cornwall environmental consultants LTD







Par Sands
Beach Dune Management Plan

CEC3683 Making Space for Sand
4 November 2026

Document Control

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Rev A			
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Disclosure

The information, opinion and advice which we have prepared and provided is true and has been prepared and provided in accordance with the CIEEM's Code of Professional Conduct and the British Standard for Biodiversity – Code of Practice for Planning and Development (2013). We confirm that the opinions expressed are our true and professional bona fide opinions.

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2022 CEC Table Heading	
Purpose of report	To provide a Beach Dune Management Plan to guide restoration of habitats at Par Sands
Site assessed	Par Sands
Area (ha)	~ 14.5ha
Location:	Grid reference: SX 08308 53196 What3words:suitably.gala.pouch
Planning Authority involved	Cornwall Council
Survey methods	UK Habitat Classification Biodiversity Net Gain Condition Assessment
Date of assessment	UK Habitat Classification: June 2023
Weather on date of assessment	UK Habitat Classification – Sunny, ~20°C

1. Introduction

1.1. Background

1.1.1. Making Space for Sand is being delivered through Cornwall Council in collaboration with Cornwall Wildlife Trust (CWT), University of Plymouth (UoP), South West Coastal Monitoring (SWCM) and Cornwall Community Flood Forum (CCFF). The project is funded by DEFRA as part of the Flood and Coastal Resilience Innovation Programmes (FCRIP), which are managed by the Environmental Agency (EA). The programmes will drive innovation in flood and coastal resilience and adaptation to a changing climate.

1.1.2. The aim of the Making Space for Sand Project is to enable the creation of sustainable and resilient communities that can capitalise on their natural resource to increase economic and resilience opportunities. Encouraging the more sustainable use and development of the coastal fringe, will allow for a more natural, ecosystem approach to coastal management to be taken where traditional coastal protection is not possible.

1.1.3. Four zones have been identified to define the beach/dune area and are defined as:

1.1.4. Beach Zone – The wet beach area has been defined using Mean Low Water Spring (MLWS) and Mean High Water Spring (MHWS) contours extracted from all LiDAR data captured by SWCM. The Beach Zone will therefore encompass the area between the MHWS and MLWS contours, with volumes for this area extracted from each LiDAR surface.

1.1.5. Mobile Zone – This area is defined as the active dune face and embryo dune1 from MHWS +1 m to the back of the mobile area, often distinguished by vegetation depth or urban development. The Mobile Zone has been defined using aerial imagery from 2007 to 2021 and historic OS maps and has been verified through site visits.

1.1.6. Fixed Zone – This area is defined by permanent dune vegetation that may also include scrub or invasive species, effectively denoting vegetation atop sandy soil.

1.1.7. Developed Zone – This is defined as urban development areas (i.e., car parks, unnatural grassy areas, roads, houses etc.) which have been built atop previously present dune systems.

1.1.8. For the purpose of this report efforts have been concentrated on the Mobile and Fixed Zones as shown in Figure 1.

1.2. Aims and objectives

1.2.1. This report details the specific plans for the dunes at Par Sands; it is supported by the overarching strategic document CEC3683 Beach Dune Management Plan Strategic Overview.

1.3. Site location

1.3.1. Par Sands (Figure 1) is an extensive beach on the South Cornwall coast, located southeast of the village of Par, as the crow flies approximately 3 miles east of the town of St Austell. It is bound by cliffs to the east, Par Docks to the west and a road and holiday park to the north. There are three watercourses associated with Par Sands: Tywardreth Stream to the west, and a smaller unnamed stream to the east which flow into the Par River which then discharges into the sea. To the north of the site, there is a road which runs between the dunes and the holiday park, there is also a large man-made lake at the eastern end of the holiday park (fed by run off from Polmear Road and rainwater).

1.3.2. The dune area at Par Sands is vegetated, with embryo dunes visible at the south of the site, through to dune scrub towards the north. The dune health is fair, with marram being the predominant species within

the mobile areas. The fixed zone is more expansive to the west of the beach, where there is industrial pressure and sediment deposition from the river.

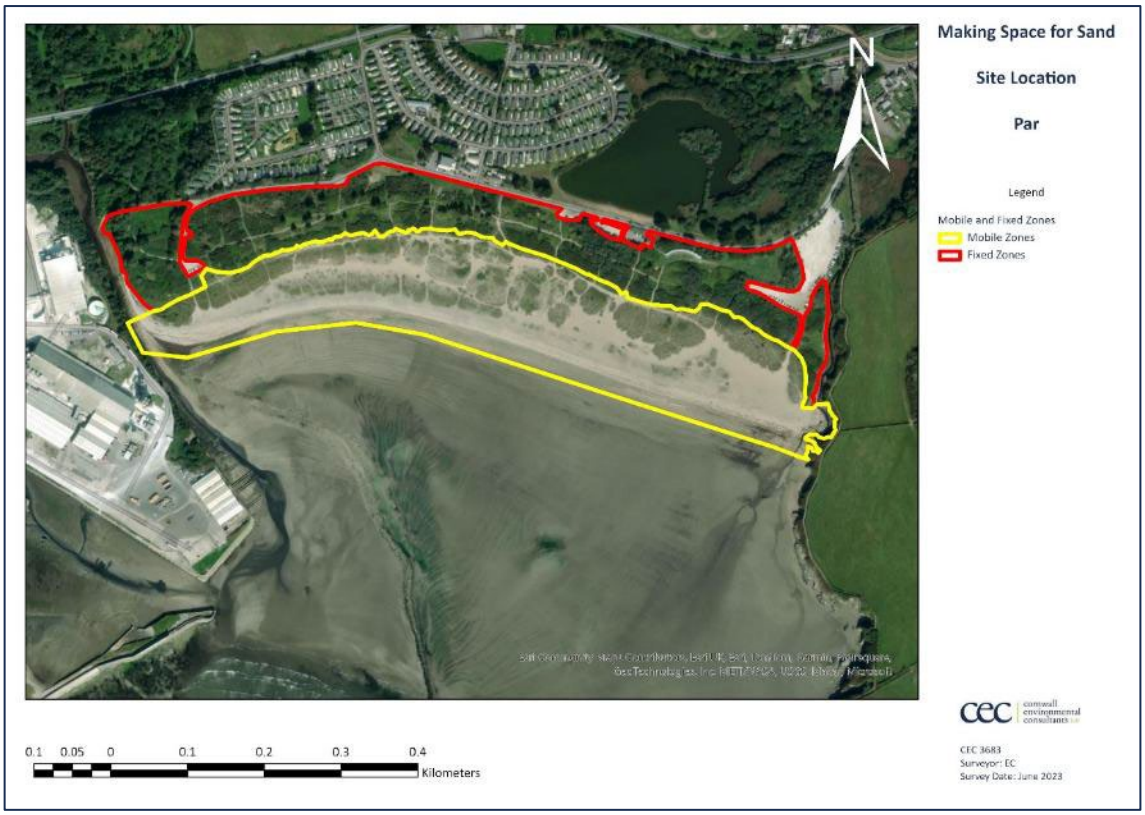


Figure 1: Site Location at Par Sands showing Mobile and Fixed Zones

2. Shoreline Management Plan Policy Units

2.1.1. Shoreline Management Plan 2011 SMP2 - Cornwall Council

2.1.2. The Shoreline Management Plan (SMP), specifically SMP2 for Cornwall and the Isles of Scilly, is a strategic, long-term coastal management policy document adopted by Cornwall Council. It provides a broad assessment of how the coast is likely to change over time and sets out recommended approaches for managing coastal erosion and flood risk in a sustainable way, more information about this plan can be found in the Beach Dune Strategic Overview Document

2.1.3. Par Sands is within Policy Development Zone 3 (PDZ 3) under Management Area (MA) MA6. There are three policy units (PU's) associated with Par Sands, PU33.1 is associated with the undefended cliffs (Table 1), PU6.3 is associated with Par sands and the dunes (Table 2) and PU6.4 is associated with Par Docks (Table 3). Within PU6.3 the assigned policy for all timeframes is Managed Realignment, with sub-policies of Local Activity Only in the medium term and Natural Features in the long term. Managed Realignment seeks to manage the coastal processes to realign the 'natural' coastline configuration, either seaward or landward, in order to create a future sustainable shoreline position. For the dune area, this means allowing the dune system to respond naturally to coastal processes and shoreline change, rather than attempting to artificially fix the coastline in its current position.

2.1.4. The medium-term sub-policy of Local Activity Only recognises that works to repair or construct short stretches of defences within a longer frontage of otherwise No Active Intervention shoreline may be permitted where required to provide local protection, for example to access points or isolated infrastructure. In the longer term, the Natural Features sub-policy reflects an intent to maintain the integrity of the dune system as a natural feature providing a defence function, through active management of the dunes themselves rather than structural intervention designed to fix their position.

Table 1: PU6.1 Undefended Cliffs

Timeframe	SMP Policy	Sub Policy
Medium-term (2025 -2055)	No Active Intervention	Do Not Defend
Long-term (2055 - 2105)	No Active Intervention	Do Not Defend

Table 2:PU6.3 Par Sands

Timeframe	SMP Policy	Sub Policy
Medium-term (2025 -2055)	Managed realignment	Local Activity Only
Long-term (2055 - 2105)	Managed realignment	Natural Features

Table 3: PU6.4 Par Docks

Timeframe	SMP Policy	Sub Policy
Medium-term (2025 -2055)	No Active Intervention	Local Activity Only
Long-term (2055 - 2105)	No Active Intervention	Local Activity Only

2.1.5. N.B the short-term time frame ended in Cornwall in 2025

2.1.6. The already significant tidal flood risks at Par Sands are exacerbated through the timeframes due to predicted sea level rise. Depending on how the dunes are allowed to roll back in response to sea level rise, there would also be implications for the natural flood defence currently provided by the beach and dunes. The Dune Evolution Report by the University of Plymouth concluded that careful management of the dune

system would be necessary in order to prevent inundation of the low-lying land behind and that the current position of the caravan park could constrain natural movement of the dunes. It also concluded however that the beach in its current condition was likely to be able to adapt to climate change without showing significant problems in the short to medium term.

2.1.7. Until 2025 the policy at Par Sands has been Do Nothing. However, the very significant flood risks suggest that as a minimum, the risks to life and property could be managed through a policy of Managed Realignment (MR) with a sub policy of Local Activity Only for the medium term, followed by the Natural Features sub policy in the long term. The primary rationale behind moving to MR at Par Sands would be to facilitate the natural roll back of the dunes in response to sea level rise. The nature of land use behind the dunes dictates that this would need to be at least a partially managed process.

2.1.8. An additional consideration at Par Sands is the presence of significant historic landfill sites close to the back face of the dunes. At the western end of the dunes, the largest area of landfill is indicated to be possibly impacted upon by erosion by 2105. This is another factor that influenced the change to Managed Realignment in this area.

2.1.9. The value of the dune habitat, which is designated as a UK BAP Priority Habitat, must be recognised. Opportunities to enhance the site could be achieved by increasing the area available for dune migration. Improving the condition of the dunes would increase their resilience and enhance the ecosystem services they provide.

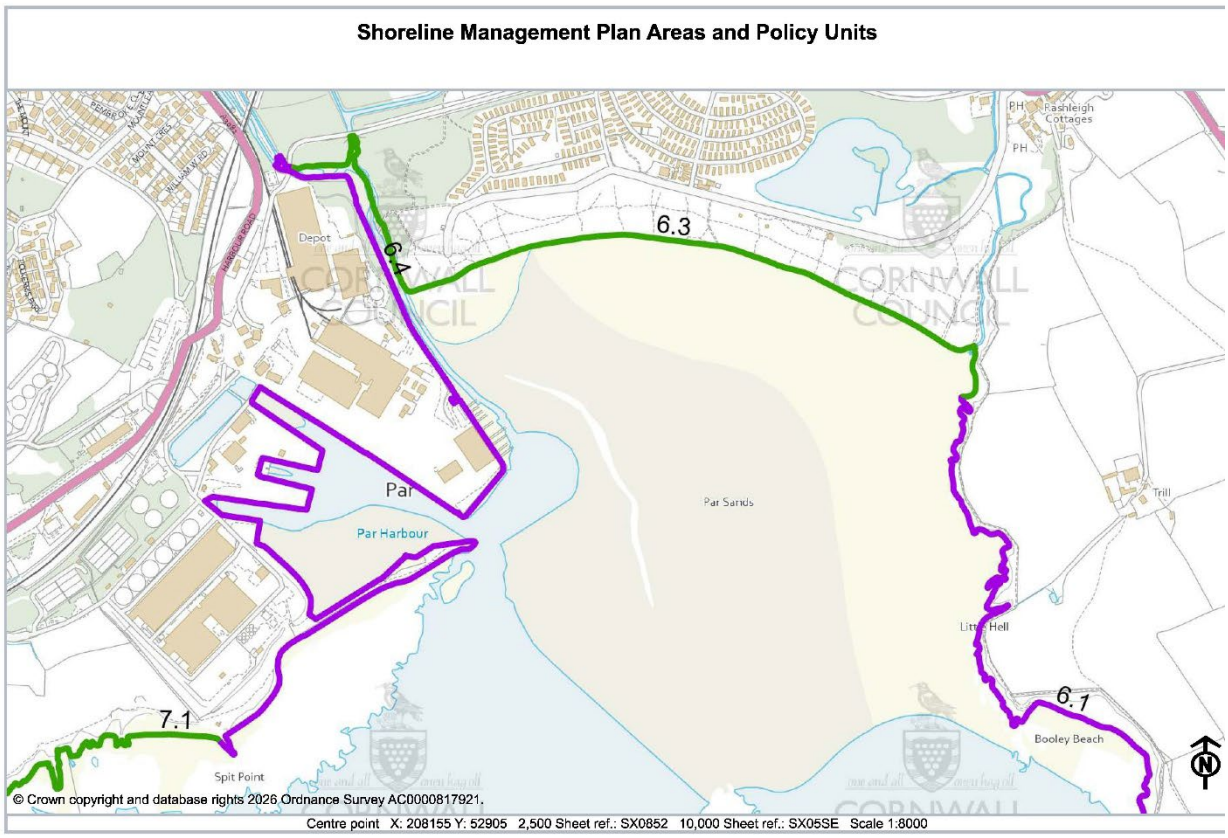


Figure 2:Shoreline Management Plan Areas and Policy Units

3. Historical Imagery and Mapping Change

3.1. Historical Imagery

3.1.1. A review of available historical map imagery (Georeferenced Maps viewer - Map images - National Library of Scotland , 2025) has been undertaken to assess the change in the dune at Par Sands.

3.1.2. The earliest available images date from the 1888-1915s, This shows that the area which is now dune vegetation was entirely sand (see Figure 2) . The high tide mark, is significantly further north than we see in the present day. To the rear of the area which is now the current position of the haul road, there is a railway line going from east to West.

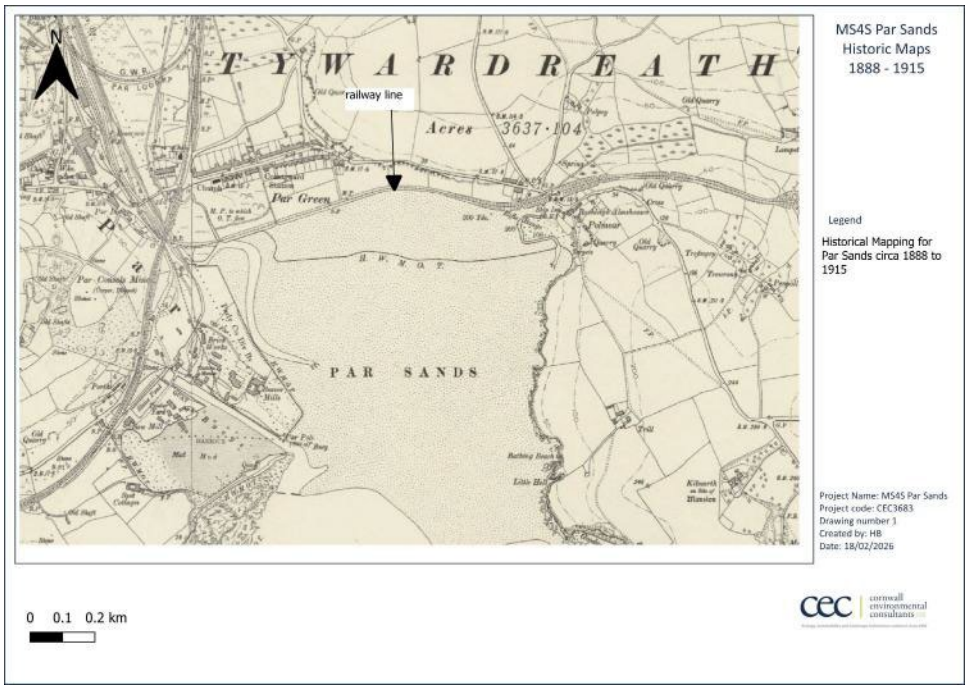


Figure 3: Historical Mapping from Par Sands 1888-1915.

3.1.3. Mapping from 1944-1974 shows an area to the west of the site as being refuse and spoil tip, the Par River has been diverted around this to the west and runs alongside the harbour wall (see Figure 3). The central area, which was previously sand, is now shown to be the caravan park. To the east of the caravan park the Polmear stream is now partly diverted via a drain into a pond. The mean high watermark has moved south (having previously been where the southern section of the caravan park is). Between the caravan park and the mean high watermark there is areas of rough pasture, which would indicate the presence of dune vegetation.

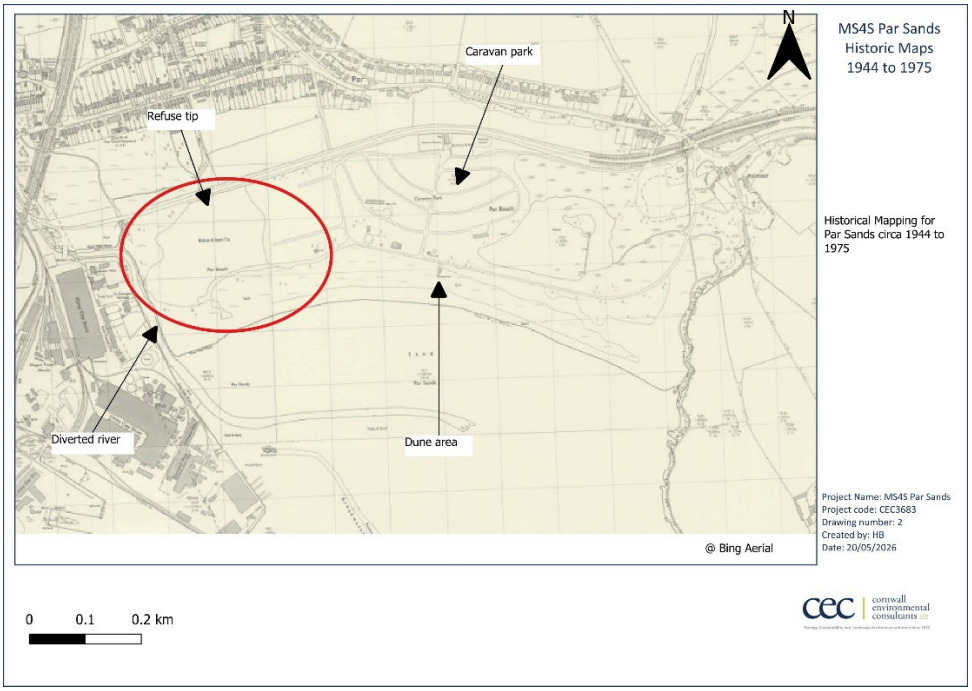


Figure 4: Historical Mapping from Par Sands 1944-1975.

3.1.4. Present day aerial photography shows further changes to the dune system at Par Sands. The caravan park and pond are in the same location as shown in the previous mapping, the area which was previously a refuse and spoil tip is now woodland. The previous mean high watermark is now located between the dividing areas of scrub and dune vegetation on the beach (see Figure 4).



Figure 5: Present Day Aerial Photography from Bing Aerial (c 2000s onwards)

The review of historical mapping and aerial imagery at Par Sands shows an evolving dune system which has grown significantly since mapping began.

4. Historical Features and Designations

4.1. Historic and Natural Environment

4.1.1. A review of historical features has been undertaken from Cornwall Council's historic and natural environment mapping. See Figure 6.

4.1.2. Historical Features within the dunes:

4.1.3. WW2 features including pill boxes, minefield, beach defences and gun emplacements visible to the north and east of the dunes.

4.1.4. Historical Features within 200m of the site include:

- Modern breakwater, modern training wall
- Post medieval wreck, the brig 'Wearmouth' wrecked in 1865.
- Post medieval quay, brickworks, smelting, flour mill etc at Par Docks
- Prehistoric submerged forest.

4.1.5. Coastal erosion and dune mobility may expose currently buried archaeological and historical features within the dune system. If archaeological remains or previously unrecorded historical features are exposed during management works or through natural erosion processes, works in the immediate area should cease and advice sought from Cornwall Council's Strategic Historic Environment Service (Historic Environment Record team).

4.1.6. Cornwall Council Historic Environment Service: https://www.cornwall.gov.uk/her Email: her@cornwall.gov.uk Tel: 0300 1234 202

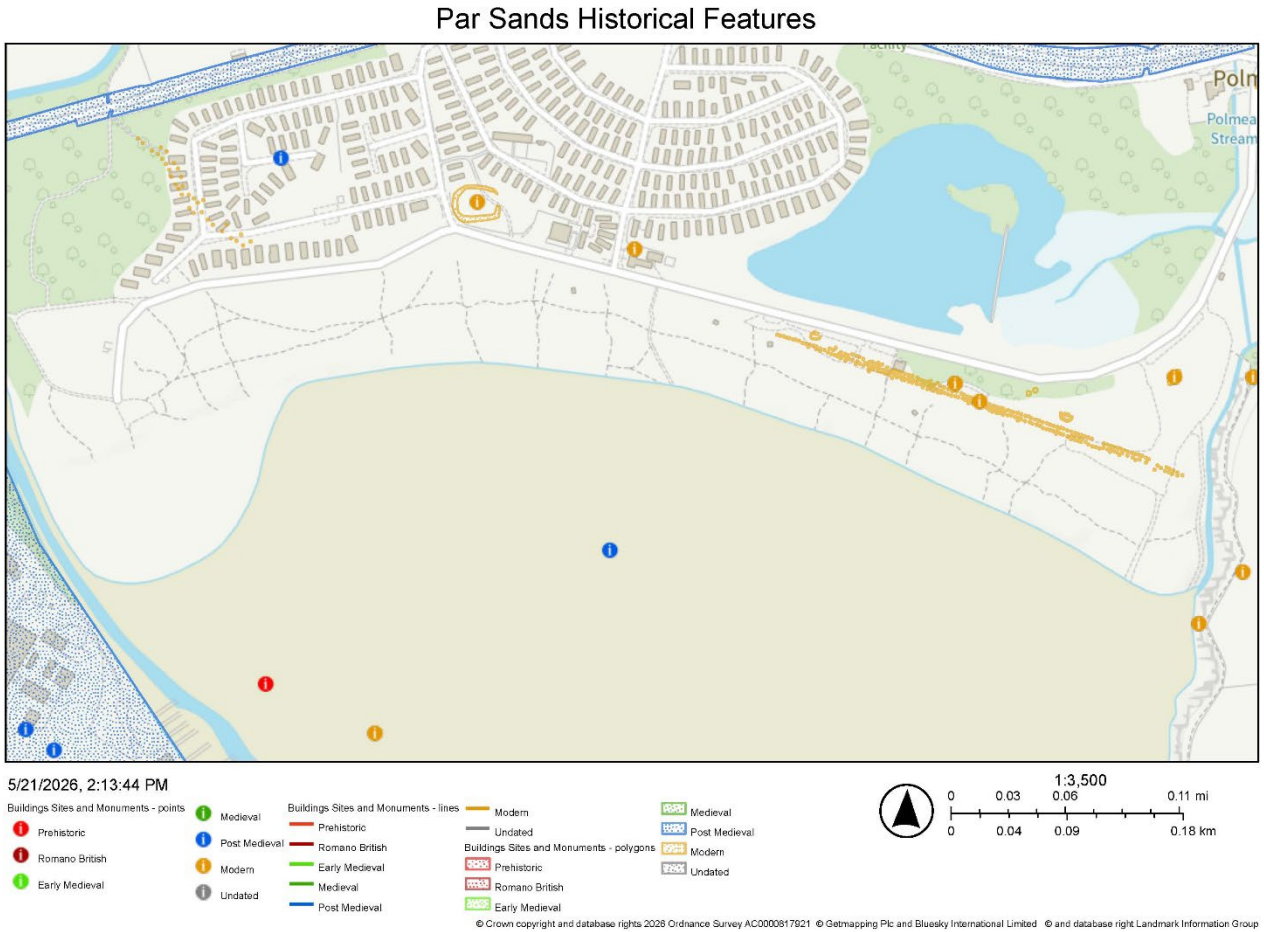


Figure 6: Par Sands Historical Features

4.2. Biological, Landscape and Geological Designations

4.2.1. Table 4 below identifies the statutory and non-statutory biological, landscape and geological designations within and adjacent to Par Sands see Figure 7.

Table 4: Biological, landscape and geological designations affecting the site.

Category	Designation Type	Name / Status	Designated for
Biological	Special Area of Conservation (SAC)	None	N/A
Biological	Special Protection Area (SPA)	Falmouth Bay to St Austell SPA	Falmouth Bay to St Austell SPA is used regularly by 1% or more of the Great Britain population of the following species in any season: black-throated diver (*Gavia arctica*), great northern diver (*Gavia immer*) and slavonian grebe (*Podiceps auritus*)
Biological	Marine Conservation Zone (MCZ)	None	N/A
Biological	Site of Special Scientific Interest (SSSI)	None	N/A
Biological	Local Nature Reserve (LNR)	Par Beach and St Andrews Road	The open water lagoon and reedbeds are important for overwintering birds and birds in passage.
Biological	County Wildlife Site (CWS)	Polmear Lake and Par Sands	Habitats of Principle Importance (HPIs) - Saline Lagoon, Maritime Cliff and Slopes, Intertidal Mudflats, Coastal Sand Dunes, Reedbeds, Wet Woodland Species including wall butterfly, lackey, cinnabar and 5 and 6 spot burnet moths; birds include dunnock, herring gull, reed bunting, starling, song thrush, goldcrest, kingfisher, turnstone, redshank and curlew; otter is regularly seen; records of greater horseshoe bat and lesser horseshoe bat
Landscape	Cornwall National Landscape	Section 10 – South Coast Eastern adjacent to the east	N/A
Landscape	Conservation Area	None	N/A
Geological	Geological Site of Special Scientific Interest (SSSI)	None	N/A

Geological	Cornwall Geo Conservation Site	None	N/A
NB: Not all of the designations identified above fall within or directly overlap the site; some are adjacent to the dune system and have been included for ecological context. Dune restoration and management activities are unlikely to adversely affect these adjacent designations and would not normally require specific consent where works do not directly affect the designated site or its qualifying feature.			

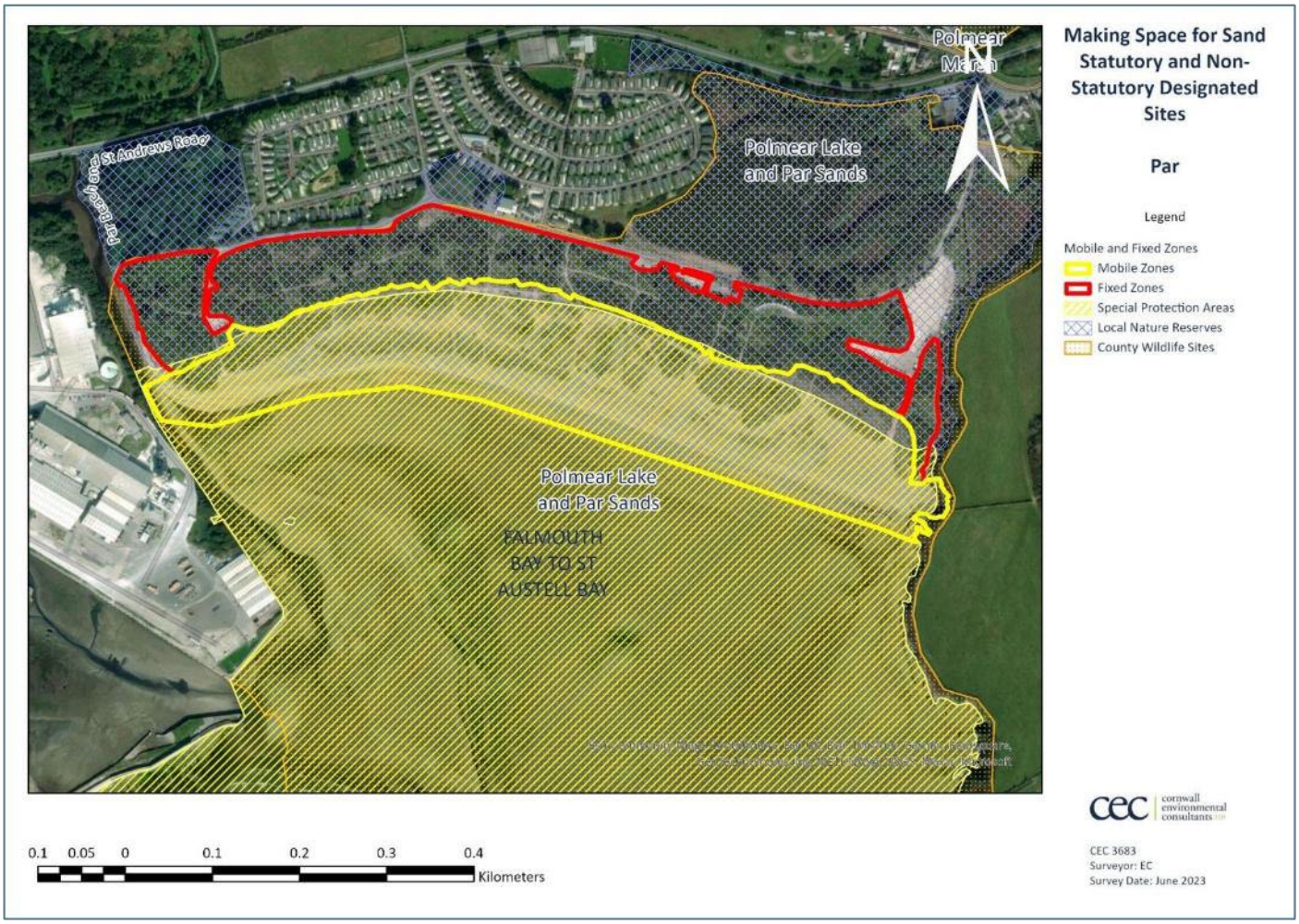


Figure 7: Biological Designated Sites in relation to Mobile and Fixed Zones

5. Ecology

5.1. Baseline

5.1.1. A baseline survey for Par Sands was undertaken in June 2023 to encompass the vegetated area, see Figure 8. The site was revisited in January 2024 to undertake a condition assessment of the site.

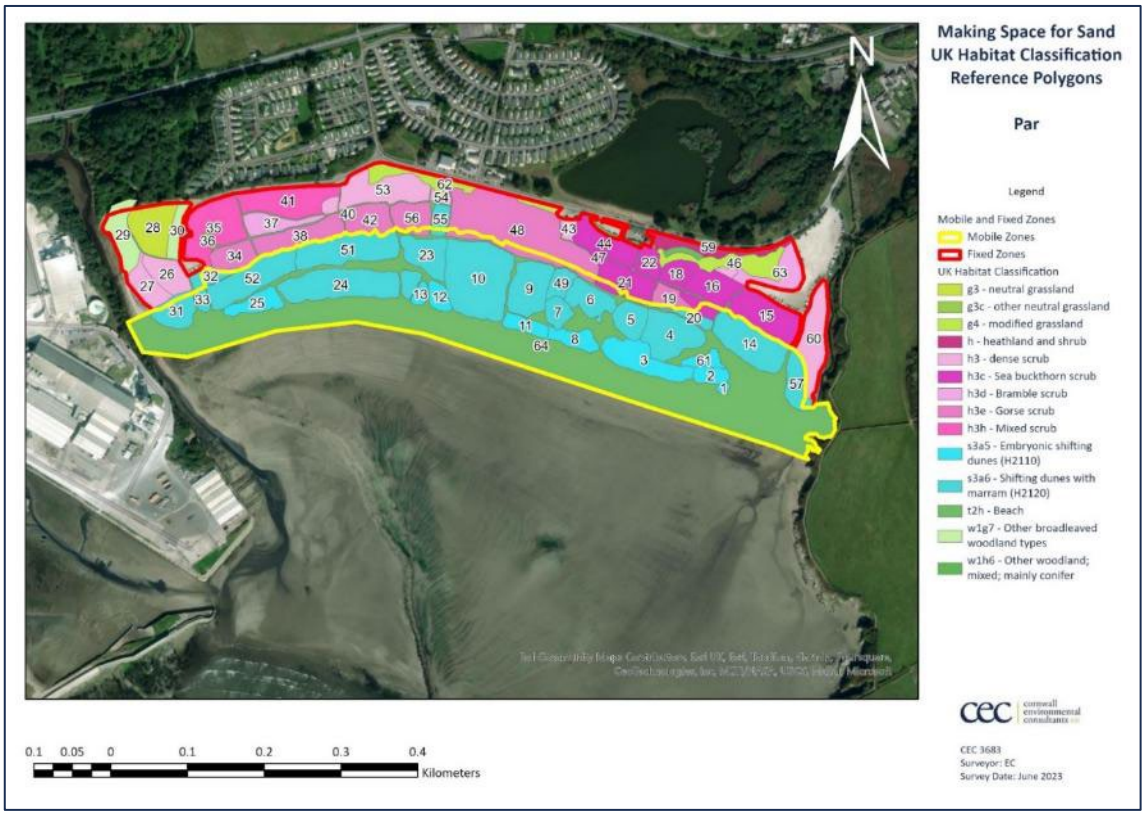


Figure 8: UK Habitat Classification of Baseline Habitats

Reference Ecosystems

5.1.2. Through the assessment of historic mapping, it is assumed that the reference ecosystem is a mosaic of shifting dune with marram and embryo dune. Although this habitat remains and is growing, a significant amount has become dominated by scrub causing over stabilisation, there is an increasing pressure from invasive species and scrub across the widths of the dunes at Par Sands.

5.1.3. The UK Habitat Classification of shifting dune with marram refences the species marram, sea sandwort and sea couch. For dune grassland the species referenced are red fescue, lady's bedstraw, pyramidal orchid and wild thyme.

5.2. Habitat Mapping

5.2.1. As an output of the Making Space for Sands project habitat mapping was carried out at this location. This was done based on UK Habitat Classification, with a project specific methodology for scrub habitat. This was due to there being no suitable classification of 'dune scrub'. As a result, any scrub on dunes was mapped within the scrub broad habitat category in order to make more meaningful restoration gains to dune habitat.

5.3. Site survey recorded habitats.

5.3.1. Across the site 13.69ha of vegetated habitat was mapped. Areas of beach extending into the sea were not mapped. See Appendix A for full details of recorded habitats on site and their appropriate classifications.

Open Dune (s3a5 and s3a6)

5.3.2. The total Open Dune area equates to ~6ha, approximately 43% of the site and includes habitats Embryonic Shifting Dunes (s3a5), ~1ha, approximately 7% of the site and Shifting Dunes with Marram (s3a6), ~4.5ha, approximately 35% of the site. This habitat type refers to polygons shown in blue on the above Figure 3.

5.3.3. Polygons 4-7, 9,10, 14, 20,24, 31-33, 49-52, 55 and 57 are Shifting Dune with marram (s3a6). These are classified as Habitats of Principle Importance under UK Habitat Classification. These areas are established dunes, where marram is the dominant species. The habitat condition is described as predominantly 'good' under BNG condition assessment, with some being moderate condition. Other species recorded within the dune area include sea spurge, sand sedge, sea sand wort, sea holly and pyramid orchids.

5.3.4. Polygons 1- 3, 8, 11-13, 25 and 61 are Embryonic shifting dunes (s3a5) under UK Habitat Classification and are classified as Habitat of Principle Importance, and in 'good' condition under the Biodiversity Net Gain (BNG) Metric. The predominant species within this area is lyme/sand couch grass and this polygon is showing the natural successional processes of the dune system. Other species recorded within the embryo dunes are sea rocket, sea knotgrass and prickly saltwort.

5.3.5. Where the non-native invasive species Japanese Rose is starting to establish this has the potential to cause the habitat condition to be downgraded in the future, should efforts not be made to control the spread. It is understood that this is currently being done by a community group, in collaboration with the landowner. In order to maintain and enhance these habitats, removal of invasive plant species within, and in the surrounding, polygons is key to allowing succession and allow the habitats the best chance of retaining good condition.

Scrub

Gorse (h3e)

5.3.6. Gorse Scrub equates to ~2.5ha, approximately 18% of the site and this habitat type refers to polygons 34, 38, 42 and 56. These polygons have been assessed as being in poor/moderate condition under the BNG metric, and are classified as h3e 'gorse scrub' under the UK Habitat Classification.

5.3.7. Improvement could be made to the scrub condition if there were to be clearings and glades made within the scrub to allow the growth of small herbs. There are significant stands of Japanese rose that are developing, the removal of this species would contribute to an improvement in the condition of this habitat.

5.3.8. Gorse is considered native and typically found in areas with good drainage and low fertility, gorse cover is important for nesting birds as the tight structure provides shelter opportunities.

Sea Buckthorn (h3c6)

5.3.9. Sea buckthorn scrub equates to ~1.5ha, approximately 10% of the site. This habitat type refers to polygons 15, 16, 18, 21, 22, 44 and 47.

5.3.10. Within Cornwall, sea buckthorn scrub is not native hence the UK classification of h3c6 'Other sea buckthorn scrub'. This habitat has a fixed condition within the BNG metric and therefore no condition assessment is undertaken.

5.3.11. Outside of its native range the shrub can become dominant and out compete native species. In this case, the dominance of the sea buckthorn is having a detrimental effect on the dune system via over stabilisation and competition of native species. The dense cover is not allowing the development of any understory vegetation.

5.3.12. Efforts have been made to clear pathways through the sea buckthorn area, further clearance of these sections should take place to allow the marram grass habitat to the south to roll back into these polygons. This has potential to increase HPI areas by ~25 %.

Bramble (h3d)

5.3.13. Bramble scrub equates to ~0.4ha, >5% of the site and this habitat type refers to polygons 37 and 63. There is a relatively small amount of bramble cover within the dune system. Bramble scrub has a fixed condition within the BNG metric and therefore no condition assessment is undertaken.

5.3.14. Some clearing of the bramble is being undertaken at the western end of Par Sands, adjacent to the dune itself in efforts to restore a wildflower meadow where there is a known colony of bee orchids.

5.3.15. Of the scrub polygons only ~0.3ha were not recorded as having significant density of invasive non-native species.

Japanese rose Dominant (h3/u1)

5.3.16. Japanese rose scrub equates to ~1.6ha, approximately 10% of the site and this habitat type refers to polygons 39,40,43,48 and 53.

5.3.17. There is no suitable classification for this habitat within the BNG metric, as a result it has been classified as 'introduced shrub' (which is covered under the urban broad habitat type), a low distinctiveness habitat with no fixed condition.

5.3.18. Removal of Japanese rose would be of ecological significance to the site and would allow a potential increase of priority habitats by ~25% where the shrub is at its most dense. There are numerous stands of Japanese rose within the open dune which are impacting this habitat detrimentally.

Further Introduced Shrub (u1)

5.3.19. To the rear of the site, adjacent to the car park is a small area of introduced shrub which acts as a buffer between the road and the beach hut/picnic area. This is polygon 59, and equates to ~0.2ha, approximately 1.4% of the site.

Neutral Grassland/Modified Grassland

5.3.20. Grassland equates to ~0.9ha, approximately 6% of the site. This habitat type refers to polygons 28, 36, 46 and 62.

5.3.21. To the north of the dune system along the access road there are a number of small patches of grassland. The grassland types under phase 1 classify as poor semi-improved grassland, and under UK Habs as modified grassland.

5.3.22. The grassland has a short sward and is heavily grazed by rabbits and under heavy recreational pressure from footfall/being used as occasional parking. There are a relatively small number of commonly occurring herbaceous species within the grassland areas.

5.3.23. There is an area to the northwest of the dune, known as the wildflower meadow, is part of an active ongoing project by the local community group to clear the area of scrub and allow for the growth of a known colony of orchids.

Woodland

5.3.24. Woodland equates to ~0.4ha, approximately 3% of the site. This habitat type refers to polygons 29, 30 and 45. There are small patches of woodland to the northeast of the site, adjacent to the Par River. This is part of the Par Beach and St Andrews Road local nature reserve. There is ongoing active management of this area by the landowners.

Hardstanding

5.3.25. There are a number of areas of compacted ground along the back of the dune system which are used as car parks, these comprise a mix of sealed and unsealed areas. The constant disturbance of these areas mean they are largely unvegetated however bare ground can provide basking opportunities to solitary bees and other invertebrate.

Non-native Invasive Plants

5.3.26. There were several non-native invasive plants recorded during the site survey, these included Japanese rose (Figure 9), montbretia (Figure 10), buddleia (Figure 11), bamboo and sea buckthorn (Figure 12).



Figure 9: Japanese Rose



Figure 10: Montbretia



Figure 11: Buddleia



Figure 12: Sea buckthorn

5.3.27. Breakdown of the Habitat types and their percentage cover can be seen in Table 5

Table 5: Breakdown of baseline habitats – Par Sands

Habitat Type	Percentage Cover
Embryonic Shifting Dunes	7%
Shifting Dunes with marram	35%
Gorse Scrub	18%
Sea Buckthorn Scrub	10%
Bramble Scrub	<5%
Introduced Shrub (Japanese rose dominant)	10%
Introduced Shrub	<5%
Grassland	6%
Woodland	<5%

Hardstanding	<5%

A Comparison between 2006 and 2023

5.3.28. A previous Phase 1 assessment of the site was undertaken in 2006 by Spalding's, it showed that most of the site was open dune and dune grassland, with a section of scrub to the west of the site. Comparison between the 2006 Phase 1 survey and the 2023 habitat surveys indicates a substantial increase in scrub across the site. In 2006, scrub covered approximately 1.7ha, compared to approximately 6.3ha in 2023, representing an increase of around 270%.

5.3.29. There are some areas which remain unchanged, these include the patches of grassland to the north of the site. Heavy footfall and parking will have contributed to this section of the site having minimal change.

5.3.30. When comparing to the 2023 surveys, the growth of the dune seaward can be seen as there is a significant area of dune now in the mobile zone which was not recorded in the previous survey. However, the dune classified area in 2006 is now dense scrub, and to the rear other neutral grassland. Within the scrub many areas of the site are now overrun with invasive non-native species.

5.3.31. Nutrient enrichment is also an issue at Par Sands. The beach is dog friendly year-round, and dog urine and faeces contribute to elevated nutrient levels within the dune system. This can encourage the spread of coarse vegetation and scrub, reducing the ecological value of nutrient-poor dune habitats.

5.3.32. Despite these pressures, there are opportunities for Biodiversity Net Gain (BNG) through habitat enhancement and restoration, particularly via the removal and ongoing management of invasive species and dense scrub. Survey comparisons also show some seaward dune accretion since 2006, indicating that active coastal processes and natural habitat recovery are still occurring at the site.

Biodiversity Net Gain (BNG)

5.3.33. A BNG baseline was undertaken in December 2023, the baseline results are shown in Table 6.

Table 6: Biodiversity Net Gain Baseline

On site baseline	Coastal Sand Dunes	108.61
	Scrub (mixed)	8.65
	Scrub (gorse)	5.98
	Scrub (bramble)	1.75
	Scrub (sea buckthorn)	3.61
	Scrub (Japanese rose) *Intro shrub	5.93
	Grassland	5.36
	Woodland	2.02
Total		**141.91**

5.3.34. Key opportunities for enhancement at Par Sands are the removal of invasive species. Sea buckthorn in particular is becoming dominant at the eastern end of the dune system, which is over stabilising and not allowing natural successional processes to take place. Japanese rose is another species which is having a

detrimental impact on the dunes, removal of these species in the open dune area will mean the improved condition of the dunes.

5.3.35. Improving the ecological condition of the dunes is possible across many of the polygons, however, in some cases it may not be possible to show this through a gain in habitat *units*, as some criteria for condition are factors which cannot be influenced by the project, such as where 'coastal processes needed to support the habitat are not modified by hard engineering or other forms on intervention' -in the case of Par Sands, the rock armour breakwater would be classed as a negative intervention and impact the western end of the beach.

5.3.36. Opportunities for Biodiversity Net Gain include the removal of sea buckthorn to allow these areas to be enhanced to Coastal Sand Dune habitat over a 30 year period. This would see an increase in the BNG units of between 4.05 (poor condition) and 6.49 (good condition).

5.3.37. The removal of areas mapped as dense Japanese rose (introduced shrub) and enhancement to Coastal Sand Dune habitat would result in an increase between 11.76 units (poor condition) and 20.11 (good condition).

5.3.38. The improvement of gorse scrub habitats by the creation of clearings and the development of understory species, as well as the removal of invasive species cover to below 10%, would mean the condition of these polygons could improve from their current poor/moderate condition.

5.3.39. Improving the diversity of the grassland areas is possible in polygon 28, where there are ongoing works to restore the wildflower meadow. There is a smaller amount of footfall at this end of the beach and is predominantly local rather than out of county visitors. By enhancing to a higher distinctiveness habitat such as lowland meadow, this would create an increase of 1.42 units. It is not considered practical to create enhancement to the other areas of grassland and as such their condition will remain the same, provided they are maintained under the same management regime. The presence of invasive species however has the potential to reduce the condition of the grassland units from their current condition, should they not be controlled.

6. Coastal Change

6.1.1. Coastal change refers to the natural and human induced processes that will change features of the coastline. These can be caused by a number of factors, either in isolation or combination. These include erosion, sediment deposition, sea level rise, storm events and human activity. Observations of change can be made, however they cannot be entirely managed and so building resilience is fundamental to adapt to these changes.

6.2. Topographic data

6.2.1. Since 2007, there have been a total of 37 topographic surveys at Par Sands, four of which were baseline surveys, 33 of which were interim surveys and zero were post-storm surveys.

6.2.2. Analysis of topographic data suggests the beach volume has shown continual accretion between 2007 and 2024. The in-the-winter-period of 2013/2014 was a period of significant energy, which caused some loss. However, the beach recovered the following year.

6.2.3. Analysis of the combined profile (the combination of the mobile and beach zone) can be seen in the below graph. This shows that Par Sands has been accreting sediment at 36.4m^2y^{-1}. See Figure 13.

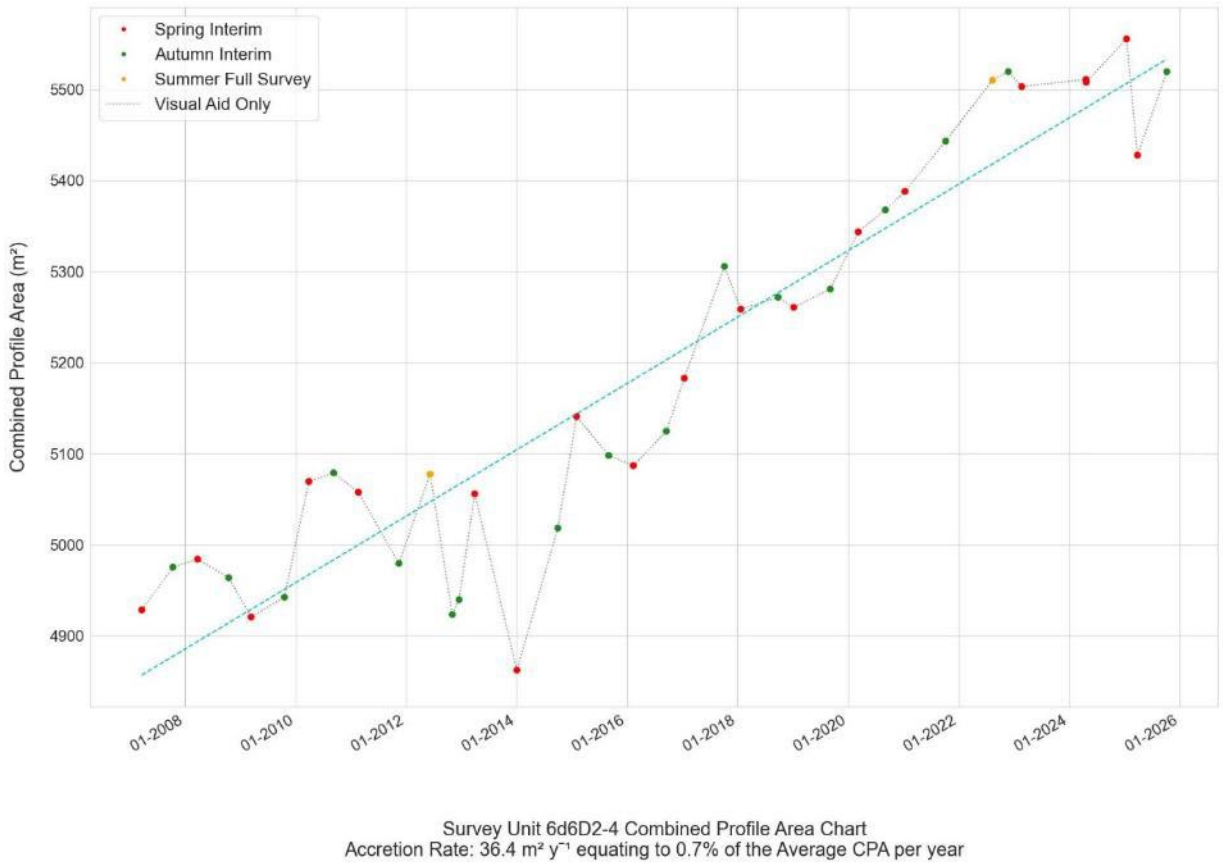


Figure 13: The combined profile analysis for Par Sands, including spring (red), summer (yellow) and autumn (green) surveys completed between 2008 and 2025

6.3. LiDAR Data

6.3.1. In addition to the topographic surveys, LiDAR (Light Detection and Ranging) is used to gather data. This is a remote sensing technology that measures distances to the Earth's surface, creating precise, 3D maps of environments. It is increasingly used in topographic surveys, and environmental monitoring. See Figure 14 for the Beach Zone Volume over time Figure 15 for the Mobile Zone (dune) Volume over time. The R^2 values show how well the trend line explains the variation in the data, with values closer to 1 indicating a stronger fit and values closer to 0 indicating a weaker fit.

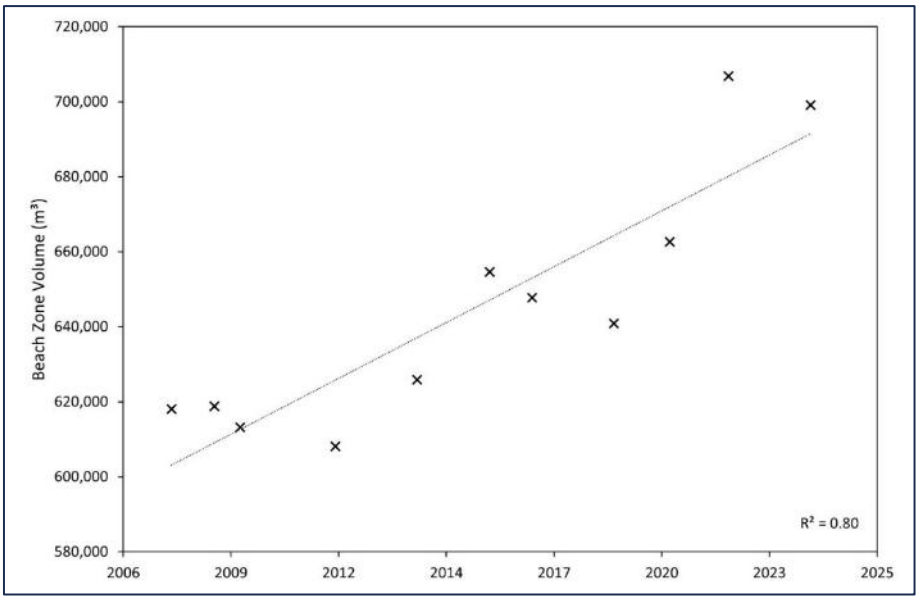


Figure 14: Beach Zone Volume 2007-2024

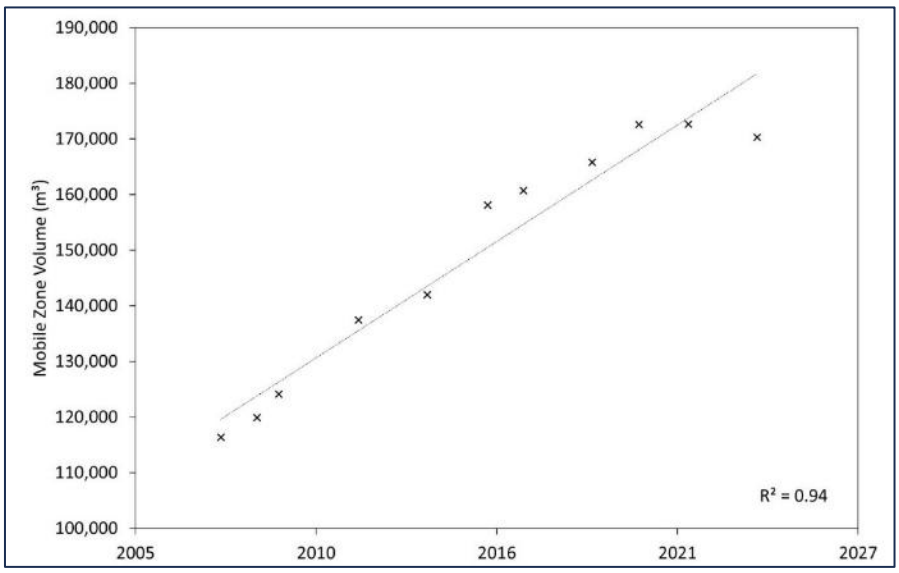


Figure 15: Mobile Zone Volume 2007-2024

6.3.2. Volume extracted from 10 LiDAR flights since 2007 have shown both the Mobile and Beach Zone to be

accreting. The mobile zone has seen uninterrupted accretion since the flights began gathering data in 2007 and considerable growth of the dune system has been observed.

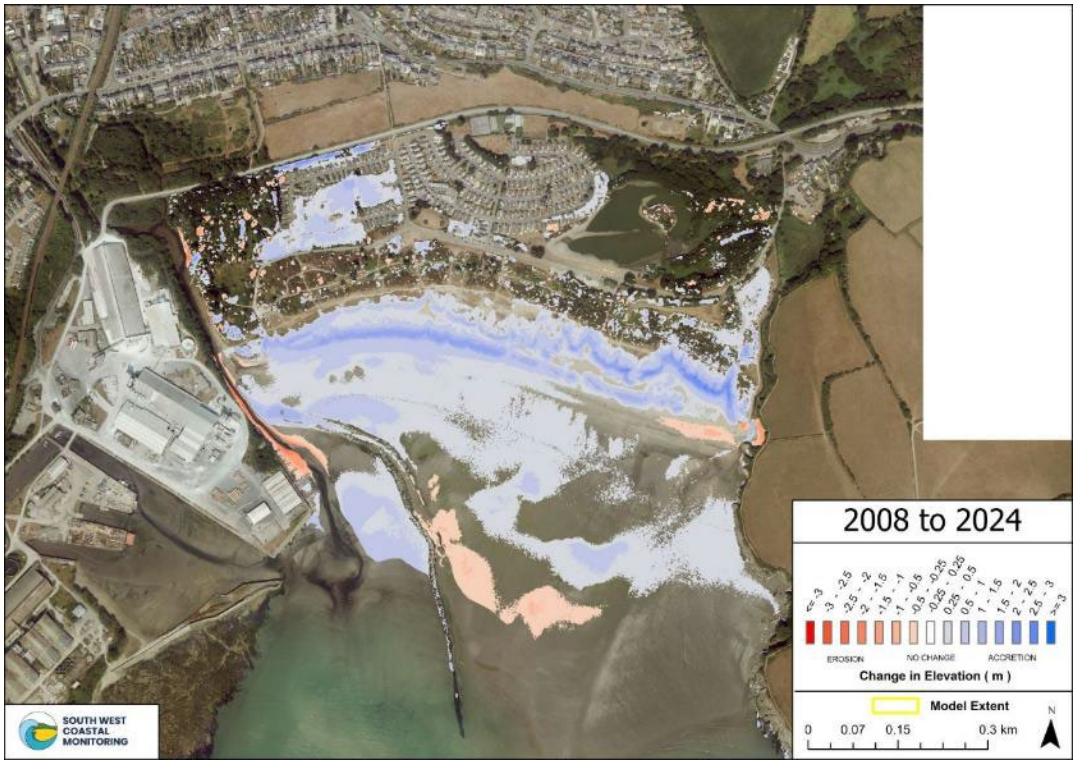


Figure 16: LiDAR change in elevation model from 2008 to 2024

6.3.3. Figure 16 shows the overall change in elevation across the beach and mobile zone areas as a visual model from 2008 to 2024, showing accretion of material in blue, and erosion in red

6.4. Dune Toe Modelling

6.4.1. Sediment is defined as natural material that has broken down by weathering and erosion, this includes sand, silt and clay. Movement of sediment on beach areas forms part of natural geomorphological process, however changes in weather including more extreme storm events can result in a greater loss of sediment from our beaches.

6.4.2. The toe of the dune is defined as where the dune and beach separate, the data collected defines this as the vertical limit of the beach profile that is impacted by wave action. This has been determined by the sum of Mean High Water Spring level, and the wave runup height during 1% exceedance events.

6.4.3. In the case of Par Sands, it can be seen from the report that the modelling from 2007-2019 that the dune is advancing at (~1.25m/yr) and gaining volume (~3.99m3/m/yr). Contrary to the trend shown at many other locations, there were no significant sediment changes following winter storms of 2013/2014. This data is presented in the time series change graphs below. See Figure 17 and Figure 18.

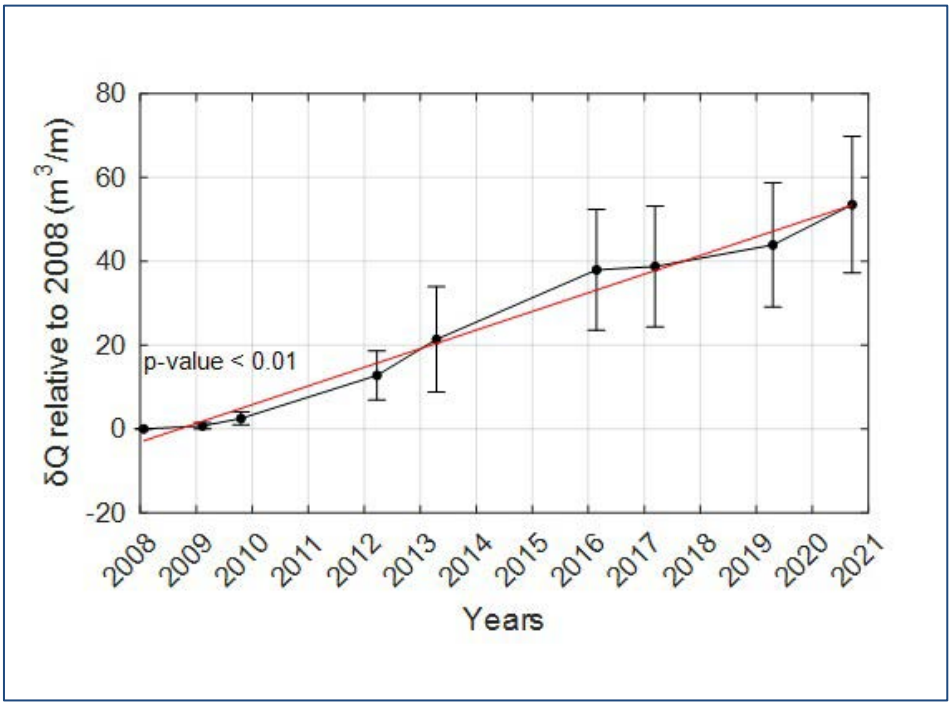


Figure 17: Time series change in dune volume at Par Sands from 2008 to 2020

6.4.4. Figure 17 shows the change in dune volume, as calculated by LiDAR data, from 2008 to 2020. This shows the dune is accumulating with the black dots indicating the value relative to 2008, the error bars showing potential error in the LiDAR data and the red line showing the linear progression. This shows since the analysis started, the volume accumulation has been greater than 50m^3/m.

6.4.5. Figure 18 below shows the change in the dune toe position from 2008 to 2020, derived from LiDAR data relative to 2008. Again, the black dots showing the value, the error bars showing standard deviation of the longshore distribution, the red line showing linear regression. This shows advance since analysis began of ~10m in total.

6.4.6. Please note that the p-value shows how likely the observed data would be if there were no real effect: small p-values (close to 0) suggest the data are unlikely under that assumption, and large p-values (close to 1) suggest the data are compatible with no effect. In this case both p-values are 0.01 and so the results are statistically significant.

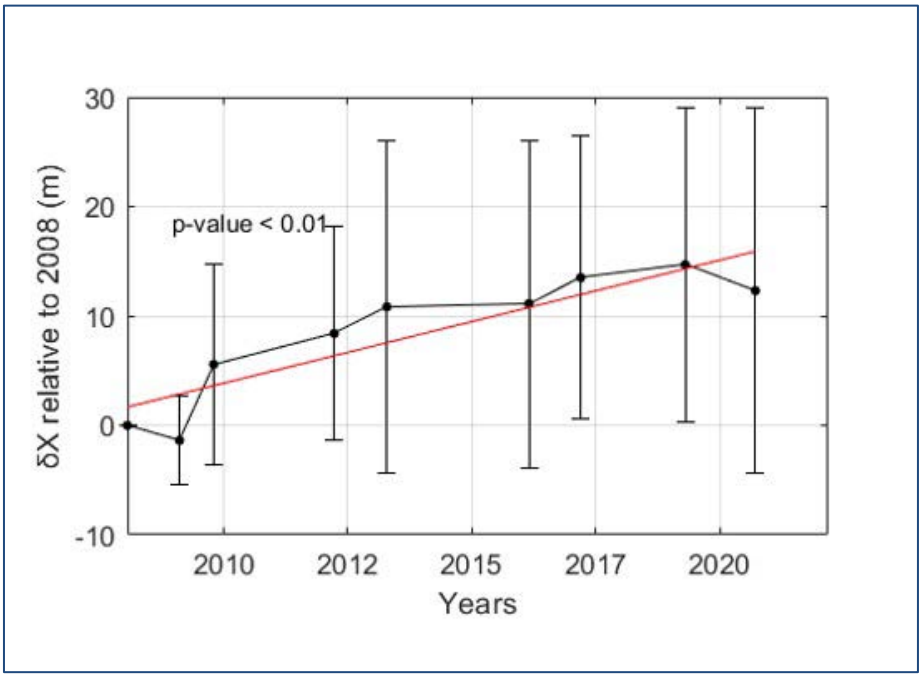


Figure 18: Time series change for change in dune toe at Par Sands from 2008 to 2020

6.5. Predicting future change

National Coastal Erosion Risk Mapping (NCERM)

6.5.1. The National Coastal Erosion Risk Mapping (NCERM) is an initiative by the Environment Agency to project areas in England at risk from coastal erosion. The latest dataset was updated in 2024 and published in early 2025 (data.gov.uk).

6.5.2. This mapping provides a baseline of coastal erosion for the coastline of England. The national coastal erosion risk map (NCERM) shows the areas at risk of coastal erosion until 2105. Predicting the exact position of an eroding shoreline over time is difficult. The influence of sea level rise on erosion rates in the longer term is also uncertain. The rate of erosion can vary depending on the geology and the natural processes at the coast. Hard rocks are worn away slower than softer material such as sand. This means erosion may not be the same along a stretch of coast.

6.5.3. Erosion risk zones displayed on the map include the area between the backshore feature (such as a cliff) and the Mean High Water Spring (MHWS) tidal position. These are shown for three climate change scenarios:

6.5.4. Present Day (2020) –uses historical erosion rates to provide future projections without calculating any additional impacts of climate change and rising sea levels. Shown in Figure 19 and Figure 20 as beige.

6.5.5. Climate Change Higher Central –uses sea level rise data from 70th percentile (UK Climate Projections 2018 (UKCP18) Representative Concentration Pathway (RCP)8.5 climate projection. Shown in Figure 19 and Figure 20 as light purple.

6.5.6. Climate Change Upper End –uses sea level rise data from 95th percentile UKCP18 Representative Concentration Pathway (RCP) 8.5 climate projection. Shown in Figure 19 and Figure 20 as dark purple.

6.5.7. This means using the Climate Change Upper end as an example, that 95% of the possible scenarios fall below this level, while 5% fall above it. The RCP 8.5 value is a scenario used in climate modelling that

considers the continued growth and production of greenhouse gas emissions. When planning for coastal change these worst-case scenarios, through more precautionary, help ensure that coastal management is, in the longer term, more resilient.

6.5.8. Unless otherwise stated, the erosion risk zones are based on the scenario that the Shoreline Management Plan (SMP) policy for the area has been delivered. A change in the policy, or the ability to deliver the policy intent, may affect the erosion projections.

6.5.9. The map provides the best estimate of coastal erosion risk at a national scale. It uses the best available national and local data along with methods which can be applied at a national scale. The erosion projections associated with NCERM are intended for guidance and cannot provide details for individual properties. The NCERM data considers the predominant risk at the coast and frontages considered to be more at risk from flood risk or areas of complex cliff are not always included.

National Coastal Erosion Risk Map Projections (NCERM)

6.5.10. The NCERM projection lines show the latest projected erosion lines based on a range of different scenarios. For the example of modelling how this may impact the mapped habitats, the projections of 'No Future Intervention' for the long term (to 2105) have been used.

6.5.11. The area at risk of coastal erosion for Par Sands under Managed Realignment with Present Day Climate is 0m by 2055 and 0m by 2105, for Climate Change Higher Central it is 3m (2055) and 17m (2105) and for Climate Change Upper End it is 6m (2055) and 31m (2105) see Figure 19 and Figure 20.

6.5.12. Although historical monitoring and aerial imagery indicate that parts of the dune system have experienced recent accretion and seaward growth, the longer-term NCERM projections suggest that climate change and sea level rise are likely to increase future erosion risk beyond the trends observed in the historical record.

6.5.13. The reason there is a gap shown in the erosion line at this location is that in the areas where flooding is the main source of risk to people and property behind the shoreline, no erosion projections are shown. However, there can sometimes be minor risks from erosion or a connection between flood and erosion processes. The map shows a clear boundary between flood and erosion risk areas, but the actual transition between flood and erosion risk zones is usually less distinct in reality.

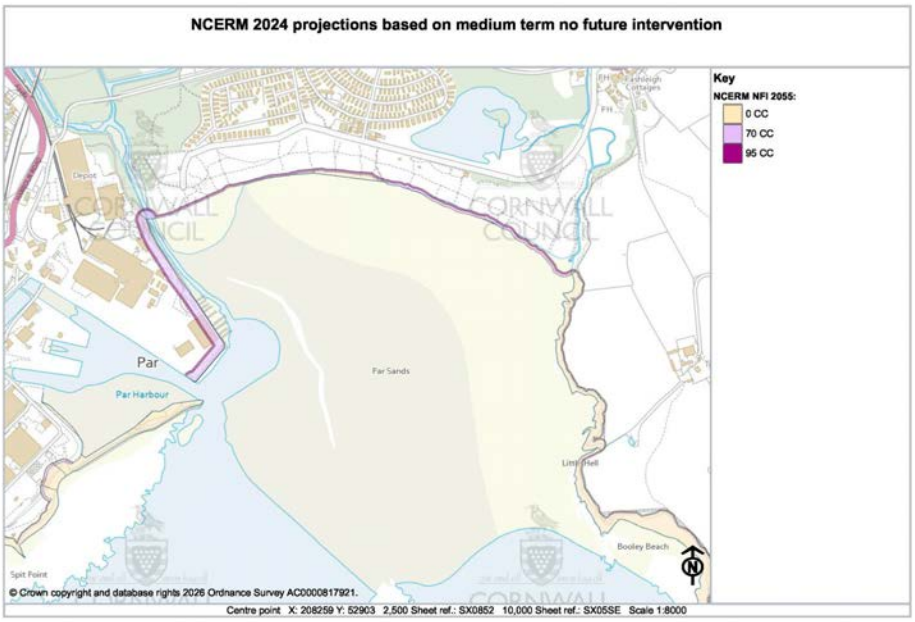


Figure 19: NCERM medium term projections based on no future interventions

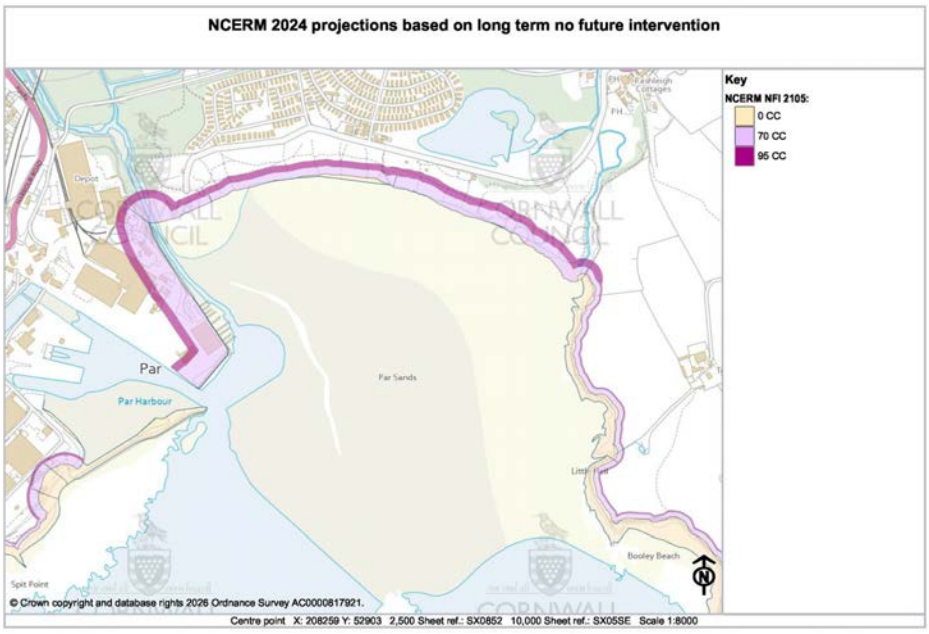


Figure 20: NCERM long term projections based on no future interventions

Bruun Rule Projections

6.5.14. As part of the Making Space for Sands project, the University of Plymouth have analysed 31 dune systems within the Making Space for Sand project, full results can be seen in the Dune Evolution Report and accompanying paper 'Predicting dune evolution on a regional scale for coastal management' (Brodie et al 2025). The main aim of the paper is to develop and evaluate an approach for coastal managers to predict the future position of the beach-dune interface as a result of sea level rise (SLR) along a varied coastline.

6.5.15. To achieve this aim, the following objectives have been set:

- quantify dune change (dune toe position and dune sediment volume) for 31 Cornish dune sites using airborne LiDAR;
- develop a robust methodology for extracting the environmental parameters required for applying the Bruun Rule (see 4.3.1);
- apply the Bruun Rule to 31 Cornish beach-dune sites;
- relate the historic rates of dune change with the Bruun Rule predictions; and
- evaluate the use of the Bruun Rule in combination with historic rates of retreat for predicting the impact of SLR on dune systems on a regional scale

6.5.16. On Par Sands beach, despite the current picture of accretion, with sea level rise the estimated rate of retreat at the location is 61m (0.48m per year) from the 2020 toe position by 2100.

6.5.17. Where projections and modelling take place, a 'confidence interval' is applied. The confidence interval is a range of values in which the true value lies. In the case of the Bruun rule projections, where there is a 5% confidence, this indicates a low probability of this occurrence, whereas a 95% confidence indicates an almost certain chance. The Bruun rule projection lines are shown at 50% confidence, meaning that there is an equal chance of the dune to retreating to this point as not, with the 90% interval applied (the range from 5%-95%).

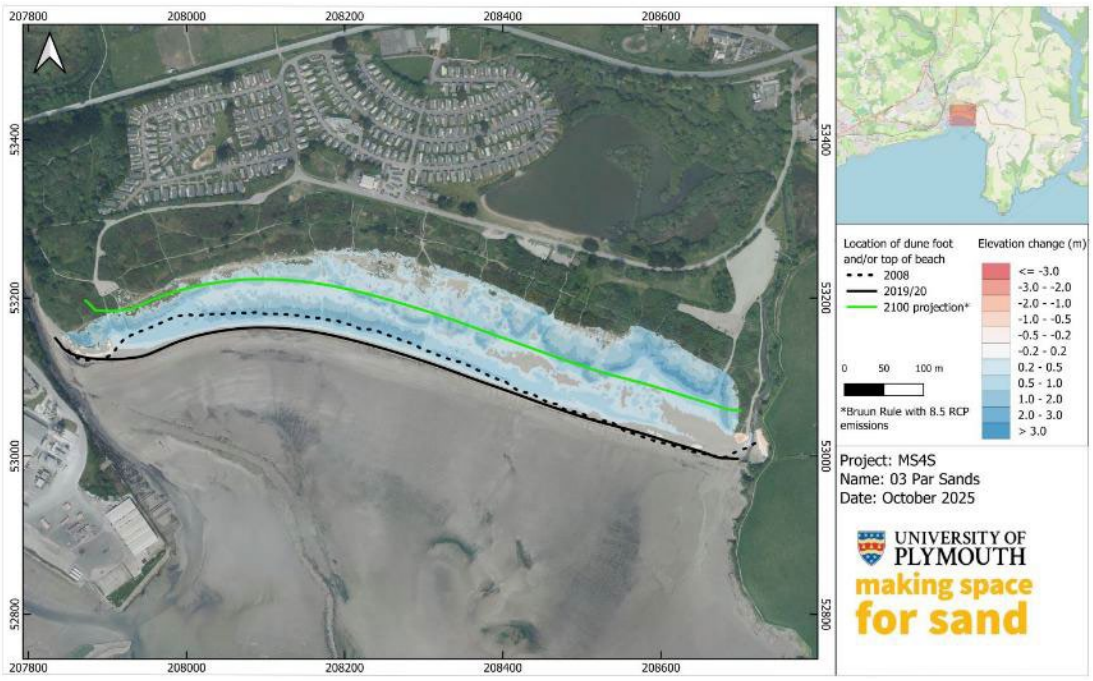


Figure 21: Elevation changes, historic dune toes and Bruun Rule projections for Par Sands

6.5.18. The visual presented in Figure 21 shows projected changes elevation and the dune toe at Par Sands.

6.5.19. The areas shaded blue show an increase in elevation, this is from the accumulation of sediment. The visual shows that across the length of the current dune toe there will be erosion due to the loss of sediment

from the beach area. The deeper the shade of red or blue, the greater the level or erosion or accumulation.

6.5.20. The solid black line marks the edge of the dune toe and/or the top of the beach as seen by data collected in 2019/2020.

6.5.21. The solid green line marks the projected rate of erosion by 2100 at 50% confidence, by using the Bruun Rule. This assumes the highest baseline climate change scenario where emissions continue to rise throughout the twenty-first century, Representative Concentration Pathway (RCP 8.5).

6.6. Habitat loss from modelling predictions

6.6.1. By using the modelling and the baseline habitat data, predictions in habitat loss can be calculated

Table 7: Projected Habitat Loss from NCERM 2024 Mapping

Habitat Type	Area Loss	% Loss	Area Retained	% Retained
Embryonic Shifting Dunes	1.06	100	0	0
Shifting Dunes with Marram	3.95	80	0.97	20
Dense Scrub	0.004	<1	2.48	99
Sea Buckthorn Scrub	0.01	<1	1.49	99
Gorse Scrub	0.72	<1	0.98	99
Neutral Grassland	0	0	0.32	100
Other Broadleaved Woodland	0	0	0.37	100
Mixed Scrub	0	0	0.88	100
Other Neutral Grassland	0	0	0.01	100
Other woodland, mixed	0	0	0.04	100
Modified Grassland	0	0	0.54	100
Bramble Scrub	0	0	0.39	100
Heathland and Shrub	0	0	0.19	100
TOTAL	5.09	37	8.7	63

6.6.1. Analysis of the mapped habitat information (Table 7) shows that under the NCERM long term, no future intervention, 5% confidence scenario, there will be a loss of 5ha of habitat, ~14% of the land mapped. Although the area of retention shows over 60% of the vegetation will be retained, within the loss, a total of ~5ha of dune habitat is at risk of being lost. See Figure 22 and Figure 23.

6.6.2. The exercise of predicting habitat loss from projections is repeated in below, made under the Bruun Rule projections.

6.6.3. Using the predicted dune toe line from the Bruun rule data, the potential habitat loss up to 2100 can be estimated.

6.6.4. If this prediction were to a uphold, a total habitat loss is projected to be ~3.14 (Table 8), out of the total mapped area of ~15.08ha. This equates to 20% of the current mapped area being lost. Plans of habitat loss and retention are shown in Figure 24 and Figure 25.

Table 8: Habitat Loss and Retention Projections for Par Sands from the Bruun Rule

Habitat Type	Area Loss	% Loss	Area Retained	% Retained
Embryonic Shifting Dunes	1.04	92	0.08	8
Shifting Dunes with Marram	1.95	32	4.11	68
Dense Scrub	0.15	2.5	2.49	94
Sea Buckthorn Scrub	0	0	1.5	100
Gorse Scrub	0	0	0.99	100
Neutral Grassland	0	0	0.32	100
Other Broadleaved Woodland	0	0	0.19	100
Mixed Scrub	0	0	0.88	100
Other Neutral Grassland	0	0	0.02	100
Other woodland, mixed	0	0	0.04	100
Modified Grassland	0	0	0.55	100
Bramble Scrub	0	0	0.39	100
Heathland and Shrub	0	0	0.19	100
TOTAL	3.14	21	11.94	79

6.6.5. The loss and retention data from the Bruun Rule projections draw many parallels to that of the NCERM 2024 projections, however the following limitations must be considered when comparing the data:

- The projections are from two different scenarios – NCERM showing no future interventions, at 5% confidence up to 2105 and Bruun being 50% confidence up until 2100.
- Bruun projections are limited to the sandy dune area only, meaning that where the 'line' stops, and extension had to be made to extend to the edge of the mapped habitat area.

6.6.6. When considering both datasets, there is a greater proportion of habitat loss from the Bruun Rule projections. In both cases it shows with almost a complete loss of the important shifting dunes with marram habitat, and embryonic shifting dunes. Levels of scrub loss and retention are similarly small across both projections.

6.6.7. The projections presented above are focused primarily on erosion and shoreline retreat and may therefore underestimate future habitat change at Par Sands. The site occupies a low-lying coastal setting bordered by the River Par and smaller drainage channels, meaning sea level rise may also increase groundwater levels, tidal influence and flood frequency landward of the dunes. Consequently, habitats may be affected not only by frontal erosion from the coast, but also by increasing inundation and hydrological change from behind the dune system, creating a complex coastal squeeze scenario.

6.6.8. Whichever modelling approach is applied—whether the Bruun Rule or NCERM—the long-term trajectory indicates increasing pressure on the Par Sands dune system as a result of sea level rise and coastal change. Both frameworks predict habitat loss and shoreline adjustment at the seaward edge; however, future impacts are likely to extend beyond erosion alone. Due to the low-lying nature of the hinterland and proximity of the River Par and drainage channels, rising sea levels may also increase tidal influence, groundwater levels and flood frequency landward of the dunes. As a result, the dune system may be

increasingly constrained by both coastal erosion from the front and hydrological change from behind, creating a complex coastal squeeze scenario likely to reduce long-term dune resilience and natural flood and erosion protection capacity.

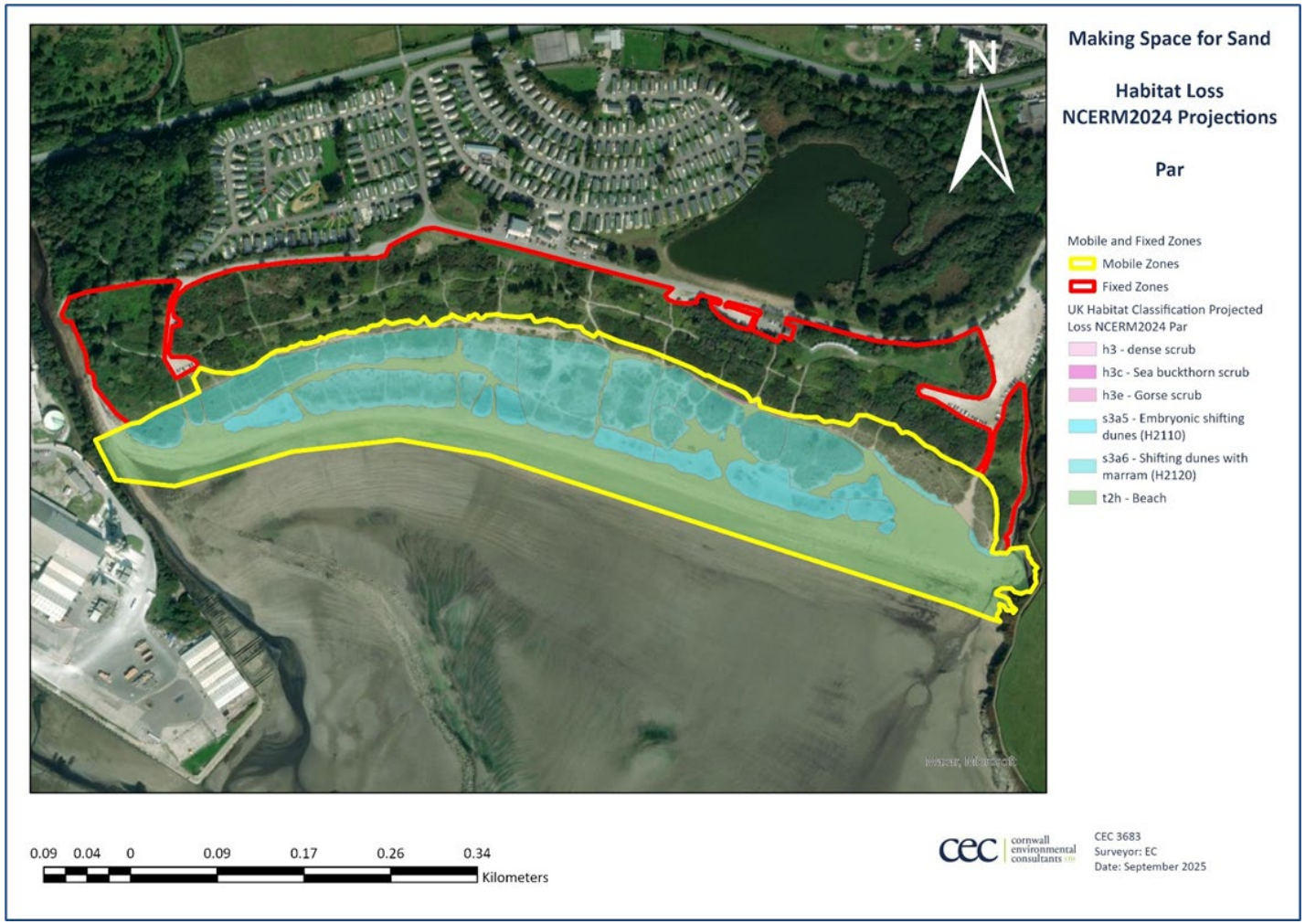


Figure 22: Projected Habitat Loss (NCERM)

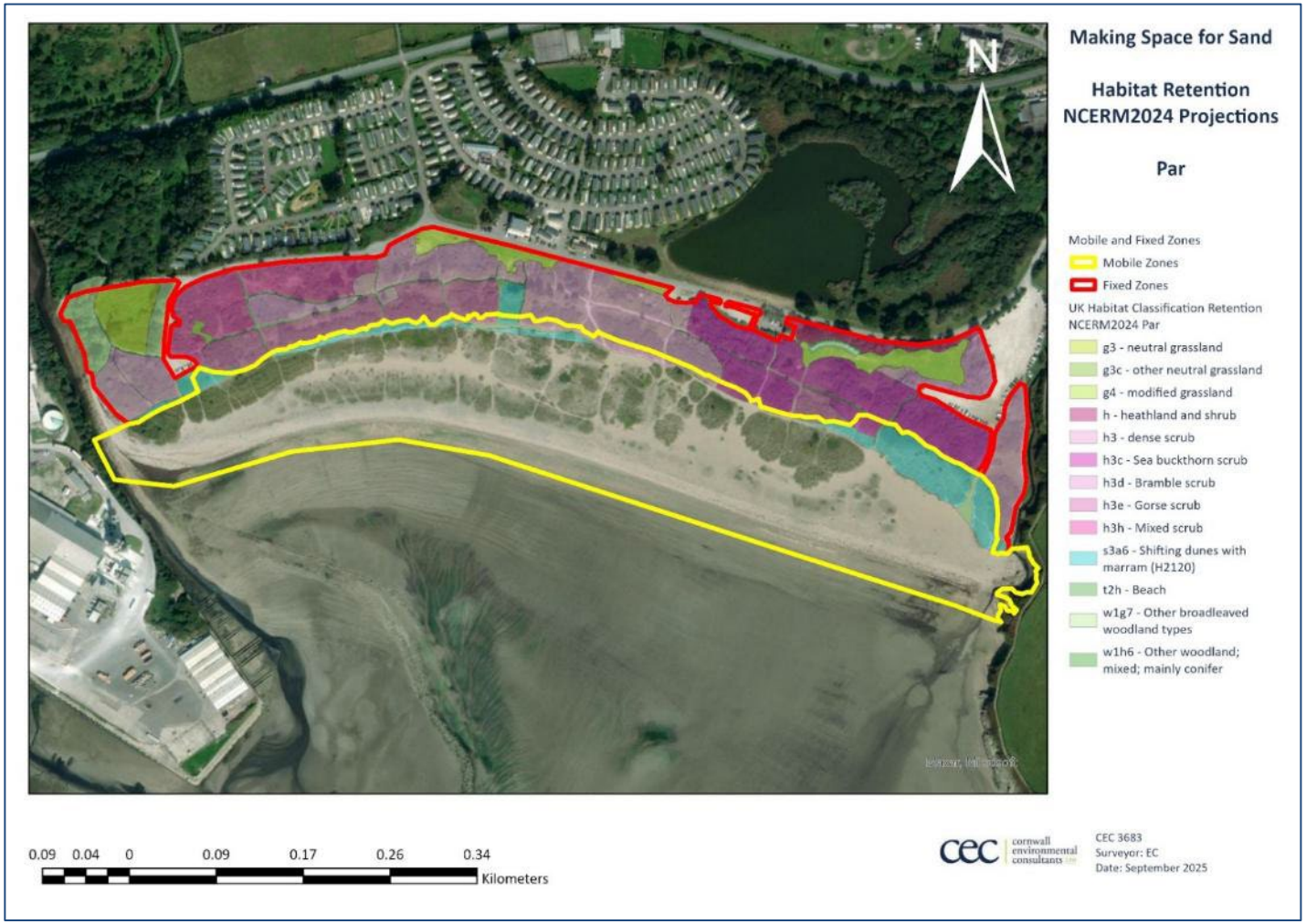


Figure 23: Projected Habitat Retention (NCERM)



Figure 24: Projected Habitat Loss (Bruun Rule)



Figure 25: Projected Habitat Retention (Bruun Rules)

6.7. Infrastructure at risk

6.7.1. A map showing the relationship between the projected NCERM erosion extents, adjacent infrastructure and areas of historic made ground is provided in Figure 26.

6.7.2. Although the projected NCERM erosion extents do not currently extend as far landward as the main areas of infrastructure at Par Sands, the modelling highlights the wider vulnerability of low-lying land behind the dune system to future coastal change. In particular, the historic refuse tip, caravan park and car parking areas are located within low-lying backshore areas that may become increasingly susceptible to coastal flooding, overtopping, waterlogging and storm impacts under future sea level rise. Loss or reduced availability of car parking could also affect access to, and the recreational use of, Par Sands. While the frontage is currently exhibiting accretionary behaviour in places, future changes in coastal processes could increase pressure on these areas over the longer term. The figure therefore illustrates not only potential erosion risk, but also the importance of considering the future adaptation and resilience of adjacent infrastructure, recreational facilities and historic made ground.

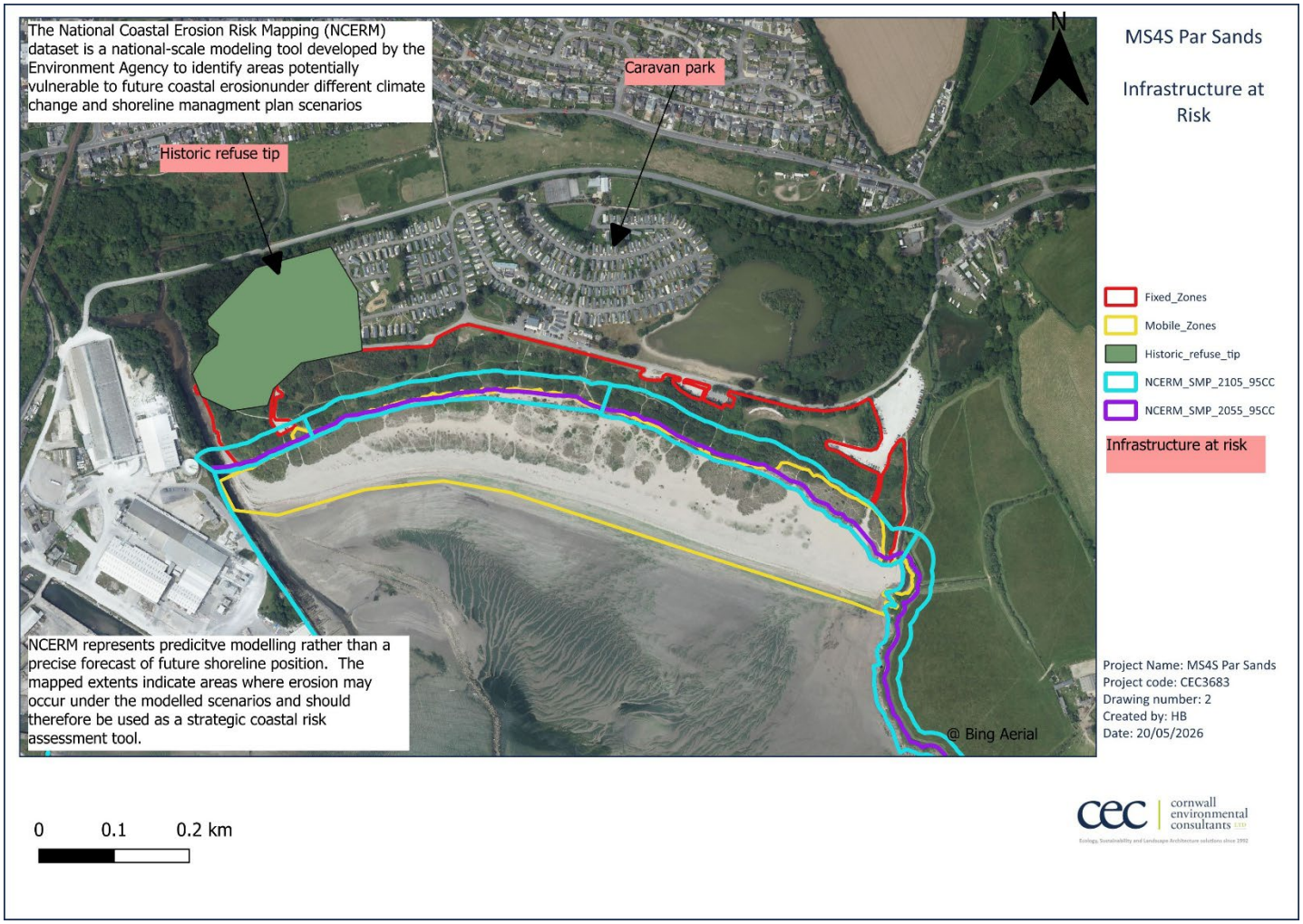


Figure 26: Infrastructure at Risk (NCERM)

7. Management Plan

Full details for the timelines for management and seasonal restrictions can be found in the document CEC3683 Beach Dune Management Plan Strategic Overview.

7.1. Strategic Context and Vision

7.1.1. Par Sands lies within a dynamic coastal area on the south coast of Cornwall where dune systems form a natural defence against coastal flooding and erosion. Par Sands sits within St Austell Bay and supports one of the most significant dune systems in south Cornwall. In accordance with the Shoreline Management Plan (SMP2) policy for this frontage (primarily Managed Retreat with a sub policy of Natural Environment), while allowing natural processes within the dune system where possible, the long-term approach is to:

- Maintain and enhance a resilient, naturally functioning dune system
- Support natural sediment movement and dune mobility where compatible with protection of infrastructure
- Balance coastal protection with biodiversity enhancement
- Embed community stewardship in long-term management

7.1.2. The dune system at Par Sands is recognised as a natural flood and erosion buffer, a priority habitat, a recreational and landscape asset, and a transitional zone between marine and terrestrial environments.

7.1.3. Parts of the backshore at Par Sands comprise areas of made ground associated with historic landfill and former industrial activity. While these areas are now largely stable and vegetated, they represent a potential constraint on natural dune evolution. In particular, the presence of buried materials may limit opportunities for unrestricted dune rollback in certain locations and introduces a potential risk of exposure should coastal erosion occur in the future. Although the frontage is currently exhibiting accretionary behaviour, this may not persist under long-term sea level rise and changing storm patterns. The presence of historic landfill is therefore an important consideration in applying a natural process-led management approach, requiring a balanced and precautionary response.

7.2. Baseline Condition and Key Issues

7.2.1. Evidence gathered through site assessment, habitat mapping and community monitoring indicates that the Par Sands dune system is currently constrained by three principal pressures.

Habitat Condition – Scrub Encroachment and Non-Native Invasive Species

7.2.2. The dune system is in locally reduced ecological condition in places, largely due to dense growth of invasive scrub species such as Japanese rose and sea buckthorn. These invasive shrubs are causing scrub encroachment, reducing open dune habitat, limiting natural sand movement, and decreasing habitat diversity. As a result, structural variation across mobile, semi-fixed, and fixed dunes is reduced in some areas, which weakens natural dune processes and reduces resilience to coastal change.

Limited Space for Future Dune Roll-Back

7.2.3. Although parts of the Par Sands frontage are currently accreting, the dune system is relatively narrow in places and backed by infrastructure including the access road, car parks, haul road and nearby development. While the current evidence does not indicate that coastal squeeze is a significant present-day pressure at the site, these features may limit the potential for future landward movement of the

dunes under longer-term sea level rise and increased storminess.

Historic Landfill and Made Ground (Constraint on Natural Processes)

7.2.4. Areas of historic landfill and made ground are present along parts of the backshore at Par Sands, associated with past industrial use of the site. While these areas are not currently exposed and the frontage is generally accreting, they represent a latent constraint on dune dynamics. Should erosion increase in the future, there is potential for buried materials to become exposed, posing environmental and public health risks. In addition, these areas limit the extent to which natural dune rollback can occur, reinforcing the effects of coastal squeeze where infrastructure is already present.

7.2.5. Future management must recognise this constraint by balancing the objective of restoring natural dune processes with the need to avoid destabilising areas where exposure of made ground could occur. A precautionary approach is therefore required, particularly when considering large-scale vegetation clearance or interventions that may increase localised erosion

7.2.6. Active management is required to restore dynamic dune processes and improve biodiversity condition.

7.2.7. The long-term management objective for the sand dunes at Par Sands is to maintain a resilient, naturally functioning dune system that provides effective coastal protection. The better ecological condition that the dunes are in, the more resilient they will be.

7.2.8. As land within the dune system supports priority habitat, provision of access and support for ongoing monitoring and management would contribute to the long-term conservation of the site.

7.3. Required Consent

7.3.1. Any works that are taking place within the dune environment must be done with the landowner's consent. At the time of writing this is Cornwall Council with some areas also being owned and managed by the Rashleigh Estate.

7.3.2. Par Sands is within a County Wildlife Site, and guidance from the County Wildlife Site Ecologist at Cornwall Wildlife Trust is available to help support management decisions. While support and advice can often be provided for free as part of the County Wildlife Site programme, the level of input available may vary depending on staff capacity, project priorities and available resource.

7.3.3. Because the site is not a designated Site of Special Scientific Interest, Special Area of Conservation or a Special Protection Area there is no need to consult with Natural England before any works can take place.

7.4. Past/Recent Management

Cornwall Council

7.4.1. Cornwall Council has undertaken targeted management at Par Sands to control invasive non-native species within the dune system. This has included large-scale mechanical clearance of dense sea buckthorn scrub, alongside herbicide treatment, including the selective spraying of Japanese rose (*Rosa rugosa*). These works have been delivered in coordination with local stakeholders.

Friends of Par Beach

7.4.2. The Friends of Par Beach (FoPB) is a long-established volunteer group, active for over 20 years, supporting the management of Par Beach and the adjacent Local Nature Reserve. In addition to dune management, the group undertakes a range of activities including water quality monitoring, community engagement and site stewardship. FoPB runs regular midweek and weekend work parties and has an established working relationship with Cornwall Council and more widely through the Par Beach Management Group

it helped form. The group was already undertaking dune management prior to the Making Space for Sand (MS4S) project, which has since helped to expand and support these efforts.

Cornwall Wildlife Trust

7.4.3. Cornwall Wildlife Trust (CWT), through the MS4S project, has worked with FoPB to strengthen and accelerate ongoing management. Support has included organising volunteer work parties, providing training and ecological guidance, and funding practical resources such as brush cutters, hand tools and interpretation materials including signage. MS4S has also supported monitoring of management activities through digital mapping recording the location and extent of areas where management has been undertaken.

7.4.4. Current volunteer work focuses on the removal of Japanese rose and the control of sea buckthorn regrowth, particularly within the foredune areas that remain dynamic and in relatively good condition. There has been no requirement for marram planting, as natural regeneration is occurring across the site. Works are typically undertaken through hand digging, cutting and the use of tools such as tree poppers. In some cases, previously treated Japanese rose has been cut back to ground level following herbicide application. The long-term aim is for FoPB to continue management independently, although there is some concern about sustaining this effort.

7.5. Current Management Activities

7.5.1. Management at Par Sands has been primarily focused on controlling invasive species, with smaller-scale works led by volunteers and larger interventions delivered by the landowner and contractors.

7.5.2. Efforts, at the time of writing, are targeted on protecting the active foredune system, where Japanese rose is encroaching. Dense scrub and sea buckthorn are located further inland, between the foredunes and the car park, and have been subject to previous large-scale clearance. Volunteer activity is generally focused on the more dynamic dune areas rather than heavily stabilised scrub.

7.5.3. At the northern end of the site, invasive scrub remains near the eastern access point. Ongoing management in this area should be phased to avoid creating excessive loose sand that could affect adjacent infrastructure. Introducing informal paths may provide controlled disturbance, promoting small areas of bare sand and early successional habitats.

7.5.4. Par Sands is somewhat atypical in that parts of the dune system are prograding, with the frontage continuing to exhibit accretionary behaviour in places. This reinforces the importance of maintaining open dune conditions and managing invasive species to support natural processes. However, in areas where made ground or historic landfill is present, this must be balanced with the need to avoid creating conditions that could lead to localised erosion and potential exposure of buried landfill material.

Partnership-Led Restoration and Community Stewardship at Par Beach

7.5.5. At Par Beach, a substantial amount of positive management has already been delivered through the long-standing commitment of the FoPB. This well-established volunteer group has played a vital role in dune stewardship, with regular midweek and weekend work parties, ongoing monitoring, and hands-on management of invasive non-native species (INNS). MS4S funding has significantly accelerated and supported this existing effort, enabling works in partnership with Cornwall Council. Management has included the mechanical removal of dense sea buckthorn and some gorse (Figure 27), with the resulting arisings buried on site, alongside targeted control of Japanese rose on the foredunes, including the selective use of herbicide.

7.5.6. Volunteers have focused their efforts on the more intact dune areas, undertaking follow-up clearance of

regrowth and maintaining gains achieved by the larger operations. The project has also delivered wider benefits, including interpretation panels, a noticeboard, a rubbings trail, and equipment such as brush cutters and hand tools, as well as supporting survey work. Additional enhancements, such as meadow planting funded by Buglife, along with Transect monitoring further demonstrate the breadth of activity on site. Overall, the progress at Par Sands reflects a strong and effective partnership, where the dedication of volunteers has been essential to sustaining and building upon the more intensive works delivered through the landowner.



Figure 27: Mechanical removal of INNS/scrub 2024

7.6. Future Management

7.6.1. Management at Par Sands should be guided by the Shoreline Management Plan (SMP2) policy for this frontage, which is Managed Realignment, transitioning from a historic "Do Nothing" approach. This plan is principally concerned with responding to coastal change, including not only erosion and changes in dune morphology, but also the increasing influence of coastal flooding, sea level rise and changes in groundwater levels. The SMP policy supports allowing natural coastal processes to operate while enabling controlled adaptation of the shoreline where necessary to manage risks to people, property and infrastructure. Within this context, the dune system is expected to play an increasingly important role as

a natural form of coastal defence. Management should therefore work with natural processes while allowing for adaptation where necessary.

7.6.2. The land behind the dune system is relatively low lying and is likely to become increasingly susceptible to flooding, waterlogging and a higher water table as sea levels rise. This has implications for the long-term viability and accessibility of recreational infrastructure, particularly the car parking that supports recreational use of Par Sands. Adaptation should therefore begin to be considered during the medium term, recognising that some infrastructure may become progressively less viable in its current location

7.6.3. At Par Sands, dune management should focus on restoring and maintaining a dynamic dune system through phased control of invasive non-native species, selective scrub management, protection of existing high-quality open dune habitats and support for natural regeneration. Interventions should work with natural processes rather than constrain them, allowing for gradual dune adjustment and potential landward movement over time. As Par Sands contains extensive areas of sea buckthorn and Japanese rose, management should be an ongoing process extending through the short and medium term.

7.6.4. In areas influenced by historic landfill or made ground, management should adopt a precautionary approach. While the overarching aim is to work with natural processes, interventions such as large-scale vegetation clearance should be carefully phased and monitored to avoid destabilising sediments or increasing the risk of exposure. These areas may require a more conservative approach to dune mobility, reflecting the balance between restoring natural function and managing environmental risk.

7.6.5. Table 9 below details management options

Table 9: Future Management Actions at Par Sands

Action	Short Term	Medium Term	Long Term	Who
INNS	Intensive removal of sea buckthorn to the north of the site and Japanese rose from foredune areas. Map and monitor regrowth. Use mechanical, chemical and hand methods where appropriate. Map and photograph	Continue phased removal and follow-up treatment. Control regrowth annually, particularly runners and small outliers. Maintain invasive cover at low levels.	Shift to rapid-response control only, preventing re-establishment and protecting restored dune habitats	Landowner with support from Community group
Scrub management	Cut scalloped edges into dense scrub where it borders paths and open dune. Retain some native scrub where valuable for birds and shelter.	Undertake rotational scrub management to create glades, varied structure and open ground. Continue reducing dense, over-stabilising scrub.	Maintain a balanced mosaic of open dune, grassland and limited native scrub. Avoid return to dense continuous scrub.	Landowner with community support
Natural regeneration after clearance / Marram planting	Allow cleared areas to recover naturally. Monitor for native dune species and	Review recovery after 2–3 years. If bare ground persists or erosion risk	Use planting only where natural processes are not sufficient or where	Landowner with support from Community group

	invasive regrowth.	increases, consider targeted marram or salt-tolerant planting.	stabilisation is required to protect assets.	
Access management	Maintain existing access routes and consider temporary rope/post fencing where trampling affects sensitive dune areas. Consider using paths through some scrub-clearance areas to create controlled disturbance. Get advice from Public Health department of Cornwall Council on reducing dog waste.	Rationalise informal paths as vegetation recovers. Adjust routes if necessary to protect restored habitats. Get advice from Public Health department of Cornwall Council on reducing dog waste.	Maintain flexible access routes that can shift with dune movement. Relocate paths if dune migration requires.	Landowner with support from Community group
Infrastructure, Flooding and Coastal Adaptation	Continue monitoring interactions between dune management, sediment movement and adjacent infrastructure including access roads, car parks and paths. Following storms or erosion events, inspect areas of known made ground or landfill for exposure of buried material or drainage issues. If funding is available – contaminated land survey of historic refuse area should be undertaken.	Monitor increasing flood risk, waterlogging and changes in groundwater levels across the low-lying land behind the dunes, particularly the car parks and access routes. Begin planning for adaptation where parking becomes less viable or accessible, recognising the importance of car parking to recreational use of the site. Consider changes to parking layouts, access arrangements or relocation where necessary. Findings from contaminated land survey should be carried out.	upport adaptation or relocation of infrastructure and access routes in response to dune migration, erosion, flooding and rising groundwater levels. Where existing car parking can no longer be sustainably maintained, consider alternative arrangements to maintain appropriate recreational access to Par Sands. Continue to manage historic landfill areas cautiously to avoid exposure of buried material.	Landowner with support from community group.
Intellectual Access (Signage and	Maintain existing interpretation signs,	Develop long-term "Living with a	Maintain and update the 'Living with a	Landowner with Community

Education)	noticeboard and rubbings trail. Add temporary signs during works explaining INNS removal. Consider dog waste signs if there are issues. If funding allows regular meetings with community – for promotion of volunteer groups – and explanation of management techniques	Dynamic Coast" interpretation programme linked to climate adaptation. Refresh interpretation and add QR codes linking to volunteer opportunities and monitoring updates. Updates on social media.	Dynamic Coast' programme as coastal change occurs, using monitoring results, repeat photography and changes to the dunes, access and recreational infrastructure to demonstrate how Par Sands is adapting.	Group
Management of overtly mobile sediment	Leaving scrub at the north – Avoid excessive clearance in areas where sudden sand mobility could affect roads, car parks or infrastructure. Phase works carefully	Monitor wind-blown sand and vegetation recovery. Use soft methods only where needed.	Accept natural mobility as core function. Intervene only for safety or significant infrastructure threat.	Landowner with Community Group
Monitoring and Review	Establish fixed-point photography, INNS mapping and simple vegetation surveys and dune profiling.	Formal five-year review of management priorities. Ecologist to revisit if funds allow.	Continue five-year adaptive reviews aligned with coastal change evidence and SMP policy.	Landowner with Community Group
Community Stewardship	Continue to support Friends of Par Beach as far as funds / resources allow.	Build capacity for independent volunteer-led follow-up management. Seek funding for equipment and contractor support.	Maintain an embedded local stewardship model with secured funding and partner support.	Landowner with Community Group

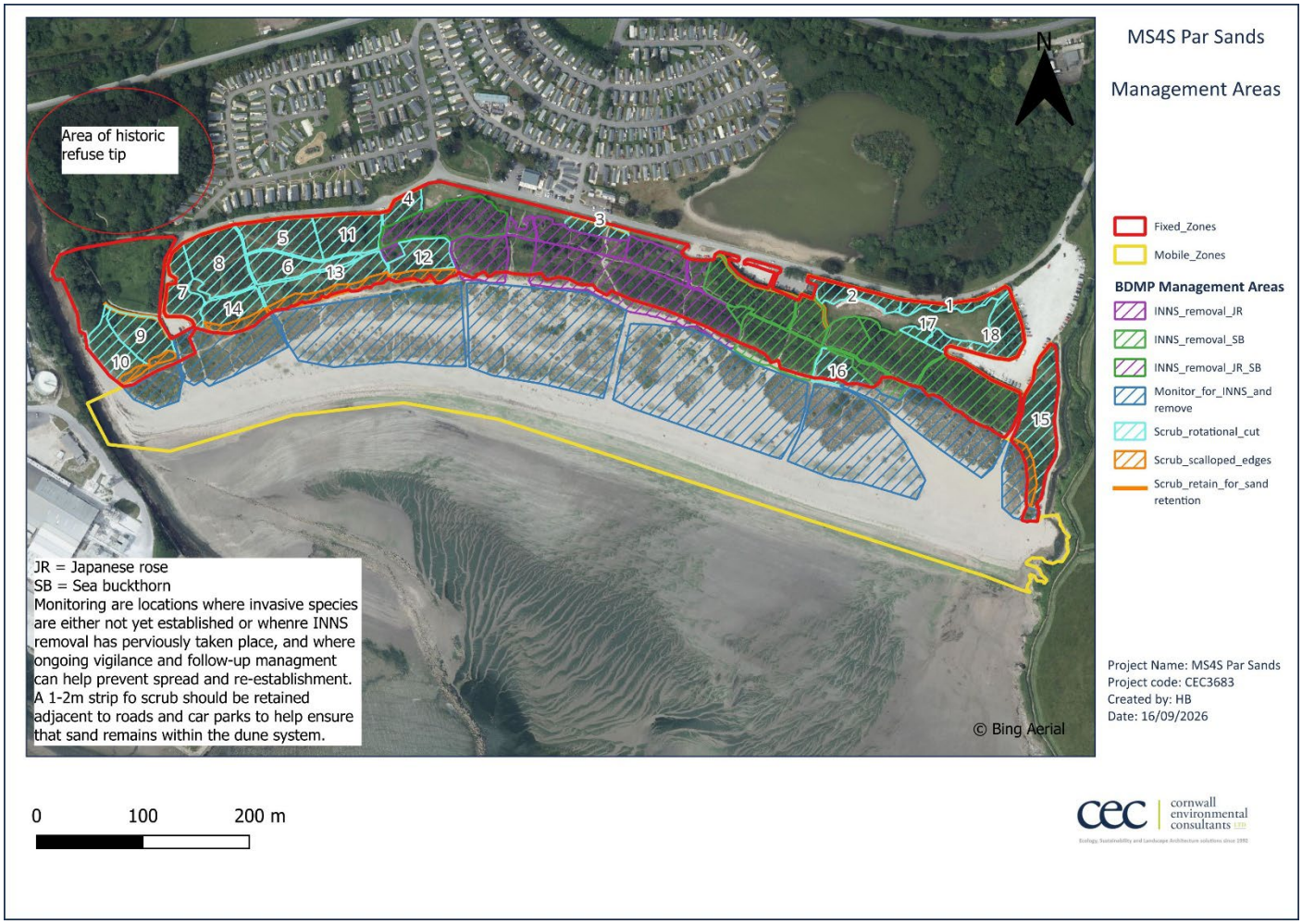


Figure 28: Management Areas

7.7. Short Term Planned Management Actions

INNS

7.7.1. In the short term, the primary focus at Par Sands should be the continued control and removal of invasive non-native species, particularly Japanese rose and sea buckthorn. These species are widespread across the site, with sea buckthorn forming dense stands, often in combination with native scrub within the fixed dune zones, and Japanese rose occurring both as extensive patches and smaller, more dispersed groups within the foredunes see Figure 28. As a result, management should be understood as a large-scale, ongoing effort rather than a one-off intervention.

7.7.2. Where funding or contractor availability allows for larger-scale clearance, works should be planned to avoid creating extensive contiguous areas of disturbance and the landowner should ensure timely, effective communication with the local community. Instead, clearance should be undertaken in discrete, non-adjacent sections across the site, reflecting a rotational approach. This will help maintain habitat continuity, retain some vegetation for sand trapping, and reduce the risk of excessive localised sand mobility or destabilisation.

7.7.3. Removal should use a combination of methods, including mechanical clearance for dense stands where access allows, targeted herbicide treatment where appropriate, and hand removal by volunteers in areas

where this approach will be most effective. In practice, volunteer effort should be focused on sections of dune where Japanese rose occurs in small, localised patches, particularly within the open and mobile dune areas, to prevent further establishment and spread into high-value habitats. In contrast, more extensive and well-established stands are less suited to manual removal and are more effectively managed through mechanical or chemical method.

7.7.4. Anecdotal observations from Friends of Par Beach suggest that, in some areas, herbicide treatment may have slowed the return of certain dune species such as sea holly following clearance works. While this has not been formally assessed, it reinforces the importance of using herbicide as a last resort only and using targeted application methods, minimising impacts on surrounding dune vegetation, and prioritising natural regeneration and monitoring following treatment.

7.7.5. Mapping and monitoring of treated areas will be important to track regrowth (Figure 29) and guide follow-up work. For advice on management of INNS and scrub at Par Sands see Table 11 and Table 12.



Figure 29: Area of sea buckthorn re-growth after clearance at Par Sands

Scrub Management

7.7.6. In the short term, scrub management in the northern part of the site should focus on retaining and managing the existing scrub rather than extensive clearance. In particular, a 1–2 m wide strip of scrub should be retained adjacent to the road and car parking areas, as shown by the orange line on Figure 27, to trap wind-blown sand within the dune system and reduce deposition onto adjacent infrastructure. Scrub also provides valuable habitat for birds and invertebrates.

7.7.7. Beyond this retained strip, scrub should be managed to maintain its ecological value and sand-trapping function while preventing succession towards woodland. This should be achieved through rotational cutting of approximately 15% of the scrub (c.0.5 ha) cut each year. The areas identified for cutting are shown in turquoise on Figure 28 and have been divided into 18 numbered management compartments. Approximately three compartments should be cut annually, avoiding the cutting of adjacent compartments in the same year. An indicative six-year rotation is described in Table 10 and shown in Figure 30:

Table 10: Indicative six-year scrub management rotation

Year	Compartment
Year 1	1, 7, 13
Year 2	2, 8, 11
Year 3	3, 9, 15
Year 4	4, 10, 16
Year 5	5, 14, 17
Year 6	6, 12, 18



Figure 30: Years when scrub compartments should be managed

7.7.8. The rotation should remain flexible and may be adjusted in response to monitoring, scrub condition, access constraints and sand movement. This approach will maintain a varied scrub structure and habitat continuity while preventing the development of dense, over-mature scrub.

7.7.9. Alongside this, the creation of scalloped edges and selective cutting will be implemented, particularly along the interface between scrub and open dune or adjacent to paths. This approach is well suited to delivery by volunteers using simple hand tools, allowing meaningful management to be achieved without the need for heavy equipment. It can be undertaken through focused work parties and provides immediate, visible results, making it a practical and rewarding activity for community groups.

7.7.10. Scalloping increases structural diversity by creating a more varied transition between scrub and open dune, allowing light to reach the ground and encouraging the development of grasses and herbaceous dune species. This helps to reduce abrupt habitat boundaries and supports a wider range of niches for invertebrates, birds and other wildlife, contributing to a more diverse and functional dune ecosystem.

Natural Regeneration and Marram Planting

7.7.11. Following scrub and invasive species removal, the preferred approach in the short term is to allow natural regeneration of dune vegetation. This supports the re-establishment of locally adapted species and maintains the integrity of the dune system without unnecessary intervention. Cleared areas will be monitored to assess recovery, with particular attention to whether native dune species recolonise within a reasonable timeframe.

7.7.12. Marram planting is not currently required at Par Sands due to low levels of erosion and cleared areas are recovering however, this position may be reviewed if conditions change. If, after approximately two years, cleared areas remain bare or show limited recovery, targeted planting of marram and other salt-tolerant species may be considered. Similarly, if localised erosion or instability develops, marram planting may be used to support dune stabilisation in those areas. For advice on planting marram and salt tolerant plants see Table 13.

Access Management

7.7.13. In the short term, access management should focus on monitoring of the pathways that currently run through the dunes. At Par Sands, recreational use is high, with year-round access and dog walking contributing to trampling, nutrient enrichment and informal path creation. The existing path network already provides an appropriate level of beneficial disturbance throughout much of the dune system and, as such, extensive creation of new paths is not currently considered necessary. If monitoring indicates areas that are over trampled initial actions should include maintaining and subtly guiding existing access routes, rather than introducing heavily engineered solutions, thereby reducing pressure on sensitive dune areas while maintaining a positive visitor experience. In areas where trampling is damaging recovering vegetation, low-cost measures such as post-and-rope fencing (Figure 31) can be used to discourage access and allow vegetation to recover. However, within areas of dense scrub/INNS there may be opportunities to create or maintain small informal paths through previously inaccessible vegetation, helping to break up dense stands, concentrate footfall and provide controlled disturbance that can benefit early successional habitats. See Table 15 for suitable access management types at Par Sands.



Figure 31: Example of paths through dunes, post and rope fencing from Porthtowan

Infrastructure, Flooding and Coastal Adaption

7.7.14. In the short term, if funds become available, a more detailed understanding of the historic landfill and made ground areas at Par Sands would help inform future management decisions. This may include a review of historical records alongside targeted site investigation, such as soil, groundwater or surface water testing, undertaken by appropriately qualified geoenvironmental or contaminated land specialists. Improved understanding of the extent and composition of made ground would support future adaptive management of the dune system and help identify any potential environmental risks associated with erosion, flooding or increased dune mobility.

Intellectual Access (Signage and Engagement)

7.7.15. In the short term, intellectual access should build on the strong foundation already established at Par Sands, including interpretation boards, the noticeboard and the rubbings trail. These features should be maintained and, where appropriate, supplemented with temporary signage to explain ongoing management works, particularly invasive species removal and scrub clearance. Clear, simple messaging can help visitors understand why areas may look disturbed and encourage behaviours such as keeping to paths and picking up dog faeces, which is a known issue contributing to nutrient enrichment. See Section 8.4 for ideas on other signs that may be useful at Par Sands.

7.7.16. Given the strong sense of community ownership at Par Sands, and the high level of public interest in how the site is managed, engagement should extend beyond on-site signage. Public meetings, social media updates, and direct communication with the local community should be used to explain the rationale behind management actions, particularly where works may appear intensive or visually disruptive. This will help ensure that visitors understand why such measures are necessary, maintain public support, and

encourage continued involvement in volunteer-led stewardship

Overtly Mobile Sediment (Managing Disturbance)

7.7.17. In the short term, management of sediment mobility should take a cautious and site-specific approach. While maintaining open dune conditions is important, large-scale clearance of vegetation—particularly in more sheltered northern areas—can lead to increased wind-blown sand, potentially impacting adjacent infrastructure such as access roads and car parks. As such, removal works should be phased and carefully located, retaining some vegetation in key areas to help trap sand and prevent excessive movement. This approach balances the need to restore dune function with the practical constraints of the site, ensuring that interventions do not create unintended management issues.

Monitoring

7.7.18. Following storm events or periods of increased erosion, targeted visual inspections should be undertaken in areas of known or suspected made ground to identify any exposure of buried materials. Any such findings should be recorded and, where necessary, reported to the relevant authorities. This will ensure that emerging risks are identified early and managed appropriately.

Community Stewardship

7.7.19. In the short term, community stewardship at Par Sands should focus on supporting the FoPB to continue their involvement. Volunteers should be encouraged to undertake manageable tasks, such as targeted removal of invasive species and monitoring of regrowth, within their capacity (Figure 32). Continued access to tools, guidance and occasional support from partner organisations will help maintain momentum, ensuring that stewardship remains achievable, sustainable and community-led over the long term.



Figure 32: The Friends of Par Beach at work

7.8. Medium-Term Actions

INNS Management

7.8.1. Following initial large-scale clearance, the management approach will transition towards targeted follow-up control. Regrowth is likely, as both species spread vigorously via runners. Annual mapping and

monitoring will therefore guide selective removal of resprouting shrubs, with rotational cutting used where appropriate, ensuring that invasive cover remains below the thresholds required to allow dune habitats to recover and recolonise.

Scrub Management

7.8.2. Scrub management will transition to a more rotational approach, maintaining a balance between open dune and scrub habitats. Previously cleared areas should be prevented from reverting to dense scrub, while retained areas, particularly to the north of the site, will require periodic cutting to maintain structure, prevent succession toward woodland, and continue to provide habitat for wildlife.

Natural Regeneration and Planting

7.8.3. Natural regeneration will continue to be the preferred approach, with monitoring used to assess vegetation recovery in cleared areas. If monitoring indicates that regeneration is limited after an appropriate period, targeted planting of marram or other salt-tolerant species may be undertaken. Any planting should remain proportionate and focused on areas where natural processes are not sufficient.

Access Management

7.8.4. Access routes may be refined in response to vegetation recovery, patterns of use and evolving coastal conditions. Informal paths may be rationalised to reduce pressure on sensitive areas, with low-level measures such as rope fencing used where necessary to support habitat recovery. While the projected erosion extents do not currently directly impact most infrastructure, low-lying access routes and adjacent areas may become increasingly vulnerable to flooding, waterlogging and storm impacts over time. Access and parking arrangements should therefore remain flexible, allowing minor realignment or adjustment where necessary to maintain safe public access while supporting natural dune processes.

Infrastructure, Flooding and Coastal Change

7.8.5. In the medium term, management should increasingly consider the combined effects of coastal change, rising sea levels, dune movement, flooding and groundwater levels on the low-lying land behind the dune system. As this area becomes wetter and more frequently waterlogged or flooded, some of the recreational infrastructure familiar at Par Sands today, particularly car parking, access routes and associated facilities, may become increasingly difficult to maintain or access in their current locations. Management should therefore begin to plan for adaptation during this period, rather than seeking to maintain all existing infrastructure indefinitely. This may initially include adjustments to access routes and parking layouts, alongside consideration of where infrastructure could be relocated or reduced as conditions change.

Intellectual Access (Signage and Engagement)

7.8.6. Interpretation and engagement should be maintained and periodically refreshed. Communication with the local community should continue through signage, social media and other channels, helping to keep people informed of ongoing management and reinforcing understanding of the site as a dynamic coastal system.

7.8.7. Interpretation should grow into a long-term “Living with a Dynamic Coast” educational programme, helping communities understand the value of naturally changing dune landscapes.

Sediment Mobility

7.8.8. Management should continue to balance dune restoration with the need to avoid excessive sand movement into adjacent infrastructure. Vegetation clearance should remain phased and responsive to

site conditions, allowing natural processes to operate while managing any emerging risks.

Community Stewardship

7.8.9. In the medium term, community stewardship should become more established and self-sustaining. The Friends of Par Beach should be supported to continue regular, manageable work parties focused on maintenance tasks such as invasive species control and monitoring. External support may still be required at times, but the emphasis should be on building a resilient, community-led approach that can be maintained over the long term.

7.9. Long Term Actions

7.9.1. The long-term management of the Par Sands dune system should focus on maintaining a resilient, naturally functioning dune landscape that is able to adapt to coastal change while continuing to provide biodiversity, flood protection, and recreational benefits. The strategic vision for long-term management is centred on enabling natural processes wherever possible, in line with the Shoreline Management Plan policy of Managed Realignment for most of the frontage.

Promote Natural Dune Function and Resilience

7.9.2. Over the long term, management must allow dunes to reshape, migrate, and respond dynamically to sea-level rise and storm events. This includes enabling landward roll-back where space can be created—for example, if future managed realignment of the access road or nearby infrastructure occurs. Allowing natural dune migration increases coastal resilience and prevents the system from becoming artificially constrained. In areas where historic landfill or made ground constrains rollback, adaptive management will be required to balance dune mobility with the need to avoid exposure of buried materials.

7.9.3. Where stabilisation is necessary for asset protection, interventions should remain low key and naturalistic, such as marram planting, rather than hard engineering. In areas where space permits, the dune toe should be allowed to evolve naturally. Similarly, low-lying land behind the dunes should be allowed to become progressively wetter where this results from natural coastal and groundwater processes, supporting the development of dune slack and associated wetland habitats.

Maintain Long-Term Control of Invasive Species

7.9.4. Invasive species management shifts from large-scale clearance to periodic maintenance and rapid-response control, ensuring Japanese rose and sea buckthorn do not re-establish or spread back into high-value dune habitats. This ensures that the ecological gains achieved earlier are retained.

7.9.5. Long-term monitoring and swift removal of new growth will prevent re-domination and maintain habitat diversity, structure, and dune mobility.

Support Natural Recolonisation and Habitat Quality

7.9.6. In the long term, vegetation recovery in cleared areas should primarily occur through natural regeneration, with planting only used where essential for stabilisation or biodiversity enhancement. If future realignment creates new areas for dune formation, natural recolonisation should again be the preferred approach.

7.9.7. As the dunes adjust and migrate, management should respond by enabling a mosaic of open dune, semi-fixed dune, and scrub to develop naturally, avoiding over-stabilisation and supporting a diverse botanical community.

Sustain Adaptive Access Management

7.9.8. Access routes must evolve with the dune system. In the long term, paths and signage should be repositioned as dunes migrate or reshape, ensuring they remain aligned with dune morphology and protect sensitive habitats. Sustainable visitor access should continue, but with flexibility built into how paths are managed.

Infrastructure, Flooding and Coastal Adaption

7.9.9. In the long term, increasing groundwater levels, flooding and coastal change may result in parts of the low-lying land behind the dunes becoming progressively wetter. Rather than seeking to maintain the existing recreational landscape in all locations, management should allow these areas to transition naturally where appropriate, including towards wetter dune slack and wetland habitats. Recreational infrastructure, particularly car parking and access routes, may therefore need to be progressively reduced, relocated or redesigned as existing locations become less viable. This transition should be managed adaptively, maintaining appropriate public access where practicable while allowing the dune and wetland system sufficient space to respond naturally to coastal change.

Accept and Manage Natural Sediment Mobility

7.9.10. Wind-blown sand will remain a natural and inevitable feature of the site. In the long term, intervention should occur only where there is a safety or infrastructure risk and should prioritise soft techniques such as redistribution of sand within the dune system. The natural mobility of sand is to be accepted as a key ecological function, not a problem to suppress.

Continue Monitoring and 5-Year Adaptive Review Cycles

7.9.11. Long-term success depends on ongoing monitoring of vegetation, dune morphology, sediment movement, and invasive species. The site should undergo formal review every five years, aligned with SMP updates, ensuring management continues to respond to evolving coastal dynamics.

Maintain Community Stewardship

7.9.12. The long-term vision includes an independently functioning community group undertaking volunteer tasks, monitoring, and stewardship. Over time, this group should remain fully embedded in site management and supported by sustainable funding streams.

8. Appropriate Management Techniques

8.1. Invasive Non-Native Species (INNS) Management

8.1.1. Landowners have a legal and ethical duty to manage invasive non-native species (INNS).

8.1.2. The species having the most detrimental impact on the dunes at Par Sands include sea buckthorn and Japanese rose. These species over-stabilise dunes, reducing natural shifting dynamics, shading out native plants, and altering dune ecosystem structure.

8.1.3. Removal of INNS should be prioritised in the short term, aiming for progressive eradication from priority dune areas. In the longer term, ongoing monitoring is essential, with any regrowth promptly removed.

8.1.4. See Table 11 for potential scrub/INNS removal methods and how appropriate they are in this area.

Table 11: Potential scrub/INNS removal methods

Management Type	Advantages	Constraints	Suitable course of action for the site
Heavy plant	Fast for large areas of invasives Effective at removing large root systems Invasives less likely to grow back Less physically demanding	Requires good site access for machinery Limited by steep slopes Not suitable for sensitive areas – may damage good surrounding habitat Expensive – machinery and operative	Yes – if funding allows
Small plant	Fast removal of above ground plant material Effective at weakening persistent species Minimal set up required Ideal for narrow access	Limited by very steep slopes May damage surrounding vegetation (but more able to select than heavy machinery) Require equipment and trained operative Risk of regrowth	Yes –brush cutters are ideal, particularly in the sea buckthorn area, although regrowth will need to be managed
Hand digging	Very precise Minimal impact on surrounding vegetation Minimal set up required	Labour intensive Slow progress – can lead to disheartened volunteers Risk of re-growth	Yes – Good for volunteers, focus on the area of healthy dune to make sure INNS don't take hold
Herbicide Treatment	Can treat inaccessible areas Effective for persistent species If done correctly (i.e. weed	Expensive machinery and operative Risk of poisoning non-target animals and plants if not applied carefully.	Yes – if there are the funds this is an option as a last resort. As discussed in

	wipe, spot spraying) reduces off-target damage to other dune vegetation. Best used when infestations are localised, preventing the species from forming dense thickets. Less physically demanding	Timing is restricted to late summer to early autumn due to high leaf area and good herbicide uptake. Chemical use may be limited by site sensitivity, proximity to water, other legal restrictions. Requires careful handling and legal compliance Will need a trained professional to carry out. May need repeat applications Not popular with the public	Sections 8.1.5 and 8.1.6
Cutting back plants to prevent seed dispersal	Can remove a large amount of vegetation quickly Less physically demanding than removing roots	Works for some species better than others	No – The INNS on Par Sands use runners more than seeds to disperse so would not be effective
Grazing	Good for large areas Can reach rough terrain Can create habitat diversity Low cost compared to machinery	Difficult to implement due to high visitor pressure; requires fencing and ongoing management; risk of conflict with dog walkers and public access; potential for uneven grazing and trampling in sensitive dune areas	No –high levels of public access and recreational use make grazing impractical and difficult to manage safely

8.1.5. The use of herbicides within dune systems should be considered only as a last resort for the control of invasive non-native species where there is a clear ecological justification. Alternative management approaches should be considered first, and herbicide should only be used where non-chemical methods are unlikely to provide effective control, would result in greater ecological damage, or are not realistically achievable due to site constraints, available resources or the scale of the infestation.

8.1.6. Where herbicide use is deemed necessary, application should be undertaken by trained and certified operators using the minimum quantity required to achieve the management objective. Herbicides should be applied in a highly targeted manner, for example through stump treatment, weed wiping or spot application to regrowth, rather than through broad-scale spraying. This helps minimise impacts on non-target species, reduces damage to surrounding dune vegetation and supports the long-term restoration of naturally functioning dune habitats.

8.1.7. After removing, disposal is an important part of the process, see Table 12 for disposal methods and suitability for Par Sands.

Table 12: Disposal of Invasive Species

Disposal type	Advantages	Constraints	Suitable course of action for the site
Burying INNS (with permit)	Allows on-site disposal Suitable for rhizomatous plant material (Japanese Knotweed)	Requires and environmental permit. Conditions of permit must be followed. Not suitable for sensitive habitats without permission	Yes – The area is big enough to find a suitable place to bury it.
Burying INNS (without permit)	Cost effective Avoids need for permit	Must comply with RPS178 conditions Only allowed on land of low habitat value (Sand dunes are not considered low value)	No
Burning INNS on site	Reduces volume of waste Effective for killing plant material so regrowth doesn't occur	Requires a D7 exemption Must comply with statutory nuisance laws Poor air quality for nearby neighbours	Outside of holiday season only otherwise could cause a nuisance to nearby holidaying visitors
Composting	Low cost On site disposal	Not suitable for some INNS as some fragments may survive composting	Yes – for small scale disposal only. At back of dunes in scrub habitat - monitoring for re-growth of arisings is required.
Off-site disposal (licenced waste carrier)	Most secure and compliant disposal method Suitable for contaminated soil and plant material Full audit trail via waste transfer notes	Requires use of a licensed waste carrier Waste must be taken to an authorised landfill or disposal site. Higher cost	Yes – suitable for large scale disposal

8.1.8. As Par Sands is a sensitive dune system with adjacent properties, a high level of public access, and an all year-round caravan park to the north, burning material on site is not considered appropriate.

8.1.9. Removal via a licensed waste contractor is likely the most suitable approach for large-scale disposal,

though composting may be suitable for small-scale, carefully monitored disposal in less sensitive scrub margins.

8.2. Planting of Marram and other salt tolerant plants

8.2.1. Marram planting is not currently required at Par Sands, as erosion levels are relatively low and natural dune processes remain active. In areas where scrub has been removed, a process of natural regeneration is being allowed to occur, enabling vegetation to re-establish without intervention and supporting a more resilient and locally appropriate habitat mosaic. However, this approach may need to be reviewed in the future should site conditions change. Increased erosion or loss of dune stability may necessitate targeted marram planting to aid dune recovery and stabilisation. The following guidance outlines the approach to be taken should such intervention become necessary.

8.2.2. In areas where marram is to be used to stabilise sand, planting should be undertaken during the spring or autumn growing season. See Table 13 For advice on planting. Then monitoring of this area should be conducted, in particular noting as to whether other species colonise. If after two to three years it is still solely marram, the planting of other salt tolerant species is advised.

8.2.3. When it comes to sourcing marram, it is always best if it can be harvested from an area nearby where it is abundant. This is because the grass will be suited to the conditions, it helps to continue the particular genetics of the grass in the area, and it is also sustainable and cost effective. The best time to divide mature marram grass clumps is during late spring to early summer or in early autumn, when milder conditions support root recovery and avoid the stress of frost or flowering.

Table 13: Marram Planting

Action	Timing	Method
Harvesting marram – to be done if there is an area of marram grass that is plentiful and close to the location	Planting to be undertaking immediately after harvesting. Optimal time for this is late spring/early summer or early autumn, to avoid extreme temperatures or flowering time.	Plants selected for removal should be green and young. Plants may be removed by using a spade. The objective is to loosen the root system within the sand. This can be achieved by carefully inserting the spade alongside the target roots and moving it back and forth to loosen the sand, allowing the plant to be pulled out by hand. Removed plants should retain as much healthy root material as possible.
Source marram grass of local genetic provenance	Lead-in period required (seed collection + several months' propagation time.)	Work with the National Wildflower Centre (Eden Project) to grow marram from seed collected at Par Sands. This is a more expensive option but ensures the planted marram is genetically matched to the site and maintains the integrity of local dune flora.
Source marram grass from a UK native-species specialist supplier	Can be ordered and delivered within standard nursery lead times	Purchase marram from a supplier specialising in UK-native coastal species. This is generally faster and more affordable than bespoke propagation, though it does not guarantee precise local genetic provenance. Plants will, however, be UK-origin and suitable for dune restoration.
Planting Marram	Marram grass may be planted at any time of year, but preferably September to April. March is the most	Holes or slots to be dug roughly 30 – 50 cm apart, loosely in a checkerboard pattern to ensure good coverage, while avoiding an overly regular planting arrangement. Divide the marram grass into small bundles for planting.

	favourable planting month, as there are less environmental impacts to contend with such as storms, frost and sea swells.	Plant the marram grass in the sand so it sits as deep as it was previously (or deeper), helping to prevent roots from being exposed by sand movement before the plant is established.
Shielding marram from wind	At the same time as planting.	If the marram is planted in a windblown area the new plants will show signs of stress and planting may fail, so some kind of shielding may be necessary, see Section 8.10 for shielding and fencing techniques pros and cons.

8.2.4. Planting of an eroded area should be undertaken in the short term (within 12 months and during the spring or autumn growing season) then monitoring of this area should be conducted in particular noting as to whether other species colonise. If after two to three years it is still solely marram, the planting of other salt tolerant species is advised.

8.2.5. Similarly, following scrub and invasive species control, it is recommended to monitor the cleared areas. Assessment should focus on natural recolonisation and recovery of dune vegetation which is preferable to active planting. Allowing natural regeneration supports native biodiversity and reduces management intervention. However, if after two to three years no species are found to be growing in the area, the planting of marram and other salt tolerant plants is recommended to enhance the botanical diversity within the dunes. See Table 14 for suitable species.

Table 14: Suitable species for planting into the dunes.

Species	Scientific Name
Sand sedge	*Carex arenaria*
Sea bindweed	*Calystegia soldanella*
Sea holly (Figure 34)	*Erygium maritimum*
Sea rocket	*Cakile maritima*
Sea spurge	*Euphorbia paralias*

These should be purchased from specialist native plant suppliers, such as Naturescape.



Figure 33: Example of marram planting and chestnut paling at Crantock



Figure 34: Sea holly - salt tolerant species

8.3. Access

8.3.1. As discussed in more detail in Sections 7.6.10, 7.7.4 and 7.8.8, access routes may need to be adjusted over time in response to habitat management, vegetation recovery and coastal change. In some areas, temporary access restrictions may also be required to support dune restoration works or allow planted areas and recovering vegetation to establish successfully.

8.3.2. Table 15 outlines a range of management measures used to manage and direct public access in sand-dune

systems, helping to protect sensitive habitats from trampling and erosion in some areas, but also help to fragment other areas. Many of these techniques can also be applied to shield newly planted vegetation or to trap and stabilise highly mobile sand, supporting dune restoration and recovery. The accompanying table summarises each method, describing its main advantages and disadvantages, and indicates whether it is suitable for access management, planting protection, or sand-retention objectives.

Table 15: Types of access management, new planting shielding and sand retention

Method	Pros	Cons	Suitable for access	Sheild new planting	Sand retention
Chestnut Paling	* Excellent sand-trapping ability * Visually acceptable / traditional coastal appearance * Durable and biodegradable * Effective at forming embryo dunes * Doubles as an access-control measure	* Higher cost than other materials * Needs maintenance after storms * Can become buried, needing re-setting * Potential trip hazards if damaged * leaves behind metal when degrades	Yes	Yes	Yes
Plastic / geotextile netting	* Low cost * Lightweight and easy to install, good for temporary works * Reasonably effective at sand capture	* Significant microplastic and debris risk * Short lifespan * Wildlife entanglement risk * Can look untidy when weathered	Yes	Yes	Yes
Recycled Christmas trees (Figure 35)	* Extremely effective at trapping sand * Fully biodegradable * Quick to create embryo dunes * Good community involvement activity	* Short-lived (1–2 years) * Requires large, clean supply – only available at certain times of year * Needs anchoring to prevent blow-around * Can look messy	No	Yes	Yes
Bark mulch / brash / dune matting	* Reduces surface wind speed * Helps stabilise blowouts * Creates microsites for germination	* Can wash away in storms * Adds nutrients (undesirable in dune systems) * May import weed seeds * Provides minimal physical access control	No	Yes	Yes
Post and	* Excellent at directing	* No sand-trapping function	Yes	Yes	No

Method	Pros	Cons	Suitable for access	Sheild new planting	Sand retention
Rope Barriers	public access * Cheap and quick to install * Low visual impact * Flexible and easily moved	* People sometimes step over * Ropes sag / vandalism risk			
Straw bales	* Reduces wind erosion effectively * Very cheap * Fully biodegradable * Useful for emergency stabilisation	* Very short lifespan * Introduces nutrients * High weed-seed risk * Can blow away without secure staking * not typically used in the UK	No	No	Yes
Boardwalks**	* Extremely effective at guiding access * Protects vegetation completely * Accessible (pushchairs, wheelchairs) * Long lifespan	* Expensive * Requires engineering * May become buried in mobile dunes * Can become hazardous if not kept in good condition * Can't move the path. * Visually prominent	Yes	No	No
Wire fencing (grazing enclosures)	* Allow control grazing. Protects planting from trampling Long lasting compared with rope	* Can appear visually intrusive * Expensive	Yes	Yes for protection but not wind	No

8.3.3. NOTE**: Boardwalks are a widely used access management tool in sand dune systems, providing a clear, durable route that helps keep visitors away from sensitive vegetation and erosion prone areas. They are particularly effective where footfall is high, as they reduce trampling pressure and help stabilise adjacent dune surfaces by concentrating movement in a single corridor. However, boardwalks also have limitations: in highly mobile dune systems they can become buried by sand, undermined, or structurally damaged, leading to frequent repairs and high long term maintenance costs. Their fixed alignment can also become unsuitable over time as dune morphology naturally shifts, meaning paths may need redesigning or relocating. Although they deliver strong access control benefits, these drawbacks mean that boardwalks are most useful in locations where visitor pressure is significant and dune movement is moderate enough to avoid continual intervention.



Figure 35: Recycled Christmas trees being installed at Constantine Bay to trap sand

8.4. Signage

8.4.1. Two interpretation boards have already been installed at Par Sands with funding from the MS4S project. In addition, a rubbings trail has been delivered through a successful application to Magic Little Grants, with further support from the Co-op Communities Fund and the local community. As a result, there is currently no identified need for additional large, permanent interpretive signage. However, the use of temporary signage during sand dune works may be necessary, alongside the potential introduction of small, low-key markers to help guide visitors along preferred pathways through the dunes.

8.4.2. Clear, well-placed signage is an important tool for gaining public support for dune-management work, helping visitors understand why certain interventions are taking place and encouraging responsible behaviour. Effective signage can guide people onto designated paths, remind dog walkers to pick up after their pets, and explain the purpose of activities such as scrub clearance, fencing, or temporary access restrictions. By communicating simple, positive messages, signage helps to build trust and reduce conflict, increasing the likelihood of public cooperation with conservation efforts. Signs can vary considerably in cost, from durable, professionally produced interpretation boards to lower-cost options such as laminated notices used during short-term works. A combination of permanent and temporary signage provides flexibility, enabling both long-term messaging and timely communication of ongoing habitat restoration activities.

Ideas for signs

8.4.3. Install interpretive signage explaining:

- Why dunes move
- Why invasive species are removed
- What special species may be living here

- Why fencing is necessary
- Role of marram grass
- The history of the area
- Trails through and around the dunes

8.4.4. Use QR codes linking to:

- Dune management updates
- Volunteer opportunities
- Biodiversity monitoring results
- South West Coastal Monitoring data

8.4.5. Another way to increase awareness and understanding of the dunes is to work with the Friends of Par Beach Group to deliver seasonal guided walks.

8.4.6. See figures 36-43 below for examples of signs that can be used on the dunes.

8.5. Biodiversity Net Gain

8.5.1. The success of the above management techniques can be measured through Biodiversity Net Gain (BNG), including scrub reduction, improved habitat condition, and increased plant diversity within dune polygons at Par Sands.



Figure 36: Example of small disk explaining why access is restricted



Figure 37: Example of small disk sign showing the way through the scrub at Widemouth



Figure 38: Simple cost-effective signpost



Figure 39: Example of a sign highlighting a special species



Figure 40: Example of interpretation board – history trail at Summerleaze, Bude



Figure 41: Example of rubbing trail at Par Sands



Figure 42: Example of interpretation board at Widemouth Bay



Figure 43: Example of interpretation board at Par Sands

9. Monitoring Plan

Overview

9.1.1. Monitoring is an essential component of dune management at Par Sands, enabling the landowner, Cormac, Friends of Par Beach and partner organisations to understand how the system is responding to invasive species removal, scrub management, natural regeneration, visitor access and coastal processes. At present, there is no dedicated funding for structured monitoring. As such, this plan outlines a pragmatic, low-cost approach relying primarily on volunteers, the landowner, site managers and free external datasets. If future funding opportunities, grants or partnerships arise, the monitoring programme could be enhanced to include more detailed ecological and geomorphological assessments.

9.1.2. The following monitoring activities are recommended:

Invasive Non-Native Species (INNS) Monitoring

- Undertake simple walkover surveys twice a year, ideally in spring and late summer.
- Volunteers or the landowner can record locations of Japanese rose, sea buckthorn and any other invasive species using printed maps, mobile photographs or free GPS apps.
- Early detection of regrowth will help direct volunteer work parties and prevent treated areas from reverting to dense scrub.
- Particular attention should be given to previously cleared areas, foredunes, scrub edges and small outlying patches.
- If funding becomes available, INNS mapping could be expanded and digitised.

Monitoring Vegetation Recovery in Cleared Areas

- Use fixed-point photographs every six months to track natural regeneration following scrub and INNS removal.
- Record whether bare sand is colonised by pioneer dune species such as marram, sand couch or other native dune vegetation, or whether Japanese rose, sea buckthorn or dense scrub is returning.
- If cleared areas remain bare after approximately two years, or show signs of instability, supplementary planting may be considered where resources allow.
- Natural regeneration should remain the preferred approach unless monitoring shows that recovery is limited.
- Future grants could support structured vegetation surveys or targeted planting programmes.

Scrub Management Monitoring

- Undertake annual checks of retained scrub, scalloped edges and previously cleared areas.

- Record whether scrub is developing a varied structure or becoming dense and continuous again.
- Monitoring should help identify where rotational cutting, scalloping or follow-up clearance is required.
- Native scrub of value for birds and invertebrates should be retained where appropriate, while dense over-stabilising scrub should continue to be managed.
- Findings can be used to plan future volunteer work parties and contractor-led works.

Path and Visitor Access Monitoring

- Check main paths, desire lines and recovering dune areas once per summer season.
- Note any new trampling, widening of routes, dog fouling issues, vegetation damage or pressure on sensitive dune habitats.
- Findings can guide low-cost interventions such as temporary signage, minor path adjustments or post-and-rope fencing.
- Where scrub clearance creates new desire lines, monitoring should identify whether these routes are beneficial as controlled disturbance or whether they are damaging recovering habitats.
- With funding, more durable access controls such as chestnut paling could be introduced in vulnerable areas, if necessary.

Monitoring of Mobile Sand

9.1.3. Par Sands is currently accreting in places, and parts of the dune system are relatively stable. However, scrub removal may increase localised sand mobility, particularly where dense vegetation has previously trapped sediment. Monitoring should therefore include the following.

- Volunteers or the landowner should complete simple walkovers twice a year and after major storms.
- Record sand movement onto paths, roads, car parks or other infrastructure.
- Record any new blowouts, erosion scarps or areas of excessive bare sand.
- Particular care should be taken in northern areas and near infrastructure, where sudden increases in sand movement may create management issues.
- Following major storm events, monitoring should also record any overtopping, localised flooding, standing water, drainage issues or changes to surface water pathways that may affect dune stability, infrastructure or public access.
- If funds become available, temporary fencing, brushwood, chestnut paling or targeted planting could be used where soft intervention is required.

Historic Landfill / Made Ground Monitoring

9.1.4. Areas of historic landfill and made ground are present along parts of the backshore at Par Sands. Although these areas are not currently exposed and the frontage is generally accreting, they should be monitored as a precaution.

- Further understanding of the extent and composition of historic landfill and made ground may help support future adaptive management of the site. Subject to funding this could include review of historical records alongside targeted geoenvironmental investigation, such as soil, groundwater or surface water testing undertaken by appropriately qualified specialists.
- Findings from any geoenvironmental investigations should be used to help identify areas where erosion, flooding or increased dune mobility may present environmental risks.
- Undertake visual checks after major storm events or any observed erosion.
- Record any exposed debris, waste material, unusual staining, odours or signs of contamination.
- Photographs and location records should be taken where safe to do so.
- Any suspected exposure of buried material should be reported to the landowner and relevant authorities.
- Management in these areas should remain cautious, avoiding works that could unnecessarily destabilise sediments

Signage Effectiveness and Condition

9.1.5. Par Sands already has interpretation boards, a noticeboard and a rubbings trail. These should be inspected and maintained as part of routine monitoring.

- Inspect signs annually, ideally before the peak holiday season.
- Check for fading, damage, missing signs, vandalism or information that is no longer accurate.
- Temporary signage should be reviewed during and after management works to ensure messaging remains relevant.
- Replacement or installation of new signs will depend on available resources.
- Public meetings, social media updates and local engagement should also be reviewed informally to understand whether messages are reaching the community effectively.

Community Stewardship Monitoring

9.1.6. Friends of Par Beach already play an important role in site monitoring and practical management. Recording this activity will help demonstrate the value of volunteer input and support future funding applications.

- Keep simple records of work party dates, volunteer numbers and tasks completed.
- Record areas where INNS have been removed or regrowth has been managed.
- Photograph before and after works where possible.

- Note any issues raised by volunteers or the public during work parties.
- These records can help show ongoing stewardship and provide evidence for future grants or partner support

Professional Ecological Survey (Funding Dependent)

9.1.7. A full dune condition assessment by a qualified ecologist should ideally be completed every five years. This would include vegetation composition, INNS distribution, scrub cover, bare sand extent and habitat condition and would help assess whether management is improving dune structure and biodiversity value.

- At present this may not be possible without additional funding, but monitoring evidence collected by volunteers would strengthen future funding applications.
- If resources allow, survey results should be compared with previous habitat mapping and used to update management priorities.

South West Coastal Monitoring Programme (SWCM)

9.1.8. The South West Coastal Monitoring Programme provides long-term, standardised coastal monitoring for the South West, including topographic beach surveys, LiDAR data and aerial imagery where available.

- SWCM datasets should be reviewed at least every five years alongside ecological monitoring.
- Data can be used to understand beach level change, dune toe movement, storm impacts, accretion and erosion trends.
- This is particularly important at Par Sands because the frontage is currently accreting, but future sea level rise and storm events may alter this pattern.
- SWCM monitoring information should also be used to identify whether future changes in dune behaviour, flooding patterns or sediment mobility may require adaptation of access routes, parking areas or other infrastructure.
- If funding allows, SWCM review could be supplemented by simple local dune profiles or fixed-point topographic monitoring.

9.1.9. See Table 16 for a summary of this information.

Table 16: Monitoring table

	Vegetation recovery	Fixed-point photography to track natural regeneration; record colonisation by dune species or return of scrub; identify bare or unstable areas	Every 6 months	Volunteers / Landowner
	Scrub condition	Monitor scalloped edges and cleared areas; identify where	Annually	Landowner / Volunteers

		scrub is returning or becoming dense		
	Access and trampling	Monitor paths and desire lines; record trampling damage, widening routes and dog fouling issues	Annually (peak season focus)	Landowner / Volunteers
	Sand movement	Record sand movement, blowouts or drift affecting paths or infrastructure, particularly following clearance	Twice yearly + after storms	Landowner / Site manager
	Historic Landfill Investigation	Review historical documents and consider targeted investigations including soil, groundwater or surface water testing to improve understanding of the area and the risks associated	As funding allows – as required	Landowner
	Made ground / historic landfill risk	Visual inspection for any exposed debris or contamination following storms or erosion	Post-storm	Landowner
	Signage and engagement	Inspect signage condition and effectiveness; review temporary signage during works	Annually	Landowner / Community group
	Volunteer activity	Record work parties, tasks completed and areas managed	Ongoing	Friends of Par Beach
Medium Term	INNS control effectiveness	Continue to monitor for regrowth and spread; ensure invasive species remain at low levels	Annually	Landowner / Community group
	Habitat recovery	Assess whether cleared areas have transitioned to stable dune; identify need for planting	Annually	Landowner / Community group
	Scrub structure	Monitor balance between open dune and scrub; ensure mosaic structure is maintained	Annually	Landowner / Community group
	Access patterns and infrastructure	Review path network, parking areas and access routes in response to dune movement, sediment mobility, flooding or habitat	Annually	Landowner

		recovery; adjust where needed to reduce pressure on sensitive areas		
	Sediment dynamics	Monitor broader dune behaviour, including mobility and stabilisation following interventions	Annually	Landowner / Site manager
	Flooding and drainage	Monitor areas prone to standing water, drainage changes or storm-related flooding to identify emerging management issues	Annually + after significant storms	Landowner
	Historic landfill and environmental risk	Use findings from any geoenvironmental investigations to monitor areas where erosion, flooding or dune mobility may increase the risk of exposure of made ground or buried material	As required	Landowner/Specialists
	Community stewardship	Track volunteer involvement and capacity for ongoing management	Annually	Community group / Landowner
Long Term	Dune system resilience / habitat condition	Monitor overall dune structure, mobility and ability to respond to coastal change	Every 5 years (funding dependent)	Landowner / Ecologist
	INNS	Rapid identification and removal of any new invasive outbreaks	Ongoing	Landowner / Voluntary group
	Coastal change	Review SWCM (LiDAR, beach profiles, aerial imagery) to understand long term trends	Every 5 years	Landowner / SWCM / Coastal Practitioners
	Infrastructure adaptation	Review whether access routes, parking or other infrastructure require adaptation or relocation in response to dune migration, flooding or sediment mobility	Every 5 years or as required	Landowner
	Made ground risk	Ongoing awareness of erosion risk and potential exposure of historic landfill	As required (event based)	Landowner
	Adaptive management review	Formal review of monitoring data to update management approach	Every 5 years	Landowner / Voluntary group / Stakeholders

9.2. Funding

9.2.1. At the time of writing a Community Engagement Officer organises work parties and engages volunteers at Par Sands, along with procuring hand tools for the control and removal of invasive species, this has been funded by the Making Space for Sand project.

9.2.2. As the area is under a No Active Intervention policy there is unlikely to be any public funding for flood or erosion management, so in the future other sources of funding will be required

9.2.3. Finding community and environmental grants is easiest when using a combination of databases, government services, environmental organisations and corporate or charitable funders. Helpful places to look include:

9.2.4. Grant search databases

- GrantFinder, Grants Online, and Funds Online – large databases covering national and local funding.
- Charity Excellence Framework – free "Funder Finder" tool.
- 360GrantNav – lets you explore UK funder data.
- My Funding Central – for smaller charities and community groups.

9.2.5. Government and local authority portals

- Find a Grant (GOV.UK) – official government funding search.
- Local councils – often run "Community Chest," climate funds, community ownership funds, or small local grant schemes.
- DEFRA – supports environmental and biodiversity initiatives.
- Landfill Communities Fund – delivered through bodies like Enovert for local green projects.

9.2.6. Environmental organisations and trusts

- The Wildlife Trusts – share opportunities for community nature work.
- Groundwork – grants and support for environmental improvements.
- National Lottery Community Fund – major funder of community led projects.
- Environmental Funders Network (EFN) – connects to environmental philanthropic funders.

9.2.7. Corporate and foundation schemes

- Aviva Community Fund – resilience and climate related projects.
- Veolia Environmental Trust – biodiversity and green space improvements.
- Tesco Stronger Starts and Asda Foundation – small local community grants.
- Naturesave Trust – conservation and sustainability funding.

9.2.8. Energy and sustainability specific funding

- Community Energy Fund – renewable energy projects.
- Salix Finance – public sector decarbonisation.
- Ashden Trust – climate and sustainable development focus.

9.2.9. Tips for searching

- Use keywords like “biodiversity,” “climate action,” “sustainability,” “green space,” “community garden.”
- Contact local CVS (Council for Voluntary Service) for tailored advice.
- Check local supermarkets – many run small community grant schemes

10. Pictogram





BEACH

EMBRYO DUNE
Embryo dunes form closest to the sea where an obstruction is in place and windblown sand accumulates. Pioneer species then colonise this area, the typical species being lyme and couch grasses.

SHIFTING DUNE
Where the embryo dunes have created stability in the substrate, marram establishes further stabilising the substrate by allowing more sand to accumulate. With more organic matter water retention increases and microhabitats allow a wider diversity of vegetation to colonise.

DUNE GRASSLAND
the diversity of species will out compete marram, red fescue being a key competitor this leads to an increase in the humic content of the substrate making it more suitable for the establishment of scrub species.
Blowouts and other exposed bare sand areas are an important feature of the dune landscape and ecology. Erosion within these areas can be accelerated by excess trampling and wind.



Par Sands Making Space for Sand



Eryngium maritimum – Sea holly, upright branching stems up to 60cm, cone of thistle like greenish-white or blue flowers with a ruff of spiny bracts, July to September

KEY DUNE SPECIES



Honckenya peploides – Sea sandwort is a low-growing, creeping perennial that spreads across the sand to form dense mats. It has fleshy triangular grey-green leaves adapted to retain moisture, and small inconspicuous greenish white flowers from late spring to early summer.



Plantago coronopus - Buck's-horn plantain is a low-growing perennial with a basal rosette of narrow, deeply lobed green leaves, which produces slender, curving to upright flower spikes, with cylindrical heads of small, tightly clustered cream flowers, from spring through to autumn



Ammophila arenaria – Marram grass, dense grey/green spiky tufts of rolled, long, thin leaves, flowers July and August, its fibrous roots stabilise the dunes.



Calystegia soldanella – Sea bindweed is a trailing, rhizomatous perennial up to 1m across but only 10cm tall. Succulent stems, kidney shaped leaves, pink upward facing trumpet-shaped flowers with five white stripes in summer.

OPPORTUNITIES AND CONSTRAINTS

1. Par Sands Dunes are in the Falmouth Bay to St Austel SPA, designated for black throated, great northern diver and Slavonian grebe. It is also within the Par Beach and St Andrews Rd LNR for its importance for overwintering birds, and the Polmear and Par Sands CWS for its HPI's Saline Lagoon and Maritime Cliffs and Slopes amongst others.

2. Invasive species control – Some areas of dune have been scrubbed over by sea buckthorn and other invasive species can be found throughout the dunes especially Japanese rose but also buddleia and montbretia. Efforts should be made to control the spread of these plants, especially as some are listed under Schedule 9 of the Wildlife and Countryside Act 1981.

3. Scrub/INNS control – The dunes are at threat of overstabilisation from encroaching scrub, some areas to the centre of the system should be removed and to the north rotational management of the scrub should occur to conttain the sand within the dune system.

UNWANTED PLANTS IN THE DUNE ECOSYSTEM



Hippopheae rhamnoides - Sea buckthorn is a hardy, spiny, large deciduous shrub. It has narrow, willow-like, silvery leaves and thorny shoots, and very small, yellow-green flowers in racemes during spring, which are followed by small, bright orange berries on female plants.



Buddleia (Buddleja davidii) is a fast-growing, invasive shrub that readily colonises disturbed ground, spreading rapidly by wind-dispersed seed and outcompeting native vegetation.



Rosa rugosa - Japanese rose, listed on Schedule 9 of the UK Wildlife & Countryside Act as an invasive species. A suckering shrub which can develop new plants from its roots, as well as producing up to 800 seeds/year. Creates dense spiney thickets up to 1m tall smothering native dune vegetation.

Photographic credits – Cornwall Environmental Consultants : Dr Sally Lucker – Budding Nature : Cornwall Wildlife Trust

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12. List of Appendices

A. Schedule 9 Wildlife and Countryside Act 1981 as amended

B. Condition Assessments

A. Schedule 9 Wildlife and Countryside Act 1981 as amended

***Changes to legislation:** Wildlife and Countryside Act 1981, SCHEDULE 9 is up to date with all changes known to be in force on or before 06 May 2026. There are changes that may be brought into force at a future date. Changes that have been made appear in the content and are referenced with annotations. (See end of Document for details) View outstanding changes*

[F18Stonecrop, Australian Swamp (otherwise known as New Zealand Pygmyweed)**]**	**[**F18Crassula helmsii**]**
[F20Wakame**]**	**[**F20Undaria pinnatifida**]**
[F19**[**F18Waterweed, Curly**]]**	***[**F19**[**F18*Lagarosiphon major***]]***
[F23**[**F18Waterweeds**]][**F23Waterweeds (except Nuttall's Waterweed)**]**	**[**F23**[**F18All species of the genus Elodea.**]][**F23All species of the genus Elodea, except Elodea nuttallii**]**

Textual Amendments

F18 Entries in Sch. 9 Pt. 2 added (E.W.) (6.4.2010) by The Wildlife and Countryside Act 1981 (Variation of Schedule 9) (England and Wales) Order 2010 (S.I. 2010/609), **art. 2(4)**

F19 Words in Sch. 9 Pt. 2 omitted (E.W.) (1.12.2019) by virtue of The Invasive Alien Species (Enforcement and Permitting) Order 2019 (S.I. 2019/527), art. 1(1), **Sch. 4 para. 1(3)(b)(i)** (with art. 1(2)(4)) (as amended by S.I. 2019/1213, regs. 1, **2(2)**)

F20 Words in Sch. 9 Pt. 2 added (17.3.1992) by S.I. 1992/320, **art. 3**

F21 Entries in Sch. 9 Pt. 2 removed (E.W.) (6.4.2010) by virtue of The Wildlife and Countryside Act 1981 (Variation of Schedule 9) (England and Wales) Order 2010 (S.I. 2010/609), **art. 2(5)**

F22 Words in Sch. 9 Pt. 2 omitted (E.) (4.5.2021) by virtue of The Wildlife and Countryside Act 1981 (Variation of Schedule 9) (England) Order 2021 (S.I. 2021/236), arts. 1(b), **2(3)**; and words in Sch. 9 Pt. 2 omitted (W.) (10.9.2025) by virtue of Legislation (Procedure, Publication and Repeals) (Wales) Act 2025 (asc 3), s. 9(2)(d), **Sch. 1 para. 53(b)**

F23 Words in Sch. 9 Pt. 2 substituted (E.W.) (1.12.2019) by The Invasive Alien Species (Enforcement and Permitting) Order 2019 (S.I. 2019/527), art. 1(1), **Sch. 4 para. 1(3)(b)(ii)** (with art. 1(2)(4)) (as amended by S.I. 2019/1213, regs. 1, **2(2)**)

Note. The common name or names given in the first column of this Schedule are included by way of guidance only; in the event of any dispute or proceedings, the common name or names shall not be taken into account.**]]**

PART II

PLANTS

Common name	***Scientific name***
[F18Alexanders, Perfoliate]	[F18Smyrnium perfoliatum]
[F18Algae, Red]	[F18Grateloupia luxurians]
[F18Archangel, Variegated Yellow]	[F18Lamiastrum galeobdolon subsp. argentatum]
[F18Azalea, Yellow]	[F18Rhododendron luteum]
[F19[F18Balsam, Himalayan]]	[F19[F18Impatiens glandulifera]]
[F18Cotoneaster]	[F18Cotoneaster horizontalis]
[F18Cotoneaster, Entire-leaved]	[F18Cotoneaster integrifolius]
[F18Cotoneaster, Himalayan]	[F18Cotoneaster simonsii]
[F18Cotoneaster, Hollyberry]	[F18Cotoneaster bullatus]
[F18Cotoneaster, Small-leaved]	[F18Cotoneaster microphyllus]
[F18Creeper, False Virginia]	[F18Parthenocissus inserta]
[F18Creeper, Virginia]	[F18Parthenocissus quinquefolia]
[F18Dewplant, Purple]	[F18Disphyma crassifolium]
[F19[F18Fanwort]]	*[F19[F18Cabomba caroliniana]]*
[F18Fern, Water]	*[F18Azolla filiculoides]*
[F18Fig, Hottentot]	*[F18Carpobrotus edulis]*
[F18Garlic, Three-cornered]	[F18Allium triquetrum]
[F19Hogweed, Giant]	[F19Heracleum mantegazzianum]
[F19[F18Hyacinth, water]]	*[F19[F18Eichhornia crassipes]]*
[F20Kelp, Giant]	[F20Macrocystis angustifolia]
[F20Kelp, Giant]	[F20Macrocystis integrifolia]
[F20Kelp, Giant]	[F20Macrocystis laevis]
Kelp, Giant	Macrocystis pyrifera

***Changes to legislation:** Wildlife and Countryside Act 1981, SCHEDULE 9 is up to date with all changes known to be in force on or before 06 May 2026. There are changes that may be brought into force at a future date. Changes that have been made appear in the content and are referenced with annotations. (See end of Document for details) View outstanding changes*

[F20Kelp, Japanese**]**	**[**F20Laminaria japonica**]**
[F18Knotweed, Giant**]**	**[**F18Fallopia sachalinensis**]**
[F18Knotweed, Hybrid**]**	**[**F18Fallopia japonica x Fallopia sachalinensis
[F18Knotweed, Japanese**]**	**[**F18Fallopia japonica**]**
[F21Knotweed, Japanese**]**	**[**F21Polygonum cuspidatum**]**
[F18Leek, Few-flowered**]**	***[**F18 Allium paradoxum**]***
[F18Lettuce, water**]**	***[**F18 Pistia stratiotes**]***
[F18Montbretia**]**	**[**F18Crocosmia x crocosmiiflora**]**
[F19**[**F18Parrot's-feather**]]**	***[**F19**[**F18 Myriophyllum aquaticum**]]***
[F19**[**F18Pennywort, Floating**]]**	***[**F19**[**F18 Hydrocotyle ranunculoides**]]***
[F18Potato, Duck**]**	**[**F18Sagittaria latifolia**]**
[F19**[**F18Primrose, Floating Water**]]**	**[**F19**[**F18Ludwigia peploides**]]**
[F19**[**F18Primrose, Water**]]**	**[**F19**[**F18Ludwigia grandiflora**]]**
[F18Primrose, Water**]**	**[**F18Ludwigia uruguayensis**]**
[F18Rhododendron**]**	**[**F18Rhododendron ponticum**]**
[F18Rhododendron**]**	**[**F18Rhododendron ponticum x Rhododendron maximum**]**
[F19**[**F18Rhubarb, Giant**]]**	**[**F19**[**F18Gunnera tinctoria**]]**
[F18Rose, Japanese**]**	**[**F18Rosa rugosa**]**
F22	**F22**
. . .	. . .
[F18Seafingers, Green**]**	**[**F18Codium fragile**]**
[F21Seafingers, Green**]**	**[**F21Codium fragile tomentosoides**]**
[F20Seaweed, Californian Red**]**	**[**F20Pikea californica**]**
[F20Seaweed, Hooked Asparagus**]**	**[**F20Asparagopsis armata**]**
Seaweed, Japanese	Sargassum muticum
[F20Seaweeds, Laver (except native species)**]**	**[**F20Porphyra spp except -**]**
	[F20p. amethystea**]**
	[F20p. leucosticta**]**
	[F20p. linearis**]**
	[F20p. miniata**]**
	[F20p. purpurea**]**
	[F20p. umbilicalis**]**

B. Condition Assessments

Condition Sheet: GRASSLAND Habitat Type (low distinctiveness)

UK Habitat Classification (UKHab) Habitat Type

Grassland - Modified grassland

Habitat Description

ukhab – UK Habitat Classification												
On-site or off-site, site name and location		**Survey date and Surveyor name**										
		Survey reference (if relating to a wider survey)										
Limitations (if applicable)		**Habitat parcel reference**										
		46	62									
		Grid reference										

Condition Assessment Criteria		**Criterion passed (Yes or No)**									**Notes (such as justification)**
A	There are 6-8 vascular plant species per m^2 present, including at least 2 forbs (these may include those listed in Footnote 1). **Note - this criterion is essential for achieving Moderate or Good condition.** Where the vascular plant species present are characteristic of medium, high or very high distinctiveness grassland, or there are 9 or more of these characteristic species per m^2 (excluding those listed in Footnote 1), please review the full UKHab description to assess whether the grassland should instead be classified as a higher distinctiveness grassland. Where a grassland is classed as medium, high, or very high distinctiveness, please use the relevant condition sheet.	y	y								
B	Sward height is varied (at least 20% of the sward is less than 7 cm and at least 20% is more than 7 cm) creating microclimates which provide opportunities for vertebrates and invertebrates to live and breed.	n	n								
C	Any scrub present accounts for less than 20% of the total grassland area. (Some scattered scrub such as bramble *Rubus fruticosus* agg. may be present). Note - patches of scrub with continuous (more than 90%) cover should be classified as the relevant scrub habitat type.	y	y								
D	Physical damage is evident in less than 5% of total grassland area. Examples of physical damage include excessive poaching, damage from machinery use or storage, erosion caused by high levels of access, or any other damaging management activities.	y	y								
E	Cover of bare ground is between 1% and 10%, including localised areas (for example, a concentration of rabbit warrens)[2].	y	y								
F	Cover of bracken *Pteridium aquilinum* is less than 20%.	y	y								
G	There is an absence of invasive non-native plant species[3] (as listed on Schedule 9 of WCA[4]).	y	y								
	Essential criterion achieved (Yes or No)	y	y								
	Number of criteria passed	6	6								

Condition Assessment Result (out of 7 criteria)	**Condition Assessment Score**	**Score Achieved ×/✓**									
Passes 6 or 7 criteria including passing essential criterion A	Good (3)	x	x								
Passes 4 or 5 criteria including passing essential criterion A	Moderate (2)										
Passes 3 or fewer criteria; OR Passes 4 - 6 criteria (excluding criterion A)	Poor (1)										

Suggested enhancement interventions to improve condition score

Footnotes
Footnote 1 – Creeping thistle *Cirsium arvense* , spear thistle *Cirsium vulgare* , curled dock *Rumex crispus* , broad-leaved dock *Rumex obtusifolius* , common nettle *Urtica dioica* , creeping buttercup *Ranunculus repens* , greater plantain *Plantago major* , white clover *Trifolium repens* and cow parsley *Anthriscus sylvestris* . **Footnote 2** – For example, this could include small, scattered areas of bare ground allowing establishment of new species, or localised patches where not exceeding 10% cover. **Footnote 3** – Assess this for each distinct habitat parcel. If the distribution of invasive non-native species varies across the habitat, split into parcels accordingly, applying a buffer zone around the invasive non-native species with a size relative to its risk of spread into adjacent habitat, using professional judgement. **Footnote 4** – Wildlife and Countryside Act 1981 (as amended).

Condition Sheet: COASTAL Habitat Type

UK Habitat Classification (UKHab) Habitat Types
Sparsely vegetated land - Coastal sand dunes **Sparsely vegetated land - Coastal vegetated shingle** **Sparsely vegetated land - Maritime cliff and slopes**

Habitat Description

See UKHab

On-site or off-site, site name and location		**Survey date and Surveyor name**	
Limitations (if applicable)		**Survey reference (if relating to a wider survey)**	
Grid reference		**Habitat parcel reference**	

	Condition Assessment Criteria	Criterion passed (Yes or No)	Notes (such as justification)
A	The parcel represents a good example of its specific habitat type, with characteristic indicator species present in the typical successional stages, transitions and or mosaics, at sufficient cover and frequency to be a good example.[1] **Note - this criterion is essential for achieving Good condition.**		
B	Vegetation structure (sward height variation, zonation) is varied and not uniform.		
C	Naturally open ground or bare surfaces are present as part of a sequence of colonisation and succession.		
D	Coastal processes needed to support the habitat are functional and are not modified by hard engineering or other forms of negative intervention.		
E	The landform reflects the interaction of coastal processes and geology, and there is a varied topography present supporting the relevant range of habitat types.		

F	There is an absence of invasive non-native species[2] (as listed on Schedule 9 of WCA[3]). Combined cover of species indicative of suboptimal condition[4] and physical damage (such as excessive poaching, damage from machinery use or storage, damaging levels of access, or any other damaging management activities) accounts for less than 5% of total area.		
G	Any scrub (including bramble *Rubus fruticosus* agg.) present accounts for less than 10% of the area within the habitat or bare substrate matrix. Blocks of scrub or woodland, which might be desirable in their own right should be classified and mapped separately.		
H	Water quality and quantity (for example, seasonal fluctuations in dune slacks or seepages on cliff slopes) is sufficient to support the range of water-dependent parts of the habitat.		
	Essential criterion achieved (Yes or No)		
	Number of criteria passed		

Condition Assessment Result (out of 8 criteria)	**Condition Assessment Score**	**Score Achieved ×/✓**
Passes 7 or 8 criteria including essential criterion A	Good (3)	
Passes 5 or 6 criteria; OR Passes 7 criteria excluding essential criterion A	Moderate (2)	
Passes 4 or fewer criteria	Poor (1)	

Suggested enhancement interventions to improve condition score

Footnotes

Footnote 1 - Professional judgement should be used alongside the UKHab description.

Footnote 2 – Assess this for each distinct habitat parcel. If the distribution of invasive non-native species varies across the habitat, split into parcels accordingly, applying a buffer zone around the invasive non-native species with a size relative to its risk of spread into adjacent habitat, using professional judgement.

Footnote 3 – Wildlife and Countryside Act 1981 (as amended).

Footnote 4 - General coastal species indicative of suboptimal condition: creeping thistle *Cirsium arvense* , spear thistle *Cirsium vulgare* , curled dock *Rumex crispus* , broad-leaved dock *Rumex obtusifolius* , common nettle *Urtica dioica* , bramble, white willow *Salix alba* hybrids, sea buckthorn *Hippophae rhamnoides* (only outside its restricted native range) and non-native garden plants.

Grassland species indicative of suboptimal condition: creeping thistle *Cirsium arvense* , spear thistle *Cirsium vulgare* , curled dock *Rumex crispus* , broad-leaved dock *Rumex obtusifolius* , common nettle *Urtica dioica* , creeping buttercup *Ranunculus repens* , greater plantain *Plantago major* and cow parsley *Anthriscus sylvestris* .

Heathland species indicative of suboptimal condition: bracken *Pteridium aquilinum* .

There may be additional relevant species local to the region and or site.

Condition Sheet: COASTAL Habitat Type

UK Habitat Classification (UKHab) Habitat Types

Sparsely vegetated land - Coastal sand dunes
Sparsely vegetated land - Coastal vegetated shingle
Sparsely vegetated land - Maritime cliff and slopes

Habitat Description

See UKHab

On-site or off-site, site name and location		**Survey date and Surveyor name**	
Limitations (if applicable)		**Survey reference (if relating to a wider survey)**	

		Habitat parcel reference									
		11	12	13	14	20	23	24	25	31	32
		Grid reference									
Condition Assessment Criteria											
		Criterion passed (Yes or No)									**Notes (such as justification)**
A	The parcel represents a good example of its specific habitat type, with characteristic indicator species present in the typical successional stages, transitions and or mosaics, at sufficient cover and frequency to be a good example.[1] **Note - this criterion is essential for achieving Good condition.**	y	y	y	y	n	n	y	y	y	y	
B	Vegetation structure (sward height variation, zonation) is varied and not uniform.	y	y	y	y	n	y	y	y	y	y	
C	Naturally open ground or bare surfaces are present as part of a sequence of colonisation and succession.	y	y	y	y	n	y	y	y	y	y	
D	Coastal processes needed to support the habitat are functional and are not modified by hard engineering or other forms of negative intervention.	n	n	n	n	n	n	n	n	n	n	
E	The landform reflects the interaction of coastal processes and geology, and there is a varied topography present supporting the relevant range of habitat types.	y	y	y	y	y	y	y	y	y	y	
F	There is an absence of invasive non-native species[2] (as listed on Schedule 9 of WCA[3]). Combined cover of species indicative of suboptimal condition[4] and physical damage (such as excessive poaching, damage from machinery use or storage, damaging levels of access, or any other damaging management activities) accounts for less than 5% of total area.	y	y	y	y	n	y	y	y	y	y	
G	Any scrub (including bramble *Rubus fruticosus* agg.) present accounts for less than 10% of the area within the habitat or bare substrate matrix. Blocks of scrub or woodland, which might be desirable in their own right should be classified and mapped separately.	y	y	y	y	n	y	y	y	n	y	
H	Water quality and quantity (for example, seasonal fluctuations in dune slacks or seepages on cliff slopes) is sufficient to support the range of water-dependent parts of the habitat.	y	y	y	y	y	y	y	y	y	y	

Essential criterion achieved (Yes or No)		y	y	y	y	n	n	y	y	y	y	
Number of criteria passed		7	7	7	7	2	6	7	y	6	7	
Condition Assessment Result (out of 8 criteria)	**Condition Assessment Score**	**Score Achieved ×/✓**										
Passes 7 or 8 criteria including essential criterion A	Good (3)	x	x	x	x			x	x		x	
Passes 5 or 6 criteria; OR Passes 7 criteria excluding essential criterion A	Moderate (2)						x			x		
Passes 4 or fewer criteria	Poor (1)					x						

Suggested enhancement interventions to improve condition score

Notes

Footnote 1 - Professional judgement should be used alongside the UKHab description.

Footnote 2 – Assess this for each distinct habitat parcel. If the distribution of invasive non-native species varies across the habitat, split into parcels accordingly, applying a buffer zone around the invasive non-native species with a size relative to its risk of spread into adjacent habitat, using professional judgement.

Footnote 3 – Wildlife and Countryside Act 1981 (as amended).

Footnote 4 - General coastal species indicative of suboptimal condition: creeping thistle *Cirsium arvense* , spear thistle *Cirsium vulgare* , curled dock *Rumex crispus* , broad-leaved dock *Rumex obtusifolius* , common nettle *Urtica dioica* , bramble, white willow *Salix alba* hybrids, sea buckthorn *Hippophae rhamnoides* (only outside its restricted native range), and non-native garden plants.

Grassland species indicative of suboptimal condition: creeping thistle *Cirsium arvense* , spear thistle *Cirsium vulgare* , curled dock *Rumex crispus* , broad-leaved dock *Rumex obtusifolius* , common nettle *Urtica dioica* , creeping buttercup *Ranunculus repens* , greater plantain *Plantago major* and cow parsley *Anthriscus sylvestris* .

Heathland species indicative of suboptimal condition: bracken *Pteridium aquilinum.*

There may be additional relevant species local to the region and or site.

Condition Sheet: COASTAL Habitat Type

UK Habitat Classification (UKHab) Habitat Types

Sparsely vegetated land - Coastal sand dunes
Sparsely vegetated land - Coastal vegetated shingle
Sparsely vegetated land - Maritime cliff and slopes

Habitat Description

See UKHab

On-site or off-site, site name and location		**Survey date and Surveyor name**										
Limitations (if applicable)		**Survey reference (if relating to a wider survey)**										
		Habitat parcel reference										
		33	49	50	51	52	55					
		Grid reference										
Condition Assessment Criteria												
		Criterion passed (Yes or No)										**Notes (such as justification)**
A	The parcel represents a good example of its specific habitat type, with characteristic indicator species present in the typical successional stages, transitions and or mosaics, at sufficient cover and frequency to be a good example.[1] **Note - this criterion is essential for achieving Good condition.**	y	y	y	y	y	n					
B	Vegetation structure (sward height variation, zonation) is varied and not uniform.	y	y	y	y	y	n					
C	Naturally open ground or bare surfaces are present as part of a sequence of colonisation and succession.	n	y	y	y	n	n					
D	Coastal processes needed to support the habitat are functional and are not modified by hard engineering or other forms of negative intervention.	n	n	n	n	n	n					
E	The landform reflects the interaction of coastal processes and geology, and there is a varied topography present supporting the relevant range of habitat types.	y	y	y	y	y	y					
F	There is an absence of invasive non-native species[2] (as listed on Schedule 9 of WCA[3]). Combined cover of species indicative of suboptimal condition[4] and physical damage (such as excessive poaching, damage from machinery use or storage, damaging levels of access, or any other damaging management activities) accounts for less than 5% of total area.	y	y	y	y	y	n					
G	Any scrub (including bramble *Rubus fruticosus* agg.) present accounts for less than 10% of the area within the habitat or bare substrate matrix. Blocks of scrub or woodland, which might be desirable in their own right should be classified and mapped separately.	y	y	y	y	y	n					
H	Water quality and quantity (for example, seasonal fluctuations in dune slacks or seepages on cliff slopes) is sufficient to support the range of water-dependent parts of the habitat.	y	y	y	y	y	y					

Essential criterion achieved (Yes or No)		y	y	y	y	y	n					
Number of criteria passed		6	7	7	7	6	2					
Condition Assessment Result (out of 8 criteria)	**Condition Assessment Score**	**Score Achieved ×/✓**										
Passes 7 or 8 criteria including essential criterion A	Good (3)		x	x	x							
Passes 5 or 6 criteria; OR Passes 7 criteria excluding essential criterion A	Moderate (2)	x				x						
Passes 4 or fewer criteria	Poor (1)						x					

Suggested enhancement interventions to improve condition score

Notes

Footnote 1 - Professional judgement should be used alongside the UKHab description.

Footnote 2 – Assess this for each distinct habitat parcel. If the distribution of invasive non-native species varies across the habitat, split into parcels accordingly, applying a buffer zone around the invasive non-native species with a size relative to its risk of spread into adjacent habitat, using professional judgement.

Footnote 3 – Wildlife and Countryside Act 1981 (as amended).

Footnote 4 - General coastal species indicative of suboptimal condition: creeping thistle *Cirsium arvense* , spear thistle *Cirsium vulgare* , curled dock *Rumex crispus* , broad-leaved dock *Rumex obtusifolius* , common nettle *Urtica dioica* , bramble, white willow *Salix alba* hybrids, sea buckthorn *Hippophae rhamnoides* (only outside its restricted native range), and non-native garden plants.

Grassland species indicative of suboptimal condition: creeping thistle *Cirsium arvense* , spear thistle *Cirsium vulgare* , curled dock *Rumex crispus* , broad-leaved dock *Rumex obtusifolius* , common nettle *Urtica dioica* , creeping buttercup *Ranunculus repens* , greater plantain *Plantago major* and cow parsley *Anthriscus sylvestris* .

Heathland species indicative of suboptimal condition: bracken *Pteridium aquilinum.*

There may be additional relevant species local to the region and or site.

Condition Sheet: GRASSLAND Habitat Type (medium, high and very high distinctiveness)

UK Habitat Classification (UKHab) Habitat Types

Grassland - Lowland calcareous grassland
Grassland - Lowland dry acid grassland
Grassland - Lowland meadows
Grassland - Other lowland acid grassland
Grassland - Other neutral grassland
Grassland - Tall herb communities (H6430) [Not to be confused with the Tall forbs secondary code – see UKHab guidance for details.]
Grassland - Upland acid grassland
Grassland - Upland calcareous grassland
Grassland - Upland hay meadows
Sparsely vegetated land - Calaminarian grassland

Habitat Description

ukhab – UK Habitat Classification												
On-site or off-site, site name and location		**Survey date and Surveyor name**										
		Survey reference (if relating to a wider survey)										
Limitations (if applicable)		**Habitat parcel reference**										
		28										
Condition Assessment Criteria		**Grid reference**										
		Criterion passed (Yes or No)										**Notes (such as justification)**
A	The parcel represents a good example of its habitat type, with a consistently high proportion of characteristic indicator species present relevant to the specific habitat type (and relative to Footnote 3 suboptimal species which may be listed in the UKHab description).[1] **Note - this criterion is essential for achieving Moderate or Good condition for non-acid grassland types only.**	y										
B	Sward height is varied (at least 20% of the sward is less than 7 cm and at least 20% is more than 7 cm) creating microclimates which provide opportunities for insects, birds and small mammals to live and breed.	y										
C	Cover of bare ground is between 1% and 5%, including localised areas, for example, rabbit warrens[2].	y										
D	Cover of bracken *Pteridium aquilinum* is less than 20% and cover of scrub (including bramble *Rubus fruticosus* agg.) is less than 5%.	y										
E	Combined cover of species indicative of suboptimal condition[3] and physical damage (such as excessive poaching, damage from machinery use or storage, damaging levels of access, or any other damaging management activities) accounts for less than 5% of total area. If any invasive non-native plant species[4] (as listed on Schedule 9 of WCA[5]) are present, this criterion is automatically failed.	n										
Additional Criterion - must be assessed for all non-acid grassland types												
F	There are 10 or more vascular plant species per m^2 present, including forbs that are characteristic of the habitat type (species referenced in Footnote 3 and 5 cannot contribute towards this count). **Note - this criterion is essential for achieving Good condition for non-acid grassland types only.**	n										

Essential criterion for Good condition achieved (for non-acid grassland) (Yes or No)		n										
Number of criteria passed		4										
Condition Assessment Result	**Condition Assessment Score**	**Score Achieved ×/✓**										
Acid grassland types (Result out of 5 criteria)												
Passes 5 criteria	Good (3)											
Passes 3 or 4 criteria	Moderate (2)	x										
Passes 2 or fewer criteria	Poor (1)											
Non-acid grassland types (Result out of 6 criteria)												
Passes 5 or 6 criteria, including essential criterion A and additional criterion F.	Good (3)											
Passes 3 - 5 criteria, including essential criterion A.	Moderate (2)											
Passes 2 or fewer criteria; OR Passes 3 or 4 criteria excluding criterion A and F.	Poor (1)											

Suggested enhancement interventions to improve condition score

Notes

Footnote 1 - Professional judgement should be used alongside the UKHab description.

Footnote 2 – For example, this could include small, scattered areas of bare ground allowing for plant colonisation, or localised patches not exceeding 5% cover.

Footnote 3 - Species indicative of suboptimal condition for this habitat type include: creeping thistle *Cirsium arvense* , spear thistle *Cirsium vulgare* , curled dock *Rumex crispus* , broad-leaved dock *Rumex obtusifolius* , common nettle *Urtica dioica* , creeping buttercup *Ranunculus repens* , greater plantain *Plantago major* , white clover *Trifolium repens* and cow parsley *Anthriscus sylvestris* . There may be additional relevant species local to the region and or site.

Footnote 4 – Assess this for each distinct habitat parcel. If the distribution of invasive non-native species varies across the habitat, split into parcels accordingly, applying a buffer zone around the invasive non-native species with a size relative to its risk of spread into adjacent habitat, by applying professional judgement.

Footnote 5 – Wildlife and Countryside Act 1981 (as amended).

Condition Sheet: SCRUB Habitat Type			
Habitat Types			
Heathland and shrub - Blackthorn scrub **Heathland and shrub - Gorse scrub** **Heathland and shrub - Hawthorn scrub** **Heathland and shrub - Hazel scrub** **Heathland and shrub - Mixed scrub** **Heathland and shrub - Dunes with sea buckthorn (H2160)** **Heathland and shrub - Willow scrub**			
Habitat Description			
For Dunes with sea buckthorn see:	Dunes with sea-buckthorn (Dunes with Hippophae rhamnoides) - Special Areas of Conservation (jncc.gov.uk)		
For other scrub types see:	ukhab – UK Habitat Classification		
On-site or off-site, site name and location		**Survey date and Surveyor name**	
Limitations (if applicable)		**Survey reference (if relating to a wider survey)**	
Grid reference		**Habitat parcel reference**	

	Condition Assessment Criteria	Criterion passed (Yes or No)	Notes (such as justification)
A	The parcel represents a good example of its habitat type - the appearance and composition of the vegetation closely matches its UKHab description (where in its natural range).[1] - At least 80% of scrub is native, - There are at least three native woody species[2], - No single species comprises more than 75% of the cover (except hazel *Corylus avellana* , common juniper *Juniperus communis* , sea buckthorn *Hippophae rhamnoides* (only in its restricted native range), or box *Buxus sempervirens* , which can be up to 100% cover).		
B	Seedlings, saplings, young shrubs and mature (or ancient or veteran[3]) shrubs are all present.		
C	There is an absence of invasive non-native plant species[4] (as listed on Schedule 9 of WCA[5]) and species indicative of suboptimal condition[6] make up less than 5% of ground cover.		
D	The scrub has a well-developed edge with scattered scrub and tall grassland and or forbs present between the scrub and adjacent habitat.		
E	There are clearings, glades or rides present within the scrub, providing sheltered edges.		
	Number of criteria passed		

Condition Assessment Result (out of 5 criteria)	Condition Assessment Score	Score Achieved ×/✓	

Passes 5 criteria	Good (3)		
Passes 3 or 4 criteria	Moderate (2)		
Passes 2 or fewer criteria	Poor (1)		
Suggested enhancement interventions to improve condition score			

Condition Sheet: SCRUB Habitat Type

Habitat Types

Heathland and shrub - Blackthorn scrub
Heathland and shrub - Gorse scrub
Heathland and shrub - Hawthorn scrub
Heathland and shrub - Hazel scrub
Heathland and shrub - Mixed scrub
Heathland and shrub - Dunes with sea buckthorn (H2160)
Heathland and shrub - Willow scrub

Habitat Description

For Dunes with sea buckthorn see:	Dunes with sea-buckthorn (Dunes with Hippophae rhamnoides) - Special Areas of Conservation (jncc.gov.uk)											
For other scrub types see:	ukhab – UK Habitat Classification											
On-site or off-site, site name and location		**Survey date and Surveyor name**										
		Survey reference (if relating to a wider survey)										
Limitations (if applicable)		**Habitat parcel reference**										
		44	45	46	47	48	56					
		Grid reference										
Condition Assessment Criteria												
		Criterion passed (Yes or No)										**Notes (such as justification)**
A	The parcel represents a good example of its habitat type - the appearance and composition of the vegetation closely matches its UKHab description (where in its natural range).[1] - At least 80% of scrub is native, - There are at least three native woody species[2], - No single species comprises more than 75% of the cover (except hazel *Corylus avellana* , common juniper *Juniperus communis* , sea buckthorn *Hippophae rhamnoides* (only in its restricted native range), or box *Buxus sempervirens* , which can be up to 100% cover).	n	n	n	n	n	y					
B	Seedlings, saplings, young shrubs and mature (or ancient or veteran[3]) shrubs are all present.	n	n	n	n	n	y					
C	There is an absence of invasive non-native plant species[4] (as listed on Schedule 9 of WCA[5]) and species indicative of suboptimal condition[6] make up less than 5% of ground cover.	n	n	n	n	n	n					
D	The scrub has a well-developed edge with scattered scrub and tall grassland and or forbs present between the scrub and adjacent habitat.	n	n	n	n	n	y					
E	There are clearings, glades or rides present within the scrub, providing sheltered edges.	n	n	n	n	n	n					
	Number of criteria passed	0	0	0	0	0	3					

Condition Assessment Result (out of 5 criteria)	**Condition Assessment Score**	**Score Achieved ×/✓**										
Passes 5 criteria	Good (3)											
Passes 3 or 4 criteria	Moderate (2)						x		x			
Passes 2 or fewer criteria	Poor (1)	x	x	x	x	x		x		x	x	

Suggested enhancement interventions to improve condition score

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