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ECOLOGICAL SURVEYS IN THE CUCKMERE VALLEY
OVERARCHING REPORT

Report to the
Pevensey and Cuckmere
Water Level Management Board

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ECOLOGICAL SURVEYS IN THE CUCKMERE VALLEY

1. INTRODUCTION

1.1.1 This project has been taken on behalf of the Pevensey and Cuckmere Water Level Management Board by Ward Associates.

1.1.2 The objective is to provide baseline data to allow an evidence-based consideration of potential options for management currently being worked up by the Environment Agency (EA) within the Cuckmere Valley. The options have the potential to affect the control of water by the Board within its district.

1.1.3 Part of the Cuckmere Valley is included within the Seaford to Beachy Head SSSI. Upstream of the A259 is Unit 6 of the SSSI and downstream is Unit 7. The Board's District covers part of Unit 6 and extends upstream of Unit 6.

1.1.4 There is concern that two aspects of management being considered by the EA could have the potential to adversely affect the SSSI, contrary to s28 of the *Wildlife and Countryside Act 1981* (and as amended) and also to compromise the Board's water management functions, particularly in consideration of its conservation duties under the Environment Act 2021. These are, firstly, the management of Milton Lock upstream of Unit 6 which has the potential to allow saline water into the Freshwater Stream, and also vary the flows in the Freshwater Stream, and secondly the management of the shingle at the mouth of the Cuckmere which is reducing the water discharge from the valley to the sea.

1.1.5 Given the size of the SSSI, the citation, which identifies the features for which the SSSI is notified (and which, together with the Views about Management (VAM) and the Operations requiring Natural England's consent (ORNEC), forms the basis for assessing the condition of the site and thus for determining future management) is not precise regarding which features relate to which Units.

1.1.6 As part of the consideration for the future management of the Freshwater Stream, it is important to ensure that the potential for impact of any proposals on the SSSI, particularly Unit 6, is identified as far as is possible. There have been varying views as to the condition of this Unit and its contribution to the wider Cuckmere valley, in part because it depends on assets within the Cuckmere which are failing, including Milton Lock which has already failed.

1.1.6 However, there has been no up-to-date survey of the biological status of Unit 6, which is required to make informed judgements as to the future of the Cuckmere valley and its management.

1.1.7 This document constitutes the covering report to the surveys, summarising each and draws together information from all. Each individual survey is given as an appendix to this report. Due to the complexity of the site, it is important that the covering, and summary, report is read in conjunction with the individual survey reports. It has been prepared by Diana Ward MSc CBiol MRSB MCIEEM with input from the specialist surveyors (see para 2.1.2).

2. ACTIONS

2.1 Surveys

2.1.1 A series of surveys have been undertaken, targeted on those features which contribute to the notification of the SSSI and covering ornithological surveys, and botanical and invertebrate surveys. Each survey is given as an appendix to this report.

2.1.2 The surveys were undertaken by the following:

- Botanical Assessment – Sarah Lambert BSc. A field botanist with forty years experience, who is the Botanical Society of Britain and Ireland vice-county recorder for South Lincolnshire. She is experienced at undertaking National Vegetation Classification surveys of lowland habitats and relating the findings to environmental parameters such as geology, hydrology and historical management. (Appendix 1)
- Invertebrate Assessment - Peter Kirby PhD. An invertebrate specialist of over 40 years standing, author of multiple publications on the status and management of habitats for invertebrates and experienced in relating findings to environmental parameters. (Appendix 2)
- Breeding and wintering bird surveys – David Boddington. An experienced bird surveyor and WeBS co-ordinator who has undertaken surveys for, amongst others, Natural England. (Appendix 3 and 4)

2.1.3 The surveys have encompassed Unit 6 and, as far as possible, the Board's district upstream (Figure 1). The coverage varies between surveys due to constraints which became apparent once they had started and these are discussed in detail in the individual Appendices. Ornithological surveys therefore encompassed the entire area, botanical and invertebrate surveys concentrated on the Unit 6 area with variation in coverage within that.

2.1.4 In addition, salinity sampling was undertaken on behalf of PCWLMB by Southern Testing along the length of the Freshwater Stream and the results are presented in Appendix 5.

2.2 Desk study

2.2.1 Historical data are important in order to ascertain whether any change has occurred and therefore a desk study was undertaken.

2.2.2 The key sources for the comparison were:

- Hodge, P.J. (2004). Aquatic invertebrate survey (Coleoptera & Hemiptera), West Dean Brooks, East Sussex. English Nature Contract no. 18/20/M/03-04.
- Ratcliffe, D.A. 1977 Nature Conservation Review. Volumes 1 and 2. CUP
- Lyons, G. (2019). *Aquatic plant and invertebrate survey of the freshwater stream on the Cuckmere Valley south of Milton Lock 2017/2018*. Unpublished report.
- Natural England. Seaford to Beachy Head SSSI ORNECS
- Natural England. Seaford to Beachy Head SSSI citation.
- Natural England. Seaford to Beachy Head SSSI monitoring report.
- Sussex Biodiversity Record Centre (2023). Ecological data search for land at the Cuckmere Valley (report reference SxBRC/23/064).
- Willing, M.J. (2004). *Invertebrate survey (Mollusca) – West Dean Brooks, East Sussex. A survey commissioned by English Nature (Lewes)*. Contract no. 18/19/M/03-04.
- Watson, A (2000). A survey of the freshwater molluscs in the ditches at West Dean Brooks, Seven Sister Country Park. Environment Agency Internal Report
- WeBS count data

2.2.3 It is known that surveys were undertaken as part of a planning application for the Exceat Bridge replacement, but it has not been possible to locate these other than the Preliminary Ecological Appraisal which holds insufficient information to be helpful in the context of these assessments.

3. CUCKMERE VALLEY

3.1 General Description

3.1.1 The River Cuckmere is tidal as far as Milton Lock, a structure which was apparently constructed in the mid 1800s. This has two functions, to control ingress of saline water upstream and to provide a head of freshwater to feed the Freshwater Stream (a PCWLMB asset) which runs broadly parallel to the Cuckmere down the valley (although it meanders across it) from the Milton Lock downstream to rejoin the Cuckmere above Exceat Bridge. Ditches (which act as wet fencing) run off the Freshwater Stream and are also separately present bordering the flood embankment along the Cuckmere. There is a series of flaps which allow water from the marshes to drain back into the Cuckmere at times of flooding.

3.1.2 Thus the section of the Cuckmere Valley that is within the remit of the PCWLMB covers its length from the off take to the Freshwater Stream from Milton Lock at GR TQ525040 to the outfall of the Freshwater Stream into the Cuckmere at GR TV511997 (Figure 1).

3.1.3 The valley downstream of the Milton Lock to the sea may be considered in 3 components. The upper part of the valley just below the Milton Lock is Flood Plain and Coastal Grazing Marsh Priority habitat and not SSSI. The central and lower sections, bisected by the Exceat Bridge, are part of the Seaford to Beachy Head SSSI.

3.1.4 Upstream of the Exceat Bridge is Unit 6 which is floodplain and coastal grazing marsh. The Freshwater Stream runs through it and exits into the Cuckmere in this Unit. Thus, this section falls within the remit of the PCWLMB

3.1.5 Unit 7 which forms the estuary with a shingle bar at the entrance with some floodplain and coastal grazing marsh is below the Exceat Bridge and does not contain the Freshwater Stream. Management of this section can however affect the land upstream and the outfall of the Freshwater Stream.

3.2 Issues with the Freshwater Stream

3.2.1 The Milton Lock automatic gate failed in 2018 and the EA has subsequently reverted to the use of stop logs. This has led to a number of problems including apparently allowing saline water to enter the Freshwater Stream when the logs are not in place and drying out of sections of the Freshwater Stream on at least two occasions in 2022 and 2023.

3.2.2 There are additionally issues relating to the inability to discharge water from the Freshwater Stream to the River Cuckmere. Failure to remove shingle at the estuary mouth is leading to water in the Cuckmere being unable to get away as quickly as it potentially can and it thus backs up, blocking the flaps that would drain the marshes at low tide and facilitating the development of silt banks which can not only block flaps but also takes channel capacity thus increasing overtopping of structures and embankments at high tides.

4. SEAFORD TO BEACHY HEAD SSSI.

4.1 SSSI status

4.1.1 The SSSI citation, which identifies the features for which the SSSI is notified, together with the Views about Management (VAM) and the Operations requiring Natural England's consent (ORNEC), provides the basis for assessing the condition of the site and thus for determining future management. These are all given in Appendix B.

4.1.2 Seaford to Beachy Head SSSI is an outstanding site of national importance for its biological and geological features. The diverse range of habitats includes herb-rich chalk grassland, chalk heath (a unique, rare habitat on chalk soils), maritime grassland, foreshore and chalk cliffs, river meanders, and Greensand reef. Together, these habitats support many nationally rare, nationally scarce and nationally significant plants, invertebrates and birds.

4.1.3 An extract from the SSSI citation reads:

(b) Alluvial Habitats

The River Cuckmere has been canalised in its lower reaches but the meanders have been retained, although they now receive little tidal water. The alluvial meadows, and drainage ditches which dissect them, are important for the number of unusual plants they support. The main components of the meadows are sea barley *Hordeum marinum*, cocksfoot grass *Dactylis glomerata* and rye grass *Lolium perenne*. Also present are the nationally rare red star thistle *Centaurea calcitrapa* and the locally uncommon adder's tongue fern Ophioglossum vulgatum and slender hare's-ear Bupleurum tenuissimum. The drainage ditches are generally freshwater or brackish and prominent species include round-fruited

rush *Juncus c*ompressus, common reed *Phragmites australis* and sea club-rush *Bolboschoenus maritimus*. More unusual plants are golden dock *Rumex maritimus*, marsh dock *Rumex palustris* and the water star-wort *Callitriche t*runcata. Common reed dominates the 5 hectare Charleston reed bed and forms the ground flora beneath a small area of crack willow *Salix fragilis* woodland.

Saltmarsh communities, developed over clays and silts, line the canalised and upper reaches of the river. Bare muds by the water's edge have been colonised by glassworts *Salicornia* species, but above this is a mixed community of sea purslane *Atriplex portulacoides*, sea aster *Aster tripolium* and, less commonly, rock samphire *Crithmum maritimum* and annual seablite *Suaeda maritima*. On slightly higher ground is a turf of sea couch grass *Elytrigia atherica*, common cord grass *Spartina a*nglica and greater sea spurrey *Spergularia media*.

The Cuckmere valley is also important for breeding birds and for the nationally significant number and diversity of birds recorded on passage. The alluvial meadows, although rarely flooded, are also important for overwintering species, including teal, wigeon and snipe. The bush cricket *Tettigonia viridissima* has been recorded in grazing meadows near the sea.

4.1.4 Thus there is no clear description of Unit 6, rather the totality of that section of the Cuckmere valley. Unit 6 of the SSSI is however notified as MG5 lowland neutral grassland (semi-improved) (Natural England 21.4.23).

4.2 Condition

4.2.1 Unit 6 has two monitored features for condition assessment:
- Aggregations of non-breeding birds and variety of passage species
- Vascular plant assemblage

4.2.2 At the time of designation, the SSSI along the River Cuckmere was also noted to include alluvial habitats including both freshwater and brackish ditches which contained uncommon species. There is currently an internal review within Natural England on whether ditches are to be added onto the monitoring specification for Unit 6. (Natural England 21.4.23)

4.2.3 The Natural England document accompanying the citiation 'Views about Management' does not cover the management of the features in Unit 6.

4.2.4 The last Natural England condition assessment of Unit 6 was dated 2008. At that time, the unit was noted to be 'semi-improved grassland (not unimproved neutral grassland) and supported the breeding bird assemblage (in part)'. The breeding bird assemblage was assessed as

favourable and so the habitat was considered to be in appropriate condition.

4.2.5 No consideration was explicitly given to the condition of the alluvial meadows, drainage ditches or wintering birds.

5. BOTANICAL ASSESSMENT

5.1 Method

5.1.1 Sarah Lambert carried out a survey of the aquatic and terrestrial vegetation of the portion of Unit 6 of the Seaford to Beachy Head SSSI lying between the Freshwater Stream and the bank of the Cuckmere River over three visits in May, June and July of 2023. The Freshwater Stream at Milton Lock was also visited. Full details of this survey are given in Appendix 1.

5.2 Results

5.2.1 Thirty NVC quadrats were examined with a higher density at the southern end where the vegetation was more complex and had an apparently greater saline influence. Twenty two 20-metre ditch lengths were examined, recording flora and physical features.

5.2.2 The survey recorded 198 taxa of vascular plants, bryophytes and stoneworts, of which 16 have a formal conservation status at the national or local level. These taxa are detailed in Appendix 1.1

5.2.3 Thirty-seven grassland, swamp, open vegetation, saltmarsh, aquatic and woodland National Vegetation Classification (NVC) communities were recorded from Unit 6, including the strip of saltmarsh alongside the Cuckmere River (Table 1).

Table 1: NVC communities recorded from Unit 6

NVC code	Community	Location in Unit 6
MG1	*Arrhenatherum elatius* grassland	Sea bank and banks of FWS
MG4	*Alopecurus pratensis - Sanguisorba officinalis* flood meadow	Areas inundated with freshwater in winter but free draining in summer, mostly in the southern part of the site on slightly higher land
MG5	*Centaurea nigra - Cynosurus cristatus* grassland	Driest areas in southern part of site, not significantly agriculturally improved; usually found in transition with MG4
MG6	*Lolium perenne - Cynosurus cristatus* grassland	Drier areas of semi-improved grassland
MG7	*Lolium perenne – Trifolium repens* ley	Improved grassland
MG9	*Deschampsia cespitosa - Holcus lanatus* grassland	Damp grassland with abundant *Deschampsia cespitosa characteristic of* n cattle-grazed semi—improved grassland in the northern part of the survey area.
MG10	*Juncus effusus - Holcus lanatus* rush pasture	Localised areas dominated by *Juncus inflexus,* mostly in the central part of the site, associated with compacted ground.
MG11	*Festuca rubra - Agrostis stolonifera - Potentilla anserina* grassland	Species-poor alluvial grassland often inundated with brackish water
MG13	*Agrostis stolonifera - Alopecurus geniculatus* grassland	Alluvial grassland influenced by freshwater
MG15	*Alopecurus pratensis-Poa trivialis-Cardamine pratensis* grassland	Species-poor damp grassland found in both freshwater and mildly brackish areas
A1	*Lemna gibba* community	Mostly poorer quality parts of the Freshwater Stream
A2	*Lemna minor* community	Mostly poorer quality parts of the Freshwater Stream
A3	*Spirodela polyrhiza-Hydrocharis morsus-ranae* community	A component of many ditches, especially in the central part of the site
A5	*Ceratophyllum demersum* community	Local in central part of site
A11	*Potamogeton pectinatus - Myriophyllum spicatum* community	Mostly at southern end of site in somewhat brackish ditches
A16	*Callitriche* agg. community	Widespread, particularly in the Freshwater Stream and in central and northern part of site; a freshwater community
A21	*Ranunculus baudotii* community	Abundant in seasonal pools and fleets, and some ditches close to the sea bank; only found in brackish water
S4	*Phragmites australis* swamp	Frequent especially in ditches at the southern end of the site or ones with brackish influence
S5	*Glyceria maxima* swamp	Frequent in ditches towards the northern end of the site; a freshwater community
S14	*Sparganium erectum* swamp	Frequent in ditches towards the northern end of the site; a freshwater community
S19	*Eleocharis palustris* swamp	Abundant in seasonal pools and fleets, often with some brackish characteristics

NVC code	Community	Location in Unit 6
S20	*Schoenoplectus tabernaemontani* swamp	Frequent and usually found mixed with other swamp communities; often associated with brackish conditions
S21	*Bolboschoenus maritimus* swamp	Frequent especially in ditches and seasonal pools at the southern end of the site; usually associated with brackish conditions
S22	*Glyceria fluitans* water-margin vegetation	Present at margins of many ditches and in seasonal pools
OV29	*Alopecurus geniculatus - Rorippa palustris* community	Draw-down zones of winter flooded pools and more widely in areas of prolonged inundation which dry out in summer
OV31	*Rorippa palustris - Gnaphalium uliginosum* community	Locally frequent on draw-down zones of winter flooded pools
OV33	*Polygonum lapathifolium - Poa annua* community	Occasional on draw-down zones of winter flooded pools
SM13	*Puccinellia maritima* saltmarsh	Dominant on Cuckmere River side of sea bank
SM14	*Atriplex portulacoides* community	Locally frequent on Cuckmere River side of the sea bank in the southern part of Unit 6
SM16	*Juncetum gerardii* saltmarsh	Locally frequent in more brackish areas of grazing marsh
SM17	*Artemisia maritima saltmarsh*	Rare on Cuckmere River side of sea bank
SM22	*Atriplex portulacoides - Frankenia laevis* saltmarsh	Rare on Cuckmere River side of sea bank
SM23	*Spergularia marina - Puccinellia distans* saltmarsh	Rare close to sea bank
SM24	*Elymus athericus saltmarsh community*	Very local, on or close to sea bank
W6	*Alnus-glutinosa – Urtica dioica* wet woodland	Best developed in the Charleston Reedbed area.
W21	*Crataegus monogyna – Hedera helix* scrub	Locally frequent on ungrazed ditch margins and banks
W24	*Rubus fruticosus – Holcus lanatus* underscrub	Locally frequent on some ditch margins.

5.2.4 Unit 6 therefore supports a complex mosaic of NVC communities. These are mapped on Figure 2 and include wet grasslands flooded with fresh or saline water and higher areas of land support grassland communities characteristic of S41 Lowland Meadow Priority habitat. Most of grassland communities are characteristic of sites that are periodically flooded with either fresh or saline water and are highly characteristic of S41 Coastal and Floodplain Grazing Marsh Priority Habitat. These are summarised in Figure 3. The Charleston reedbed which was not surveyed in detail is S41 Reedbed Priority Habitat.

5.2.5 The rare and local plant species are listed in Table 2.

Table 2: Rare plant species recorded from Unit 6 in 2023

English Name	Species	Status
Marsh-mallow	*Althaea officinalis*	Scarce, NT Eng
Sea Wormwood	*Artemisia maritima*	NT Eng
Quaking-grass	*Briza media*	NT Eng
Slender Hare's-ear	*Bupleurum tenuissimum*	Scarce, VU GB/Eng, RPR Sussex
Divided Sedge	*Carex divisa*	Scarce, VU GB, S41, RPR Sussex
Red Star-thistle	*Centaurea calcitrapa*	Rare, EN GB/Eng, S41, RPR Sussex
Sea-heath	*Frankenia laevis*	Scarce, NT GB/Eng
Frogbit	*Hydrocharis morsus-ranae*	VU GB/Eng, RPR Sussex
Tubular Water-dropwort	*Oenanthe fistulosa*	VU GB/Eng, S41
Parsley-leaved Water-dropwort	*Oenanthe lachenalii*	NT Eng
Hairlike Pondweed	*Potamogeton trichoides*	RPR Sussex
Lesser Spearwort	*Ranunculus flammula*	Vu Eng
Golden Dock	*Rumex maritimus*	RPR Sussex
Clustered Stonewort	*Tolypella glomerata*	RPR Sussex
Strawberry Clover	*Trifolium fragiferum*	VU GB/Eng
Sea Clover	*Trifolium squamosum*	Scarce, RPR Sussex

EN = Endangered; NT = Near Threatened; VU = Vulnerable; S41 = Species of Principal Importance, RPR = Rare Plant Register

5.3 Salinity

5.3.1 Ellenberg S-values, which are a measure of the strength of association between the occurrence of a plant species and the salinity of the habitat can be assigned to each species. An S-value of 0 signifies a plant that is absent from saline sites, while an S-value of 3 indicates species that are most common in coastal sites although also occur in freshwater or on non-saline soils inland. An S-value of 4 indicates species of salt meadows and saltmarsh, subjected to at most only very occasional tidal inundation and includes species of brackish conditions. Species with a S-value of 5 to 9 are all associated with saltmarsh or are marine.

5.3.2 Significant populations of species that are characteristic of brackish conditions are present, including several of national significance. These species are most abundant in relict saltmarsh features, close to ditches, or along the sea bank (Table 3).

Table 3: Saline indicator species recorded from Unit 6

English name	Taxon	S-score	Frequency
Brackish Water-crowfoot	*Ranunculus baudotii*	4	Locally abundant
Distant Sedge	*Carex distans*	3	Occasional, mostly in southern part of the unit
Divided Sedge	*Carex divisa*	3	Frequent to locally abundant
Grey Club-rush	*Schoenoplectus tabernaemontani*	3	Frequent to locally abundant
Lesser Sea-spurrey	*Spergularia marina*	5	Rare, close to sea bank
Parsley Water-dropwort	*Oenanthe lachenalii*	3	Frequent, especially in the southern part of the unit
Reflexed Saltmarsh-grass	*Puccinellia distans*	4	Rare, close to sea bank
Saltmarsh Rush	*Juncus gerardii*	3	Frequent to locally abundant in southern part of unit and near sea bank
Sea Clover	*Trifolium squamosum*	3	Rare
Sea Club-rush	*Bolboschoenus maritimus*	4	Locally abundant
Sea Couch	*Elymus atherica*	4	Rare, on sea bank
Sea Milkwort	*Lysimachia maritima*	4	Rare, close to sea bank

5.3.3 Figure 4 shows the relative salinities of Unit 6. The salinity of the grazing marsh vegetation is most closely related to the micro-topography, with the most strongly brackish vegetation being found in former creeks and pools, and on low-lying ground. The southern part of Unit 6 has a more strongly brackish character than the northern part.

5.3.4 In the northern part of Unit 6, strongly halophytic vegetation is locally frequent close to the sea bank and may either be a response to regular overtopping from the Cuckmere River or seepage through the bank. The strongly saline influenced vegetation is very localised and does not penetrate beyond the ditch to the south of the sea bank.

5.3.5 The salinity of the ditches is directly related to inflow of water from the Freshwater Stream and ingress of saline water, either via the outfall or from overtopping of, or seepage through, the sea bank. In the northern part of Unit 6 most ditches are fed by the Freshwater Stream and have a strong freshwater character. The main exception is a length of ditch adjacent to the sea bank which is cut off from the freshwater system. In the southern part of the site the ditches have a generally more brackish character, but this is less pronounced in sections close to the Freshwater Stream. Only the southern end of the Freshwater Stream shows significant evidence of a

brackish character, which agrees with the findings of the 2017/8 survey (Lyons, 2019).

5.3.6 Comparison of the 2023 data with historic data for Unit 6 suggests that there has not been a significant change in the species assemblage. Most of the rare and local species recorded from the area historically were still present in 2023. While the overall flora does not appear to have changed, it is more difficult to assess whether the extent of different NVC communities may have shifted.

5.4 Hydrology

5.4.1 The character of the grassland communities is heavily influenced by hydrology, so changes in water levels, including deeper and more prolonged flooding, will have an impact on the distribution of the NVC communities. The most widespread type of grassland in 2023 comprised communities that are tolerant of prolonged inundation.

5.4.2 However, over time more prolonged and extensive flooding will shift alluvial grassland away from the more species-rich communities. Prolonged flooding also increases the area of open vegetation and facilitates the spread of docks, which were very frequent in areas of low-lying land, particularly in the northern part of the site. Similarly, any increase in saline intrusion will alter the character of the vegetation.

6. INVERTEBRATE ASSESSMENT

6.1 Method

6.1.1 Survey of the aquatic and terrestrial fauna of the portion of Unit 6 of the Seaford to Beachy Head SSSI lying between the Freshwater Stream and the bank of the Cuckmere River was undertaken over three visits in May, June and July of 2023 by Peter Kirby. Active sampling was employed including pond net sweeping, suction sampling and sweep netting.

6.2 Results

6.2.1 The survey produced 3422 records of invertebrates in 682 taxa, of which 66 have a formal conservation status. Most were identified to species: nine were identified only to family, genus or species group, and two were identified to species-pair.

6.2.2 Some uncommon species were recorded from dry grassland, but the bulk of the interest is associated with wetland. The wetland fauna is characterised by a mix of fresh and brackish water species. Freshwater species predominate and include the majority of those with formal conservation status, though the brackish water species include a higher proportion with formal status. A summary of the 'Pantheon analysis' is given below (Table 4) .

Table 4: Pantheon analysis – summary of important habitats

Broad biotope	Habitat	No. spp.	%age	SQI	Spp. with status
open habitats	tall sward & scrub	218	8	110	16
wetland	marshland	206	25	134	40
wetland	acid & sedge peats	133	12	163	31
open habitats	short sward & bare ground	38	3	108	6
coastal	saltmarsh	36	12	241	15
wetland	running water	29	3	152	7
coastal	brackish pools & ditches	27	23	221	13

"%age" proportion of the total British fauna associated with that habitat which was recorded from the survey area.
"SQI" is a species quality index, calculated by allotting each species a score based on its rarity, summing the scores and dividing by the total of species recorded.

6.2.3 The aquatic fauna appears not to have changed substantially in character since the first available thorough survey in 1999. A few species may have been gained and others lost, but diversity appears to have changed little, and the balance between halophilic and freshwater species is similar.

6.2.4 There seems to have been no substantial previous survey of the fauna other than pond-netting of the drains and pools, but sweep-netting and suction sampling in 2023 produced substantially more species with formal conservation status than pond-netting, and more species of high individual interest.

6.3 Salinity

6.3.1 Figure 5 shows the distribution of the halophile species as given in the Table 5 below. It is likely that residual salinity in the soil and seepage through, and over topping of, the bank of the Cuckmere River provide a range of moderately to weakly brackish conditions, modified by freshwater input from the Freshwater Stream and rainfall. Thus, there is a dynamic

range of conditions which are likely to change from year to year and over the course of a year.

Table 5: Halophile Invertebrate species

Group	Family	Species	Status
Araneae	Linyphiidae	*Erigone longipalpis*	local
Araneae	Theridiidae	*Enoplognatha mordax*	NS
Coleoptera	Carabidae	*Bembidion iricolor*	NS
Coleoptera	Carabidae	*Bembidion minimum*	local
Coleoptera	Dytiscidae	*Agabus conspersus*	NS
Coleoptera	Dytiscidae	*Hygrotus parallelogrammus*	NS
Coleoptera	Hydraenidae	*Ochthebius viridis viridis*	NS
Coleoptera	Hydrophilidae	*Enochrus bicolor*	NS
Crustacea	Gammaridae	*Gammarus zaddachi*	common
Crustacea	Palaemonidae	*Palaemon varians*	common
Crustacea	Sphaeromatidae	*Lekanesphaera rugicauda*	common
Diptera	Dolichopodidae	*Campsicnemus armatus*	local
Diptera	Dolichopodidae	*Dolichopus clavipes*	local
Diptera	Dolichopodidae	*Dolichopus diadema*	local
Diptera	Dolichopodidae	*Orthoceratium sabulosum*	NS
Diptera	Dolichopodidae	*Poecilobothrus principalis*	local
Diptera	Dolichopodidae	*Syntormon mikii*	NR
Diptera	Empididae	*Rhamphomyia simplex*	local
Diptera	Ephydridae	*Parydra pubera*	local
Diptera	Limoniidae	*Dicranomyia sera*	local
Diptera	Limoniidae	*Erioptera bivittata*	RDB2
Diptera	Stratiomyidae	*Nemotelus notatus*	local
Diptera	Stratiomyidae	*Nemotelus uliginosus*	local
Diptera	Tabanidae	*Haematopota bigoti*	NS
Hemiptera	Cicadellidae	*Paramesus obtusifrons*	local
Hemiptera	Corixidae	*Corixa affinis*	NS
Hemiptera	Corixidae	*Sigara stagnalis*	common
Hemiptera	Saldidae	*Saldula pilosella*	NS

6.3.2 The single convincing faunal change encountered associated with seasonal salinity change was in the Freshwater Stream, where the halophilic prawn *Palaemon varians*, confined to its extreme downstream end in May of 2023, had spread some 500 metres upstream by July. This is tied to a measured change in salinity (see Appendix A).

6.3.3 Because historical records are few, it is likely that any gradual changes resulting from increased salinity would be masked by year-to-year changes and by the effects of occasional catastrophic events, such as the exceptionally dry conditions in 2003.

6.4 Hydrology

6.4.1 The species that are present require a range of conditions from shallow pools and ditches which dry out in summer and permanently wet watercourses. Changes in water conditions will lead to localised loss and then recovery as animals recolonise. The greater the frequency of dry periods (including drying out of the Freshwater Stream) the greater is the risk that recovery cannot take place. Species at risk include the rare and sensitive species Large-mouthed Valve Snail *Valvata* macrostoma found in both 2017 and 2023. Annual late summer drying would be likely to lead to a shift in species composition as most species have an annual life cycle and none are very long-lived.

6.4.2 Increased flooding in the spring or summer is particularly likely to damage the terrestrial invertebrate fauna and the impact will depend on the extent and duration of flooding, and the salinity and quality of the floodwater. .

7. WINTERING BIRD ASSESSMENT

7.1 Method

7.1.1 A total of seven complete bird surveys were undertaken between September 2022 and March 2023. The site includes all of the designated SSSI (Unit 6) to the north of the A259 up to Littlington, and also the upstream area of the river valley up to Berwick Court. Surveys concentrated on waterbirds and waders, members of which were notification features within the SSSI citation:

'The alluvial meadows, although rarely flooded, are also important for over-wintering species, including teal, wigeon and snipe.'

7.2 Results

7.2.1 A total of 81 species of wintering birds were recorded both within the SSSI Unit 6 and upstream. None were recorded only upstream of the SSSI. The three species listed in the SSSI citation were present in both areas.

7.2.2 Table 6 provides the list of waders and wildfowl and their locations.

Table 6: Wintering wildfowl and waders

Species	Scientific name	Unit 6	Upstream unit 6
Canada goose	*Branta canadensis*	Y	
Barnacle goose	*Branta leucopsis*	Y	
Greylag goose	*Anser anser*	Y	
Mute Swan	*Cygnus olor*	Y	Y
Shelduck	*Tadorna tadorna*	Y	
Shoveler	*Spatula clypeata*	Y	Y
Gadwall	*Mareca strepera*	Y	
Wigeon	*Mareca penelope*	Y	Y
Mallard	*Anas platyrhynchos*	Y	Y
Pintail	*Anas acuta*	Y	
Teal	*Anas crecca*	Y	Y
Water Rail	*Rallus aquaticus*	Y	
Moorhen	*Gallinula chloropus*	Y	Y
Coot	*Fulica atra*	Y	Y
Little Grebe	*Tachybaptus ruficollis*	Y	Y
Oystercatcher	*Haematopus ostralegus*	Y	
Lapwing	*Vanellus vanellus*	Y	Y
Ringed Plover	*Charadrius hiaticula*	Y	
Curlew	*Numenius arquata*	Y	
Black-tailed Godwit	*Limosa limosa*	Y	
Dunlin	*Calidris alpina*	Y	
Snipe	*Gallinago gallinago*	Y	Y
Common Sandpiper	*Actitis hypoleucos*	Y	
Redshank	*Tringa totanus*	Y	
Greenshank	*Tringa nebularia*	Y	
Black-headed gull	*Chroicocephalus ridibundus*	Y	Y
Mediterranean gull	*Ichthyaetus melanocephalus*	Y	
Common gull	*Larus canus*	Y	Y
Great black-backed gull	*Larus marinus*	Y	Y
Herring gull	*Larus argentatus*	Y	Y
Lesser black-backed gull	*Larus fuscus*	Y	
Cormorant	*Phalacrocorax carbo*	Y	
Grey Heron	*Ardea cinera*	Y	Y
Little Egret	*Egretta garzetta*	Y	Y

7.2.3 The most productive area for birds throughout the survey period was between Exceat north to Litlington, thus within Unit 6. Most notable were the fields, usually at least partially flooded during the survey, immediately north of the A259 at Exceat, known locally as the North Brooks. The largest concentrations of duck were recorded here, and often large numbers of Canada geese and Lapwing as well as gulls. Figure 6 shows the concentrations of the birds.

7.3 Salinity

7.3.1 No comment can be made about the effects of salinity levels on the distribution.

7.4 Flooding

7.4.1 Details of the flooding are given in Appendix 3.1 and are not repeated here.

7.4.2 Clearly the 2022/23 flooding had a significant impact on the movements of various birds, especially those using the grazing marshes/fields on the eastern side of the Cuckmere, to feed and roost.

7.4.3 Some species are able to take advantage of this whilst others find this more challenging. Waders such as Lapwing and Snipe have to find alternative locations when the flooding covers the fields completely; Redshank (and Ringed Plover and Dunlin) are less affected by the flooding as they rely on feeding at the margins of the riverbank – for them the state of the tide appears the crucial factor.

7.4.4 Whilst Wigeon and Mallard appear quite comfortable with the flooding, Teal find it less easy to adapt to, and the Canada geese move to fields nearby that are not flooded. The high floodwater during November did however attract a number of other duck species, including Pintail and Gadwall.

8. BREEDING BIRD ASSESSMENT

8.1 Method

8.1.1 A total of four surveys were undertaken across the entire survey area between April and June 2023. The site included all of the designated SSSI (Unit 6) to the north of the A259 up to Littlington, and also the upstream area of the river valley up to Berwick Court. Full details of this survey are given in Appendix 4.

8.1.2 Surveys concentrated on waterbirds and waders. The site was surveyed using the standard British Trust for Ornithology BTO method for breeding birds.

8.2 Results

8.2.1 The diversity of bird species recorded during the four breeding season surveys was expectedly fewer than for the autumn/winter. The total between September 2022 and March 2023 (the wintering survey period) was 80, whereas between 25th April and 13th June 64 species were recorded.

8.2.2 Table 7 summarises the estimated number of breeding pairs. Locations of confirmed breeders are shown in Figure 7.

Table 7: Estimated numbers of breeding pairs

Species	**Outside SSSI**	**Inside SSSI**	**Conservation status** (Birds of Conservation Concern 5, 2021)
Canada goose		3-9	
Greylag goose		1	
Mute swan	1	3	
Shelduck		4	Amber listed
Mallard	5	6	Amber listed
Water Rail		1	
Moorhen	2	3	Amber listed
Coot	1		
Oystercatcher		1	Amber listed
Lapwing	2	1	Red listed
Grey Heron*		2	
Little Egret*		9	
Skylark		5	Red listed
Cetti's Warbler	1	2	
Sedge Warbler	1	3	Amber listed
Reed Warbler	14	19	
Reed Bunting	2	2	Amber listed S41 Priority Species

* Friston Forest

8.2.3 The variety of waterbirds was the principal difference, with duck, waders and gulls all registering fewer species as would be expected.

8.2.4 Of the three wader species recorded, it could be expected that Lapwing and Oystercatcher might breed within the Cuckmere valley, oystercatcher possibly breeding in the lower SSSI and three pairs of lapwing probably breeding, one within the SSSI and two outside it. Snipe was not recorded during the breeding season survey.

8.3 Salinity

8.3.1 As with wintering birds it is not possible to make any observations about effects of changes in salinity on breeding birds.

8.4 Hydrology

8.4.1 The SSSI provided the main habitats for waterbirds, particularly the drainage ditches. Most of the wet areas that appeared attractive to duck and waders in the early spring, had dried out completely by the end of May.

8.4.2 Whilst there is suitable breeding habitat for a range of species, this could be improved by allowing the wetter areas of the valley to be maintained for longer in the season, without fully drying out to ensure that birds can access food supplies.

8.4.3 Summer flooding could be deleterious in that it can flood out the nests of ground- nesting birds notably waders and wildfowl.

9. DISCUSSION

9.1 General

9.1.1 Unit 6 of the SSSI cannot properly be considered in isolation from wetlands upstream and downstream. There appears to be a very complete range of conditions from saline to fully fresh along the Cuckmere Valley with predominantly freshwater habitats to the north, and brackish habitats to the south. Invertebrate records from upstream of the A27 suggest there may be some linkages. Further and more detailed studies would be needed to cover this.

9.1.2 The following discussion concentrates on the Unit 6 with consideration of the Freshwater Stream from the outfall to the Cuckmere area upstream to Milton Lock.

9.2 Salinity

Freshwater Stream

9.2.1 Appendix A summarises the sampling points for the 2017/8 (Lyons) survey, the 2023 invertebrate and botanical surveys together with data relating to salinity readings from 2017/8 and 2023. The ornithological data are effectively free standing when considering salinity and are omitted from this discussion. There is a discrepancy in that the salinity data associated with the Lyons survey are dated May and October 201**8.**

9.2.2 Salinity readings from both 2018 and 2023 taken along the full stretch of the Freshwater Stream from Milton Lock to the junction of the Freshwater Stream with the River Cuckmere show a gradation from north downstream. In 2023, there was an apparent rise in salinity in the lower reaches at high tide both in May and in September. There was a notable increase in salinity in 2023 at the lower sections of the Freshwater Stream in September in relation to May when levels reached 8.09 mS/ cm conductivity just downstream of Charleston Manor. This is downstream of a freshwater spring input. The 2018 conductivity data also show increased levels of conductivity downstream of this point in both May and October with lower levels upstream. Although no units were given, it appears likely that the 2018 and 2023 salinity surveys provided similar readings.

9.2.3 Botanical data for the Freshwater Stream using 'S' values identify that where there are comparable data from 2017 and 2023, the S-scores from 2023 are higher. This does not appear to be a result of a genuine increase in the salinity of the ditches, rather anomalies in identification and differences in timing. In both years, the S-scores indicate increasing salinity downstream with a steeper gradient of change when considering just the aquatic and marginal species. This is because these species respond directly to the higher salinity of the water rather than bank species, which are only intermittently subjected to brackish water inputs.

9.2.4 Figure 4 (botanical survey scores) upstream identifies that the lower reaches of the Freshwater Stream are brackish and that moderately brackish communities persist for some considerable distance upstream to Friston Forest entrance, significantly further than suggested by the 2017 survey. Assessment at Milton Lock in 2023 confirmed the findings of the 2017/18 survey that the Freshwater Stream at this point is freshwater.

9.2.4 As for plants, the 2017 invertebrate salinity index showed that only the extreme downstream sample point on the Freshwater Stream was brackish. Using the same criteria, the 2023 invertebrate survey indicated that the brackish section of the Freshwater Stream was further upstream by approximately 500 m.

9.2.5 Thus, although not directly comparable, the salinity data, botanical data and the invertebrate data broadly support a gradient in salinity downstream and the salinity readings show that the salinity varies between tide state and time of year.

Unit 6

9.2.6 As expected, the botanical and invertebrate survey results within Unit 6 vary significantly, with terrestrial and aquatic habitats characteristic of freshwater conditions occurring alongside brackish habitats. Unit 6 plays a very important part by supporting a critical area of land of low salinity, with transitions to fresh and moderately saline conditions.

9.2.7 The grazing marsh in Unit 6 is a complex and dynamic system, with vegetation being affected by multiple factors including residual salinity following reclamation of the former saltmarsh, frequency and duration of flooding with fresh or saltwater, degree of agricultural improvement and current management.

9.2.8 Comparison between Figure 2 (NVC communities), Figures 4 (the botanical salinity scores) and Figure 5 (the frequency of halophilic invertebrate species) shows no clear correlation, rather that there is a mosaic of brackish and freshwater plant communities and halophilic and freshwater invertebrates. Generally, the grassland and swamp communities of the southern part of the site showed a strong brackish influence, with low-lying areas supporting extensive stands of halophytes such as Saltmarsh Rush *Juncus gerardii* and Divided Sedge *Carex divisa* with frequent Hairy Buttercup *Ranunculus sardous* and Strawberry Clover *Trifolium fragiferum.* However, higher areas supported grassland characteristic of non-saline conditions, similar to floodplain meadow grassland with extensive areas Of MG4 type grassland on slightly raised areas close to the Freshwater Stream grading to MG5 on the highest land. Areas close to the sea wall tend to be brackish, either because of seepage or over topping.

9.2.8 It is not possible to relate the 2023 data to a previous comparable survey and therefore identify whether any change has occurred nor to relate this to changes in salinity.

9.2.9 Unless significant events , such as a prolonged drought or significant saline flooding, occur, it is likely that there will be a longer lag time for botanical community change to occur than for invertebrates. The beetle and bug fauna has changed over time but has retained its character and interest and has become more diverse. Sixty-one species of water beetles and 16 species of water bug were found in 1999; 67 and 24 respectively were recorded in 2023. It is not possible to know whether these changes relate to year on year fluctuations, are points on a long-term trend or are a resetting of the fauna after the prolonged drought in 2003.

9.2.10 The presence of halophiles in the survey area is not new, they form a minority of the wetland fauna and they have not changed very greatly in frequency and proportional representation since at least the late 1990s. However, as the botanical survey shows, if anything, the fauna now tends more to the freshwater end of the spectrum.

9.2.11 The Large-mouthed Valve Snail *Valvata macrostoma* was recorded in 2023 and in 2017 but was not found in 2003. It is extremely unlikely that it would have been missed in 2003 if it were there, unless it was extremely localised and rare. It seems that it is probably spreading into the survey area from further upstream, where it was recorded in 2017. *V. macrostoma* is a freshwater species, sensitive to water quality, and not known for its tolerance of salinity. Thus, movement of invertebrate species is clearly occurring within the Cuckmere valley.

9.3 Flooding

9.3.1 There are no definitive data on areas of flooding, either by fresh or saline waters within the Cuckmere Valley. The SSSI citation from 1999 reports that the alluvial meadows 'rarely flood'. Clearly however, significant flooding does occur as shown by the photographs in Appendix 3.1 and by the reports that Alfriston is increasingly subject to flooding. Environment Agency data indicate that overtopping of the sea bank is projected to increase, and that the salinity of the Cuckmere will increase upstream on spring tides.

9.3.2 While flooding may be beneficial to some species, e.g. the waterbirds recorded on the large area of flooding downstream of the Freshwater

Stream in Unit 6, where areas of OV31 *Rorippa palustris – Gnaphalium uliginosum* community were present on the drawdown zone of some pools, it also affects the botanical communities.

9.3.3 The character of the grassland is heavily influenced by the hydrology, so changes in water levels, including deeper and more prolonged flooding, will have an impact on the distribution of the NVC communities. There is no historic information on NVC communities, so it is difficult to assess whether increased flooding in recent years has had an effect. However, the most widespread type of grassland includes communities that are tolerant of prolonged inundation, including MG11, MG13 and OV29. This may be a result of more prolonged and extensive flooding which has shifted the alluvial grassland away from the more species-rich MG4 and MG15 communities. Prolonged flooding also increases the area of open vegetation and facilitates the spread of docks, which were very frequent in areas of low-lying land, particularly in the northern part of the site.

9.3.4 Flooding also has a deleterious impact on ground nesting birds whose nests may be washed out and whose young may not be able to either survive prolonged wetting or feed. In contrast, wet ditches will contribute to soil wetness across the site and this will help to maintain suitable feeding conditions for breeding waders.

9.3.5 To maintain invertebrate communities, although permanent water, or at least very wet conditions, are needed for some species (sensitive molluscs, most dragonflies especially those with a 2-year life-cycle), it is important that water levels fluctuate and that shallow pools and some of the smaller ditches dry out thoroughly in summer. Timing is important, species adapted to seasonal water supplies have a life-cycle to match, developing over the winter or breeding in early spring. Early stages are generally more sensitive and thus dry conditions in early spring would be disadvantageous. The greater the frequency of dry periods, the greater the chance that the rate of loss of species exceeds the rate of recovery. Annual late summer drying, even to the extent of leaving wet mud and allowing substantial survival, would be likely to lead to a shift in species composition and could lose sensitive species like *Valvata macrostoma*.

9.3.6 Permanently wet conditions, or prolonged flooding in late spring or summer, whether by saline or freshwater would be extremely damaging to the invertebrate interest.

9.4 SSSI Features

9.4.1 The SSSI features for which the Seaford to Beachy Head SSSI was notified remain for both habitats and for birds.

9.4.2 Of the bird fauna, the Cuckmere Valley remains important for both wintering and breeding birds, and teal, wigeon and snipe both over winter. Unit 6 is demonstrably more important for both breeding and wintering birds than land upstream.

9.4.3 Of the noted plants, most were recorded. *Juncus compressus* , *Ophioglossum vulgatum*, *Rumex palustris* and *Callitriche truncata* were not recorded and this is discussed in Table 1.11 in Appendix 1. However, the overall plant assemblage includes a significant number of key plant species that are associated with brackish conditions, alongside other, such as Tubular Water-dropwort, that are associated with freshwater conditions.

9.4.4 It is the view of the botanical and invertebrate surveyors that the citation significantly underplays the importance of this Unit.

10 CONCLUSIONS

10.1.1 Unit 6 cannot properly be considered in isolation from wetlands upstream and downstream. There appears to be a very complete range of conditions from saline to fully fresh along the course of the River Cuckmere. Unit 6 plays a very important part in this series, supporting a critical area of land of low salinity, with transitions to fresh and moderately saline conditions, important plant, invertebrate and bird communities and a suite of rare and notable species. It is fully worth of inclusion within the SSSI.

10.1.2 The Cuckmere Valley was to have been the subject of a Water Level Management Plan. In the event only an interim management statement was produced, and the management of the Milton Lock gate was not discussed. Nevertheless, the objectives for West Dean Meadows (in the south of Unit 6) made it clear that hydrological management was required.

10.1.3 Unit 6 occupies a pivotal position in the Cuckmere Valley with a mosaic of important botanical and invertebrate communities, both brackish and freshwater, a suite of rare and notable species and important wintering and breeding bird populations. To maintain this fragile balance, in the face of changes elsewhere in the system, it is recommended that the Water Level

Management Plan is produced with measures to control both salinity and water levels in Unit 6.

10.1.4 The only known freshwater inputs to Unit 6 are the Freshwater Stream, ground water (extent unknown) and runoff. Seepage and overtopping are contributing to the areas of brackish communities. Continuation of freshwater input into the Freshwater Stream is therefore important and any changes to Milton Lock and its operation needs careful and proper appraisal. The ability to control flooding and facilitate water clearance into the River Cuckmere is important and it is likely that, should it not be possible to ensure that the outfalls function properly, that some new mechanism at the downstream end of the Freshwater Stream or at other outfalls will be required to allow this.

10.1.5 The grant of any assent to change the management should not take place until the assessment of impact and effect and Water Level Management Plan has been prepared.

FIGURE 1: LOCATION OF SURVEY AREA

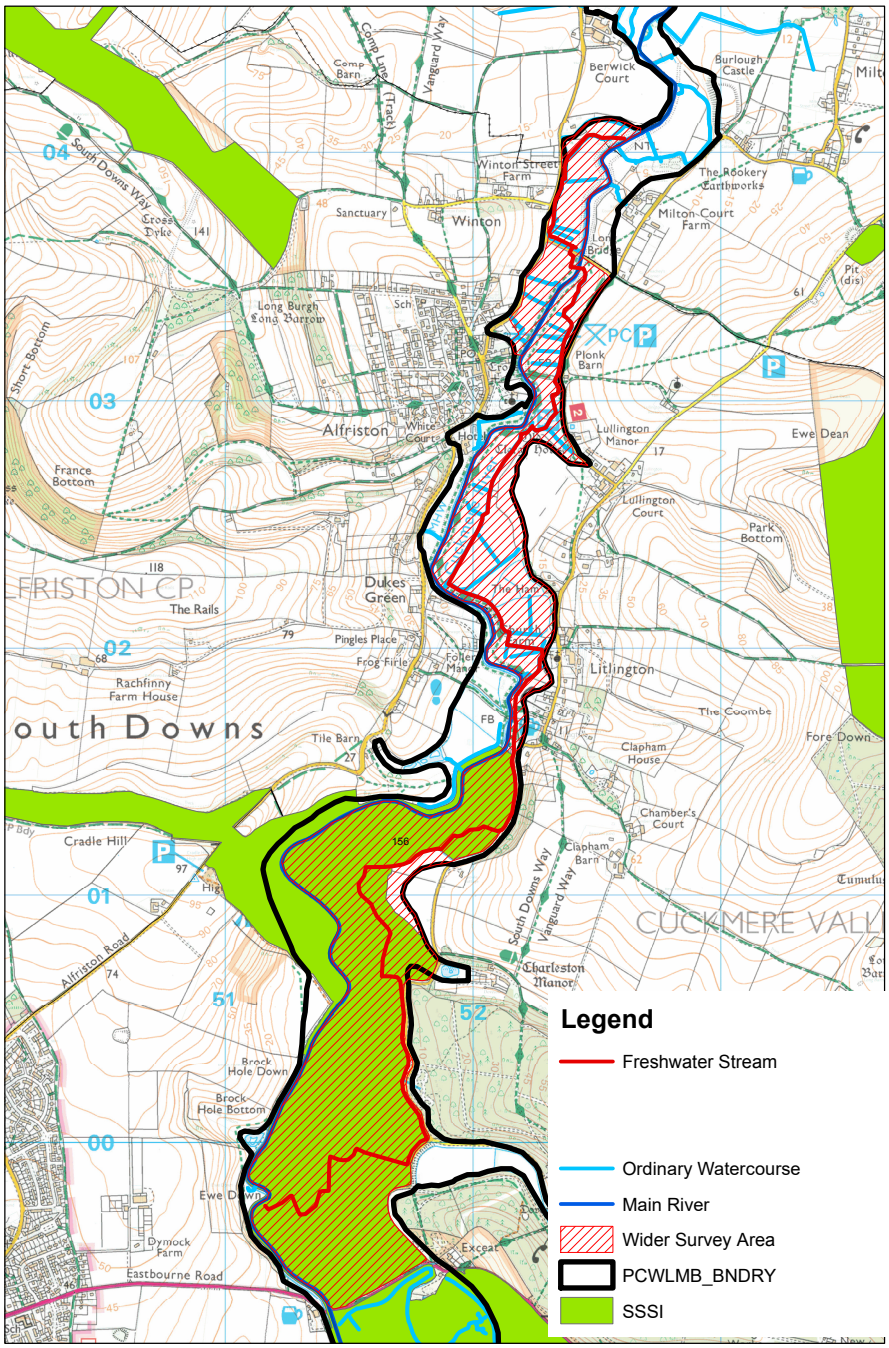


FIGURE 2: NVC MAPS

Key

Description	Constituent NVC Communities
Rank dry grassland, sea bank and banks of Freshwater Drain	MG1 *Arrhenatherum elatius* grassland
Rank grassland on damp soils	MG9 *Deschampsia cespitosa - Holcus lanatus* grassland / MG10 *Deschampsia cespitosa - Holcus lanatus* grassland
Semi-improved / improved grassland on free draining soils	MG6 *Lolium perenne - Cynosurus cristatus* grassland / MG7 L*olium perenne – Trifolium repens* ley
Unimproved to semi-improved grassland on free-draining soils	MG4 *Alopecurus pratensis - Sanguisorba officinalis flood meadow/ MG5 Centaurea nigra - Cynosurus cristatus* grassland / MG6 *Lolium perenne - Cynosurus cristatus* grassland
Unimproved, species-rich grassland on occasionally inundated free-draining soils	MG4 *Alopecurus pratensis - Sanguisorba officinalis* flood meadow
Unimproved, moderately species-rich grassland on land with more prolonged inundation, but free-draining soils	MG4 *Alopecurus pratensis - Sanguisorba officinalis* flood meadow / MG15 *Alopecurus pratensis-Poa trivialis-Cardamine pratensis* grassland
Species-poor alluvial grassland, frequently inundated, mostly freshwater, remaining wet for prolonged periods	MG11 *Festuca rubra - Agrostis stolonifera - Potentilla anserina* grassland / MG13 *Agrostis stolonifera - Alopecurus geniculatus* grassland / MG15 *Alopecurus pratensis-Poa trivialis-Cardamine pratensis* grassland / OV29 *Alopecurus geniculatus - Rorippa palustris* community
Species-poor alluvial grassland, frequently inundated, brackish, remaining wet for prolonged periods	MG 11 *Festuca rubra - Agrostis stolonifera - Potentilla anserina* grassland / MG13 *Agrostis stolonifera - Alopecurus geniculatus* grassland / MG15 *Alopecurus pratensis-Poa trivialis-Cardamine pratensis* grassland / OV29 *Alopecurus geniculatus - Rorippa palustris* community / SM16 *Juncus gerardii* saltmarsh
Swamp and aquatic communities of former creeks and drainage ditches, moderately brackish, often seasonally dry	*S19 Eleocharis palustris swamp / S20 Schoenoplectus tabernaemontani swamp / S21 Bolboschoenus maritimus swamp / A21 Ranunculus baudotii* community / S4 *Phragmites australis* swamp
Freshwater watercourses with diverse wetland community	*A3 Spirodela polyrhiza-Hydrocharis morsus-ranae* community / A5 *Ceratophyllum demersum* community / S14 *Sparganium erectum* swamp / S20 *Schoenoplectus tabernaemontani* swamp / S4 *Phragmites australis* swamp / S5 *Glyceria maxima* swamp
Freshwater watercourses, less species-rich, with locally frequent algae	*A15 Callitriche* agg. community / A1 *Lemna gibba* community / A2 *Lemna minor* community / S21 *Bolboschoenus maritimus* swamp / S4 *Phragmites australis* swamp
Deep brackish watercourse	*A11 Potamogeton pectinatus - Myriophyllum spicatum* community / *S4 Phragmites australis swamp /* S21 *Bolboschoenus maritimus* swamp

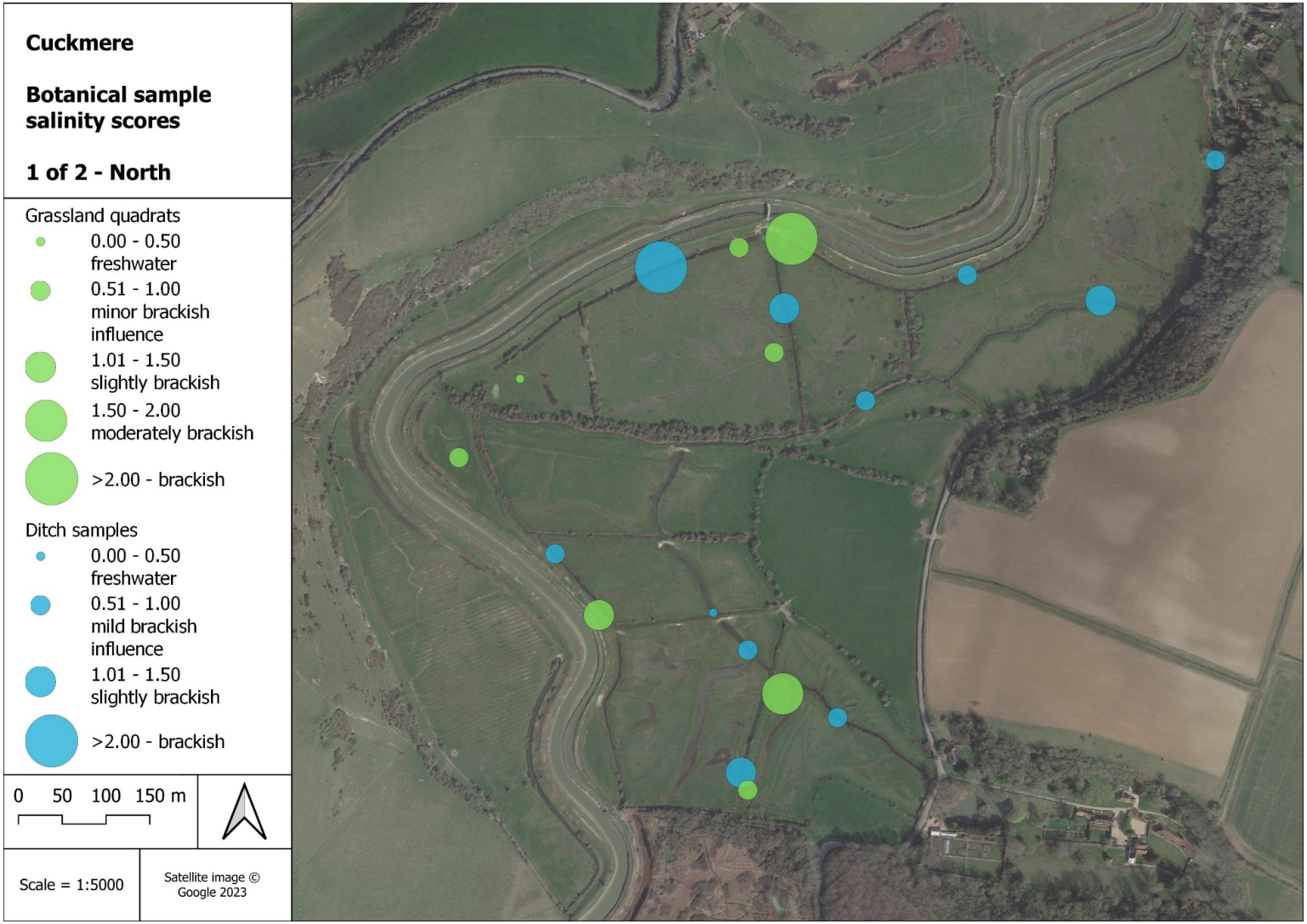
Description	**Constituent NVC Communities**
Shallow brackish watercourse	*S21 Bolboschoenus maritimus swamp / A21 Ranunculus baudotii community / S4 Phragmites australis swamp /* S20 *Schoenoplectus tabernaemontani* swamp
Internal species-rich ditches with brackish influence	A3 *Spirodela polyrhiza-Hydrocharis morsus-ranae* community / A15 *Callitriche* agg. community / S20 *Schoenoplectus tabernaemontani* swamp /S4 *Phragmites australis* swamp / S21 *Bolboschoenus maritimus* swamp
Southern saltmarsh	SM14 *Atriplex portulacoides* community /SM17 *Artemisia maritima* salt-marsh /SM22 *Atriplex portulacoides - Frankenia laevis* salt-marsh
Northern saltmarsh	SM13 *Puccinellia maritima* salt-marsh
Saltmarsh on internal side of sea bank	*SM23 Spergularia marina - Puccinellia distans* salt-marsh
Dry scrub	*W21 Crataegus monogyna – Hedera helix* scrub / W24 *Rubus fruticosus – Holcus lanatus* underscrub


Cuckmere
NVC communities
1 of 2 - North
W21/W24
MG1
MG11/MG13/MG15/OV29
MG11/MG13/MG15/OV29 /SM16
MG4
MG6/MG7
MG9/MG10
S19/S20/S21/A21/S4
S21/A21/S4/S20
SM13
SM23
A3/A5/S14/S20/S4/S5
0 50 100 150 m
Scale = 1:5000
Satellite image © Google 2023


Cuckmere
NVC communities
2 of 2 - South
W21/W24
MG1
MG11/MG13/MG15/OV29 /SM16
MG4
MG4/MG15
MG4/MG5/MG6
MG6/MG7
S19/S20/S21/A21/S4
SM14/SM17/SM22
SM23
A15/A1/A2/S21/S4
A11/S4/S21
A3/S20/S4/A15/S21
0 50 100 150 m
Scale = 1:5000
Satellite image © Google 2023

FIGURE 3: SUMMARY OF LOCATION OF WET GRASSLAND COMMUNITIES

FIGURE 4: CUCKMERE VALLEY UNIT 6 SALINITIES



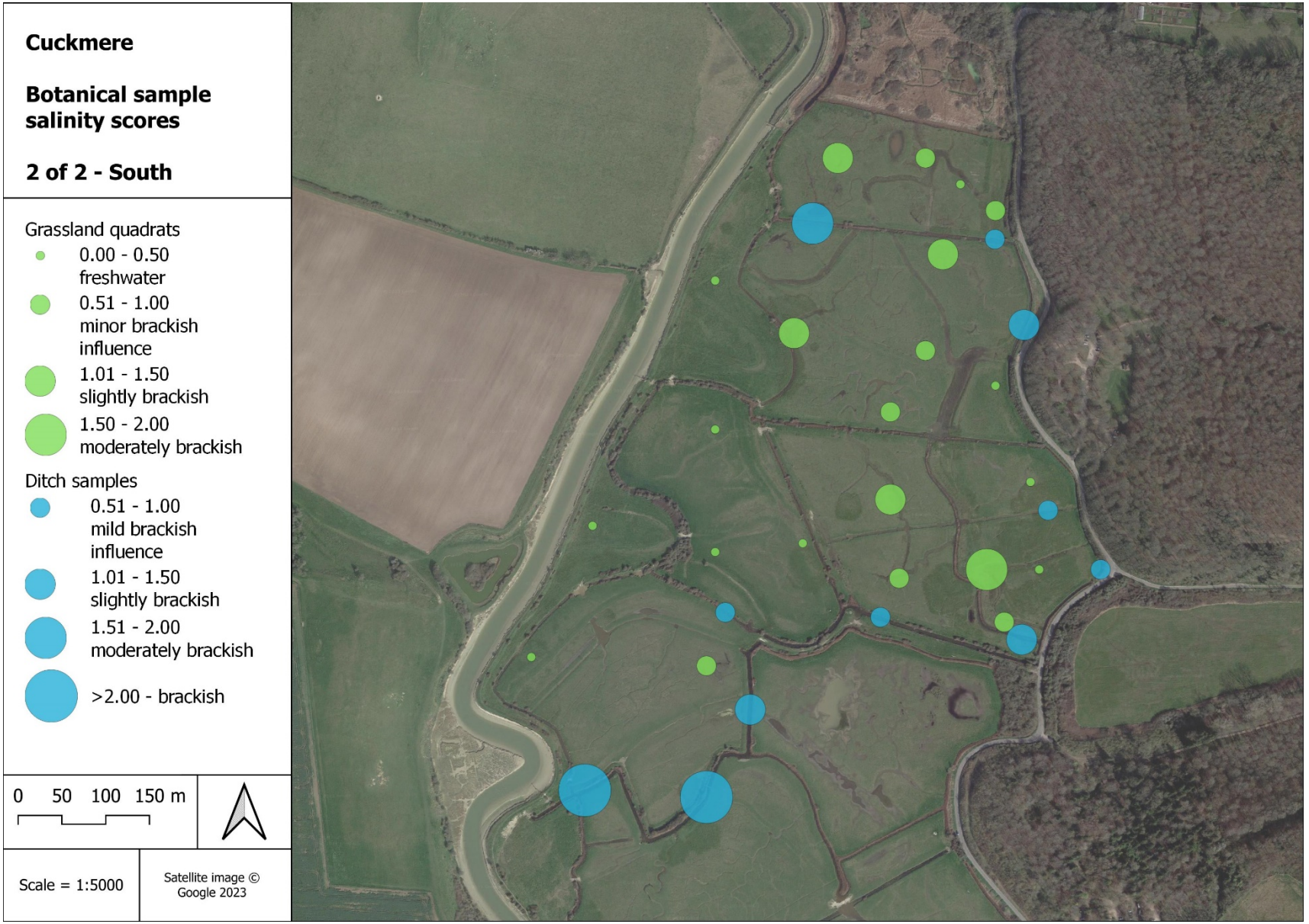

Cuckmere
Botanical sample salinity scores
2 of 2 - South
Grassland quadrats
0.00 - 0.50 freshwater
0.51 - 1.00 minor brackish influence
1.01 - 1.50 slightly brackish
1.50 - 2.00 moderately brackish
Ditch samples
0.51 - 1.00 mild brackish influence
1.01 - 1.50 slightly brackish
1.51 - 2.00 moderately brackish
>2.00 - brackish
0 50 100 150 m
Scale = 1:5000
Satellite image © Google 2023

FIGURE 5: DISTRIBUTION OF HALOPHILIC INVERTEBRATE SPECIES


Cuckmere
Frequency of halophilic invertebrate species
2 of 2 - South
Sampled location - circle diameter proportional to number of halophilic species present (label indicates number of species)
0 50 100 150 m
Scale = 1:5000
Satellite image © Google 2023

FIGURE 6: PRINCIPAL LOCATIONS OF WINTERING BIRDS

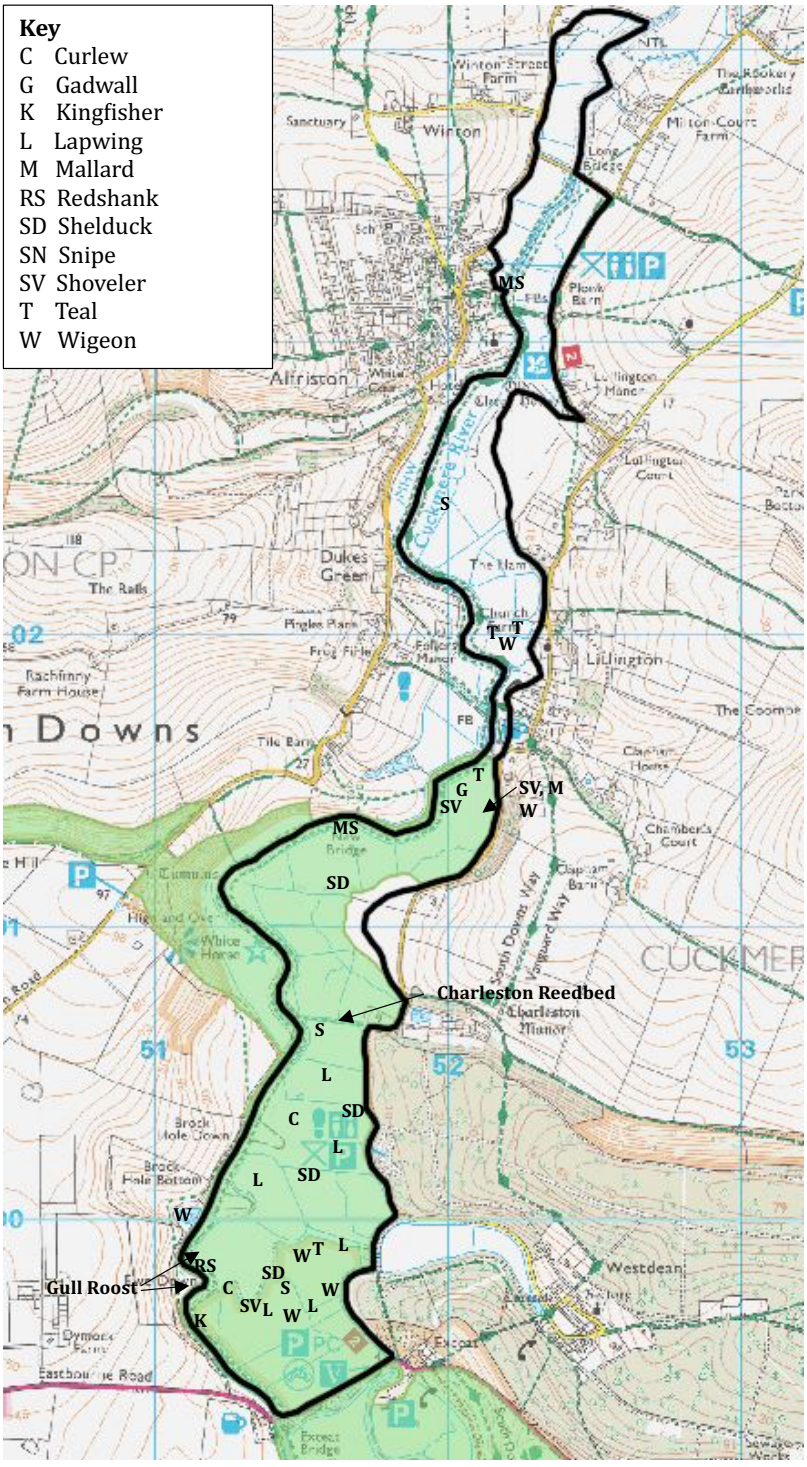
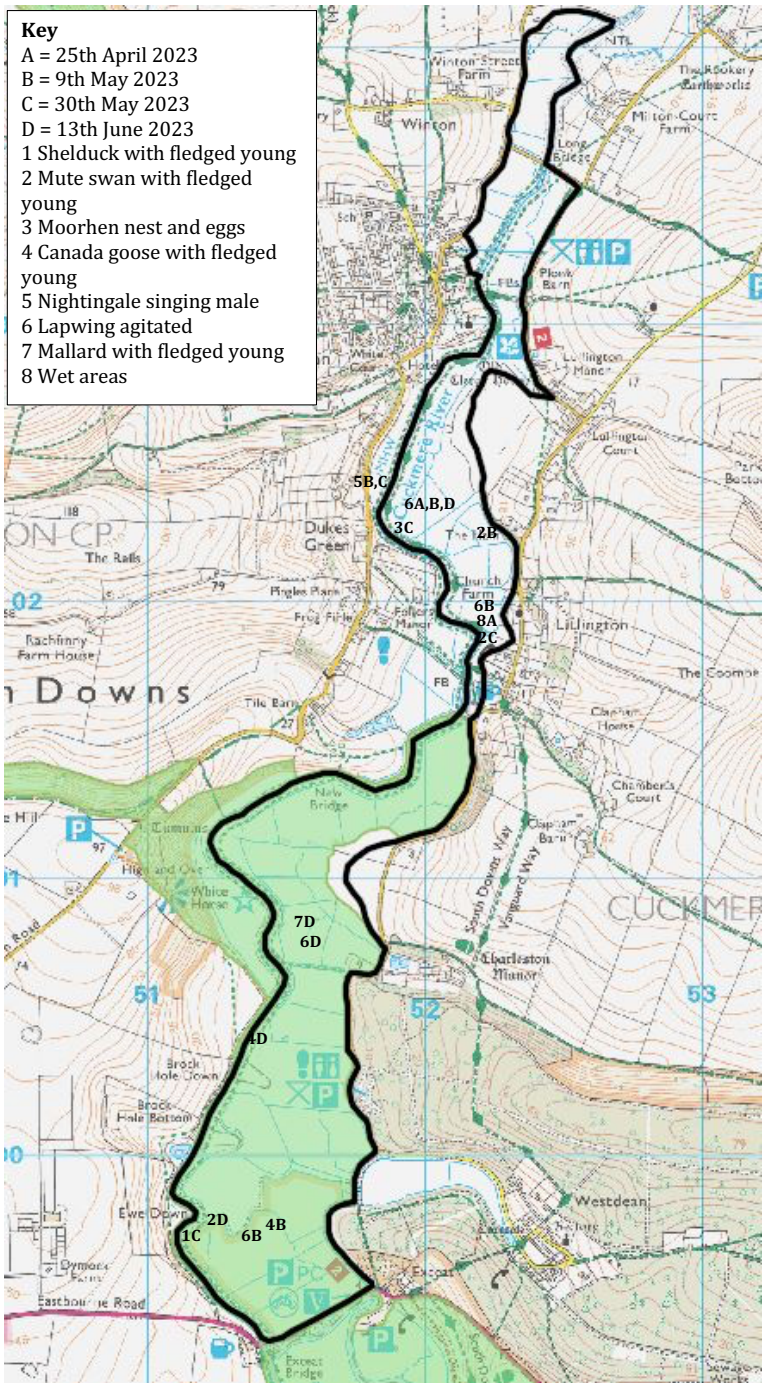


FIGURE 7: LOCATIONS OF CONFIRMED BREEDING BIRDS AND FEATURES OF INTEREST



APPENDIX A: SUMMARY OF AVAILABLE 2017/2018 AND 2023 DATA

Sample points				Botanical salinity scores		Invertebrate salinity index		2017/8 salinity data		2023 salinity data			
2023 Botany	2023 Inverteb-rate	2017/8 Botany and Inverteb-rate	2023 Water quality	2023 Botany salinity score mean	2017/8 Botany salinity score mean	2023 Inverteb-rate Salinity Index	2017/8 Inverteb rate salinity Index	2017 Conduct-ivity May (no units)	2017 Conduct-ivity October (no units)	2023 Conduct-ivity May (mS/cm) High Tide	2023 Conduct-ivity May (mS/cm) Low Tide	2023 Conduct-ivity Sept (mS/cm) High Tide	2023 Conduct-ivity Sept (mS/cm) Low Tide
D10	H	10	8	0.96	1.05	4	1	3979	3033	4.24	3.58	4.2	4.15
D9				1.33									
D8	X			0.96									
D6	F			0.82		2							
D5	Y			1.09									
D4		9	7	1.13	0.58	0	0	1085	1091	1.11	1.11	7.19	7.04
D2	C			0.88									
D12	L	8	6	0.54	0.34	0		1008	1364	0.75	0.71	8.09	6.56
D14				0.69		0	0						
D15				0.63									
D19		7		0.59	0.28			650	859				
D21	Q			0.81									
D22		6	5	0.28	0.52	1		598	555	0.49	0.52	2.23	2.92
		5	4		0.38		0	583	510	0.53	0.5	0.81	1.27
		4			0.2		0	560	475				
		3	3		0.35			519	454	0.55	0.48	0.49	0.45
		2	2		0.26		0	285	451	0.34	0.31	0.53	0.48
		1	1		0.28		0	338	455	0.32	0.29	0.57	0.47

APPENDIX B: SSSI DATA

SEAFORD TO BEACHY HEAD SSSI CITATION
SEAFORD TO BEACHY HEAD MAP
VIEWS ABOUT MANAGEMENT
OPERATIONS LIKELY TO DAMAGE THE SPECIAL INTEREST
UNIT 6 CONDITION ASSESSMENT

CITATION

County: East Sussex **Site Name**: Seaford to Beachy Head

District: Lewes; Wealden; Eastbourne

Status: Site of Special Scientific Interest (SSSI) notified under Section 28 of the Wildlife and Countryside Act 1981 (as amended).

Local Planning Authority: Lewes District Council; Wealden District Council; Eastbourne Borough Council

National Grid Reference: TQ 540970 **Area**. 1102 ha

Ordnance Survey Sheet: 1:50,000: 198, 199 1:10,000: TV59 NE, NW; TQ50 SW; TQ40 SE; TV49 NE,- TV69 NW

Date Notified (under 1949 Act): 1953 **Date of last Revision:** 1965

Date Notified (under 1981 Act): 1986 **Data of last Revision:** 1988

Date of current notification: 15 November 1999

Reasons for Notification:

Seaford to Beachy Head is an outstanding site of national importance for its biological and geological features. The diverse range of habitats includes herb-rich chalk grassland, chalk heath (a unique, rare habitat on chalk soils), maritime grassland, foreshore and chalk cliffs, river meanders, and Greensand reef. Together, these habitats support a number of nationally rare, nationally scarce and nationally significant plants, invertebrates and birds.

The cliffs and chalk platform beneath, the Greensand reef, and the chalk escarpment at Cow Gap are identified in the Geological Conservation Review as outstanding for their geological and geomorphological interest.

General Description:

The site lies at the eastern end of the South Downs which terminate in the chalk cliffs of the Seven Sisters. The majority of the site, therefore, lies on chalk but the River Cuckmere breaches the cliffs to form a broad alluvial valley. There is also a distinct coastal zone which includes all of the geological interest.

Biology

(a) Terrestrial Chalk Habitats

These habitats include species-rich chalk grassland, scrub and woodland and a small area of the rare chalk heath. The chalk grassland flora is variable, due to local differences in climatic influence but the dominant species include sheep's fescue *Festuca ovina,* upright brome

Bromus erectus, for grass *Brachypodium pinnatum* and glaucous sedge *Carex flacca*. A characteristic feature of the site is the unusual predominance of southern elements of the British flora: these include rock sea lavender *Limonium binervosum,* sea radish *Raphanus maritimus* and rock samphire *Ceithmum maritimum* on the steep chalk cliffs. On the cliff top, and further inland, species characteristic of this southern flora are round-headed rampion, *Phyteuma orbiculare*, burnt orchid *Orchis ustulata*, field fleawort *Senecio integrifolius*, moon carrot *Seseli libanotis*, small hare's-ear *Bupleurum baldense* and early spider orchid *Ophrys sphegodes.* The site also represents the most easterly location in Britain of several plants which have a predominantly south western distribution.

Chalk heath communities have developed at this site on neutral loess soils and contain both plants adapted to growing in acidic soils (calcifuges) and those adapted to growing in basic soils (calcicoles). This rare habitat is characterised here by species such as heather (ling) *Calluna vulgaris* and occasional bell heather *Erica cinerea* growing amongst typical downland herbs.

Belts of pure gorse *Ulex europaeus* dominate much of the scrub but mixed scrub is also present with blackthorn *Prunus spinosa*, hawthorn *Crataegus monoyna*, wayfaring tree *Viburnum lantana* and wild privet *Ligustrum vulgare*. Horseshoe Plantation is the only well developed wood find consists of sycamore *Acer pseudoplatanus*, ash *Fraxinus excelsior* and English elm *Ulmus procera*.

The invertebrate fauna includes two nationally rare species: the cranefly *Gonomyia conoviensis*, and the moth *Adscita globulariae*. The scrub and downland also support important invertebrate populations, including colonies of the silver-spotted skipper and adonis blue butterflies and several uncommon moths. The site is also important for its breeding bird populations, including peregrine falcon, fulmar, green woodpecker, stonechat, lesser whitethroat and yellowhammer, and is nationally significant for the numbers of passage birds, which use the Downs as a route-finding landmark. Over two hundred species of birds on passage have been recorded from Beachy Head alone. .

(b) Alluvial Habitats

The River Cuckmere has been canalised in its lower reaches but the meanders have been retained, although they now receive little tidal water. The alluvial meadows, and drainage ditches which dissect them, are important for the number of unusual plants they support. The main components of the meadows are sea barley *Hordeum marinum*, cocksfoot grass *Dactylis glomerata* and rye grass *Lolium perenne*. Also present are the nationally rare red star thistle *Centaurea calcitrapa* and the locally uncommon adder's tongue fern *Ophioglossum vulgatum* and slender hare's-ear *Bupleurum tenuissimum*. The drainage ditches are generally freshwater or brackish and prominent species include round-fruited rush *Juncus compressus*, common reed *Phragmites australis* and sea club-rush *Bolboschoenus maritimus*. More unusual plants are golden dock *Rumex maritimus*, marsh dock *Rumex palustris* and the water star-wort *Callitriche truncata*. Common reed dominates the 5 hectare Charleston reed bed and forms the ground flora beneath a small area of crack willow *Salix fragilis* woodland.

Saltmarsh communities, developed over clays and silts, line the canalised and upper reaches of the river. Bare muds by the water's edge have been colonised by glassworts *Salicornia* species, but above this is a mixed community of sea purslane *Atriplex portulacoides*, sea aster *Aster tripolium* and, less commonly, rock samphire *Crithmum maritimum* and annual seablite

Suaeda maritima. On slightly higher ground is a turf of sea couch grass *Elytrigia* atherica, common cord grass *Spartina anglica* and greater sea spurrey *Spergularia media*.

The Cuckmere valley is also important for breeding birds and for the nationally significant number and diversity of birds recorded on passage. The alluvial meadows, although rarely flooded, are also important for overwintering species, including teal, wigeon and snipe. The bush cricket *Tettigonia viridissima* has been recorded in grazing meadows near the sea.

(c) Coastal Habitats

These comprise the shingle bank which has developed either side of the mouth of the Cuckmere, and the cliff and foreshore with their attendant geological interest. The shingle is sparsely vegetated but supports a representative flora, with curled dock *Rumex crispus,* sea beet *Beta vulgaris* ssp. *maritima*, yellow horned-poppy *Glaucium flavum* and sea bindweed *Calystegia soldanella*. The shingle bank carries a number of uncommon centipedes, some of which have been recorded from nowhere else in the UK.

(d) Marine Habitats

Large areas of chalk foreshore are found in this site with a good representation of the main intertidal habitats characteristic of this shore type in the south east. The chalk shores of the Biding Gap area are particularly rich in algae and amongst the best, phycologically, in Sussex. A few elements of algal assemblages characteristic of the splash zone on chalk are present on the cliffs and in caves. Upper mid littoral levels are dominated by barnacles and limpets, but a dense fucoid (wrack) canopy with foliose algal understorey is present from the middle shore downwards and the rock bored by several species of piddock and the worm *Polydora* spp. Large rock pools and runnels with flowing water often contain prolific algal growths with a considerable variety of green, brown and-red seaweeds present. Deep, steep-sided gullies on the lower shore have 'interesting algal and invertebrate communities with characteristic algal assemblages found in sandy and muddy areas.

The Pound, at the eastern end of the site, is a very complex foreshore comprising eroded reefs, approximately parallel to tire coastline, with channels, pools and lagoons between them floored by soft clay and chalk. The seaward side of the area is bounded by a high barrier reef of Upper Greensand; communities on the outer, wave exposed side of this contrast with those of more sheltered conditions on the inner side. The lagoonal system within this barrier contains interesting and unusual plant and animal assemblages and several species rare for south eastern England. It is one of the most important marine sites in the region. The presence of deep pools on the shore enables shallow and littoral algal species, including the large kelps, to be found. Japanese seaweed *Sargassum muticum* has also invaded the site. The rock overhangs are rich in invertebrates, including sponges and tunicates, as are the undersides of boulders in the lagoons. Piddocks are dense in the soft rock flooring the lagoons and there is a rich sessile and free living fauna.

Geology

The site is important for earth science interests, particularly for its chalk stratigraphy, periglacial geomorphology and the study of chalk landscape evolution.

The cliff section between Seaford and Cuckmere provides extensive stratigraphically complete exposures of Coniacian, Santonian and lowermost Campanian aged Chalk and includes the Lewes, Seaford and Newhaven Chalk Members. The site contains the candidate Global Stratotype sections for the bases of the Santonian and Campanian Stages as well as the recognised stratotypes for the Seaford Chalk and other units of the underlying Lewes Chalk. The section has been well documented over the past hundred years, both for its rich fossil faunas and sedimentological features. The latter includes calcarenite chalks, now interpreted as the product of slumping and synsedimentary tectonics. Recent studies using both fossil faunas and sedimentological data have assisted in the construction and interpretation of Upper Cretaceous sea-level curves and schemes of sequence stratigraphy reflecting both tectonic events within the basin and extra-basinal global changes in sea level.

Birling Gap is a key site for periglacial geomorphology and the study of chalk landscape evolution. The sea cliffs at Birling Gap provide the best example of a complete cross-section through a dry valley anywhere in Britain. A complex series of solifluction deposits on the floor of the valley overlie deeply weathered chalk. The deposits have been affected by large-scale contortions which may have originated when permafrost melted at the end of the Devensian Stage. A well-developed layer of these involutions underlies the valley sides, merging into the solifluction deposits on the valley floor.

Cow Gap is an important site for another aspect of periglacial geomorphology and the study of chalk landscape evolution. It is one of a set of otherwise unique amphitheatre-like embayments cut into the face of the Chalk escarpment between Eastbourne and Beachy Head. These features are thought to have been produced by bodies of snow or ice under very cold climatic conditions, which developed at some stage before the late Devensian. Cow Gap, which is truncated by the cliff line, provides the best known exposure of the deposits related to a scarp face embayment The infill deposits are the product of solifluction and sediments deposited by meltwater, and preserve an important sequence of Devensian lateglacial and Flandrian molluscan faunas and a late glacial fossil soil

Beachy Head Cave is the largest and best developed example in Britain of a phreatic conduit in chalk. It is the only cave of this type with any significant length of accessible passage. The cave was formed by water flowing at high pressure beneath the water table. It is therefore important for demonstrating the role and existence of conduit flow is chalk. The age of the cave is unknown, but it is clear that it is a relict example of the passages that extend beneath currently active chalk sinks.

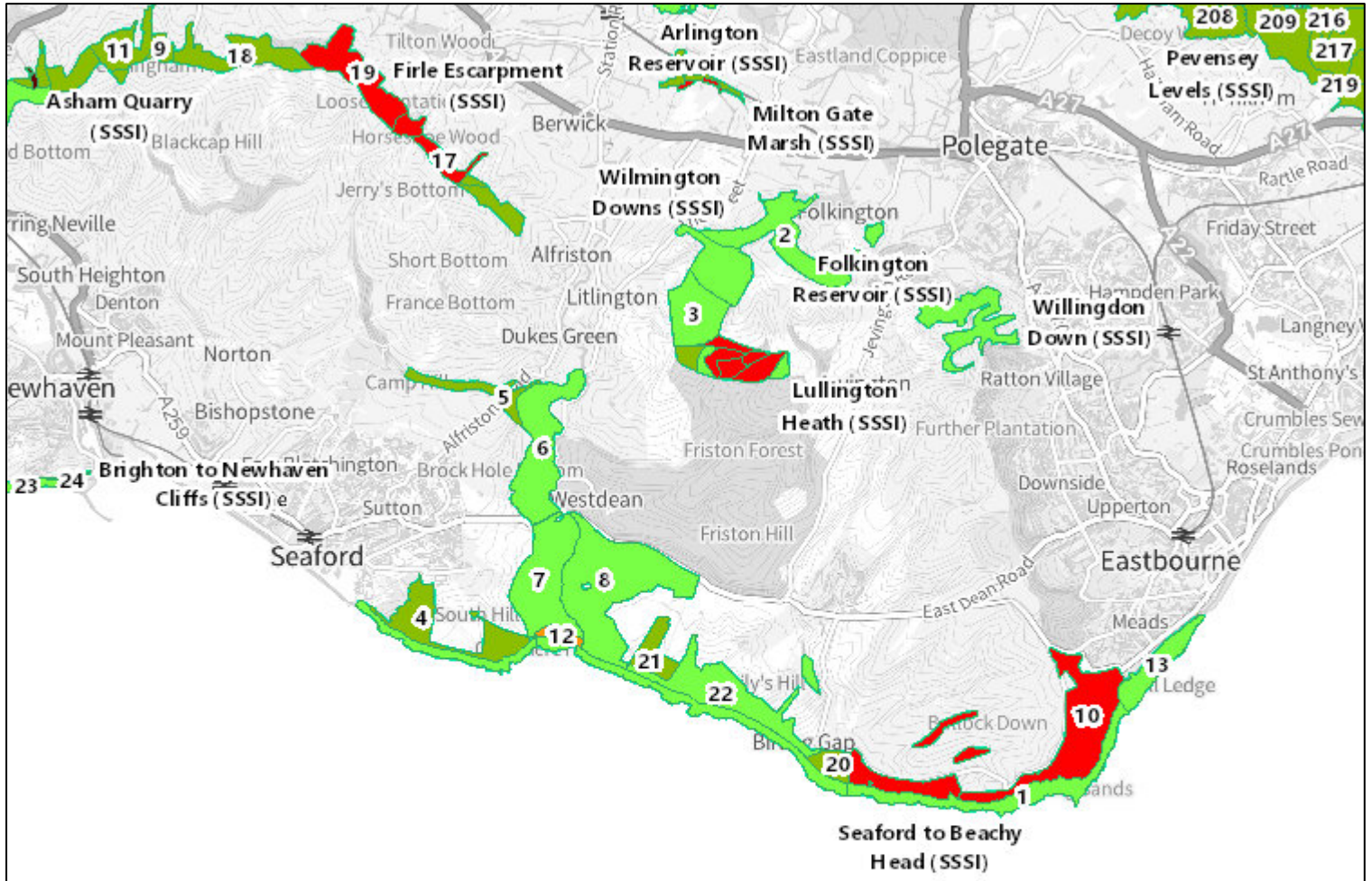
Seaford -Beachy Head is a key site for coastal geomorphology, comprising a cliff-beach-shore platform system developed on chalk. The site includes the classic coastal cliffs of Beachy Head and the Seven Sisters. In contrast with the cliffs at Foreness Point (Kent) and Kingsdown - Dover (Kent) where structural controls prevail, the plan of the Seaford - Beachy Head coastline is controlled primarily by wave energy; with the dominant and prevailing wave energy from the southwest. The beach is one of six major south west facing beaches in southern England and all

of the others differ significantly in geological characteristics. In addition the beach is the most rapidly and consistently fed by flint from cliff falls.

Other Information:

This site occurs within the South Downs Natural Area. Seaford to Beachy Head is described in `A Nature Conservation Review' (NCR) and will be listed in 'A Geological Conservation Review' (GCR). The site lies within the Sussex Downs Area of Outstanding Natural Beauty (AONB). The Seven Sisters Country Park and part of the Heritage Coast lie within the site and are managed by the Sussex Downs Conservation Board. Seaford Head Local Nature Reserve (LNR) is managed by Lewes District Council.

MAGIC ord to Beachy Head SSSI showing condition of Units



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Legend

Sites of Special Scientific Interest Units (England)

- Favourable Condition
- Unfavourable Recovering
- Unfavourable no change
- Unfavourable Declining
- Part Destroyed
- Destroyed
- Not Assessed
- Sites of Special Scientific Interest (England)

Projection = OSGB36
xmin = 534400
ymin = 88570
xmax = 572900
ymax = 107800

0 2 4
km

Map produced by MAGIC on 24 November, 2023.

Views About Management

ENGLISH NATURE

A statement of English Nature's views about the management of Seaford to Beachy Head Site of Special Scientific Interest (SSSI).

This statement represents English Nature's views about the management of the SSSI for nature conservation. This statement sets out, in principle, our views on how the site's special conservation interest can be conserved and enhanced. English Nature has a duty to notify the owners and occupiers of the SSSI of its views about the management of the land.

Not all of the management principles will be equally appropriate to all parts of the SSSI. Also, there may be other management activities, additional to our current views, which can be beneficial to the conservation and enhancement of the features of interest.

The management views set out below do not constitute consent for any operation. English Nature's written consent is still required before carrying out any operation likely to damage the features of special interest (see your SSSI notification papers for a list of these operations). English Nature welcomes consultation with owners, occupiers and users of the SSSI to ensure that the management of this site conserves and enhances the features of interest, and to ensure that all necessary prior consents are obtained.

Management Principles

Calcareous grassland

In order to maintain a species-rich sward and its associated insects and other invertebrates, calcareous grassland requires active management. Without management it rapidly becomes dominated by stands of rank grasses, such as Tor-grass. These grasses, together with the build up of dead plant matter, suppress less vigorous species and lower the diversity of the site. Eventually, the site will scrub over. Traditionally, management is achieved by grazing. The precise timing will vary both between and within sites, according to local conditions and requirements. These may include stock type or the needs of particular plants or animals; certain invertebrates, for example, can benefit from the presence of taller vegetation. However, grazing should generally aim to keep a relatively open sward without causing excessive poaching. Light trampling can be beneficial by breaking down leaf litter and providing bare patches for seed germination and some invertebrates. An element of managed scrub, both within and fringing calcareous grassland can be of great importance to certain birds and invertebrates (in particular migrating and breeding birds at this important coastal site), but excessive scrub should be controlled.

Maritime cliff grassland
Maritime cliff grasslands on slopes or cliff tops are maintained by a combination of grazing and natural factors, such as erosion and exposure to salt-spray and wind. Together these maintain an open sward characteristic of maritime grassland vegetation. Recently, changes in agricultural practices have led to the abandonment of grazing and subsequently scrub encroachment can occur.

Where grazing is still practised, it should continue. The precise timing and intensity will vary between sites according to local conditions and requirements, such as the type or availability of stock, and the practicalities of grazing in often inaccessible areas of cliffs. Where grazing has lapsed, reintroduction should be given careful consideration. However, where there has not been a history of grazing, on exposed sites the maritime grassland can be sustained as part of a successional cycle. Where grazing-sensitive species are present, grazing should not be introduced.

The cliff top communities of vegetated maritime cliffs and slopes often form part of (or are adjacent to) land managed for agricultural purposes, which may be outside the SSSI boundary. Management of this land should take into account the indirect impact arising from the application of herbicides, pesticides and artificial fertilisers. Cliff-top vegetation can also be destroyed where it is squeezed between a receding cliff face and cultivated land, therefore the management of adjacent land should seek to limit this where possible.

Chalk/limestone heath
This rare and remarkable community develops where acid soils overlie chalk or calcareous rock and the pH of the soil is approximately neutral. Species typical of acidic heathlands (e.g. heather and bell heather) grow in conjunction with species typical of calcareous grasslands (e.g. salad burnet and wild thyme). This habitat is unstable and requires active management to prevent “shade out” of the characteristic species by scrub encroachment. Grazing by cattle, horses, sheep or a combination of the above is a useful method of management. This may be insufficient on its own however, and further cutting and/or mowing may be necessary. If this is performed, the cut material should be removed, as the resulting nutrient accumulation will create unfavourable conditions for the characteristic species.

Vegetated shingle
Shingle is defined as sediment with particle sizes from 2-200mm. Shingle beaches form where sediment is first deposited on the shore by wave action. These deposits can then build up into more stable spits, bars or forelands. The types of vegetation that occur on shingle depend on the stability and structure of the shingle itself, but all must be able to cope with the unique physical and hydrological conditions typical of this habitat. This results in some communities being unique to shingle; including unusual moss- and lichen-rich communities that are of great conservation value. Shingle structures also provide important habitats for invertebrates and breeding birds.

A key management requirement is to avoid or minimise surface disturbance, especially in the more open communities. Many of the vegetation types and species associated with shingle are fragile and vulnerable to damage from trampling. This breaks up the fine humus that develops in the upper layers of the shingle that is vital

for the plants to survive. Where recreational pressures are significant enough to result in the loss of vegetation cover, or prevent its recovery, it may be necessary to take steps to manage access. Disturbance of areas important for breeding birds should be minimised during the breeding season.

Where there is more closed vegetation cover, light grazing, by rabbits for example, may be all that is needed to prevent scrub encroachment on areas of grassland and heath. However, if there is a tradition of sheep grazing; it may be beneficial to continue this practice at a low intensity. In some cases grazing is not necessary, because of the low rates of plant growth on shingle structures, and can even be damaging, due to the fragility of shingle habitats. The introduction of grazing where it has not been traditionally practiced would not be beneficial.

Active Process Sites (IA sites)
Geological sites where the natural processes that produced the important scientific features are still occurring are referred to as 'active process sites'. The primary management principle is to avoid interfering with these natural processes and the features they produce.

Any development or activity that restricts natural processes is likely to damage the interest features of the site. Direct damage can be caused by activities such as the construction of structures and defences, or the removal of material such as sand and gravel. In some instances, sites are likely to be damaged by tree planting which can restrict natural processes by stabilising the soil. Changes in drainage patterns can also damage active process sites.

Developments do not necessarily have to take place within the boundary of a site to cause damage. Natural systems can be complex. For example, development in one area can disrupt active processes in a site many miles away by altering rates of erosion. As processes within a site can be affected by developments beyond the site boundary, it is important to take a broad and integrated approach to the management of active process sites.

In general, active management of these sites is often only necessary if human activities have affected the natural processes. For example, management may involve removal of man-made barriers which restrict the natural movement of geological features, clearance of rubbish or planted trees.

Collecting of geological specimens may be acceptable if undertaken in a responsible manner. However, there are some sites where the geological interest is very finite in nature and over-collecting can result in damage or destruction of the interest. Collecting of specimens requires very careful management to ensure that the geological resource is conserved. Where there is any doubt, a precautionary approach should be adopted before removing or allowing any material to be removed.

Caves
Caves represent a very important scientific resource for a number of reasons. Caves themselves provide important information on environment, climate and landscape development over the last several million years. Caves often contain sediments

deposited by underground rivers that are also important in the study of environment and climate change in the recent geological past. Some caves contain animal bones where the animals once used the caves for shelter. On the surface, these bones and sediments would not have been preserved but would have been destroyed by weathering and erosion. Bones and artefacts from our early ancestors are also preserved in caves. Cave formations, such as stalactites and stalagmites, are important for a range of studies, including scientific dating, and are also of great aesthetic value. In addition, caves are an important habitat for bats and invertebrates.

Caves are sensitive systems which often suffer significant pressure from human activities, both above and below ground. It is important to manage the overlying land and catchment in a manner which takes account of potential consequences on the caves. Groundwater pollution from fertiliser, spreading of agricultural or industrial waste on land and dumping of rubbish or other waste in swallow holes or cavities are serious problems in some caves. Activities, such as pumping groundwater or diverting water courses, can affect the groundwater regime through cave systems and have serious effects on the dynamics of the system.

Blocking of cave entrances can also have serious repercussions below ground in altering air flow with consequent effects on underground climate. For example, the growth of stalactites and stalagmites is dependent on water composition, air temperature and humidity. These are easily perturbed so that growth is altered or ceases. Activities that may vary the amount of light available within the cave should also be considered carefully. Quarrying can result in partial or complete destruction of caves, or can disrupt their underground or surface catchment.

Direct pressures underground can arise from irresponsible caving. Problems associated with caving include inadvertent physical damage to cave features such as cave formations (flowstone, stalactites and stalagmites) and cave sediments, destruction of cave sediment deposits through irresponsible cave exploration, pollution and removal of cave formations or other minerals by collectors. The National Caving Association's guidelines on responsible caving are supported by English Nature and provide important information on caving and conservation.

Positive management of caves may require good access management which is often best undertaken by responsible local caving clubs and associations. Gating can be a solution to controlling access to sensitive caves, with access maintained by responsible caving groups.

The disturbance or removal of any geological material from caves can be damaging to the features that make this cave special. A precautionary approach should be adopted before removing or allowing any material to be removed from caves or before permitting any underground activities, such as digging of cave sediments, which could cause permanent loss or damage.

Static Geomorphological Sites (IS)

A wide range of features are included in the category of static geomorphological sites. These include eskers, dry valleys, raised beaches, static beach and dune systems, ground depressions and patterned ground. All of these sites share the same primary

management principle of minimal interference with the features of interest. This is partly because the features generally need to be considered as a whole in order to understand how they have formed and also because some of these sites are easily damaged. However, some positive management may be necessary on some sites to maintain the features that make the site special. This may, for example, involve clearance of vegetation, removal of debris or rubbish and fencing to protect sensitive interest features.

Activities which can cause damage to static geomorphological interest features include developments, coastal protection schemes, removal of material and tree planting. Collecting of geological specimens may also be damaging on some of these sites. A precautionary approach should be adopted before removing or allowing any material to be removed or undertaking any other activity which may cause damage.

All habitats

The habitats within this site are highly sensitive to inorganic fertilisers and pesticides, applications of which should be avoided both within the site itself and in adjacent surrounding areas. Herbicides may be useful in targeting certain invasive species, but should be used with extreme care. Access to this site, and any recreational activities within, may also need to be managed.

Operations likely to damage the special interest

Site name: Seaford to Beachy Head, SSSI, East Sussex

OLD1002008

Ref. No.	Type of Operation
1	Cultivation, including ploughing, rotovating, harrowing, and re-seeding.
2	Grazing and alterations to the grazing regime (including type of stock, intensity or seasonal pattern of grazing).
3	Stock feeding and alterations to stock feeding practice.
4	Mowing or cutting vegetation, the introduction of mowing etc and alterations to the mowing or cutting regime (such as from hay making to silage).
5	Application of manure, fertilisers and lime.
6	Application of pesticides, including herbicides (weedkillers) whether terrestrial or aquatic, and veterinary products.
7	Dumping, spreading or discharge of any materials.
8	Burning.
9	Release into the site of any wild, feral, captive-bred or domestic animal*, plant, seed or micro-organism (including genetically modified organisms).
10	Killing, injuring, taking or removal of any wild animal*, (including dead animals or parts thereof), or their eggs or nests, including pest control and disturbing them in their places of shelter.
11	Destruction, displacement, removal or cutting of any plant or plant remains, including tree, shrub, herb, hedge, dead or decaying wood, moss, lichen, fungus, leaf-mould and turf.
12	Tree and/or woodland management+, the introduction of tree and/or woodland management and alterations to tree and/or woodland management.
13a	Drainage (including the use of mole, tile, tunnel or other artificial drains).
13b	Modification of the structure of watercourses (including rivers, springs, ditches, dykes, drains), including their banks and beds, as by re-alignment, re-grading and dredging.
13c	Management of aquatic and bank vegetation for drainage purposes.
14	Alterations to water levels and tables and water utilisation (including irrigation, storage and abstraction from existing water bodies and through boreholes). Also the modification of current drainage operations (including the installation of new pumps).
15	Infilling or digging of ditches, dykes, drains, ponds, pools, marshes or pits.
16a	Freshwater fishery production and/or management, including sporting fishing and angling, and alterations to freshwater fishery production and/or management.
16b	Coastal fishing, fisheries management and seafood or marine life collection, alterations to coastal fishing practice or fisheries management and seafood or marine life collection, including the use of traps or fish cages.
17	Reclamation of land from sea, estuary or marsh.
18	Bait digging in intertidal areas.
19	Erection of sea defences or coast protection works, including cliff or landslip drainage or stabilisation measures.
20	Extraction of minerals, including shingle, topsoil, subsoil, chalk, lime, shells and spoil.

21	Destruction, construction, removal, rerouting, or re-grading of roads, tracks, walls, fences, hardstands, banks, ditches or other earthworks, including soil and soft rock exposures or the laying, maintenance or removal of pipelines and cables, above or below ground.
22	Storage of materials.
23	Erection of permanent or temporary structures, or the undertaking of engineering works, including drilling.
24	Modification of natural or man-made features (including cave entrances) and clearance of boulders, large stones, loose rock or scree.
25	Battering, buttressing or grading of geological exposures and cuttings (rock and soil) and infilling of pits and quarries.
26	Use of vehicles or craft.
27	Recreational or other activities likely to damage or disturb features of interest.
28	Game and waterfowl management and hunting practices and alterations to game and waterfowl management and hunting practice.

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* ‘animal’ includes any mammal, reptile, amphibian, bird, fish or invertebrate.

\+ including planting, felling, pruning and tree surgery, thinning, coppicing, changes in species composition, removal of fallen timber.

Seaford to Beachy Head SSSI - NEW BRIDGE TO EXCEAT BRIDGE (006)

SUMMARY:

Staff member responsible	Conservation Delivery Team		
Unit Id:	1008574	**Unit area (ha):**	112.3563
Unit Status:	Live	**Gridref:**	TQ 515 004
Main habitat:	NEUTRAL GRASSLAND - Lowland		

SITE CHECK:

Date of last site check:		**Checked by:**	
Comment:			

CONDITION:

Condition and Comments (click for history):	Favourable	**Assessed by:**	JON CURSON
Last assessed:	27/11/2008	**Last assessment field visit:**	27/11/2008
ISA Survey:	View Surveys	**Last CSM assessment:**	27/11/2008
Estimated year unit will go Favourable:		**Confidence in estimate:**	
Comment:	Unit is semi-improved grassland (not unimproved neutral grassland) and supports the breeding bird assemblage (in part). The breeding bird assemblage is currently assessed as favourable and so the habitat is considered to be in appropriate condition.		

Unit Features

Seaford to Beachy Head SSSI - NEW BRIDGE TO EXCEAT BRIDGE
Condition History

Audit	Assessed	Condition	AssessedBy	CSM assessment date
audit info	27/11/2008	Favourable	CURSON, (JON)	27/11/2008
audit info	06/05/2000	Favourable	CURSON, (JON)	06/05/2000
audit info	27/09/1998	Favourable	EDGAR, (ROBERT)	27/09/1998

Adverse Condtion Reasons

Active Condition Threats *This popup displays LIVE Condition Threat Actions. If you make a change that means the Action is considered as complete it will disappear from this list.*

Condition Threats

MLG organisations

Waterbodies

Unit Management