedgerow and wet woodland.		
Deciduous woodland including wet woodland	Create new woodland areas where they will support a natural flood management approach within the floodplain by 'slowing the flow' downstream. Areas of new woodland could also provide shaded water areas of the river see 'keeping rivers cool'. Target new plantings where they will provide habitat connectivity		

SOURCES OF FURTHER INFORMATION

FORESTRY COMMISSION ENGLAND

- South Downs Forest Design Plan
- Climate change: impacts and adaptation in England's woodlands Research Note, Forestry Commission (forestresearch.gov.uk)
- **UK Forestry Standard**

DEFRA

Environmental land management schemes: overview – GOV.UK (www.gov. uk)

NATURAL ENGLAND

- Carbon Storage and Sequestration by Habitat 2021 NERR094 (naturalengland.org.uk)
- Habitat Networks (England) data.gov.uk
- Habitat Network Mapping Guidance.pdf (defra.gov.uk)

ENVIRONMENT AGENCY

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LANDSCAPE TYPE I

NATURE RECOVERY IN LANDSCAPE TYPE I: MAJOR SCARPS

DESCRIPTION

The steep scarps in the SDNP are mostly marginal lands for agriculture as they are generally too steep for the plough and are in part usable only for sheep and/or cattle pasture or forestry/woodland. As a result, the major scarps create an almost unbroken narrow tract of BAP Priority Habitats across the length of the National Park, intersecting other major geophysical features such as the major river valleys en route and providing connectivity for nature between the downs and the weald to the north. The scarps are a mosaic of lowland calcareous grassland (largely due to sheep grazing), scrub and broad-leaved woodland including hanger woodlands which support an extensive range of important flora and fauna species. Large areas are designated SSSI and SAC/SPA. The extent and species composition of the lowland calcareous grassland on the major scarps makes them an internationally important resource. The unimproved grassland habitats on the major scarps provide important nectar sources for pollinators. Occasional former chalk pits provide niche habitat areas. The unploughed soils on the major scarps are potentially significantly important for carbon storage, microbiology and connectivity.

BIODIVERSITY OPPORTUNITY AREAS (BOAS) IN THIS LCT:

- Sussex BOAs: Western Escarpment; Central Downs Arun to Adur; Adur to Newtimber including Mill Hill; Stanmer and Ditchling Downs; East Brighton Downs; Seaford to Eastbourne Downs.
- Hampshire BOAs: The East Hampshire Hangars.

NATURE RECOVERY AMBITIONS FOR LANDSCAPE TYPE I: MAJOR SCARPS

Collectively manage the scarp slopes as a parkwide nature and biodiversity resource to maximise their habitat potential and connectivity, raise awareness about how important they are and protect them from unintended harm.

Build on the nature recovery and Lawton based work undertaken for the **South Downs Way Ahead Nature Improvement Area** project.

Target particular areas to create optimum habitat connectivity for adjacent landscapes to enable the scarp slopes to act as a conduit for nature along the length of the National Park.

Adopt and promote zero tolerance for soil disturbance on the scarps. Particularly in relation to woodland management Protect the areas of unploughed soils to maintain carbon stores in them and to conserve microbiology.

Undertake research on carbon and microbiology to more fully understand the scarp soils and to provide evidence for their protection.

Enhance biodiversity on the major scarps using low carbon/low impact based methods for woodland, chalk downland and scrub management, to protect soils and limit the harm due to the access needs of large machinery.

Maximise the ecological value of dew ponds and chalk pits by conserving them and enhancing the range of habitats they offer.

TARGET SPECIES

- Yew woodland, woodland plant species and fungi, woodland birds, bats and dormice.
- Many orchid species, invertebrates including the Adonis, small and chalkhill blue butterflies, old grassland fungi including wax cap assemblages.

MONITOR AND CONTROL

INVASIVE SPECIES

Grey squirrel, deer (fallow and muntjac – browsing damage) sycamore, rhododendron, turkey oak and cherry laurel. Cotoneaster on chalk grassland.

TREE PATHOGENS

▶ In particular ash dieback – follow guidance for management of woodlands.

VULNERABILITY IN LANDSCAPE TYPE I MAJOR SCARPS

HABITATS

Large unenclosed areas along the sloped landscape which form the backbone of the National Park habitat network. A consistent and coordinated management approach along the scarp would over time maximise the habitat value of the scarps and the adjoining land.

Chalk grassland with scrub and nationally scarce juniper is vulnerable to loss due to lack of or inappropriate management.

The mosaic combination of wooded landscape and open chalk downland is hugely valuable for wildlife. Bats, moths etc.

Significant loss of woodland due to ash dieback affecting woodland cover and forestry machinery can cause damage to soils.

PERCEPTUAL QUALITIES

Tranquillity, wildness and remote qualities associated with the steep topography, lack of human activity, rich habitats and presence of wildlife.

ACCESS

Manage recreational pressure around sensitive habitats to limit disturbance to wildlife, soils and habitats. Increase information to visitors about this.

HERITAGE

Ancient semi natural woodland, historic plantings (eg the V plantation at Streat to mark Queen Victoria's Golden Jubilee), historic landscape pattern of unenclosed & unploughed land. Archaeology.

WATER

Dewponds are small oasis for biodiversity in the dry chalk landscape and occur mainly in the eastern section along the top of the scarp. They are human made and need regular maintenance to keep the clay lining intact and to manage aquatic vegetation which can take hold. There is a noted 'spring line' along the foot of the scarp slopes where the chalk geology meets the varied soils of the greensand and weald. Reduce and slow run off along the numerous 'bostal' tracks and roads which provide access to the top of the downs with grips, swales and ditches where possible.

CARBON

The rare untilled soils are vulnerable to disturbance & carbon release from for example infrastructure schemes such as pipelines crossing the chalk ridge, highway improvement

schemes along and over the scarp and large-scale machinery access for forestry activity on the scarp slopes.

WOODLAND, SCRUB

Threats to woodland species from pathogens, climate change, ash die back is a significant risk due to scale of losses and active removals by landowners.

Likely push for more tree planting and natural regeneration in response to net zero commitments but impacts on other priority habitats (eg chalk grassland) to be assessed and managed as part of any woodland scheme.

PRIORITY HABITATS IN LANDSCAPE TYPE I: MAJOR SCARPS (4609.677 HA)



TABLE SHOWING THE PERCENTAGES OF PRIORITY HABITAT AND SSSI IN LANDSCAPE TYPE I MAJOR SCARPS

LCT I – Major Scarps	Priority Habitats (PH) in the LCT				SSSI in the LCT: 2345.6 (ha)⁵		
4609.7 (ha) ¹	Existing PH	% of LCT	% of Parkwide	PH which is	% of PH which	% of SSSI in	
	In LCT ²	% of LCT	PH in LCT⁴	SSSI ⁶	Is SSSI ⁷	favourable state ⁸	
Total area (ha) & percentages within the LCT:	3950.5	85.70%	8.32%	2303.3	58.31%	55.77%	
Deciduous woodland.	2138.2	46.39%	8.06%	1098.2	51.36%	75.77%	
Lowland calcareous grassland.	1444.0	31.32%	26.67%	1097.6	76.01%	37.58%	
No main habitat but additional habitats present.	152.4	3.31%	3.71%	22.0	14.46%	44.75%	
Good quality semi-improved grassland.	120.3	2.61%	1.91%	5.2	4.31%	88.20%	
Lowland meadows.	56.6	1.23%	24.06%	41.5	73.36%	37.04%	
Maritime cliff and slope.	38.8	0.84%	24.33%	38.7	99.90%	27.36%	
Lowland dry acid grassland.	0.2	0.00%	0.29%	0.1	54.41%	100.00%	
Traditional orchard.	0.1	0.00%	0.08%				

Footnotes

- 1 Area (ha) of land within the LCT.
- 2* Area (ha) of Priority Habitat (PH) within the LCT.
- 3* Percentage of the LCT area, which is classified as Priority Habitat.
- 4^{*} Priority Habitat area within the LCT as a percentage of the Priority Habitat in the SDNP.
- 5 Area (ha) of land within the LCT, which is designated as SSSI.
- 6* Area (ha) of Priority Habitat (PH), which is also designated as SSSI. NB: not all SSSI land is PH, which is why headline figures 5 and 6 differ.
- 7* Area of Priority Habitat (PH), which is also SSSI, as a percentage of PH in the LCT.
- 8* Percentage of the SSSI in the LCT, which is classified as being in Favourable condition.

Top value = all SSSI in favourable condition; then by 'favourable' SSSI also classed as Priority Habitat.

* Figures are given for the whole LCT first, then by Priority Habitat (main) type.

TABLE OF NATURE RECOVERY ACTIONS FOR PRIORITY HABITATS IN TYPE I MAJOR SCARPS

The following table is the list of actions for nature recovery by each priority habitat which is included in the mapping in the SDILCA in Landscape Type I Major Scarps.

Priority habitats	Actions to restore and create new habitats
Deciduous	Manage broadleaved woodlands to achieve good condition,
woodland	age and species diversity.
including	Improve woodland connectivity with new plantings/natural
Ancient	regeneration and targeted woodland management.
Woodland	Manage and protect the ancient yew woodlands.
rrooulullu	Record veteran trees and maintain a planting buffer around them.
Semi Improved	Increase species diversity through appropriate management and
grassland	species re-introductions where desirable.
	Targeted scrub removal to improve connectivity between sites.
Calcareous	Manage chalk grassland areas and seek to expand and connect
grassland	in combination with opening up woodland through rides and
(LCG)	glades. NB: Much of the scarp slope is designated SSSI and
	management changes should be agreed with NE.

Priority habitats	Nature friendly actions to improve and connect existing habitats.
Deciduous	Manage vegetation along rides and tracks to increase the
woodland	biodiversity value of woodland edge habitats.
	Record veteran trees.
	Leave deadwood where safe to do so.

Priority habitats	Nature friendly actions to improve and connect existing habitats.
Semi Improved	Increase species diversity ofgrasslands through appropriate
grassland &	management and targeted grazing cycles and through targeted
Calcareous	scrub removal.
grassland	Create meadow buffer strips along woodland edges to connect
	up areas of habitat.
	Manage grassland grazing for improving soil health and species
	diversity.

SOURCES OF FURTHER INFORMATION

FORESTRY COMMISSION ENGLAND

- South Downs Forest Design Plan
- Climate change: impacts and adaptation in England's woodlands Research Note, Forestry Commission (forestresearch.gov.uk)

DEFRA

Environmental land management schemes: overview – GOV.UK (www.gov. uk)

NATURAL ENGLAND

- Carbon Storage and Sequestration by Habitat 2021 NERR094 (naturalengland.org.uk)
- Habitat Networks (England) data.gov.uk
- Habitat Network Mapping Guidance.pdf (defra.gov.uk)

LANDSCAPE TYPE J

NATURE RECOVERY IN LANDSCAPE TYPE J: SCARP FOOTSLOPES

DESCRIPTION

The varied soils of this LCT create an irregular and undulating topography with a range of field types surrounded by a network of woodland, hedgerows and streams which spring from the chalk/clay joint along the foot of the scarp. Unlike the adjacent steep scarp slope, the Scarp Footslopes are areas of agricultural production, and this area has been settled for millennia. The predominant priority habitat in the Scarp Footslopes is deciduous woodland with some isolated areas of species rich unimproved grassland. The wooded hedgerow network provides good connectivity across the landscape but opportunities to enhance the grassland connectivity should be sought with further lowland meadow and chalk downland restoration. Connectivity could also be provided by strategically placed headlands, pollinator strips and winter-feeding zones for farmland birds as the scarp footslopes are an important habitat area for them. This LCT drains to the north by the series of springline watercourses formed at the bottom of the scarp slope. These watercourses create wet habitats and further connectivity opportunities to the weald beyond the SDNP boundary.

BIODIVERSITY OPPORTUNITY AREAS IN THIS LCT:

- Sussex BOAs: Lower Arun Watershed; Woodsmill Stream to Adur; Stanmer and Ditchling Downs; Seaford to Eastbourne Downs.
- Hampshire BOAs: none.

NATURE RECOVERY AMBITIONS FOR LANDSCAPE TYPE J: SCARP FOOTSLOPES

Maximise the connectivity between the areas of existing woodland priority habitat through new plantings or by allowing natural regeneration. Bring unmanaged areas of woodland into management for species and age diversity.

Improve the connectivity of habitats between the LCT and the adjacent scarp slope in order to extend the core nature 'backbone' of the SDNP.

Plant new areas of wooded pasture to provide woodland connectivity across grazing land and develop an agroforestry approach to arable production with interested landowners.

Create new areas of lowland meadow & chalk downland through arable reversion particularly at the scarp foot and improve existing remnant grassland areas through appropriate management – extensive grazing, or hay cutting with no inputs.

Maximise the ecological potential of streams, watercourses and waterbodies by creating buffer areas around them for wildlife habitat with tree planting where appropriate to shade the water and 'keep it cool'.

Restore natural hydrology and watercourse alignment of stream and watercourse corridors to maximise the upper catchment benefits to wildlife, water quality and downstream flood management.

Create new or restore existing ponds and increase the water holding capacity of the land through creating new scrapes, swales and wetlands where these will help to slow the flow of flood waters as some of these footslope areas are on heavy clay soils that become saturated in winter, new ponds and storage areas may help.

Increase the habitat potential of arable land for farmland birds by providing winter cover, feed crops, or stubble.

Maximise the connectivity offered by hedgerows by combining headlands, pollinator strips and other targeted measures alongside them to increase the range of habitats. Allow hedgerows to grow out at field corners.

Work at a landscape scale to connect with habitats beyond the SDNP boundary – particularly focusing on the watercourses and catchment-based approaches.

TARGET SPECIES.

- Woodland plant species and fungi, woodland birds, bats and dormouse.
- Many orchid species, invertebrates including the Adonis, small and chalkhill blue butterflies, old grassland fungi including wax cap assemblages.
- Farmland birds.

MONITOR AND CONTROL

INVASIVE SPECIES

- Grey squirrel, deer (fallow and muntjac browsing damage), rhododendron, turkey oak and cherry laurel. Cotoneaster on chalk grassland.
- > Himalayan balsam is also a big problem along streams and ditches in this area.

TREE PATHOGENS

In particular ash dieback – follow guidance for management of woodlands.

VULNERABILITY IN LANDSCAPE TYPE J SCARP FOOTSLOPES

HABITATS

Large modern arable fields at the bottom of the scarp slope have the potential to limit habitat connectivity from the scarp slope due to their management as a monoculture and their extent in the LCT. In addition, the loss of species rich grasslands in this LCT has restricted habitat connectivity to the nationally important scarp slope habitats and it would be beneficial to re-establish these connections through strategic arable reversion schemes, particularly those along stream corridors.

The mosaic combination of mainly woodland and hedgerow, with wetlands, and pasture is valuable for wildlife. Arable land is potentially valuable for farmland birds when appropriate management regimes are used.

PERCEPTUAL QUALITIES

Tranquillity, wildness and remote qualities associated with the undulating topography creating a sense of enclosure are vulnerable to pressure for development, traffic on rural roads and land use changes.

ACCESS

There is very limited accessible natural greenspace within this LCT, although most of it is within the access buffer (1 km) for open access land on the scarp slope. However, the steep topography of the scarp could limit accessibility of this land for many users. In addition, having limited access to natural greenspace along the scarp foot puts pressure on sensitive sites on the scarp slope.

HERITAGE

Ancient semi natural woodland, historic landscape parks containing wood pasture and consistent management over centuries, medieval field patterns which are valuable for

hedged boundaries, historic water course alignment which is altered to 'improve' the land.

WATER

There is a noted 'spring line' along the foot of the scarp slopes where the chalk geology meets the impermeable clay and mudstone soils of the weald. The watercourses which flow northwards through the LCT and beyond the SDNP boundary are vulnerable in habitat terms to pollution and extremes of drought and flood which affect the resilience of existing habitats. Also, modern modifications to their alignment will have an impact on habitats.

CARBON

Woodland, hedgerows and soils are vitally important for sequestering and storing carbon.

There are existing threats to native woodland species from pathogens, and climate change impacts so woodland replacement and additional plantings are targeted. Threats to woodland species from pathogens, climate change, ash die back is a significant risk due to scale of losses and active removals by landowners.

The push for more tree planting and natural regeneration in response to net-zero and pollution offsetting commitments could affect the opportunities for expanding the networks of other priority habitats and this should be carefully considered – reference the SDNP **Woodland Opportunity Mapping** for guidance on this and other factors when considering woodland plantings.

PRIORITY HABITATS IN LANDSCAPE TYPE J: SCARP FOOTSLOPES (9802.473 HA)



TABLE SHOWING THE PERCENTAGES OF PRIORITY HABITAT AND SSSI IN TYPE J SCARP FOOTSLOPES

LCT J – Scarp Footslopes	Priority Habitats (PH) in the LC				SSSI in the LCT: 163.2 (ha)⁵		
9802.5 (ha) ¹	Existing PH	% of LCT	% of Parkwide	PH which is	% of PH which	% of SSSI in	
	In LCT ²	% of LCT	PH in LCT⁴	SSSI ⁶	Is SSSI ⁷	favourable state ⁸	
Total area (ha) & percentages within the LCT:	1224.3	12.49%	2.58%	146.0	11.93 %	79.80 %	
Deciduous woodland.	825.2	8.42%	3.11%	35.9	4.36%	72.67%	
Good quality semi-improved grassland.	156.8	1.60%	2.50%	4.9	3.15%	24.61%	
No main habitat but additional habitats present.	139.1	1.42%	3.39%	77.1	55.40%	99.79%	
Lowland calcareous grassland.	64.4	0.66%	1.19%	15.8	24.52%	10.74%	
Coastal and floodplain grazing marsh.	13.1	0.13%	0.41%	0.6	4.53%	22.35%	
Lowland meadows.	8.9	0.09%	3.79%	4.1	45.49%	69.30%	
Lowland dry acid grassland.	7.6	0.08%	12.32%	7.6	99.98%	100.00%	
Traditional orchard.	6.9	0.07%	7.09%				
Reedbeds.	1.1	0.01%	22.80%				
Lowland fens.	1.1	0.01%	0.32%				

Footnotes

- 1 Area (ha) of land within the LCT.
- 2* Area (ha) of Priority Habitat (PH) within the LCT.
- 3* Percentage of the LCT area, which is classified as Priority Habitat.
- 4^{*} Priority Habitat area within the LCT as a percentage of the Priority Habitat in the SDNP.
- 5 Area (ha) of land within the LCT, which is designated as SSSI.
- 6* Area (ha) of Priority Habitat (PH), which is also designated as SSSI. NB: not all SSSI land is PH, which is why headline figures 5 and 6 differ.
- 7* Area of Priority Habitat (PH), which is also SSSI, as a percentage of PH in the LCT.

8* Percentage of the SSSI in the LCT, which is classified as being in Favourable condition.

Top value = all SSSI in favourable condition; then by 'favourable' SSSI also classed as Priority Habitat.

* Figures are given for the whole LCT first, then by Priority Habitat (main) type.
TABLE OF NATURE RECOVERY ACTIONS FOR PRIORITY HABITATS IN TYPE J SCARP FOOTSLOPES:

The following table is the list of actions for nature recovery by each priority habitat which is included in the mapping in the SDILCA in Landscape Type J Scarp Footslopes.

Priority habitats	Actions to restore and create new habitats
Deciduous woodland including Ancient Woodland & hedgerows	Manage broadleaved woodlands to achieve good condition, age and species diversity. Improve woodland connectivity with new plantings/natural regeneration and targeted woodland management. Manage and protect the ancient yew woodlands. Record veteran trees and maintain a planting buffer around them.
Wood Pasture and Parkland	Create new wood pasture from arable reversion. Establish optimum grazing management and long term management plan. Identify veteran trees and any management for health requirements. Protect veteran trees from browsing. Leave dead wood where it is. Replace fallen trees with new plantings at the optimum spacings. Protect new plantings from browsing. Create new wood pasture in variety eg parkland or wooded scrub grassland mosaic approach. Seek expert advice where possible to avoid unintended impacts and loss of biodiversity. This habitat type has an extensive range of species associated with it including many rare UK species that are specific to this habitat.

Priority habitats	Actions to restore and create new habitats
Semi Improved	Increase species diversity through appropriate management and
grassland	species re-introductions where desirable.
	Targeted scrub removal to improve connectivity between sites.
	Create new meadows and wildflower areas where they will
	provide the greatest connectivity.
	Link new areas of meadow with headlands, pollinator strips and winter cover to create a network for wildlife.
Calcareous	Manage existing chalk grassland areas and seek to create new
grassland(LCG)	chalk downland areas which provide connectivity to the scarp
	slope habitats in particular.
Rivers	Restore the natural alignment of watercourse where they have
streams and	been modified.
watercourses	Create swales, scrapes and leaky dams to retain water on the
	land and to aid infiltration.
	
Priority habitats	Nature triendly actions to improve and connect existing habitats.
Deciduous	Manage vegetation along rides and tracks to increase the
woodland &	biodiversity value of woodland edge habitats.
hedgerows	Record veteran trees.
	Leave deadwood where safe to do so.
	Manage existing woodland for age and species diversity.
	Create butter strips and headlands along hedgerows and
	woodlands.

Priority habitats	Nature friendly actions to improve and connect existing habitats.
Semi Improved grassland & Calcareous grassland (LCG)	Increase species diversity of grasslands through appropriate management and targeted grazing cycles and through targeted scrub removal. Create meadow buffer strips along woodland edges to connect up areas of habitat. Manage grassland grazing for improving soil health and species diversity.
Rivers Streams and watercourses	Create buffers along watercourses to limit access by livestock and to allow a variety of waterside and meadow vegetation to establish and flower. Do not install new drains. Manage existing ditches by rotation to allow a range of vegetation heights and types to be present in the landscape. Manage wetland areas as for grazing marsh and restrict livestock access during September to March. Do not overgraze/ over stock.
Wood pasture	Protect veteran trees from browsing. Leave dead wood where it is. Replace fallen trees with new plantings at the optimum spacings. Protect new plantings from browsing. Establish optimum grazing pattern (species/density/timings) for biodiversity. Take expert advice where possible to avoid unintended impacts and loss of biodiversity– this habitat type has an extensive range of species associated with it and many rare species are only known in the UK in this habitat

SOURCES OF FURTHER INFORMATION

FORESTRY COMMISSION ENGLAND

- South Downs Forest Design Plan
- Climate change: impacts and adaptation in England's woodlands Research Note, Forestry Commission (forestresearch.gov.uk)

DEFRA

Environmental land management schemes: overview – GOV.UK (www.gov. uk)

NATURAL ENGLAND

- Carbon Storage and Sequestration by Habitat 2021 NERR094 (naturalengland.org.uk)
- Habitat Networks (England) data.gov.uk
- Habitat Network Mapping Guidance.pdf (defra.gov.uk)

LANDSCAPE TYPE K

NATURE RECOVERY IN LANDSCAPE TYPE K: GREENSAND TERRACE

DESCRIPTION

This is a linear and undulating LCT which sits at the Scarpfoot in the western part of the SDNP. It is a fertile terrace which supports arable production within a rich matrix of woodland, wooded hedges, deep cut stream ravines and sunken lanes. There are remnant areas of species rich grasslands and chalk downland. Many rivers and streams issue from the scarp foot and flow across this LCT to the north into the weald and there are opportunities to increase the connectivity and habitat value of the watercourses and their corridors from the scarpfoot. Distinctive woodland types such as wet woodland or carr woodland associated with streams, rivers and wet areas are present together with ancient hangar woodland of yew, beech, and ash which grows on the steep slopes of the LCT where the soils historically have never been cultivated.

This LCT has a dense hedgerow network which provides good connectivity in the landscape, particularly where the field pattern is historic and fields have always been pasture.

Land in arable production is important habitat for farmland birds where it is managed sympathetically for them. Road verges and the banks of sunken lanes provide additional habitat areas of interest.

Part of the LCT is within the **East Hampshire Hangars Biodiversity Opportunity Area (08)** and the BOA description highlights the range of woodland types (Hangars) found across the area much of which would have historically been managed by pollarding or coppice. The distinctive, rich ground flora which exists in the woodlands is also important. The network of woodland is heavily designated, some at European level and there are important links to the adjoining major scarp LCT – the East Hampshire hangars.

BIODIVERSITY OPPORTUNITY AREAS (BOAS) IN THIS LCT:

- Sussex BOAs: Western Escarpment.
- Hampshire BOAs: East Hampshire Hangers.

NATURE RECOVERY AMBITIONS FOR LANDSCAPE TYPE K: GREENSAND TERRACE

- Increase positive woodland management for biodiversity benefits & reduce management neglect – the greatest threat to ancient woodland.
- Increase connectivity between ancient woodland through targeted management of existing (coniferous and plantation) woodlands, woodland and hedgerow plantings natural regeneration and woodland creation.
- Create open areas within woodlands to encourage species rich grassland habitat particularly on archaeological sites. Connect grassland areas through widening rides through woodland and managing them appropriately.
- Seek to encourage the creation of new and better management for existing species rich grassland, for pollinators, bats and birds linking to other semi natural habitats.
- Promote hedgerow reinstatement and management to increase connectivity in the landscape along new hedgerow corridors.
- > Create and manage headlands for maximum biodiversity benefits and connectivity.

- Where possible (and financially viable) manage chalk downland and species rich grassland with regular grazing. Alternatively, where grazing isn't possible use a 'cut and collect' machine intermittently to mimic grazing or cut for hay using no inputs. Investigate new/old markets and business models for livestock grazing eg sheep walk (fertilizer) and wool path base reinforcement.
- Increase habitat for farmland birds like, lapwing, skylark, corn bunting, grey partridge, and turtle dove. Create nesting habitat, which is safe from cultivation late into the summer, use buffer strips, conservation headlands and seed rich wild bird cover crops to provide food. Spray and cultivate stubbles as late as possible.
- Create pollinator strips in arable fields to support invertebrate populations.
- Create streamside corridors of natural habitat as a buffer to other land uses and to increase the range of habitats in close proximity to watercourses. Manage the use of watercourses by livestock. Work to connect these river buffers to the network of headlands, hedgerows and woodlands in the LCT to increase overall connectivity for nature.
- Monitor and control invasive species particularly within the watercourses.
- Include the sunken lanes and road verges in any nature recovery project work and ensure that these distinctive features are protected and enhanced.

TARGET SPECIES

- Woodland plant species, including yew, beech and ash, lichens, fungi, white helleborine, narrow leaved helleborine, broad-leaved helleborine, and bird's-nest orchid.
- Breeding birds moths and butterflies, barn owl, nightingale, turtle dove, 14 bat species (especially barbastelle and Bechstein's), native bluebell, tawny owl, dormouse, hedgehog.
- Assemblages of vascular plants, bryophytes, birds and invertebrates found in the Hanger Woodland and stream ravines.

CHALK DOWNLAND SPECIES:

Many orchid species, juniper,100's of invertebrates including the Adonis, small and chalk hill blue butterflies, old grassland fungi including wax cap assemblages, reptiles such as adder and viviparous lizard.

Arable areas in the Greensand terrace are important nesting and feeding areas for farmland birds eg corn bunting, turtle dove, lapwing, skylark, grey partridge.

MONITOR AND CONTROL

INVASIVE SPECIES

Grey squirrel, deer (fallow and muntjac), rhododendron, snowberry, turkey oak and cherry laurel. Himalayan balsam, giant hogweed and floating pennywort in wetland areas.

TREE PATHOGENS

Follow guidance for management of woodlands.

VULNERABILITY IN LANDSCAPE TYPE K GREENSAND TERRACE

HABITATS (OR FIELDSCAPES)

Large areas of Ancient Woodland, including the distinctive hanger woodland and more recent plantation woodland. Occasional areas of species rich grassland, grazing marsh and wetland assemblages along the streams and river corridors. Connectivity with the scarp slopes is in part compromised due to the loss of species-rich grassland and chalk downland on the Greensand terrace with a lot of this LCT given over to arable farming. The connectivity along the river and stream corridors are also important to the north and on into the Wealden areas. Also, the thick and wooded hedgerows which are so valuable for connectivity in this LCT.

PERCEPTUAL QUALITIES

Tranquillity, wildness and remote qualities within the undulating small-scale mosaic of woodland, thick hedgerows and pasture fields. Woodland around pasture and arable fieldscapes creates an enclosed landscape in places with restricted views, more open with extensive views in other areas, often in the more elevated locations.

ACCESS

Although there is a reasonable PROW network in this LCT there is minimal accessible natural greenspace in this LCT and no common land or open access land, Adjoining LCTs have greenspace which buffer into this LCT.

HERITAGE

There are many aspects of historic landscape in this character type all of which are vulnerable to land use change and changes in land management.

Ancient Woodland & woodland archaeology; woodland hangers, steep sided stream valleys/ ravines and sunken lanes with important ecology. Historic field enclosures associated with permanent pasture.

WATER

This LCT has a dense network of rivers and streams in stark contrast to the dry chalk ridge to the south. Erosion and pollution of the watercourses are key issues in these upper catchment watercourses, together with the need to hold water on the land and in the rivers higher up in the catchments to aid downstream flood management as well as soil health. Woodland can benefit upstream flood management and groundwater quality in the right locations refer to EA mapping: **Working with Natural Processes: Map** (jbahosting.com).

CARBON

Woodland, hedgerows and soils are vitally important for sequestering and storing carbon.

There are existing threats to native woodland species from pathogens, and climate change impacts so woodland replacement and additional plantings are desirable.

The push for more tree planting in response to net zero and pollution offsetting commitments should maximise the opportunities for expanding the networks of other priority habitats as well and this should be carefully considered – reference the SDNP Woodland Opportunity Mapping for guidance on this and other factors when considering woodland plantings.

0.15% 12.393 Other PH 9.03% 760.833 0.08% 6.879 1.07% 89.991 0.46% 38.931 0.29% 24.04 0.11% 8.976 0.07% 4.742 88.90% 7486.046 0.01% 0.771 0.01% 0.001 Lowland Calcareous grassland Deciduous woodland Traditional orchard Good quality semi-improved grassland Lowland meadows Other No main habitat but additional habitats present Non-priority Habitat Purple moor grass and rush pastures Coastal and floodplan grazing marsh Lowland dry acid grassland

PRIORITY HABITATS IN LANDSCAPE TYPE K: GREENSAND TERRACE (8421.211 HA)

TABLE SHOWING THE PERCENTAGES OF PRIORITY HABITAT AND SSSI IN LANDSCAPE TYPE K GREENSAND TERRACE

LCT K – Greensand Terrace		Priority Habita	ts (PH) in the LCT		SSSI in the	e LCT: 191.3 (ha)⁵
8421.2 (ha) ¹	Existing PH	% of LCT	% of Parkwide	PH which is	% of PH which	% of SSSI in
	In LCT ²	% of LCT	PH in LCT⁴	SSSI ⁶	Is SSSI ⁷	favourable state ⁸
Total area (ha) & percentages within the LCT:	935.2	11.10%	1.97 %	180.6	19.31 %	93.29 %
Deciduous woodland.	760.8	9.03%	2.87%	167.5	22.01%	96.58%
Good quality semi-improved grassland.	90.0	1.07%	1.43%	0.6	0.64%	92.96%
No main habitat but additional habitats present.	38.9	0.46%	0.95%	6.8	17.51%	72.77%
Coastal and floodplain grazing marsh.	24.0	0.29%	0.75%	0.0	0.04%	100.00%
Traditional orchard.	9.0	0.11%	9.18%	0.0	0.03%	
Lowland calcareous grassland.	6.9	0.08%	0.13%	1.0	14.50%	52.10%
Lowland meadows.	4.7	0.06%	2.02%	4.7	100.00%	30.02%
Purple moor grass and rush pastures.	0.8	0.01%	2.53%			

Footnotes

- 1 Area (ha) of land within the LCT.
- 2* Area (ha) of Priority Habitat (PH) within the LCT.
- 3* Percentage of the LCT area, which is classified as Priority Habitat.
- 4^{*} Priority Habitat area within the LCT as a percentage of the Priority Habitat in the SDNP.
- 5 Area (ha) of land within the LCT, which is designated as SSSI.
- 6* Area (ha) of Priority Habitat (PH), which is also designated as SSSI. NB: not all SSSI land is PH, which is why headline figures 5 and 6 differ.
- 7* Area of Priority Habitat (PH), which is also SSSI, as a percentage of PH in the LCT.
- 8* Percentage of the SSSI in the LCT, which is classified as being in Favourable condition.

Top value = all SSSI in favourable condition; then by 'favourable' SSSI also classed as Priority Habitat.

* Figures are given for the whole LCT first, then by Priority Habitat (main) type.

TABLE OF NATURE RECOVERY ACTIONS FOR PRIORITY HABITATS IN LANDSCAPE TYPE K GREENSAND TERRACE:

The following table is the list of actions for nature recovery by each priority habitat which is included in the mapping in the SDILCA in Landscape Type K Greensand Terrace.

Priority habitats	Nature friendly actions to improve and connect existing habitats.
Deciduous woodland and hedgerows	Manage broad leaved woodlands for species and age diversity and resilience. Manage vegetation along rides and tracks to increase the range of habitats. Create new meadow buffer strips along woodland edges. Manage and maintain hedgerows, replanting hedgerow trees and new hedgerows to improve and connect the hedgerow network. Allow hedges to grow out at junctions and field corners.
Semi Improved grassland	Increase species diversity of grasslands through management and targeted grazing cycles. Create meadow buffer strips along hedgerows and woodland edges to connect up with other habitats.
Calcareous grassland (LCG)	Manage grassland with grazing for improving soil health and species diversity.
Wood pasture and Parkland	Protect veteran trees from browsing. Identify veteran trees and any management for health requirements. Leave dead wood where it is. Replace fallen trees with new plantings at the optimum spacings. Protect new plantings from browsing. Take an Agroforestry approach to productive land.

Priority habitats	Nature friendly actions to improve and connect existing habitats.
Arable farmland	Create arable margins and pollinator species corridors. Maintain winter cover, feed crops or stubbles. (Not a priority habitat but can be valuable for farmland biodiversity).
Rivers & watercourses	Allow standing water to percolate naturally – do not increase drainage of the land. Create buffer zones along the river channels to protect bankside vegetation from livestock and control where livestock gain access to the water. Control invasive species within the river corridor & take a 'whole river' approach to this(rivers and watercourses are often not a priority habitat, but they play a large role in nature recovery).
Priority	Actions to restore and create new babitate
habitats Deciduous	Manage broadleaved woodlands to achieve good condition, age

Deciduous	Manage broadleaved woodlands to achieve good condition, age
woodland	and species diversity.
including	Improve woodland connectivity with new plantings/natural
Ancient	regeneration and targeted woodland management.
Woodland	Manage and protect the ancient yew woodlands & use new woodland plantings to create buffers around them
and	Create/restore new hedgerows and conservation headlands
Hedgerows	to connect up habitats beyond arable land. Follow historic field
	patterns and avoid straight lines within the landscape.
Semi	Increase species diversity through appropriate grazing/hay
Improved	management and species re-introductions where desirable.
grassland	Targeted scrub removal where needed.

Priority habitats	Actions to restore and create new habitats
Calcareous grassland (LCG)	Manage chalk grassland areas and seek to expand and connect them in combination with opening up woodland with rides and glades and establishing new areas of this habitat which extend connectivity from the scarp slope.
Wood pasture and Parkland	Create new wood pasture in variety eg parkland or wooded scrub grassland mosaic approach. Establish optimum grazing management and long-term management plan. Seek expert advice where possible to avoid unintended impacts and loss of biodiversity. This habitat type has an extensive range of species associated with it including many rare UK species that are specific to this habitat.
Arable farmland	Create plots of wild seed bird mixture to support farmland bird populations. Create permanent arable margins and pollinator species corridors. Consider opportunities for agroforestry. (This is not a priority habitat but can be valuable for farmland biodiversity).
Rivers watercourses and ponds	Establish scrapes, ponds and swales to hold water on the land and reduce the water burden during extreme rainfall. Create berms and shallows within the river to vary flows and aerate the water to provide a variety of watery habitats within the river. Manage riverside buffers to maintain species diversity in rotation to vary the height of the buffers for habitat diversity. Restore the river floodplain function by allowing the land to flood naturally which will increase the health, extent and variety of aquatic and wetland habitats whilst also providing flood capacity. Restore existing and create new ponds, particularly in turtle dove taraeted zones.

SOURCES OF FURTHER INFORMATION

FORESTRY COMMISSION ENGLAND

- South Downs Forest Design Plan
- Climate change: impacts and adaptation in England's woodlands Research Note, Forestry Commission (forestresearch.gov.uk)
- UK Forestry Standard

DEFRA

Environmental land management schemes: overview – GOV.UK (www.gov.uk)

NATURAL ENGLAND

- Carbon Storage and Sequestration by Habitat 2021 NERR094 (naturalengland.org.uk)
- Habitat Networks (England) data.gov.uk
- Habitat Network Mapping Guidance.pdf (defra.gov.uk)

ENVIRONMENT AGENCY

Working with Natural Processes mapping

WOODLAND TRUST

Agroforestry

LANDSCAPE TYPE L

NATURE RECOVERY IN LANDSCAPE TYPE L: MIXED FARMLAND AND WOODLAND VALES

DESCRIPTION

The Mixed farmland and Woodland Vale LCT sits alongside the Greensand Terrace LCT from the river Arun westwards to follow the river Rother valley as it turns northwards at Petersfield. The vale or valley is predominantly lowland mixed agricultural use which reflects the heavy clay (mudstone) soils which typify this LCT. The heavy soils are hard to work and. some of the valley is classed as marginal land for agriculture. These typically wet areas are important to conserve and manage for biodiversity. The mixed use of the area for pasture, arable, woodland (typically coppice and pollarding), occasional traditional orchards and wood pasture has led to a varied landscape type with a strong ancient wooded and hedgerow framework. The area has good connectivity for nature although does not have large areas which are nationally designated for nature. There are areas of the LCT which are historic fieldscapes and in some cases date back to the medieval period. These intact and uncultivated lands are valuable to protect for nature, soil health, carbon and micro-organism assemblages which are becoming more widely understood and valued.

The impervious nature of the clay soil means that there are valuable wetland habitats present, and there are opportunities to create more and extend existing wetland habitats through changes in land use/management and by restricting drainage – eg Lowland fen, lowland meadow, grazing marsh, wet woodland, and reedbed habitats. Retaining water on the land for longer would help protect the fragile mudstone soils which are

so vulnerable to erosion which results in carbon loss and impacts on water quality and ecology in the many rivers and streams in this LCT which feed into the Rother. There are areas of species rich grassland and flood plain grazing marsh in this LCT which are important for a wide range of biodiversity.

BIODIVERSITY OPPORTUNITY AREAS (BOAS) IN THIS LCT:

- Sussex BOAs: Western Rother; Stedham, Iping, Woolbeding Crescent and Barlavington, Coates and Rother, Hampshire Rother Watershed.
- Hampshire BOAs: Rother Valley.

NATURE RECOVERY AMBITIONS FOR LANDSCAPE TYPE L: MIXED FARMLAND AND WOODLAND VALE

- Retention and restoration of hedgerows through appropriate fencing, layering and cutting regimes, promote hedgerow reinstatement and management to increase connectivity in the landscape along new hedgerow corridors.
- Seek to encourage the creation of new and better management for existing species rich grassland, for pollinators, bats and birds linking to other semi natural habitats.
- Re naturalise the water courses to increase the health, extent and variety of aquatic & wetland habitats and to provide natural flood management.

- Retain water on the land to enhance biodiversity through wetland creation and also slow surface water run off which in turn will help with reducing soil erosion, water quality and river ecology.
- Conserve existing and create new priority habitat through and along the stream corridors to increase the connectivity of wetland and riparian habitats, wet woodland, flood plain grazing marsh, lowland fen, lowland meadow and reedbed. (See SDNPA River buffers) to reflect the super-connectivity potential of the watercourse within and beyond the SDNP.
- Keep water on the land by creating leaky dams on drainage ditches and streams, create additional flood water storage with scrapes and swales, and increase the presence of wetland habitats in the LCT. Conversely do no new drainage.
- Identify and map existing species rich grassland types eg lowland meadow, floodplain grazing marsh, Lowland fen and improve the management of these areas to ensure species diversity. Ensure that management of these areas is done on rotation to maintain different sward heights to support a wider range of invertebrates and birds.
- Consider the (Rother) catchment scale implications of all actions and continue to work with partners to integrate different sectors and interests in the whole catchment both within and beyond the SDNP.
- Retain long-standing permanent pasture, because of its high soil carbon content, undisturbed soil profiles, and botanical, fungal and invertebrate communities.
- Increase positive woodland management for biodiversity benefits & reduce management neglect –the greatest threat to ancient woodland. Coppice and pollarding are typical management techniques in this LCT.
- Increase habitat for farmland birds like lapwing, skylark, corn bunting, grey partridge, and turtle dove. Create nesting habitat which is safe from cultivation late into the summer, use buffer strips, conservation headlands and seed rich wild bird cover crops to provide food. Spray and cultivate stubbles as late as possible.

- Create pollinator strips in arable fields to support invertebrate populations.
- Create streamside corridors of natural habitat as a buffer to other land uses and to increase the range of habitats in close proximity to watercourses. Manage the use of watercourses by livestock. Work to connect these streamside buffers to the network of headlands, hedgerows, woodlands and semi natural grasslands in the LCT to increase overall connectivity for nature.
- Restore and manage existing semi-improved grassland through extensive grazing or cutting for hay with no inputs to increase species diversity in the sward, improve soil health and biodiversity.
- Restore and manage areas of floodplain grazing marsh and graze only between March and September.
- Aim to create a wetland network with grazing marsh, streams and waterbodies, semi-improved grassland, wet woodland, Identify and carefully manage wetland areas such as flood plain grazing marsh, wet woodland and purple moor grass/rush pasture to improve their habitat value and to protect the soils which are valuable for carbon storage and microbiology.
- Wood pasture has an extensive range of species associated with it and many rare species are only known in the UK in this habitat. Explore opportunities to create new areas of wood pasture possibly as part of an extensive grazing system which creates a natural mosaic of scrub, woodland and grazed swards.

TARGET SPECIES

- > Wetland flora including alternate leaved golden saxifrage and large bittercress.
- Lapwing, redshank, snipe, curlew and black tailed godwit, garganey, reed warbler, nightingale, barn owl, hobby, bittern, reed bunting, yellowhammer, yellow wagtail, spotted flycatcher, common toad, water vole, otter, bats (in particular Daubenton's bat and brown long-eared bat).

MONITOR AND CONTROL

INVASIVE SPECIES

Giant hogweed, Himalayan balsam, common fiddleneck; heath star moss; New Zealand pigmyweed; Canadian waterweed; Japanese knotweed; Indian balsam; American mink; cherry laurel; rhododendron.

TREE PATHOGENS

Follow guidance for management of woodlands.

VULNERABILITY IN LANDSCAPE TYPE L MIXED FARMLAND AND WOODLAND VALES

HABITATS (OR FIELDSCAPES)

Wetland habitats are vulnerable to agricultural improvements and drainage. Changes in land use which affect the consistent and distinctive seasonally wetland habitat range would impact on biodiversity and wildlife.

The marginal value of the land for agriculture makes it vulnerable to land use changes that could affect both habitats and nature connectivity.

PERCEPTUAL QUALITIES

The vale is a small-scale enclosed landscape due to its topography and tree cover but also the low workability of the soils which has limited the driver for larger field systems. Changes in land use and the fragmentation of land holdings could have an impact on this quality and new woodland, hedgerow and wooded pasture plantings would be beneficial in this respect.

ACCESS

Access in this LCT is along the local public footpath network as there are very limited areas of accessible natural greenspace in this LCT.

HERITAGE

Ancient woodland and associated archaeology, veteran trees, historic hedgerows and wooded pasture. Historic field patterns associated with long standing pasture fields, existing natural watercourses. The historic (natural) alignment of watercourses and wetlands where they have been modified. The natural watercourse alignments and wetlands can be found on historic maps and by studying the soils of the floodplain.

WATER

Changes to seasonal hydrology, and effects from silt and pollution are all significant risk factors for the watercourses and wetlands in this LCT. Water pollution and siltation impede the natural hydrology, affecting water quality and subsequently the health of riparian habitats and species. Abstraction, extreme weather events and domestic water demands are all having cumulative impacts on these habitats. The Rother catchment is particularly vulnerable to siltation due to the fragile nature of the mudstone soils. Flash flooding due to inefficient drainage and extreme rainfall can wash out watercourses making them deep, less able to oxygenate the water and stripped of marginal edge vegetation and habitats. Flashing can also deposit large amounts of washed-out soil into watercourses, which can have an impact on ecology as well as losing a valuable resource. This effect also increases the flow of water downstream which can exacerbate flood events. There are also significant impacts from sewage and more diffuse sources of pollution. Retaining water on the land is important for this LCT and the Rother catchment.

Woodland can benefit upstream flood management and groundwater quality in the right locations refer to EA mapping: **Working with Natural Processes: Map** (jbahosting.com).

CARBON

Floodplain grazing marsh, wet woodland and lowland fen habitats provide very high levels of soil carbon storage. Woodland, hedgerows and healthy soils are vitally important for sequestering and storing carbon. Topsoil loss through erosion reduces carbon storage in this LCT and winter cover crops particularly are valuable in limiting this effect.

The push for more tree planting /grazing marsh in response to net zero and pollution offsetting commitments provides opportunities for expanding the networks of priority habitats and this should be carefully considered – reference the SDNP Woodland Opportunity Mapping for guidance on this and other factors when considering woodland plantings.

PRIORITY HABITATS IN LANDSCAPE TYPE L: MIXED FARMLAND AND WOODLAND VALE (8578.576 HA)



TABLE SHOWING THE PERCENTAGES OF PRIORITY HABITAT AND SSSI IN LANDSCAPE TYPE K GREENSAND TERRACE

LCT K – Greensand Terrace		Priority Habita	ts (PH) in the LCT		SSSI in the	LCT: 191.3 (ha)⁵
8421.2 (ha) ¹	Existing PH	% of LCT	% of Parkwide	PH which is	% of PH which	% of SSSI in
	In LCT ²	% of LCT	PH in LCT⁴	SSSI ⁶	Is SSSI ⁷	favourable state ⁸
Total area (ha) & percentages within the LCT:	935.2	11.10%	1.97 %	180.6	19.31 %	93.29 %
Deciduous woodland.	760.8	9.03%	2.87%	167.5	22.01%	96.58%
Good quality semi-improved grassland.	90.0	1.07%	1.43%	0.6	0.64%	92.96%
No main habitat but additional habitats present.	38.9	0.46%	0.95%	6.8	17.51%	72.77%
Coastal and floodplain grazing marsh.	24.0	0.29%	0.75%	0.0	0.04%	100.00%
Traditional orchard.	9.0	0.11%	9.18%	0.0	0.03%	
Lowland calcareous grassland.	6.9	0.08%	0.13%	1.0	14.50%	52.10%
Lowland meadows.	4.7	0.06%	2.02%	4.7	100.00%	30.02%
Purple moor grass and rush pastures.	0.8	0.01%	2.53%			

Footnotes

- 1 Area (ha) of land within the LCT.
- 2* Area (ha) of Priority Habitat (PH) within the LCT.
- 3* Percentage of the LCT area, which is classified as Priority Habitat.
- 4^{*} Priority Habitat area within the LCT as a percentage of the Priority Habitat in the SDNP.
- 5 Area (ha) of land within the LCT, which is designated as SSSI.
- 6* Area (ha) of Priority Habitat (PH), which is also designated as SSSI. NB: not all SSSI land is PH, which is why headline figures 5 and 6 differ.
- 7* Area of Priority Habitat (PH), which is also SSSI, as a percentage of PH in the LCT.
- 8* Percentage of the SSSI in the LCT, which is classified as being in Favourable condition.

Top value = all SSSI in favourable condition; then by 'favourable' SSSI also classed as Priority Habitat.

* Figures are given for the whole LCT first, then by Priority Habitat (main) type.

TABLE OF NATURE RECOVERY ACTIONS FOR PRIORITY HABITATS IN TYPEL MIXED FARMLAND AND WOODLAND VALE:

The following table is the list of actions for nature recovery by each priority habitat which is included in the mapping in the SDILCA in Landscape Type L Mixed Farmland and woodland Vale.

Priority habitats	Nature friendly actions to improve and connect existing habitats.
Semi improved grassland	Increase species diversity of grasslands through management and targeted grazing cycles along the river corridors. Create meadow buffer strips along riverbanks, ditches and other wetland habitats Create meadow buffer strips along hedgerows and woodland edges to connect up with other habitats.
Coastal and floodplain grazing marsh	Maintain light grazing March-Ssept, preferably with cattle to allow plants to flower & provide pollen & nectar. Dung is important for invertebrates but avoid worming livestock on the land and grazing for 10 days afterwards. Clean drainage ditches in rotation so some become almost choked before clearing. Do not over dig ditches & ensure they have shallow sloped edges in some places (cattle will create these if the ditches aren't too deep and steep sided for them). Manage scrub and carr invasion.
Lowland Fen	Lightly graze between May and September to allow plants to flower and set seed. Cut areas which are undergrazed by cattle on advice only. Existing drains and ditches may need clearing occasionally. Maintain scrub cover at 10-20%. No additional drainage work should be undertaken.

Priority habitats	Nature friendly actions to improve and connect existing habitats.
Deciduous (wet) woodland	Leave standing or fallen dead wood as habitat for insects and birds. Aim for high structural and age diversity through coppicing/ pollarding or selective felling of mature trees (artificial windblow). Manage stock access to allow natural regeneration. Link wet woodland with other wetland habitats – eg ditches, hedgerows, other woodland & trees. No further drainage works.
Wood pasture and Parkland	Protect veteran trees from browsing. Identify veteran trees and any management for health requirements. Leave dead wood where it is. Replace fallen trees with new plantings at the optimum spacings. Protect new plantings from browsing. Take an Agroforestry approach to productive land.
Streams, watercourses & seasonal wetlands	Allow standing water to percolate naturally – do not increase drainage of the land. Create buffer zones along the stream channels to protect bankside vegetation from livestock and control where livestock gain access to the water. Control invasive species within the stream corridor & take a 'whole river' approach to this.

Semi improved grasslandIdentify key land parcels for arable reversion or management changes where grassland would provide good habitat connectivity. Combine with nutrient neutrality approach to maximise payment options.DeciduousCreate new woodland areas where the flood management approach within the including wet woodlandCoastal andArable reversion to flood plain grazing may be possible onAreas of new woodland could also provide also provide activity.	e they will support a natural n the floodplain by 'slowing p provide shaded water areas
floodplain artificially drained soils where natural hydrology is established Target new plantings where they will p	Il provide habitat connectivity
grazing marshwithin the floodplain, through reducing the flow of existing watercourses or reducing the effectiveness of previous field drainage. Target fields which provide connectivity with adjacent grazing marsh to build a network for biodiversity.between other areas of woodland with floor.grazing marshCreate new areas of wood pasture for and allow natural browsing by livestor 	within and beyond the valley for extensive grazing systems stock to create a mosaic of ghts and wooded zones.
Design a management plan to rotate ditch clearances, to maintain a variety of vegetation heights and densities within the ditches and to lightly graze only between March and September when the grazing marsh is not too wet.Rivers and watercoursesEstablish scrapes, ponds and swales t and reduce the water burden into wat rainfall.Stablewatercourses to be the water burden into wat rainfall.Stablish berms and shallows within st	es to hold water on the land vatercourses during extreme n streams to vary flows and
Lowland FenIdentify key land parcels for fen restoration where they would provide connectivity to other fen sites. Arable land reversion may qualify for nutrient neutrality payments. Restore existing fen sites and develop management plans for them. Seek to join up habitats with ditches, headlands, pollinator strips, hedgerow and wet woodland.aerate the water to provide a variety or river. 	ty of watery habitats within the tain species diversity in ffers for habitat diversity. Illowing the land to flood alth, extent and variety hilst also providing flood

Priority habitats	Actions to restore and create new habitats
Wood pasture	Create new wood pasture in variety eg parkland or wooded
and Parkland	scrub grassland mosaic approach.
	Establish optimum grazing management and long-term
	management plan.
	Seek expert advice where possible to avoid unintended impacts
	and loss of biodiversity. This habitat type has an extensive range
	of species associated with it including many rare UK species that
	are specific to this habitat.

SOURCES OF FURTHER INFORMATION

FORESTRY COMMISSION ENGLAND

- South Downs Forest Design Plan
- Climate change: impacts and adaptation in England's woodlands Research Note, Forestry Commission (forestresearch.gov.uk)
- UK Forestry Standard

DEFRA

Environmental land management schemes: overview – GOV.UK (www.gov. uk)

NATURAL ENGLAND

- Carbon Storage and Sequestration by Habitat 2021 NERR094 (naturalengland.org.uk)
- Habitat Networks (England) data.gov.uk
- Habitat Network Mapping Guidance.pdf (defra.gov.uk)

ENVIRONMENT AGENCY

Working with Natural Processes mapping

WOODLAND TRUST

Agroforestry

LANDSCAPE TYPE M

NATURE RECOVERY IN LANDSCAPE TYPE M: WEALDEN FARMLAND AND HEATH MOSAIC

DESCRIPTION

This LCT is a sandy, lowland landscape of free draining acid sandy soils. These soils support a range of distinctive flagship habitats such as acid bog, lowland fen, lowland heathland, ancient woodland such as birch-oak deciduous woodland, wood pasture and parkland, coniferous plantations & ponds, bogs and wet grassland. Agricultural use ranges from mixed arable through to permanent pasture, and the area is noted for horse keeping – eg breeding studs and winter grazing for polo ponies.

Whilst there are a number of nationally designated, and in some cases extensive sites for biodiversity many are isolated areas of very high-quality habitat within farmland woodland or scrub areas.

It is important to continue the work of the Heritage Lottery funded **Heathlands Reunited** project to connect up these valuable habitats both through restoring existing and creating new areas of habitat and through undertaking nature friendly actions within farmland. Connectivity is the key objective within this LCT. The geology of the LCT continues beyond the SDNP and there is potential to target connectivity to the Thames Basin Heath area for example (Reference PANN area 2 East Hants and **Heathlands)**.

The LCT is rich in historic land uses, from remnants of historic common land, through to historic deer parks, wooded pasture and wooded over commons which are generally coniferous plantations dating from the early 1900s.

Semi-natural habitats such as these require grazing or cutting which historically would have happened through landowners & commoners grazing stock which would keep scrub at bay and cutting heather and wood for fuel, timber, winter fodder and thatch. These habitats are vulnerable to the loss of long-term management activities and in the absence of the economic drivers for their management, to produce this work requires funding and resources – often with volunteers and paid conservation grazing.

BIODIVERSITY OPPORTUNITY AREAS (BOAS) WITHIN THIS LCT:

- Sussex BOAs: Hampshire Rother Watershed; Stedham, Iping, Woolbeding Crescent; Barlavington, Coates and Rother; Heyshott and Parham to Fittleworth.
- Hampshire BOA: Wealden Heaths.

NATURE RECOVERY AMBITIONS FOR LANDSCAPE TYPE M: WEALDEN FARMLAND AND HEATH MOSAIC

Bring heathland habitats into good management to establish good ecological condition.

- Increase connectivity for heathland habitats including the mosaic of heath, acid grassland and birch/oak woodland. Expand existing sites and target new habitat creation in strategic locations in maximise linkages.
- Create buffers and headlands to link up the mosaic of habitats across arable fields.
- Plant new broadleaved woodland with suitable species for the soil and habitat type. Replace conifers with broadleaves when felling takes place or restore to heathland habitats or encourage mixed conifer and broadleaved woodland with good interconnectivity of rides, glades and design. Consider planting wood pasture and agroecology for productive land.
- Use extensive grazing system on acid grasslands with no inputs and allow the sward to be eroded in areas to create bare soil for reptiles and invertebrates.
- Slow the flow of rivers and streams which rise at the scarp foot and cross the LCT draining towards the river Rother. This will protect/improve riparian habitats, reduce scouring, maximise the water kept on the land and reduce downstream peak flows.
- Increase the range of habitats alongside and within the watercourses by allowing natural vegetation to regenerate along the bankside. Manage the use of watercourses by livestock and graze bankside vegetation in rotation. Target buffer areas which will connect to other habitats and measures like headlands along fields, hedgerows and woodland to increase overall connectivity for nature.
- Increase the presence of the watercourses in the landscape. Allow flooding of the land with swales, and wetland areas in particular. Don't carry out any new drainage measures and reduce the flow of existing drainage by installing leaky dams & shallow scrapes.
- Increase habitat for farmland birds like lapwing, skylark, corn bunting, grey partridge, and turtle dove. Create nesting habitat, which is safe from cultivation late into the summer, use buffer strips, conservation headlands and seed rich wild bird cover crops to provide food. Spray and cultivate stubbles as late as possible.

Increase positive woodland management for biodiversity benefits & reduce management neglect –the greatest threat to ancient woodland. Coppice and pollarding are typical management techniques in this LCT.

TARGET SPECIES

- Woodlark, nightjar, Dartford warbler, tree pipit, curlew, spotted flycatcher, turtle dove, cuckoo, lesser redpoll, sand martin, woodcock, goshawk, hobby.
- Cranberry, hares tail cotton grass, sundew, marsh clubmoss.
- Hornet robberfly, field cricket.
- Barbastelle, brown long-eared bat, dormouse.
- Common toad, sand lizard, great crested newt, adder, smooth snake.
- Arable land farmland birds, lapwing, reed bunting.

MONITOR AND CONTROL

INVASIVE SPECIES

- ▶ Himalayan balsam, cherry laurel, rhododendron, Japanese knotweed.
- muntjac deer.

TREE PATHOGENS

Follow guidance for management of woodlands.

VULNERABILITY IN LANDSCAPE TYPE M WEALDEN FARMLAND AND HEATH MOSAIC

HABITATS (OR FIELDSCAPES)

The heathland habitats are semi natural and need to be managed or they will deteriorate through scrubbing over – in particular with birch and coniferous regeneration.

The heathland habitats occur in focussed areas where there are remnant commons, wood pasture, open access land and marginal land. These are isolated islands of important habitats surrounded generally by farmed land either pasture or arable. Poor connectivity of the heathland habitats limits the gene pools and leave species vulnerable to local extinctions through disease or environmental issues. It also hampers climate migration.

With climate change there is also an increased risk of fire in dry heathland habitats which can destroy these isolated pockets.

PERCEPTUAL QUALITIES

Remoteness, wildness, distinctive & unusual habitats, marginal land.

ACCESS

The large areas of registered common land and open access land mean that this LCT has an abundance of accessible natural greenspace.

HERITAGE

The evolution of open communal land to enclosed privately owned land from late medieval to mid-18th century changed the use of the land to private production. There are remnant commons and open access land which evaded enclosure owing to their marginal nature –leading to their evolution into island sites for nature. Medieval wooded pasture and hunting forest. Ancient woodland typically of pollarded and coppiced trees. Coniferous plantations on common land planted during early 1900's, this land which typically was formerly heathland is now slowly being reinstated as heathland or broadleaved plantation or mixed species when the coniferous plantations are felled. Structure is important within the woodlands of mixed age structure and open features for permeability.

WATER

Many rivers and streams which rise to the south at the chalk scarp cross this LCT to join the River Rother to the north. The sandy soils are vulnerable to erosion and wetland habitats are especially vulnerable to drought here. Areas of wet heath and marsh could be expanded through techniques to slow the flow and retain water on the land for as long as possible. This will help to improve water quality and the ecology of the water courses. Bankside vegetation is especially vulnerable to livestock trampling and to being washed out during extreme rainfall events. Watercourse buffers will provide additional habitat zones alongside rivers and streams to enhance their connectivity and bankside vegetation.

Woodland can benefit upstream flood management and groundwater quality in the right locations refer to EA mapping: **Working with Natural Processes: Map** (jbahosting.com).

CARBON

The push for more tree planting in response to net zero and pollution offsetting commitments provides opportunities for expanding the networks of priority habitats and this should be carefully considered – reference the SDNP Woodland Opportunity Mapping for guidance on this and other factors when considering woodland plantings.

PRIORITY HABITATS IN TYPE M: WEALDEN FARMLAND AND HEATH MOSAIC (7267.389 HA)



TABLE SHOWING THE PERCENTAGES OF PRIORITY HABITAT AND SSSI IN TYPE L MIXED FARMLAND AND WOODLAND VALE

LCT L – Mixed Farmland and Woodland Vales		Priority Habita	ts (PH) in the LCT		SSSI in the	e LCT: 131.2 (ha)⁵
8578.6 (ha) ¹	Existing PH	% of LCT	% of Parkwide	PH which is	% of PH which	% of SSSI in
	In LCT ²	% of LCT	PH in LCT⁴	SSSI ⁶	Is SSSI ⁷	favourable state ⁸
Total area (ha) & percentages within the LCT:	1475.6	17.20%	3.11%	125.1	8.48%	11.71%
Deciduous woodland.	1089.8	12.70%	4.11%	98.2	9.01%	11.29%
Coastal and floodplain grazing marsh.	194.1	2.26%	6.06%	0.1	0.07%	99.58%
Good quality semi-improved grassland.	106.1	1.24%	1.69%	11.6	10.97%	0.31%
No main habitat but additional habitats present.	54.4	0.63%	1.32%	1.4	2.49%	25.79%
Traditional orchard.	8.3	0.10%	8.44%			
Lowland heathland.	7.8	0.09%	0.81%	6.5	83.02%	
Lowland dry acid grassland.	6.4	0.08%	10.39%	3.3	51.96%	80.06%
Lowland fens.	4.4	0.05%	1.26%	3.9	89.84%	
Purple moor grass and rush pastures.	4.4	0.05%	14.34%			

Footnotes

- 1 Area (ha) of land within the LCT.
- 2* Area (ha) of Priority Habitat (PH) within the LCT.
- 3* Percentage of the LCT area, which is classified as Priority Habitat.
- 4^{*} Priority Habitat area within the LCT as a percentage of the Priority Habitat in the SDNP.
- 5 Area (ha) of land within the LCT, which is designated as SSSI.
- 6* Area (ha) of Priority Habitat (PH), which is also designated as SSSI. NB: not all SSSI land is PH, which is why headline figures 5 and 6 differ.
- 7* Area of Priority Habitat (PH), which is also SSSI, as a percentage of PH in the LCT.
- 8* Percentage of the SSSI in the LCT, which is classified as being in Favourable condition.

Top value = all SSSI in favourable condition; then by 'favourable' SSSI also classed as Priority Habitat.

* Figures are given for the whole LCT first, then by Priority Habitat (main) type.

TABLE OF NATURE RECOVERY ACTIONS FOR PRIORITY HABITATS IN TYPE M WEALDEN FARMLAND AND HEATH MOSAIC

The following table is the list of actions for nature recovery by each priority habitat which is included in the mapping in the SDILCA in Landscape Type D Downland Mosaic.

Priority habitats	Nature friendly actions to improve and connect existing habitats.
Lowland Heath	Create buffer strips to lowland Heath, acid grassland areas, hedgerows and woodland edges.
Lowland Dry Acid Grassland	Identify existing areas of this habitat. Don't use herbicides or fertilizers, Manage with extensive grazing to create a varied sward height. Can also be cut for green hay if the soil is resilient enough for machinery in late summer and use the green hay for seeding new areas.
Lowland Fen	Lightly graze between May and September to allow plants to flower and set seed. Cut areas which are undergrazed by cattle on advice only. Existing drains and ditches may need clearing occasionally. Maintain scrub cover at 10-20%. No additional drainage work should be undertaken.
Semi improved grassland	Increase species diversity through appropriate management and species re-introductions where desirable. Targeted scrub removal.

Priority habitats	Nature friendly actions to improve and connect existing habitats.
Deciduous woodland	Leave standing or fallen dead wood as habitat for insects and birds. Aim for high structural and age diversity through coppicing/ pollarding or selective felling of mature trees (artificial windblow). Manage stock access to allow natural regeneration of woodland. Link wet woodland with other wetland habitats – eg ditches, hedgerows, other woodland & trees. No further drainage works.
Wood pasture and Parkland	Protect veteran trees from browsing. Identify veteran trees and any management for health requirements. Leave dead wood where it is. Replace fallen trees with new plantings at the optimum spacings. Protect new plantings from browsing. Take an Agroforestry approach to productive land.
Streams, watercourses & seasonal wetlands	Allow standing water to percolate naturally – do not increase drainage of the land. Create buffer zones along the stream channels to protect bankside vegetation from livestock and control where livestock gain access to the water. Control invasive species within the stream corridor & take a 'whole river' approach to this.

Priority habitats	Nature friendly actions to improve and connect existing habitats.
Coastal and	Maintain light grazing March-Sept, preferably with cattle to
Flood plain	allow plants to flower & provide pollen & nectar.
grazing marsh	Dung is important for invertebrates but avoid worming livestock on the land and grazing for 10 days afterwards. Clean drainage ditches in rotation so some become almost choked before clearing. Do not over dig ditches & ensure they have shallow sloped edges in some places (cattle will create these if the ditches aren't too deep and steep sided for them). Managa seruh and carr invasion
Traditional	Cut grassland in late autumn and remove cuttings.
Orchard	Provide wood piles for invertebrates. Leave dead wood on the trees. Look for opportunities to extend connectivity by planting native hedgerows, creating headlands, or allowing existing native hedgerows to grow out and flower avoiding 'neat' hedgerows.

Priority habitats	Actions to restore and create new habitats
Lowland Heath	Bring heathland into good management. Restore heathland as coniferous plantations are felled, seek optimum connectivity to adjacent sites and enhance connectivity of heathland habitats including the mosaic of heath, acid grassland, birch/oak woodland.
Semi improved	Increase species diversity through appropriate management and
grassland	species re-introductions where desirable. Targeted scrub removal to expand grassland habitats

Priority nabitats	Actions to restore and create new habitats
owland Dry Acid Grassland	Restore this habitat through removing scrub and bringing areas back into extensive grazing. Use green hay to help reseed disturbed areas. Target areas which will provide connectivity to woodland, lowland heath, river and field buffers to increase the habitat network in this LCT.
owland Fen.	Identify key land parcels for fen restoration where they would provide connectivity to other fen sites. Arable land reversion may qualify for nutrient neutrality payments. Restore existing Fen sites and develop management plans for them. Seek to join up habitats with ditches, headlands, pollinator strips, hedgerow and wet woodland.
)eciduous voodland ncluding wet voodland	Create new woodland areas where they will support a natural flood management approach within the floodplain by 'slowing the flow' downstream. Areas of new woodland could also provide shaded water areas of the river see 'keeping rivers cool'. Replant coniferous plantations with deciduous species when felling takes place (or restore to heathland). Target new plantings where they will provide habitat connectivity between other areas of woodland. Create new areas of wood pasture for extensive grazing systems and allow natural browsing by livestock to create a mosaic of scrub, grazed sward of varying heights and wooded zones.

Priority habitats	Actions to restore and create new habitats	Priority habitats	Actions to restore and create new habitats	
Wood pastureCreate new wood pasture in variety eg parkland or wooded scrub grassland mosaic approach. Establish optimum grazing management and long-term management plan. Seek expert advice where possible to avoid unintended impacts and loss of biodiversity. This habitat type has an extensive range of species associated with it including many rare UK species that 		Coastal and Flood plain grazing marsh	Create ponds, berms and shallows, to vary the habitat opportunities within the ditches aim to maintain high water levels throughout the year. Arable reversion may be possible on artificially drained soils where natural hydrology is Established within the floodplain, through blocking or reducing previous field drainage. Target fields which provide connectivity with adjacent grazing marsh to build a network for biodiversity.	
Rivers and watercourses	Establish scrapes, ponds and swales to hold water on the land and reduce the water and silt burden into watercourses during extreme rainfall. Establish berms and shallows within streams to vary flows and		Design a management plan to rotate ditch clearances, to maintain a variety of vegetation heights and densities within the ditches and to lightly graze only between March and September when the grazing marsh is not too wet.	
aerate the water to provide a variety of watery habitats within the river. Manage waterside buffers to maintain species diversity in rotation to vary the height of the buffers for habitat diversity. Allow the land to flood naturally which will increase the health, extent and variety of aquatic and wetland habitats whilst also providing flood capacity and help to reduce downstream flows.	Traditional Orchard	Seek specialist advice when restoring old orchards, identify the fruit cultivars and restore veteran trees through expert pruning. Bring grassland back into management through light grazing or cutting early in the spring then late summer. Monitor for pests and diseases. For new plantings consider connectivity with surrounding habitats eg hedgerows, woodlands and species rich grassland. Orchards can be incorporated into an agroforestry approach to agriculture		

SOURCES OF FURTHER INFORMATION

FORESTRY COMMISSION ENGLAND

- South Downs Forest Design Plan
- Climate change: impacts and adaptation in England's woodlands Research Note, Forestry Commission (forestresearch.gov.uk)
- **UK Forestry Standard**

DEFRA

Environmental land management schemes: overview – GOV.UK (www.gov.uk)

NATURAL ENGLAND

- Carbon Storage and Sequestration by Habitat 2021 NERR094 (naturalengland.org.uk)
- Habitat Networks (England) data.gov.uk
- Habitat Network Mapping Guidance.pdf (defra.gov.uk)

ENVIRONMENT AGENCY

Working with Natural Processes mapping

WOODLAND TRUST

Agroforestry

LANDSCAPE TYPE N

NATURE RECOVERY IN LANDSCAPE TYPE N: VALLEY FARMLAND

DESCRIPTION

The Valley Farmland LCT sits mostly to the immediate north of the River Rother and is a broadly south facing, shallow and undulating valley side adjacent to the river. Several tributaries of the Rother run through this LCT and are of importance for ecology. This LCT is a working landscape of mainly arable large scale open fields on fragile sandy, but with some fertile soils and sections of heavy clay. Large areas of cropland are not recorded as being within Countryside or Environmental Stewardship agreements. This LCT has a low density of hedgerows owing to the large-scale productive fields and limited woodland cover.

Woodland generally persists along steep sided tributaries of the Rother as curvilinear woodland features. Many are recorded as ASNW although not nationally designated apart from one small area of SSSI in this LCT at Fynning Moor which is focussed around a tributary of the Rother and associated wetland habitats ie wet meadows, woodland and marsh.

There are isolated areas of species rich grassland priority habitat across the LCT. Measures to improve connectivity could include creating headlands and pollinator strips along hedgerows and at the edges of arable fields, also linking into the stream corridor vegetation and woodland areas. There are also sections of wood pasture adjacent to the north side of the river with wet grassland and wet woodland mosaic.

The adjacent River Rother LCT is an important (although somewhat restricted) ecological corridor in the landscape and is designated as a local wildlife site.

There are important areas of connectivity for bat flight lines along watercourses and connections to internationally important habitats to the north – eg The Mens & Ebernoe SPAs.

There are sunken lanes with banks that provide some ecological interest and are locally distinctive.

BIODIVERSITY OPPORTUNITY AREAS (BOAS) IN/ ADJACENT TO THIS LCT

Sussex BOAs: Stedham, Iping, Woolbeding Crescent; Western Rother; Hampshire Rother Watershed; Snapes Copse and Verdley Wood; Ebernoe with Watercourse flight lines.

NATURE RECOVERY AMBITIONS FOR LANDSCAPE TYPE N: VALLEY FARMLAND

- Retain and restore hedgerows and hedgerow trees through appropriate fencing, layering and cutting regimes.
- Promote hedgerow and hedgerow tree reinstatement through planting where possible as part of a strategic approach to connectivity in this farmed landscape in optimum locations linking in with BOAs and streamside woodlands where possible.
- Seek to encourage the creation of new and better management for existing species rich grassland and wood pasture, for pollinators, bats and birds linking to other semi natural habitats.

- Re naturalise the water courses by slowing the flow to increase the health, extent and variety of aquatic & wetland habitats and to provide natural flood management.
- Retain water on the land to enhance biodiversity through wetland creation and to also slow surface water run off which in turn will help with reducing soil erosion, water pollution from siltation and river ecology.
- Conserve existing and create new priority habitat through and along the stream corridors to increase the connectivity of wetland and riparian habitats, (See SDNPA River buffers) to reflect the super-connectivity potential of the watercourse within and beyond the SDNP.

Create streamside corridors of natural habitat as a buffer to other land uses and to increase the range of habitats in close proximity to watercourses. Manage the use of watercourses by livestock. Work to connect these streamside buffers to the network of headlands, hedgerows, woodlands and semi natural grasslands in the LCT to increase overall connectivity for nature.

- Keep water on the land by creating leaky dams on drainage ditches and streams, create additional flood water storage with scrapes and swales, and increase the presence of wetland habitats in the LCT. Conversely do no new drainage.
- Consider the (Rother) catchment scale implications of all actions and continue to work with partners to integrate different sectors and interests in the whole catchment both within and beyond the SDNP.
- Retain long-standing permanent pasture especially with field trees and wood pasture, because of its high soil carbon content, undisturbed soil profiles, and botanical, fungal and invertebrate communities.
- Increase positive woodland management for biodiversity benefits & reduce management neglect – the greatest threat to ancient woodland. Coppice and pollarding are typical management techniques in this LCT.
- Increase habitat for farmland birds like lapwing, skylark, corn bunting, grey partridge, and turtle dove. Create nesting habitat, which is safe from cultivation late

into the summer, use buffer strips, conservation headlands and seed rich wild bird cover crops to provide food. Spray and cultivate stubbles as late as possible.

- Create pollinator strips in arable fields to support invertebrate populations.
- Restore and manage existing semi-improved grassland through extensive grazing or cutting for hay with no inputs to increase species diversity in the sward, improve soil health and biodiversity.

TARGET SPECIES

- Farmland birds Lapwing, grey partridge, corn bunting, skylark, turtle dove, yellowhammer, snipe.
- Woodland/stream birds Grey wagtail, kingfisher, nightjar, reed bunting, spotted flycatcher, woodcock.
- **Fish** Brown trout, grayling, perch.
- Wetland flora including Alternate leaved golden saxifrage and large bittercress.
- Mammals Brown long-eared bat, pipistrelle bat, greater horseshoe bat. Habitat connectivity here is also important for the Ebernoe bats, Bechstein's and barbastelle. Otter, adder.

MONITOR AND CONTROL

INVASIVE SPECIES

Himalayan balsam, Japanese knotweed, American mink, cherry laurel, rhododendron.

TREE PATHOGENS

Follow guidance for management of woodlands.

VULNERABILITY IN LANDSCAPE TYPE N VALLEY FARMLAND

HABITATS (OR FIELDSCAPES)

Connectivity across the arable landscape is limited due to the field sizes and limited amount of hedgerows, but better along the river and stream corridors.

Farmland bird populations are vulnerable to land management activities which coincide with breeding and overwintering feeding.

Soils are vulnerable to erosion due to soil structure, size of fields & lack of hedgerow/ woodland network.

PERCEPTUAL QUALITIES

Open landscape of large scale with wide reaching views. Loss of remnant commons and woodlands which create pockets of 'wildness'.

ACCESS

Access in this LCT is along the local public footpath network as there are very limited areas of accessible natural greenspace in this LCT.

HERITAGE

Ancient woodland and associated archaeology, aged hedgerow trees, small area of historic field patterns cut from woodland (near Rogate), existing natural watercourses. The historic (natural) alignment of watercourses and wetlands where they have been modified.

WATER

Changes to seasonal hydrology, and effects from silt and pollution are all significant risk factors for the watercourses and wetlands in this LCT. Water pollution and siltation

impede the natural hydrology, affecting water quality and subsequently the health of riparian habitats and species. Abstraction, extreme weather events and domestic water demands are all having cumulative impacts on these habitats. The Rother catchment is particularly vulnerable to siltation due to the fragile nature of the mudstone soils. Flashing due to efficient drainage and extreme rainfall can wash out watercourses making them deep, less able to oxygenate the water and stripped of marginal edge vegetation and habitats. Flashing can also deposit large amounts of washed-out soil into watercourses which has significant impacts on ecology as well as losing a valuable resource. This effect also increases the flow of water downstream which can exacerbate flood events. Significant impact from sewage. Retaining water on the land is important for this LCT and the Rother catchment.

Woodland can benefit upstream flood management and groundwater quality in the right locations refer to EA mapping: **Working with Natural Processes: Map** (jbahosting.com).

CARBON

Woodland, hedgerows and healthy soils are vitally important for sequestering and storing carbon. Topsoil loss through erosion reduces carbon storage in this LCT. The push for more tree planting /grazing marsh in response to net zero and pollution offsetting commitments provides opportunities for expanding the networks of priority habitats and this should be carefully considered, reference the SDNP Woodland Opportunity Mapping for guidance on this and other factors when considering woodland plantings.



PRIORITY HABITATS IN LANDSCAPE TYPE N: VALLEY FARMLAND (5383.017 HA)

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TABLE SHOWING THE PERCENTAGES OF PRIORITY HABITAT AND SSSI IN LANDSCAPE TYPE N VALLEY FARMLAND

LCT N – Valley Farmland		Priority Habita	ts (PH) in the LCT		SSSI in th	e LCT: 12.0 (ha)⁵
5383.0 (ha) ¹	Existing PH	% of LCT	% of Parkwide	PH which is	% of PH which	% of SSSI in
	In LCT ²	% of LCT	PH in LCT⁴	SSSI ⁶	Is SSSI ⁷	favourable state ⁸
Total area (ha) & percentages within the LCT:	507.0	9.42 %	1.07%	11.1	2.20%	99.20 %
Deciduous woodland.	414.5	7.70%	1.56%	10.9	2.64%	99.99%
Good quality semi-improved grassland.	42.1	0.78%	0.67%			
No main habitat but additional habitats present.	39.7	0.74%	0.97%			
Coastal and floodplain grazing marsh.	6.7	0.12%	0.21%			
Traditional orchard.	3.1	0.06%	3.18%			
Lowland fens.	0.9	0.02%	0.27%	0.2	22.77%	100.00%

Footnotes

- 1 Area (ha) of land within the LCT.
- 2* Area (ha) of Priority Habitat (PH) within the LCT.
- 3* Percentage of the LCT area, which is classified as Priority Habitat.
- 4^{*} Priority Habitat area within the LCT as a percentage of the Priority Habitat in the SDNP.
- 5 Area (ha) of land within the LCT, which is designated as SSSI.
- 6* Area (ha) of Priority Habitat (PH), which is also designated as SSSI. NB: not all SSSI land is PH, which is why headline figures 5 and 6 differ.
- 7^* Area of Priority Habitat (PH), which is also SSSI, as a percentage of PH in the LCT.
- 8* Percentage of the SSSI in the LCT, which is classified as being in Favourable condition.

Top value = all SSSI in favourable condition; then by 'favourable' SSSI also classed as Priority Habitat.

* Figures are given for the whole LCT first, then by Priority Habitat (main) type.

TABLE OF NATURE RECOVERY ACTIONS FOR PRIORITY HABITATS INLANDSCAPE TYPE N VALLEY FARMLAND:

The following table is the list of actions for nature recovery by each priority habitat which is included in the mapping in the SDILCA in Landscape Type N Valley Farmland.

Priority habitats	Nature friendly actions to improve and connect existing habitats.
Semi improved grassland	Increase species diversity of grasslands through management and targeted grazing cycles along the river corridors. Create meadow buffer strips along riverbanks, ditches and other wetland habitats. Create meadow buffer strips along hedgerows and woodland edges to connect up with other habitats.
Deciduous (& wet) woodland	Leave standing or fallen dead wood as habitat for insects and birds. Aim for high structural and age diversity through coppicing/ pollarding or selective felling of mature trees (artificial windblow) Manage stock access to allow natural regeneration. Link wet woodland with other wetland habitats – eg ditches, hedgerows, other woodland & trees. No further drainage works.
Streams, watercourses & seasonal wetlands	Allow standing water to percolate naturally – do not increase drainage of the land. Create buffer zones along the stream channels to protect bankside vegetation from livestock and control where livestock gain access to the water. Control invasive species within the stream corridor & take a 'whole river' approach to this.

Priority habitats	Actions to restore and create new habitats
Semi improved grassland	Identify key land parcels for arable reversion or management changes where grassland would provide good habitat connectivity and link to remaining hedgerows and woodland. Combine with approach to soil carbon to provide alternative source of income and green finance in the future.
Deciduous woodland including wet woodland	Create new woodland areas where they will support a natural flood management approach within the floodplain by 'slowing the flow' downstream. Areas of new woodland could also provide shaded water areas of the river see 'keeping rivers cool'. Target new plantings where they will provide habitat connectivity between other areas of woodland.
Rivers and watercourses	Establish scrapes, ponds and swales to hold water on the land and reduce the water burden into watercourses during extreme rainfall. Establish berms and shallows within streams to vary flows and aerate the water to provide a variety of watery habitats within the river. Manage waterside buffers to maintain species diversity in rotation to vary the height of the buffers for habitat diversity.

SOURCES OF FURTHER INFORMATION

FORESTRY COMMISSION ENGLAND

- South Downs Forest Design Plan
- Climate change: impacts and adaptation in England's woodlands Research Note, Forestry Commission (forestresearch.gov.uk)
- **UK Forestry Standard**

DEFRA

Environmental land management schemes: overview – GOV.UK (www.gov.uk)

NATURAL ENGLAND

- Carbon Storage and Sequestration by Habitat 2021 NERR094 (naturalengland.org.uk)
- Habitat Networks (England) data.gov.uk
- Habitat Network Mapping Guidance.pdf (defra.gov.uk)

ENVIRONMENT AGENCY

Working with Natural Processes mapping

WOODLAND TRUST

Agroforestry

LANDSCAPE TYPE O

NATURE RECOVERY IN LANDSCAPE TYPE O: GREENSAND HILLS

DESCRIPTION

The Greensand Hills are one of the most remote areas within the SDNP in part due to its distinctive habitats, soils and biodiversity. This LCT is heavily wooded with a mosaic of different woodland types, both broad leaved and coniferous trees. Many of the deciduous wooded areas are similar to wood pasture and they form part of a mosaic of lowland heath, lowland acid grassland, woody scrub, bracken and gorse. Much of the deciduous woodland is included in the Ancient Woodland inventory. The coniferous plantations are mostly on former common land (heathland). Much of this was planted for timber in the early 20th century in support of the war effort. As these stands become ready for felling there are opportunities to reinstate heathland and extend the heathland network.

The field patterns in this LCT are generally historic, having been cut from the wooded areas (assarted). The soils support rough grazing of lowland acid grassland and lowland meadow with distinctive field edges of mature overhanging beech and oak trees. The age of these combined habitats makes them especially valuable, particularly for bryophytes and lichens. The soils are marginal and there is minimal arable production due to the steep slopes of the hills themselves.

There is an extensive network of steep-sided streams in the hills which drain in all directions from the horseshoe shape of the Greensand Hills and these provide valuable wetland habitats in the well-drained sandy soils of the greensand.

The LCT is rich in landscape history, Ancient woodland; remnants of historic common land, through to historic deer parks, wooded pasture and wooded over commons which are generally coniferous plantations dating from the early 1900s. Heathland, lowland meadows and lowland acid grassland are also extensive and reflect historic land uses. Semi-natural habitats such as these were established through grazing or cutting which historically would have happened through landowners & commoners grazing stock. They would have been grazed or cut for hay to keep scrub at bay and cutting heather and wood for fuel, timber, winter fodder and thatch.

BIODIVERSITY OPPORTUNITY AREAS (BOAS) IN THIS LCT:

- Sussex BOA: Rogate Common; Hampshire Rother Watershed; Weavers Down to Lynchmere; Stedham, Iping, Woolbeding Crescent; Snapes Copse and Verdley Wood; Black Down.
- Hampshire BOA: Wealden Heaths.

NATURE RECOVERY AMBITIONS FOR LANDSCAPE TYPE O: GREENSAND HILLS

- Bring heathland habitats into good management to Establish good ecological condition.
- Increase connectivity for heathland habitats including the mosaic of heath, acid grassland and birch/oak woodland. Expand existing sites and target new habitat creation in strategic locations for new linkages.
- Increase positive woodland management for biodiversity benefits & reduce management neglect – one of the greatest threats to ancient woodland.

- Integrate conifers with broadleaves when felling takes place or restore to heathland habitats. Plant new broadleaved woodland with suitable species for the soil and habitat type. Consider planting wood pasture and agro-ecology for productive land.
- Conifer species provide important habitat for an array of bird species including Goshawk, Siskin, Redpolls and Firecrest and form an important part of the matrix especially continuous cover management. Forest plans should aim for a mixed age and species diversity including the retention of coniferous habitat within a mosaic.
- Use extensive grazing system on acid grasslands with no inputs.
- Slow the flow of rivers and streams to protect/improve riparian habitats, reduce scouring, maximise the water kept on the land and reduce downstream peak flows.
- Increase the range of habitats alongside and within the watercourses by allowing natural vegetation to regenerate along the bankside. Manage the use of watercourses by livestock and graze bankside vegetation in rotation. Target buffer areas which will connect to other habitats and measures like headlands along fields, hedgerows and woodland to increase overall connectivity for nature.
- Increase the presence of the watercourses in the landscape. Allow flooding of the land with swales, and wetland areas in particular. Don't carry out any new drainage measures and reduce the flow of existing drainage by installing leaky dams & shallow scrapes.

TARGET SPECIES

- Woodlark, nightjar, Dartford warbler, tree pipit, curlew, spotted flycatcher, cuckoo, lesser redpoll, goshawk.
- Cranberry, hares tail cotton grass, sundew, marsh clubmoss.
- Hornet robberfly, field cricket.
- Barbastelle, brown long-eared bat, dormouse.
- Common toad, sand lizard, great crested newt, adder.

MONITOR AND CONTROL

INVASIVE SPECIES

▶ Himalayan balsam, cherry laurel, rhododendron, Japanese knotweed.muntjac deer.

TREE PATHOGENS

Follow guidance for management of woodlands.

VULNERABILITY IN LANDSCAPE TYPE O GREENSAND HILLS

HABITATS (OR FIELDSCAPES)

The heathland habitats are semi natural and need to be managed, or they will deteriorate through scrubbing over – in particular with birch and coniferous regeneration. These habitats are vulnerable to the loss of long term management activities and in the absence of the economic drivers for their management and produce this work requires funding and resources – often with volunteers and paid conservation grazing.

Poor connectivity of the heathland habitat areas limits the gene pool and leave species vulnerable to local extinctions through disease or environmental issues and restricts climate migration.

Large areas of Ancient Woodland and hedges that would have been traditionally managed for coppice and pollarded wood. Lack of good management is the biggest threat to ancient woodland.

PERCEPTUAL QUALITIES

Remoteness, wildness, distinctive & unusual habitats, marginal land.

ACCESS

The large areas of registered common land and open access land mean that this LCT has an abundance of accessible natural greenspace.

HERITAGE

The changes from open communal heathland to enclosed privately owned land from late medieval to mid-18th century changed the use of the land to private production resulting in the loss of heathland areas over time to fields, plantations, wooded pasture and hunting forest. There are remnant commons and open access land, which evaded enclosure, and these are now island sites for heathland biodiversity. Ancient woodland typically of pollarded and coppiced trees.

WATER

Many rivers and streams cross the LCT in steep sided valleys. The sandy soils are vulnerable to erosion and wetland habitats are especially vulnerable to drought. Existing areas of wet heath and marsh could be expanded through techniques to slow the flow and retain water on the land for as long as possible. This will help to improve water quality and the ecology of the water courses. Bankside vegetation is especially vulnerable to livestock trampling and also being washed out during extreme rainfall. Watercourse buffers will provide additional habitat zones alongside rivers and streams to enhance their connectivity and bankside vegetation.

Woodland can benefit upstream flood management and groundwater quality in the right locations refer to EA mapping: **Working with Natural Processes: Map** (jbahosting.com).

CARBON

The combination of ancient woodland soils and historic pasture fields means that the soils of this LCT are potentially high in sequestered carbon. There is carbon embedded

in the ancient woodland tree stock (ref Carbon sequestration by Habitat in resources list below).

The push for more tree planting in response to net-zero and pollution offsetting commitments provides opportunities for expanding the networks of priority habitats and this should be carefully considered – reference the SDNP Woodland Opportunity Mapping for guidance on this and other factors when considering woodland plantings.

PRIORITY HABITATS IN LANDSCAPE TYPE O: GREENSAND HILLS (7919.891 HA)


TABLE SHOWING THE PERCENTAGES OF PRIORITY HABITAT AND SSSI IN LANDSCAPE TYPE O GREENSAND HILLS

LCT O – Greensand Hills	Priority Habitats (PH) in the LCT SSSI in the LCT: 441.8			LCT: 441.8 (ha)⁵		
	Existing PH	% of LCT	% of Parkwide	PH which is	% of PH which	% of SSSI in
	In LCT ²	% of LCT	PH in LCT⁴	SSSI ⁶	Is SSSI ⁷	favourble state ⁸
Total area (ha) & percentages within the LCT:	3517.8	44.42%	7.41 %	407.5	11.58%	20.46%
Deciduous woodland.	2868.7	36.22%	10.81%	249.0	8.68%	25.77%
No main habitat but additional habitats present.	290.6	3.67%	7.07%	13.4	4.62%	6.05%
Lowland heathland.	230.0	2.90%	23.94%	145.1	63.07%	2.95%
Good quality semi-improved grassland.	95.9	1.21%	1.53%			
Traditional orchard.	13.1	0.17%	13.41%			
Lowland dry acid grassland.	12.2	0.15%	19.65%			
Lowland meadows.	6.0	0.08%	2.55%			
Coastal and floodplain grazing marsh.	1.3	0.02%	0.04%			

Footnotes

- 1 Area (ha) of land within the LCT.
- 2* Area (ha) of Priority Habitat (PH) within the LCT.
- 3* Percentage of the LCT area, which is classified as Priority Habitat.
- 4^{*} Priority Habitat area within the LCT as a percentage of the Priority Habitat in the SDNP.
- 5 Area (ha) of land within the LCT, which is designated as SSSI.
- 6* Area (ha) of Priority Habitat (PH), which is also designated as SSSI. NB: not all SSSI land is PH, which is why headline figures 5 and 6 differ.
- 7* Area of Priority Habitat (PH), which is also SSSI, as a percentage of PH in the LCT.
- 8* Percentage of the SSSI in the LCT, which is classified as being in Favourable condition.

Top value = all SSSI in favourable condition; then by 'favourable' SSSI also classed as Priority Habitat.

* Figures are given for the whole LCT first, then by Priority Habitat (main) type.

TABLE OF NATURE RECOVERY ACTIONS FOR PRIORITY HABITATS INLANDSCAPE TYPE O GREENSAND HILLS:

The following table is the list of actions for nature recovery by each priority habitat which is included in the mapping in the SDILCA in Landscape Type O Greensand Hills.

Priority habitats	Nature friendly actions to improve and connect existing habitats.
Lowland Heath	Create buffer strips to lowland Heath, acid grassland areas, hedgerows and woodland edges.
Lowland Dry Acid Grassland	Identify existing areas of this habitat, manage with extensive grazing and no inputs and aim to create a varied sward height. Can also be cut for green hay if the soil is resilient enough for machinery in late summer and use the green hay for seeding new areas.
Lowland Meadows	Manage for hay wherever possible and include aftermath grazing. Maintain structural diversity by leaving uncut/ungrazed headlands to benefit invertebrates. Use a minimal worming programme & keep livestock off the meadows for 10 days after treatment if possible do not use slow- release wormers. Do not overgraze the meadows.
Deciduous woodland	Leave standing or fallen dead wood as habitat for insects and birds. Aim for high structural and age diversity through coppicing/ pollarding or selective felling of mature trees (artificial windblow). Manage stock access to allow natural regeneration of woodland. Link wet woodland with other wetland habitats – eg ditches, hedgerows, other woodland & trees. No further drainage works.
Semi improved grassland	Increase species diversity through appropriate management and species re-introductions where desirable. Targeted scrub removal.

Priority habitats	Nature friendly actions to improve and connect existing habitats.
Coastal and Flood plain grazing marsh	There is a small area of this habitat in this LCT. Maintain light grazing march- sept preferably with cattle to allow plants to flower & provide pollen & nectar. Dung is important for invertebrates but avoid worming livestock on the land and grazing for 10 days afterwards. Clean drainage ditches in rotation so some become almost choked before clearing. Do not over dig ditches & ensure they have shallow sloped edges in some places (cattle will create these if the ditches aren't too deep and steep sided for them). Manage scrub and carr invasion.
Wood pasture and Parkland	Protect veteran trees from browsing. Identify veteran trees and any management for health requirements. Leave dead wood where it is. Replace fallen trees with new plantings at the optimum spacings. Protect new plantings from browsing. Take an Agroforestry approach to productive land.
Streams, watercourses & seasonal wetlands	Allow standing water to percolate naturally – do not increase drainage of the land. Create buffer zones along the stream channels to protect bankside vegetation from livestock and control where livestock gain access to the water. Control invasive species within the stream corridor & take a 'whole river' approach to this.
Traditional Orchard	Cut grassland in late autumn and remove cuttings. Provide wood piles for invertebrates. Leave dead wood on the trees. Look for opportunities to extend connectivity by planting native hedgerows, creating headlands, or allowing existing native hedgerows to grow out and flower avoiding 'neat' hedgerows.

Priority habitats	Actions to restore and create new habitats	Priority habitats	Actions to restore and create new habitats	
Lowland Heath Lowland Dry Acid Grassland	Bring heathland into good management. Restore heathland as coniferous plantations are felled. Seek optimum connectivity to adjacent sites and enhance connectivity of heathland habitats including the mosaic of heath, acid grassland, birch/oak woodland. Restore this habitat through removing scrub and bringing areas back into extensive grazing. Use green hay to help reseed disturbed areas. Target areas which will provide connectivity to woodland, lowland heath, river and field buffers to increase the habitat network	Deciduous woodland	Create new woodland areas where they will support a natural floor management approach within the floodplain by 'slowing the flow' downstream. Areas of new woodland could also provide shaded water areas of the river – see 'keeping rivers cool'. Replant coniferous plantations with deciduous species when felling takes place (or restore to heathland). Target new plantings where they will provide habitat connectivity	
Lowland Meadows	 In this LC1. Use green hay from local lowland meadow sources to seed new meadows. Target new meadow locations where they will provide connectivity between other habitats and other natural functions – for example – permanent soil cover, carbon sequestration, river and stream buffers. Restore existing meadow by undertaking hay cut and scrub clearance if needed. Avoid using inputs if possible & take an extensive grazing approach if hay cutting isn't possible, allowing the sward to rest and flower between July – September. 		Create new areas of wood pasture for extensive grazing systems and allow natural browsing by livestock to create a mosaic of scrub, grazed sward of varying heights and wooded zones.	
		Wood pasture and Parkland	Create new wood pasture in variety eg parkland or wooded scrub grassland mosaic approach. Establish optimum grazing management and long-term management plan. Seek expert advice where possible to avoid unintended impacts and loss of biodiversity. This habitat type has an extensive range of species associated with it including many rare UK species that are specific to this habitat.	
		Rivers and watercourses	Establish scrapes, ponds and swales to hold water on the land and reduce the water and silt burden into watercourses during extreme rainfall. Establish berms and shallows within streams to vary flows and aerate the water to provide a variety of watery habitats within the river. Manage waterside buffers to maintain species diversity in rotation to vary the height of the buffers for habitat diversity. Allow the land to flood naturally which will increase the health,	

extent and variety of aquatic and wetland habitats whilst also

providing flood capacity and help to reduce downstream flows.

Priority habitats	Actions to restore and create new habitats
Coastal and Flood plain grazing marsh	There is a small area of this habitat in this LCT. Create ponds, berms and shallows, to vary the habitat opportunities within the ditches aim to maintain high water levels throughout the year. Arable reversion may be possible on artificially drained soils where natural hydrology is Established within the floodplain, through blocking or reducing previous field drainage. Target fields which provide connectivity with adjacent grazing marsh to build a network for biodiversity. Design a management plan to rotate ditch clearances, to maintain a variety of vegetation heights and densities within the ditches and to lightly graze only between March and September when the grazing marsh is not too wet.
Traditional Orchard	Seek specialist advice when restoring old orchards, identify the fruit cultivars and restore veteran trees through expert pruning. Bring grassland back into management through light grazing or cutting early in the spring then late summer. Monitor for pests and diseases. For new plantings consider connectivity with surrounding habitats eg hedgerows, woodlands and species rich grassland. Orchards can be incorporated into an agroforestry approach to agriculture and create habitat similar to wooded pasture.

SOURCES OF FURTHER INFORMATION

FORESTRY COMMISSION ENGLAND

South Downs Forest Design Plan

- Climate change: impacts and adaptation in England's woodlands Research Note, Forestry Commission (forestresearch.gov.uk)
- UK Forestry Standard

DEFRA

Environmental land management schemes: overview – GOV.UK (www.gov.uk)

NATURAL ENGLAND

- Carbon Storage and Sequestration by Habitat 2021 NERR094 (naturalengland.org.uk)
- Habitat Networks (England) data.gov.uk
- Habitat Network Mapping Guidance.pdf (defra.gov.uk)

ENVIRONMENT AGENCY

Working with Natural Processes mapping

WOODLAND TRUST

Agroforestry

LANDSCAPE TYPE P

NATURE RECOVERY IN LANDSCAPE TYPE P: LOW WEALD

DESCRIPTION

The Low Weald LCT is a distinctive and extensive landscape type based on clay soils which extends far beyond the SDNP to the east.

There is a distinctive historic small scale field pattern of mixed arable and pasture with historic wooded & hedged field boundaries. The undulating mosaic of small fields (pasture, meadow and arable), woodlands, wooded hedgerows and streams which cross the landscape create an enclosed and remote landscape which is rich in biodiversity.

This LCT is a well wooded landscape much of it ancient woodland and a strong historic hedgerow network. The woodlands were historically managed for timber and fuel produce, now often unmanaged. Linear woodlands (Shaws) are remnant from fields cut from the woodland and provide excellent habitat connectivity particularly where they occur alongside stream corridors.

Ebernoe and the Mens commons are two internationally designated sites in the LCT which are important for bat species (Barbastelle and Bechstein's in particular). Sussex BOAS include locations where bats-flight paths, which extend out into the surrounding habitats, have been mapped and these are important to conserve and enhance.

The LCT contains a network of natural streams and ponds with associated wetlands and often linear woodlands (Shaws) which over shade them. Streams are often in deep cut channels in the clay due to the fine soil texture being vulnerable to washing out and flushing. Some historic hammer ponds remain online where streams were dammed to provide power for former industry. The ponds provide ecological interest although sediment can be a management problem.

There are a range of invasive species associated with both woodland and wetland corridors.

BIODIVERSITY OPPORTUNITY AREAS (BOAS) IN THIS LCT

- Sussex BOAs: Hampshire Rother Watershed; Snapes Copse and Verdley Wood; Ebernoe with watercourse flightlines; The Mens and buffer and Barbastelle flightlines, Chiddingfold Complex.
- Hampshire BOAs; none.

NATURE RECOVERY AMBITIONS FOR LANDSCAPE TYPE P: LOW WEALD

- Increase positive woodland management for biodiversity benefits & reduce management neglect – one of the greatest threats to ancient woodland.
- Increase connectivity between ancient woodland through targeted management of existing (coniferous and plantation) woodlands, woodland and hedgerow plantings natural regeneration and woodland creation.
- Create open areas within woodlands to encourage species rich grassland habitat particularly on archaeological sites. Connect species rich grassland areas through widening rides through woodland and managing them appropriately.

- Seek to encourage the creation of and better management for species rich grassland, for pollinators, bats and birds linking to other semi natural habitats.
- Promote hedgerow management to increase connectivity in the landscape along n hedgerow corridors.
- Create and manage headlands for maximum biodiversity benefits and connectivity.
- Increase habitat for farmland birds like, lapwing, skylark, corn bunting, grey partridge, and turtle dove. Create nesting habitat that is safe from cultivation late into the summer, use buffer strips, conservation headlands and seed rich wild bird cover crops to provide food. Spray and cultivate stubbles as late as possible.
- Create pollinator strips in arable fields to support invertebrate populations.
- Slow the flow of rivers and streams to protect/improve riparian habitats, reduce scouring, retaining water on the land and reducing downstream peak flows.
- Increase the range of habitats alongside and within the watercourses, by allowing natural vegetation to regenerate along the bankside. Manage the use of watercourses by livestock and graze bankside vegetation in rotation. Create buffer areas which will connect to other habitats and measures like headlands along fields, hedgerows and woodland to increase overall connectivity for nature
- Increase the presence of the watercourses in the landscape. Allow flooding of the land with swales, and wetland areas in particular. Minimise any new drainage measures and reduce the flow of existing drainage by installing leaky dams & shallow scrapes.
- Target the management of species rich grasslands with extensive grazing programmes and hay production and limit the use of inputs.

TARGET SPECIES

Woodland plant species, lichens, fungi, breeding birds, moths and butterflies (especially wood white), barn owl, nightingale, turtle dove, 14 bat species (especially barbastelle and Bechstein's), native bluebell, tawny owl, dormouse, hedgehog.

Arable areas in the Low Weald are important nesting and feeding areas for farmland birds eg corn bunting, turtle dove, lapwing, skylark, grey partridge.

MONITOR AND CONTROL

INVASIVE SPECIES

Grey squirrel, deer (fallow and muntjac), Himalayan balsam, and cherry laurel, Japanese knotweed, American mink, Floating pennywort, rhododendron.

TREE PATHOGENS

Follow guidance for management of woodlands.

VULNERABILITY IN LANDSCAPE TYPE P LOW WEALD

HABITATS (OR FIELDSCAPES)

Large areas of Ancient Woodland, and wooded hedgerows. The pattern of mixed land use with intact hedge network, variable scale mosaic of woodland, species rich lowland meadow and lowland acid grasslands and arable habitats for farmland birds and rare arable flora. Agricultural practice and responses to climate change including Net Zero driven changes to land use.

PERCEPTUAL QUALITIES

Tranquillity, wildness and remote qualities within the undulating mosaic of woodland, arable farming and pasture. Woodland around pasture and arable fieldscapes creates an enclosed landscape.

ACCESS

A good Public rights of way network provides access in this area and to the east of this LCT there are large areas of accessible natural greenspace, although these are highly designated and sensitive to recreational pressure.

HERITAGE

There are many aspects of historic landscape in this character type, all of which are vulnerable to land use change and changes in land management: Ancient woodland, veteran trees, historic hedgerows, parish and other boundary plantings, wood pasture, medieval deer parks and parkland priority habitat, woodland archaeology, extensive field systems from bronze age to medieval.

WATER

This LCT is in the upper catchment for the Rother and Arun rivers. All of the rivers in the SDNP are affected by sewage discharges, pollution from farming, high abstraction levels and extreme rainfall/flow events, which collectively have an impact on the water quality and biota of the rivers.

The rivers and streams in this catchment area are particularly vulnerable to erosion and high sediment loads.

Woodland can benefit upstream flood management and groundwater quality in the right locations refer to EA mapping: **Working with Natural Processes: Map** (jbahosting.com).

CARBON

Woodland, hedgerows, pasture, wetlands and associated soils are vitally important for sequestering and storing carbon.

There are existing threats to native woodland species from pathogens, and climate change impacts so woodland replacement and additional plantings are targeted. Carbon calculations need to factor in these losses – eg ash dieback.

The push for more tree planting in response to net zero and pollution offsetting commitments could affect the opportunities for expanding the networks of other priority habitats and this should be carefully considered – reference the SDNP Woodland Opportunity Mapping for guidance on this and other factors when considering woodland plantings.

PRIORITY HABITATS IN LANDSCAPE TYPE P: LOW WEALD (10194.635 ha)



TABLE SHOWING THE PERCENTAGES OF PRIORITY HABITAT AND SSSI IN LANDSCAPE TYPE P LOW WEALD

LCT P – Low Weald	Priority Habitats (PH) in the LCT			SSSI in the LCT: 440.5 (ha)⁵		
10194.6 (ha) ¹	Existing PH	% of LCT	% of Parkwide	PH which is	% of PH which	% of SSSI in
	In LCT ²	% of LCT	PH in LCT ⁴	SSSI ⁶	Is SSSI ⁷	favourble state ⁸
Total area (ha) & percentages within the LCT:	2900.2	28.45%	6.11 %	409.3	14.11%	87.44 %
Deciduous woodland.	2467.2		9.30%		16.02%	90.81%
Good quality semi-improved grassland.	282.6	2.77%	4.50%	0.8	0.29%	100.00%
No main habitat but additional habitats present.	113.0	1.11%	2.75%	5.3	4.71%	92.61%
Lowland meadows.	18.8	0.18%	8.00%	1.0	5.06%	100.00%
Traditional orchard.	8.7	0.09%	8.92%	0.1	0.59%	100.00%
Lowland heathland.	6.4	0.06%	0.67%	5.7	89.31%	
Lowland dry acid grassland.	2.1	0.02%	3.46%			
Lowland fens.	1.2	0.01%	0.34%	1.2	99.78%	

Footnotes

- 1 Area (ha) of land within the LCT.
- 2* Area (ha) of Priority Habitat (PH) within the LCT.
- 3* Percentage of the LCT area, which is classified as Priority Habitat.
- 4^{*} Priority Habitat area within the LCT as a percentage of the Priority Habitat in the SDNP.
- 5 Area (ha) of land within the LCT, which is designated as SSSI.
- 6* Area (ha) of Priority Habitat (PH), which is also designated as SSSI. NB: not all SSSI land is PH, which is why headline figures 5 and 6 differ.
- 7* Area of Priority Habitat (PH), which is also SSSI, as a percentage of PH in the LCT.
- 8* Percentage of the SSSI in the LCT, which is classified as being in Favourable condition.

Top value= all SSSI in favourable condition; then by 'favourable' SSSI also classed as Priority Habitat.

Figures are given for the whole LCT first, then by Priority Habitat (main) type.

TABLE OF NATURE RECOVERY ACTIONS FOR PRIORITY HABITATS INLANDSCAPE TYPE P LOW WEALD

The following table is the list of actions for nature recovery by each priority habitat which is included in the mapping in the SDILCA in Landscape Type P Low Weald.

Priority habitats	Nature friendly actions to improve and connect existing habitats.
Deciduous woodland & hedgerows	Leave standing or fallen dead wood as habitat for insects and birds. Aim for high structural and age diversity through coppicing/ pollarding or selective felling of mature trees (artificial windblow). Manage stock access to allow natural regeneration of woodland. Link wet woodland with other wetland habitats – eg ditches, hedgerows, other woodland & trees. No further drainage works. Let hedgerow grow out at the corners of fields.
Semi Improved grassland	Increase species diversity of grasslands through management and targeted grazing cycles. Create meadow buffer strips along hedgerows and woodland edges to connect up with other habitats.
Lowland Fens	Lightly graze between May and September to allow plants to flower and set seed. Cut areas which are undergrazed by cattle on advice only. Existing drains and ditches may need clearing occasionally. Maintain scrub cover at 10-20%. No additional drainage work should be undertaken.

Priority habitats	Nature friendly actions to improve and connect existing habitats.
Wood pasture and Parkland	Protect veteran trees from browsing. Identify veteran trees and any management for health requirements. Leave dead wood where it is. Replace fallen trees with new plantings at the optimum spacings. Protect new plantings from browsing. Take an Agroforestry approach to productive land.
Lowland Heathland	Create buffer strips to lowland Heath, acid grassland areas, hedgerows and woodland edges.
Lowland dry acid grassland	Identify existing areas of this habitat, manage with extensive grazing and no inputs and aim to create a varied sward height. The sward could also be cut for green hay if the soil is resilient enough for machinery in late summer and use the green hay for seeding new areas.
Traditional Orchard	Cut grassland in late autumn and remove cuttings. Provide wood piles for invertebrates. Leave dead wood on the trees. Look for opportunities to extend connectivity by planting native hedgerows, creating headlands, or allowing existing native hedgerows to grow out and flower avoiding 'neat' hedgerows.
Lowland Meadow	Manage for hay wherever possible and include aftermath grazing. Maintain structural diversity by leaving uncut/ungrazed headlands to benefit invertebrates. Use a minimal worming programme & keep livestock off the meadows for 10 days after treatment if possible do not use slow- release wormers. Do not overgraze the meadows.

Priority habitats	Nature friendly actions to improve and connect existing habitats.
Streams,	Allow standing water to percolate naturally – do not increase
watercourses	drainage of the land.
& seasonal wetlands	Create buffer zones along the stream channels to protect bankside vegetation from livestock and control where livestock gain access to the water. Control invasive species within the stream corridor & take a 'whole river' approach to this.

Priority habitats	Actions to restore and create new habitats
Deciduous	Create new woodland areas where they will support a natural
woodland	flood management approach within the floodplain by 'slowing the
including	flow' downstream.
Ancient	Areas of new woodland could also provide shaded water areas of
Woodland	the river (see 'keeping rivers cool').
& Hedgerows	Consider replanting coniferous plantations with deciduous species when felling takes place (or restore to heathland) but ensure
	that there is coniferous habitat left for birds like Goshawk, Siskin, Rednoll and Firecrest
	Target new plantings where they will provide habitat connectivity between other areas of woodland.
	Create new areas of wood pasture for extensive grazing systems
	and allow natural browsing by livestock to create a mosaic of
	scrub, grazed sward of varying heights and wooded zones.
	Create new hedgerows and conservation headlands to connect up
	habitats beyond arable land.

Priority habitats	Actions to restore and create new habitats
Semi Improved grassland	Increase species diversity through appropriate grazing/hay management and species re-introductions where desirable. Targeted scrub removal where needed.
Lowland Meadows	Use green hay from local lowland meadow sources to seed new meadows. Target new meadow locations where they will provide connectivity between other habitats and other natural functions – for example – permanent soil cover, carbon sequestration, river and stream buffers. Restore existing meadow by undertaking hay cut and scrub clearance if needed. Avoid using inputs if possible & take an extensive grazing approach if hay cutting isn't possible, allowing the sward to rest and flower between July – September.
Traditional Orchard	Seek specialist advice when restoring old orchards, identify the fruit cultivars and restore veteran trees through expert pruning. Bring grassland back into management through light grazing or cutting early in the spring then late summer. Monitor for pests and diseases. For new plantings consider connectivity with surrounding habitats eg hedgerows, woodlands and species rich grassland. Orchards can be incorporated into an agroforestry approach to agriculture and create habitat similar to wooded pasture.
Lowland Heathland	Bring heathland into good management. Restore heathland as coniferous plantations are felled, seek optimum connectivity to adjacent sites and enhance connectivity of heathland habitats including the mosaic of heath, acid grassland, birch/oak woodland.

Priority habitats	Actions to restore and create new habitats
Lowland Dry Acid Grassland	Restore this habitat through removing scrub and bringing areas back into extensive grazing. Use green hay to help reseed disturbed areas. Target areas will provide connectivity to woodland, lowland heath, river and field buffers to increase the habitat network in this LCT.
Lowland fens	Identify key land parcels for fen restoration where they would provide connectivity to other fen sites. Arable land reversion may qualify for nutrient neutrality payments subject to any changes in planning requirements. Restore existing fen sites and develop management plans for them. Seek to join up habitats with ditches, headlands, pollinator strips, hedgerow and wet woodland.
Wood pasture and Parkland	Create new wood pasture in variety eg parkland or wooded scrub grassland mosaic approach. Establish optimum grazing management and long-term management plan. Seek expert advice where possible to avoid unintended impacts and loss of biodiversity. This habitat type has an extensive range of species associated with it including many rare UK species that are specific to this habitat.
Rivers and watercourses	Establish scrapes, ponds and swales to hold water on the land and reduce the flow during extreme rainfall. Establish berms and shallows within the river to vary flows and aerate the water to provide a variety of watery habitats within the river. Manage riverside buffers to maintain species diversity in rotation to vary the height of the buffers for habitat diversity.

SOURCES OF FURTHER INFORMATION

FORESTRY COMMISSION ENGLAND

- South Downs Forest Design Plan
- Climate change: impacts and adaptation in England's woodlands Research Note, Forestry Commission (forestresearch.gov.uk)
- UK Forestry Standard

DEFRA

Environmental land management schemes: overview – GOV.UK (www.gov. uk)

NATURAL ENGLAND

- Carbon Storage and Sequestration by Habitat 2021 NERR094 (naturalengland.org.uk)
- Habitat Networks (England) data.gov.uk
- Habitat Network Mapping Guidance.pdf (defra.gov.uk)

ENVIRONMENT AGENCY

Working with Natural Processes mapping

WOODLAND TRUST

Agroforestry

LANDSCAPE TYPE Q

NATURE RECOVERY IN LANDSCAPE TYPE Q: WOODED CLAYLANDS

DESCRIPTION

The Wooded Claylands LCT is a relatively small landscape type within the SDNP although its features extend beyond the National Park. The heavy soils have had limited agricultural activity with woodland – both semi-natural and plantation being the main land use. There are small areas of lowland heath in clearings, which suggest a link back to the area's former use as a medieval hunting forest – the Forest of Bere which would have been a wooded pasture and heathland mosaic. Also wooded over common land. There are a number of streams and watercourses, which drain into the Meon valley chalk stream and support its natural function. These will be beneficial to the hydrology and ecology of this section of the Meon catchment.

Much of the area is managed by Forestry England and is publicly accessible. The area has importance for access to natural greenspace for the surrounding populations within and beyond the SDNP boundary. The LCT sits completely within the large Hampshire BOA, The Forest of Bere, which covers an extensive area to the south of the SDNP. It was a former hunting forest (circa 1300) and once almost provided a continuous wooded link between the New Forest and Sussex.

BIODIVERSITY OPPORTUNITY AREAS WITHIN THIS LCT:

Hampshire BOA: The Forest of Bere.

NATURE RECOVERY AMBITIONS FOR LANDSCAPE TYPE Q: WOODED CLAYLANDS

- Increase positive woodland management for biodiversity benefits & reduce management neglect – one of the greatest threats to ancient woodland.
- Increase connectivity between ancient woodland through targeted management of existing (coniferous and plantation) woodlands, woodland and hedgerow plantings natural regeneration and woodland creation.
- Create open areas within woodlands to encourage grassland habitat particularly on archaeological sites. Connect species rich grassland areas through widening rides through woodland and managing them appropriately.
- Seek to encourage the creation of and better management for species rich grassland, for pollinators, bats and birds linking to other semi natural habitats.
- > Create and manage headlands for maximum biodiversity benefits and connectivity.
- Slow the flow of rivers and streams to protect/improve riparian habitats, reduce scouring, maximise the water kept on the land and reduce downstream peak flows.
- Increase the range of habitats alongside and within the watercourses by allowing natural vegetation to regenerate along the bankside. Manage the use of watercourses by livestock/people and manage bankside vegetation in rotation. Target buffer areas which will connect to other habitats and measures like headlands along fields, hedgerows and woodland to increase overall connectivity for nature, particularly between the River Meon and the adjacent ASNW.

- Increase the presence of the watercourses in the landscape. Allow flooding of the land with swales, and wetland areas in particular. Don't carry out any new drainage measures and reduce the flow of existing drainage by installing leaky dams & shallow scrapes. Ensure fish migration is possible over manmade structures.
- Target the management of species rich grasslands with extensive grazing programmes and hay production and limit the use of inputs.
- Plan for the greatest sustainable capacity for recreation in this LCT through positive visitor management and interpretation.

TARGET SPECIES

Woodland plant species, small leaved lime, lichens, fungi, breeding birds, moths and butterflies, barn Owl, nightingale, native bluebell, tawny owl, dormouse, hedgehog.

MONITOR AND CONTROL

INVASIVE SPECIES

Grey squirrel, deer (fallow and muntjac), Himalayan balsam, and cherry laurel, Japanese knotweed, American mink, floating pennywort, rhododendron.

TREE PATHOGENS

Follow guidance for management of woodlands.

VULNERABILITY IN LANDSCAPE TYPE Q WOODED CLAYLANDS

HABITATS (OR FIELDSCAPES)

Large area of Semi-natural Ancient Woodland, and plantation on ancient woodland soils which are vulnerable to lack of management. Species rich rides, glades and wooded pasture heathland are remnants of former hunting forest or deer parks, which could be improved for biodiversity by bringing into beneficial management.

PERCEPTUAL QUALITIES

Locally tranquil, wildness and remote qualities with a strong sense of enclosure within the undulating mosaic of woodland, wooded pasture and scrub.

ACCESS

There are a number of public rights of way providing access in this area and much of the forested area is open access land. It is well-used accessible natural greenspace, although sensitive to recreational pressure.

HERITAGE

There are many aspects of historic landscape in this character type, all of which are vulnerable to land use change and changes in land management. These include Ancient woodland, veteran trees, wood pasture, woodland archaeology, and remnant heathland.

WATER

This LCT is within the catchment of the Meon chalk river and is immediately adjacent to the river corridor. Chalk streams are a unique and valuable habitat and almost exclusively found in the South of England. All of the rivers in the SDNP are affected by sewage discharges, pollution from farming, opaque abstraction levels and extreme rainfall/flow events which collectively have an impact on the health of the rivers' ecology, water quality and hydrology.

Woodland can benefit upstream flood management and groundwater quality in the right locations refer to EA mapping: **Working with Natural Processes: Map** (jbahosting.com).

CARBON

Woodland, hedgerows, pasture, wetlands and associated soils are vitally important for sequestering and storing carbon.

There are existing threats to native woodland species from pathogens, and climate change impacts so woodland replacement and additional plantings are targeted.

The push for more tree planting in response to net zero and pollution offsetting commitments could affect the opportunities for expanding the networks of other priority habitats and this should be carefully considered – reference the SDNP Woodland Opportunity Mapping for guidance on this and other factors when considering woodland plantings.

PRIORITY HABITATS IN LANDSCAPE TYPE Q: WOODED CLAYLANDS (667.279 ha)



TABLE SHOWING THE PERCENTAGES OF PRIORITY HABITAT AND SSSI IN LANDSCAPE TYPE Q WOODED CLAYLANDS

LCT Q – Wooded Claylands	Priority Habitats (PH) in the LCT SSSI in the LCT:				he LCT: 0.0 (ha)⁵	
667.3 (ha) ¹	Existing PH	% of LCT	% of Parkwide	PH which is	% of PH which	% of SSSI in
	In LCT ²	% of LCT	PH in LCT⁴	SSSI ⁶	Is SSSI ⁷	favourble state ⁸
Total area (ha) & percentages within the LCT:	294.2	44.08%	0.62%	0.0	0.0%	
Deciduous woodland.	278.5	41.74%	1.05%			
No main habitat but additional habitats present.	12.8	1.92%	0.31%			
Good quality semi-improved grassland.	1.6	0.24%	0.03%			
Coastal and floodplain grazing marsh.	1.2	0.18%	0.04%			

Footnotes

- 1 Area (ha) of land within the LCT.
- 2* Area (ha) of Priority Habitat (PH) within the LCT.
- 3* Percentage of the LCT area, which is classified as Priority Habitat.
- 4^{*} Priority Habitat area within the LCT as a percentage of the Priority Habitat in the SDNP.
- 5 Area (ha) of land within the LCT, which is designated as SSSI.
- 6* Area (ha) of Priority Habitat (PH), which is also designated as SSSI. NB: not all SSSI land is PH, which is why headline figures 5 and 6 differ.
- 7* Area of Priority Habitat (PH), which is also SSSI, as a percentage of PH in the LCT.
- 8* Percentage of the SSSI in the LCT, which is classified as being in Favourable condition.

Top value= all SSSI in favourable condition; then by 'favourable' SSSI also classed as Priority Habitat.

* Figures are given for the whole LCT first, then by Priority Habitat (main) type.

Priority habitats Nature friendly actions to improve and connect existing		Priority habitats	Actions to restore and create new habitats		
Deciduous woodland & hedgerows	habitats.Leave standing or fallen dead wood as habitat for insects and birds.Aim for high structural and age diversity through coppicing/ pollarding or selective felling of mature trees (artificial windblow).Manage stock access to allow natural regeneration of woodland.Link wet woodland with other wetland habitats eg ditches, hedgerows, other woodland & trees.No further drainage works.Allow hedgerows to grow out at the corners of fields.	Deciduous woodland including Ancient Woodland & Hedgerows	Create new woodland areas (or allow natural regeneration) where they will support a natural flood management approach within the floodplain by 'slowing the flow' downstream. Areas of new woodland could also provide shaded water areas of the river see 'keeping rivers cool'. Consider replanting some coniferous plantations with deciduous species when felling takes place (or restore to heathland) but ensure that there is coniferous habitat left for birds like goshawk, siskin, redpoll and firecrest. Target new plantings where they will provide habitat connectivity between other areas of woodland and beyond the LCT/SDNP area.		
Semi Improved grassland	Increase species diversity of grasslands through management and targeted grazing cycles. Create meadow buffer strips along hedgerows and	Semi Improved grassland	Increase species diversity through appropriate grazing/hay management and species re-introductions where desirable. Targeted scrub removal where needed.		
Wood pasture and ParklandProtect veteran trees from browsing. Identify veteran trees and any management for health requirements. Leave dead wood where it is. Replace fallen trees with new plantings at the optimum spacing. Protect new plantings from browsing.Streams,Allow standing water to percolate naturally – do not increase		Wood pasture and Parkland	Create new wood pasture in variety eg parkland or wooded scrub grassland mosaic approach. Establish optimum grazing management and long-term management plan. Seek expert advice where possible to avoid unintended impacts and loss of biodiversity. This habitat type has an extensive range of species associated with it including many rare UK species that are specific to this habitat.		
watercourses & seasonal wetlands	drainage of the land. Create buffer zones along the stream channels to protect bankside vegetation from people/ livestock and control where livestock/people/dogs gain access to the water. Control invasive species within the stream corridor & take a 'whole river' approach to this.	Rivers and watercourses	Establish scrapes, ponds and swales to hold water on the land and reduce the water burden during extreme rainfall. Establish berms and shallows within the river to vary flows and aerate the water to provide a variety of watery habitats within the river. Manage riverside buffers to maintain species diversity in rotation to vary the height of the huffers for habitat diversity.		

SOURCES OF FURTHER INFORMATION

FORESTRY COMMISSION ENGLAND

- South Downs Forest Design Plan
- Climate change: impacts and adaptation in England's woodlands Research Note, Forestry Commission (forestresearch.gov.uk)
- **UK Forestry Standard**

DEFRA

Environmental land management schemes: overview – GOV.UK (www.gov. uk)

NATURAL ENGLAND

- Carbon Storage and Sequestration by Habitat 2021 NERR094 (naturalengland.org.uk)
- Habitat Networks (England) data.gov.uk
- Habitat Network Mapping Guidance.pdf (defra.gov.uk)

ENVIRONMENT AGENCY

Working with Natural Processes mapping

WOODLAND TRUST

Agroforestry

LANDSCAPE TYPE R

NATURE RECOVERY IN LANDSCAPE TYPE R: UPPER COASTAL PLAIN

DESCRIPTION

This is a transitional LCT which marks the edge of the chalk downs dipslope and the busy coastal plain within Sussex. The SDNP boundary does not include all of the upper coastal plain character area. It is a rolling landscape, and the main priority habitat is the network of woodlands including ancient woodlands, wooded pasture and estate landscapes with predominantly wooded hedgerow field boundaries. There are extensive arable and permanent pasture field systems and plantings to support field sports, game bird production and other outdoor recreational pursuits. Despite the good network of woodland, the landscape type does not have a high level of national biodiversity designations, although there are important ASNW sites at Binsted and Tortington for example which are designated at a county level. Arable land is important habitat for farmland birds where it is managed sympathetically for them. A network of streams and watercourses drain from the dipslope through the upper coastal plain and these can be important for bat flightlines eg at Chichester and Arundel, and generally provide further ecological opportunities at the foot of the (dry) dipslope. There are also ponds and wetland areas where the chalk gives way to clays (some of which are manmade) eg East Ashling, & Aldsworth, There are Sussex BOAs within this LCT.

BIODIVERSITY OPPORTUNITY AREAS (BOAS) WITHIN THIS LCT:

- Sussex BOAs: Lavant Watershed, Arundel Park, and slightly to the south of the SDNP at Binsted. The Tortington and Binsted Rifes are contained within the Climping to Houghton BOA, which includes the Arun valley system as well.
- Hampshire BOAs: None.

NATURE RECOVERY AMBITIONS FOR LANDSCAPE TYPE R: UPPER COASTAL PLAIN

- Where possible (and financially viable) manage chalk downland with regular grazing. Alternatively, where grazing isn't possible, use a 'cut and collect' flail mower intermittently to mimic grazing. Investigate new/old markets and business models for livestock grazing eg sheep walk (fertilizer) and wool path base reinforcement.
- Ensure that the upper coastal plain does not become 'de-wooded' through ash die back on the back of the losses from the 1987 storm and prior to that tree loss from Dutch Elm disease. Target new plantings which enhance the wooded network of pasture and arable fields and watercourses.
- Increase positive woodland management for biodiversity benefits & reduce management neglect – the greatest threat to ancient woodland.

- Increase connectivity between ancient woodland through targeted management of existing woodlands, woodland and hedgerow plantings natural regeneration and woodland creation.
- In areas where beech woodland plantations are predominant, ensure these become more diverse in age and species through selective felling and allowing natural regeneration.
- Create open areas within woodlands to encourage chalk grassland habitat particularly on archaeological sites. Connect chalk grassland areas through widening rides through woodland and managing them appropriately.
- Seek to encourage the creation of and better management for species rich grassland, for pollinators, bats and birds linking to other semi-natural habitats.
- Promote hedgerow reinstatement and management to increase connectivity in the landscape along new hedgerow corridors.
- > Create and manage headlands for maximum biodiversity benefits and connectivity.
- Increase habitat for farmland birds like lapwing, skylark, corn bunting, grey partridge, and turtle dove. Create nesting habitat which is safe from cultivation late into the summer. Use buffer strips, conservation headlands and seed rich wild bird cover crops to provide food. Spray and cultivate stubbles as late as possible.
- Create pollinator strips in arable fields to support invertebrate populations.

TARGET SPECIES

- Woodland plant species, lichens, fungi, breeding birds, moths and butterflies, barn owl, nightingale, turtle dove, bats (14 species noted at Binsted /Tortington Woods) native bluebell, tawny owl, dormouse, hedgehog.
- Chalk downland species: Many orchid species, juniper,100's of invertebrates including the Adonis, small and chalk hill blue butterflies, old grassland fungi including wax cap assemblages, reptiles such as adder and viviparous Lizard.

Arable areas in the Upper Coastal Plain are important nesting and feeding areas for farmland birds eg corn bunting, turtle dove, lapwing, skylark, grey partridge.

MONITOR AND CONTROL

INVASIVE SPECIES

b Grey squirrel, deer, rhododendron, snowberry, turkey oak and cherry laurel.

TREE PATHOGENS

Follow guidance for management of woodlands.

VULNERABILITY IN LANDSCAPE TYPE R UPPER COASTAL PLAIN

HABITATS (OR FIELDSCAPES)

Large areas of Ancient Woodland, including distinctive yew forests. Chalk grassland with scrub. The pattern of mixed land use with intact hedge network, variable scale mosaic of woodland, both species rich and lowland chalk grassland and arable habitats for farmland birds and rare arable flora. Agricultural practice and responses to climate change including Net Zero driven changes to land use. Historic loss of woodland due to Dutch elm disease and the 1987 storm now compounded by Ash dieback. The upper coastal plain is vulnerable to becoming de wooded.

PERCEPTUAL QUALITIES

Variable tranquillity, wildness and remote qualities within the undulating mosaic of woodland, arable farming and pasture. Woodland around pasture and arable fieldscapes creates an enclosed landscape in places, more open with extensive views in other areas, often in the more elevated locations.

ACCESS

There are large areas of Accessible Natural Greenspace at Slindon, Arundel and Angmering. These are all generally on the north side of the A27 which acts as a significant barrier to users. To the west around Chichester, there are public rights of way networks but no significant areas of accessible natural greenspace. The upper coastal plain is an important access point for visitors to the SDNP in Sussex.

HERITAGE

Historic tracks, parkland, estates, wooded pasture, Devils Ditch scheduled ancient monument. There are many aspects of historic landscape in this character type all of which are vulnerable to land use change and changes in land management: Ancient woodland, veteran trees, historic hedgerows, parish and other boundary plantings, wood pasture, medieval deer parks and parkland priority habitat, woodland archaeology, extensive field systems from bronze age to medieval, Saxon churches, burial mounds.

WATER

Watercourses in this LCT are in the lower catchments of a variety of important rivers – eg Lavant, Ems, and the Arun. The chalk stream catchments are particularly vulnerable to ground water pollutants, over-abstraction, sewage discharge and extreme weather events. They are valuable aquatic habitats that occur mostly in the south of England and nowhere else in the world. All of the Solent catchments are subject to Nitrate Neutrality controls and the River Arun catchment is also subject to water neutrality regulations for development. Both mechanisms may offer delivery opportunities for nature recovery through the need to offset the impact of housing development.

Woodland can benefit upstream flood management and groundwater quality in the right locations refer to EA mapping: **Working with Natural Processes: Map** (jbahosting.com).

CARBON

Woodland, hedgerows and soils are vitally important for sequestering and storing carbon.

There are existing threats to native woodland species from pathogens, and climate change impacts so woodland replacement and additional plantings are targeted. Carbon calculations need to factor in these losses eg ash dieback.

The push for more tree planting in response to net zero and pollution offsetting commitments provide opportunities for expanding the networks of other priority habitats and this should be carefully considered– reference the SDNP Woodland Opportunity Mapping for guidance on this and other factors when considering woodland plantings.

PRIORITY HABITATS IN LANDSCAPE TYPE R: UPPER COASTAL PLAIN (2697.539 ha)



TABLE SHOWING THE PERCENTAGES OF PRIORITY HABITAT AND SSSI IN LANDSCAPE TYPE R UPPER COASTAL PLAIN

LCT R – Upper Coastal Plain	Priority Habitats (PH) in the LCT			SSSI in the LCT: 0.0 (ha)⁵		
2697.5.3 (ha) ¹	Existing PH	% of LCT	% of Parkwide	PH which is	% of PH which	% of SSSI in
	In LCT ²	% of LCT	PH in LCT⁴	SSSI ⁶	Is SSSI ⁷	favourble state ⁸
Total area (ha) & percentages within the LCT:	818.7	30.35%	1.72 %	0.0	0.0%	
Deciduous woodland.	743.1	27.55%	2.80%			
Good quality semi-improved grassland.	55.3	2.05%	0.88%			
No main habitat but additional habitats present.	11.6	0.43%	0.28%			
Lowland calcareous grassland.	7.0	0.26%	0.13%			
Traditional orchard.	1.6	0.06%	1.66%			

Footnotes

- 1 Area (ha) of land within the LCT.
- 2* Area (ha) of Priority Habitat (PH) within the LCT.
- 3* Percentage of the LCT area, which is classified as Priority Habitat.
- 4^{*} Priority Habitat area within the LCT as a percentage of the Priority Habitat in the SDNP.
- 5 Area (ha) of land within the LCT, which is designated as SSSI.
- 6* Area (ha) of Priority Habitat (PH), which is also designated as SSSI. NB: not all SSSI land is PH, which is why headline figures 5 and 6 differ.
- 7^* Area of Priority Habitat (PH), which is also SSSI, as a percentage of PH in the LCT.
- 8* Percentage of the SSSI in the LCT, which is classified as being in Favourable condition.
 - Top value= all SSSI in favourable condition; then by 'favourable' SSSI also classed as Priority Habitat.
- * Figures are given for the whole LCT first, then by Priority Habitat (main) type.

TABLE OF NATURE RECOVERY ACTIONS FOR PRIORITY HABITATS INLANDSCAPE TYPE R UPPER COASTAL PLAIN:

The following table is the list of actions for nature recovery by each priority habitat which is included in the mapping in the SDILCA in Landscape Type R Upper Coastal Plain.

Priority habitats	Nature friendly actions to improve and connect existing habitats.
Deciduous woodland & hedgerows	Manage vegetation along rides and tracks to increase the range of habitats. Create new meadow strips along woodland edges. Manage existing woodland to achieve a diversity of age and species. Manage and maintain hedgerows, replanting hedgerow trees and new hedgerows to improve and connect the hedgerow network. Allow hedges to grow out at junctions and field corners.
Semi Improved grassland	Increase species diversity of grasslands through management and targeted grazing cycles with no inputs, alternatively cut hay & use it green for creating new species rich grassland. Where possible do not allow grazing by livestock 10 days after worming has been done & don't use slow-release wormers. Create meadow buffer strips along hedgerows and woodland edges to connect up with other habitats. Allow hedgerows to grow out in field corners.
Calcareous grassland (LCG)	Manage grassland with extensive grazing or mechanical cutting for improving soil health and species diversity with no inputs. Ensure cuttings are removed. Where possible do not allow grazing by livestock 10 days after worming has been done & don't use slow-release wormers.

Priority habitats	Actions to restore and create new habitats
Deciduous woodland including Ancient Woodland	Manage broadleaved woodlands to achieve good condition, age and species diversity. Improve woodland connectivity with new plantings/natural regeneration and targeted woodland management. Target woodland and hedgerow planting of the upper coastal plain to recover losses from DED, 1987 and Ash dieback. Target woodland and tree planting along the river and watercourse corridors to slow the flow, create shade and protect soils. Manage and protect the ancient yew woodlands & use new woodland plantings to create buffers around them.
Semi Improved grassland	Increase species diversity through appropriate grazing/hay management and species re-introductions where desirable. Sow new species rich grassland by using locally harvested green hay. Targeted scrub removal where needed.
Calcareous grassland (LCG)	Manage chalk grassland areas, remove scrub and seek to expand and connect them in combination with opening up woodland with rides and glades and establishing new areas of this habitat as part of an expanding network.
Wood pasture and Parkland	Create new wood pasture in variety eg parkland or wooded scrub grassland mosaic approach. Establish optimum grazing management and long-term management plan. Seek expert advice where possible to avoid unintended impacts and loss of biodiversity. This habitat type has an extensive range of species associated with it including many rare UK species that are specific to this habitat.

Priority habitats	Actions to restore and create new habitats
Arable	Create plots of wild seed bird mixture to support farmland bird
farmland	populations.
	Create permanent arable margins and pollinator species
	corridors.
	Maintain winter cover, feed crops or stubbles.
Ponds and	Restore existing and create new ponds, create buffers along
watercourses	watercourses to allow bankside vegetation to establish, restrict
	access by livestock and cut vegetation in rotation to achieve
	continued habitat diversity.

SOURCES OF FURTHER INFORMATION

FORESTRY COMMISSION ENGLAND

- South Downs Forest Design Plan
- Climate change: impacts and adaptation in England's woodlands Research Note, Forestry Commission (forestresearch.gov.uk)
- **UK Forestry Standard**

DEFRA

Environmental land management schemes: overview – GOV.UK (www.gov.uk)

NATURAL ENGLAND

- Carbon Storage and Sequestration by Habitat 2021 NERR094 (naturalengland.org.uk)
- Habitat Networks (England) data.gov.uk
- Habitat Network Mapping Guidance.pdf (defra.gov.uk)

ENVIRONMENT AGENCY

Working with Natural Processes mapping

WOODLAND TRUST

Agroforestry

LANDSCAPE TYPE S

NATURE RECOVERY IN LANDSCAPE TYPE S: SHORELINE

DESCRIPTION

The Shoreline LCT is an extraordinary and unique landscape in the SDNP. The range of coastal habitats combined with the niche and distinct maritime landscape create a wild and untamed landscape, at the mercy of the weather and erosion (time). Habitats are dynamic in response to sometimes dramatic changes by cliff falls for example and rising sea levels increasingly have an impact on the inter-tidal zones of the shoreline. The whole LCT is designated SSSI with a substantial part also designated Heritage Coast together with adjacent Maritime Protection Areas – the Sussex Nearshore no trawling zone and the Marine Conservation Zone Beachy Head West. The coastline has cliffs of both habitat and geological interest, together with a range of coastal habitats. The shingle banks at the mouth of the Cuckmere with its rare centipedes. There are flora species specially adapted to life on the vegetated shingle such as yellow horned poppy, curled dock, sea beet, sea bindweed and sea campion. These communities are constantly changing in response to water levels, shingle/coastal drift and replenishment/flood management activity. There are large rock pools and runnels with flowing water, (the deep sided gullies on the lower shore) and sandy and muddy areas with their characteristic algal assemblages and brown and green seaweeds. The cliffs support a range of niche species which are tolerant of maritime exposure and extremes of weather – being south facing, with salt spray, guano (droppings) from extensive bird populations, friable soils, hot substrate and a range of open conditions on the cliff faces. These conditions provide for a rich assemblage of specialised plant and animal communities, including invertebrates and rare plants. There are cliff nesting birds

including peregrine falcon, raven, fulmar, kittiwake, herring gull and rock pipit together with maritime grasslands & coastal scrub with mosses, liverworts and lichens, bees, wasps, beetles, butterflies and moths in abundance.

BIODIVERSITY OPPORTUNITY AREAS (BOAS) IN THIS LCT:

- Sussex BOAs: East Brighton Downs, Seaford to Eastbourne Downs.
- Hampshire BOAs: None.

NATURE RECOVERY AMBITIONS FOR LANDSCAPE TYPE S: SHORELINE

- Minimise disturbance and erosion by recreational activity along both the cliff top and the shoreline.
- Raise awareness about the variety of vulnerable habitats both on the cliffs, cliff tops and along the shoreline.
- Engagement opportunities with visitors should be maximised eg when surveying the cliff face habitats with drones, making this accessible online if possible.
- Work with adjacent landowners to improve habitat connectivity northwards from the cliff face, with particular emphasis on invertebrates.
- Climate change is the single biggest risk to the shoreline LCT and continuing to urgently work on carbon reductions and net zero is critical to limit these impacts.
- Seek opportunities for some coastal habitats to migrate further inland (saltmarsh for example).

TARGET SPECIES

Peregrine falcon, raven, ringed plover, kittiwake. Mosses, liverworts and lichens, bees, wasps, beetles (in abundance) butterflies and moths. Assemblages of maritime grassland species, coastal scrub and vegetated shingle plant communities. Monitor and control.

INVASIVE SPECIES

Cotoneaster in sheltered locations on the cliff tops. Red valerian is an invasive nonnative plant on shingle and even cliff habitats. There are also a raft of marine/estuarine species such as Chinese mitten crab, carpet sea squirt and slipper limpet. Vulnerability in Landscape TypeS Shoreline.

HABITATS

The increasing demands for flood water capacity and the opportunities for carbon storage from habitats like salt marsh are also strong drivers for the river valley and floodplain to be de-engineered and allowed to function naturally. This would have an impact on the shoreline habitats which would reconfigure due to tidal flows and changes in salination.

The chalk cliff faces are a dynamic niche habitat with fluctuating populations of invertebrates and bird life according to the climate and local conditions. Extreme weather events are likely to increase vulnerability of these habitats directly, but also indirectly through the increased likelihood of storm surges and extreme rain fall bringing on cliff falls.

PERCEPTUAL QUALITIES

The sea cliffs are remote, wild and exposed to all weather conditions and represent nature at its rawest in the SDNP. The shoreline is also remote and dominated by the tall cliffs to the north, and the tidal movement of the sea to the south.

ACCESS

The majority of the cliff top is publicly accessible and highly valued for this. The views and sense of space are dramatic and exhilarating. Increased unpredictability of cliff falls due to climate change based events is likely to lead to some restrictive measures to enhance public safety.

HERITAGE

The Sussex Heritage coast at Beachy Head, along with much of this LCT is a noted and cherished cultural icon – the quintessential English standing ground. The cliffs have long societal & heritage associations with wartime protection and as a defensive lookout from invading forces. The area has been inhabited for millennia and archaeology is both revealed and lost with cliff falls. See Archaeology on the Edge **Archaeology-On-The-Edge-2019.pdf (southdowns.gov.uk)**.

WATER

Both the cliff faces and the shoreline are highly vulnerable to climate change induced rainfall, flooding and accelerating sea level rise, which could result in the destabilisation of present coastal systems. Maintaining natural functioning shorelines, natural flood management and wider carbon sequestration (Net Zero) are measures to adapt to these long-term impacts.

CARBON

Salt marsh conversion (which provides high levels of soil carbon sequestration) may be an option in areas which become inundated and cannot be preserved as freshwater land.



PRIORITY HABITATS IN LANDSCAPE TYPE S: SHORELINE (219.433 ha)

TABLE SHOWING THE PERCENTAGES OF PRIORITY HABITAT AND SSSI IN LANDSCAPE TYPE S SHORELINE

LCT S – Shoreline	Priority Habitats (PH) in the LCT			SSSI in the LCT: 218.3 (ha)⁵		
219.5.4 (ha) ¹	Existing PH	% of LCT	% of Parkwide	PH which is	% of PH which	% of SSSI in
	In LCT ²	% of LCT	PH in LCT⁴	SSSI ⁶	Is SSSI ⁷	favourable state ⁸
Total area (ha) & percentages within the LCT:	13.3	6.07 %	0.03%	13.1	97.93 %	97.68 %
Maritime cliff and slope.	10.3	4.69%	6.46%	10.2	99.07%	81.33%
Lowland calcareous grassland.	2.4	1.11%	0.05%	2.3	92.67%	32.08%
No main habitat but additional habitats present.	0.4	0.20%	0.01%	0.4	100.00%	3.18%
Coastal vegetated shingle.	0.2	0.07%	2.30%	0.2	100.00%	

Footnotes

- 1 Area (ha) of land within the LCT.
- 2* Area (ha) of Priority Habitat (PH) within the LCT.
- 3* Percentage of the LCT area, which is classified as Priority Habitat.
- 4^{*} Priority Habitat area within the LCT as a percentage of the Priority Habitat in the SDNP.
- 5 Area (ha) of land within the LCT, which is designated as SSSI.
- 6* Area (ha) of Priority Habitat (PH), which is also designated as SSSI. NB: not all SSSI land is PH, which is why headline figures 5 and 6 differ.
- 7* Area of Priority Habitat (PH), which is also SSSI, as a percentage of PH in the LCT.
- 8* Percentage of the SSSI in the LCT, which is classified as being in Favourable condition.

Top value = all SSSI in favourable condition; then by 'favourable' SSSI also classed as Priority Habitat.

* Figures are given for the whole LCT first, then by Priority Habitat (main) type.

TABLE OF NATURE RECOVERY ACTIONS FOR PRIORITY HABITATS INLANDSCAPE TYPE S SHORELINE:

The following table is the list of actions for nature recovery by each priority habitat which is included in the mapping in the SDILCA in Landscape Type S Shoreline.

Priority habitats	Nature friendly actions to improve and connect existing habitats.
Maritime Cliff and slope	Manage access along cliff tops to reduce surface erosion, damage to flora and disturbance to nesting birds. Raise awareness about the vulnerability of the maritime zone both on the shoreline and cliff faces where niche species are vulnerable to extremes of weather. Take opportunities to engage with visitors about the shoreline and cliff face habitats.
Coastal vegetated shingle	The dynamic nature of the shingle habitat makes it vulnerable to recreational use and it is poorly understood as a priority habitat. Increased interpretation and education about its habitat value is important in reducing unintended harm to this habitat.
Coastal salt marsh	Undertake baseline survey or monitoring to determine extent, erosion, accretion of existing salt marsh and determine the optimum management approach. This may be grazing or protecting from erosion and from excessive public access which can cause major damage. No additional drainage work should be undertaken.

Priority habitats	Actions to restore and create new habitats				
Maritime Cliff and slope	The cliff face and slope is a dynamic habitat which is subject to coastal, water and weather erosion effects Natural recolonization of fallen sections of cliff face and slope is desirable with limiting public access Connectivity away from the cliff face along the river estuary and also over the downland is beneficial to wildlife (particularly invertebrates).				
Coastal vegetated shingle	Upstream natural flood management (Cuckmere) and long- term coastal flood management could have a significant impact on the vegetated shingle on the shoreline. Likely to be considered in the context of a wider coastal management approach. Refer to Shoreline Management Plan for further information.				
Coastal salt marsh	Salt marsh creation involves inundation of land by tidal waters and the complexities of doing this would require advice from the Environment Agency and Natural England.				

SOURCES OF FURTHER INFORMATION

- Catchment Plans
- All catchment plans can be found at this link
- Catchment Management Plans CaBA (catchmentbasedapproach.org)

ENVIRONMENT AGENCY

Environment Agency – Catchment Data Explorer

DEFRA

Environmental land management schemes: overview – GOV.UK (www.gov.uk)

NATURAL ENGLAND

- Carbon Storage and Sequestration by Habitat 2021 NERR094 (naturalengland.org.uk)
- Habitat Networks (England) data.gov.uk
- Habitat Network Mapping Guidance.pdf (defra.gov.uk)
- Maritime cliff and slopes (UK BAP Priority Habitat description) (jncc.gov.uk)
- SSSI Citation Microsoft Word 1002008.doc (naturalengland.org.uk)

WILDLIFE TRUSTS

- Habitat-management-leaflet-wet-woodland.pdf (dbrc.org.uk)
- Habitat-management-leaflet-lowland-fen-2016.pdf (dbrc.org.uk)

CABA

Saltmarsh_Restoration_Handbook_FINAL_20210311.pdf (catchmentbasedapproach.org)

SHORELINE MANAGEMENT PLAN

Beachy Head to Selsey Bill – South East Coastal Group (se-coastalgroup. org.uk)

Section 2: Nature Recovery by Landscape Type descriptions