

Portland
energy recovery
facility

Environmental statement
Addendum
Appendices

A. SAC features, Isle of Portland to Studland Cliffs SAC

1. LOWER PLANTS

i). Bryophyte assemblage with comprising species with a Mediterranean distribution

Due to its southerly position and largely frost-free climate Portland supports many plants, bryophytes and lichens that show a Mediterranean or Southern Oceanic distribution as defined by Hill & Preston (1998). At present 41 bryophytes fall within these categories, 11 of these (Table 1) are Red Listed or Nationally Scarce, with a further 6 that are important at a regional or county level. 5 species, 3 mosses and 2 liverworts are on Section 41 of the NERC Act (2006) as species of Principal Conservation Importance in England.

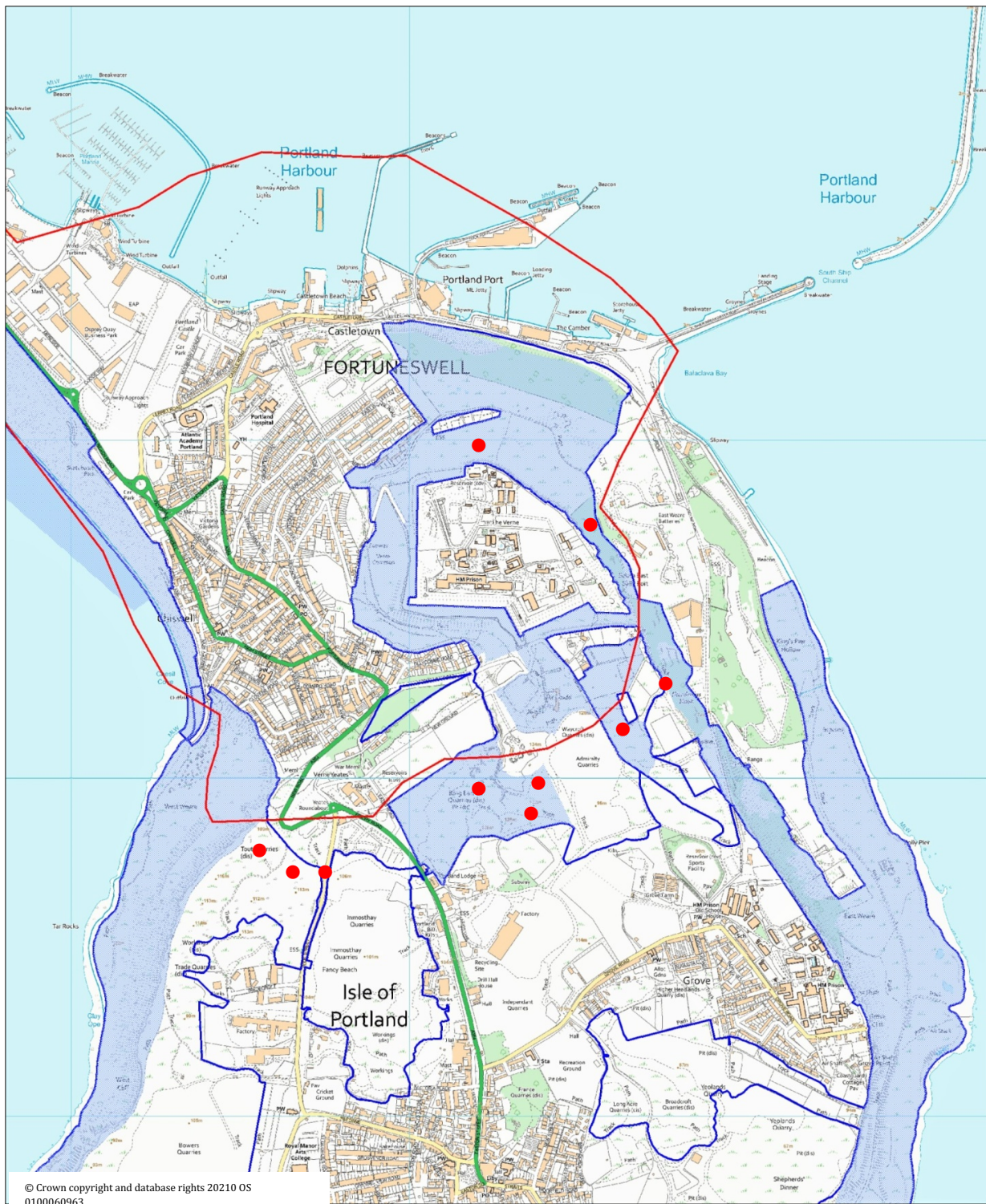
Within the AoS there is only limited habitat for many of the species on the list with main populations found on the eastern undercliffs from King's Pier south to Freshwater Bay. Two Section 41 and Red Listed liverworts have been recorded from the AoS. *Cephaloziella baumgartneri* (S41, EN) was found overgrowing a large limestone boulder on Verne Common (SSSI Unit 33) in 1997. *Southbya nigrella* (S41, VU) was found growing on the same boulder as the *Cephaloziella* in 1997 and in 2010 a small population was found in a small area of scree GR SY69517375. Within the SAC *Cephaloziella baumgartneri* is found in around ten sites, mainly on the eastern undercliffs with one site in King Barrow Quarries, *Southbya nigrella* is known from twelve sites and often occurs with *C. baumgartneri* in open limestone grassland. Both species are found a little more widely within the SSSI in the abandoned quarries with sites in Bowers, Trade and Tout Quarries and west of Admiralty Quarries. Both these liverworts are confined in Dorset to the Isle of Portland, and also have their UK strongholds here with c. >50% of British population of *C. baumgartneri* and >90% of *Southbya nigrella* are found on the Island. The small acrocarpous moss *Pleurochaete squarrosa* has been recorded from open grassland between High Angle Battery and the Verne. There are three other recent records from Portland and it is also known from the Hamm Beach.

TABLE 1. Key bryophytes exhibiting an Oceanic or Mediterranean-Atlantic distribution

Species	Element	Status
<i>Acaulon triquetrum</i>	Submediterranean-Subatlantic	S41; EN; NR
<i>Bryum canariense</i>	Mediterranean-Atlantic	NS
<i>Bryum torquescens</i>	Mediterranean-Atlantic	NS
<i>Cephaloziella baumgartneri</i>	Mediterranean-Atlantic	S41; EN; NR
<i>Cololejeunea rossettiana</i>	Submediterranean-Subatlantic	NS
<i>Eurhynchium meridionale</i>	Mediterranean-Atlantic	VU
<i>Funaria pulchella</i>	Submediterranean-Subatlantic	S41; NT; NS
<i>Grimmia orbicularis</i>	Submediterranean-Subatlantic	
<i>Gymnostomum viridulum</i>	Mediterranean-Atlantic	NS
<i>Leptodon smithii</i>	Mediterranean-Atlantic	RR

Species	Element	Status
<i>Marchesinia mackaii</i>	Oceanic Southern-temperate	RR
<i>Plagiochila killarniensis</i>	Hyperoceanic Southern-temperate	RR
<i>Pleurochaete squarrosa</i>	Submediterranean-Subatlantic	NS
<i>Porella arboris-vitae</i>	Submediterranean-Subatlantic	DR
<i>Porella obtusata</i>	Oceanic Southern-temperate	RR
<i>Pterogonium gracile</i>	Submediterranean-Subatlantic	RR
<i>Southbya nigrella</i>	Mediterranean-Atlantic	S41; VU; NR
<i>Weissia condensa</i>	Submediterranean-Subatlantic	S41; NT

MAP 1. Location of bryophytes with a Mediterranean distribution



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Red Line = Area of Search (AoS) Blue hatch = SAC Blue line = SSSI

● = Location of feature

ii). Terricolous and saxicolous lichens considered to be characteristic and preferential to the following NVC Communities; W21, W22, CG1, CG3, CG4, MC1, MC5, MC8 and MC11.

The NVC communities listed above are all notified features of the Isle of Portland SSSI. Of these the maritime communities **MC1**, **MC5**, **MC8** and **MC11** are better developed on the coastlines in the southern half of the Island and are largely absent from the AoS. Calcareous (limestone) grasslands, **CG1**, **CG3** and **CG4**, are widespread across the Island in and around abandoned quarries, remnants of the old common at the Bill and Verne and on the wide undercliffs. **CG3** is by far the most abundant and occurs within the AoS on the slopes around the Verne and High Angle Battery. **CG1** and **CG4** are both much more local with the SSSI and SAC and are not known to occur within the AoS, although very small fragments of **CG1** occur just outside in King Barrow Quarries and east of Admiralty Quarry within Nicodemus Height's SSSI. Of the three limestone grasslands **CG1** is by far the most important for lower plants providing a habitat for several of key Mediterranean bryophytes and lichens particularly the S41 species *Cephaloziella baumgartneri* (S41, EN), *Southbya nigrella* (S41, VU) and *Biatorrella fossarum* (S41, EN). The two liverworts are discussed in detail above. The terricolous lichen *Biatorrella fossarum* is currently known from only four sites in Britain with Portland supporting the largest populations. Within the AoS it has been at High Angle Battery (SSSI Unit 54) in 2008 on limestone soil along a path. It has also been found just outside the AoS in King Barrow and Tout Quarries. Within the SAC it has been recorded from several sites on the eastern undercliffs from East Weare south to Duncroft Quarries, and inland in King Barrow Quarries at High Angle Batteries, and at the only other known site in Dorset off of Portland from the undercliff at Emmetts Hill, Purbeck. The S41 lichen *Toninia sedifolia* has been recorded just outside the AoS in King Barrow Quarries, and has its best Dorset populations on Portland in the stands of CG1 grassland.

Scrub (**W21** and **W22**) is locally abundant on the eastern undercliffs and becomes almost dominant in the northern part of East Weare (SSSI Unit 34) and around to Verne Common (SSSI Unit 33). While there has always been an element of scrub in these areas it has increased in both area and density over the last 75 years (Edwards, 2016). The more mature shrubs of Blackthorn and Hawthorn in the more sheltered areas of Units 33 and 34 support a good range of epiphytic lichens which are typical of coastal scrub in southwest Britain. Of particular note are the two beard-lichens *Usnea articulata* and *U. esperantiana*, both of which are very sensitive to atmospheric pollution. *Usnea articulata* (S41, NT) was found on a large Blackthorn bush on Verne Common in 2008. This is the only known site on Portland and elsewhere in Dorset it is mostly found on mature shrubs and in the canopy of woodland trees in the west of the county where it can be locally frequent. *Usnea esperantiana* (NT) was found on Blackthorn twigs in the western part of Verne Common in 2016. This is the only known site on Portland and in Dorset it is currently known from six other sites in the county but may be under-recorded due to past confusion with other *Usnea* species. Neither species has been recorded within the Isle of Portland to Studland Cliffs SAC, though suitable habitat for *U. esperantiana* is present.

MAP 2. Location of key lichens associated with particular NVC communities



Interest feature: ● = Terricolous lichens associated with open limestone grassland
 ● = Epiphytic lichens associated with wind-pruned coastal scrub (W21 & W22)

iii). Any of the 16 Red Data Book, 2 Nationally Rare and 39 Nationally Scarce lichens associated with coastal limestone and chert

The Isle of Portland is of national, and possibly international, importance for the lichen assemblages associated with limestone and maritime chert. The eastern undercliffs, especially between Church Ope Cove and Durdle Pier, are particularly rich but the interest extends locally into some of the abandoned quarries. There is very little of this habitat the slopes within Unit 33 is mainly over Kimmeridge Clay and lack the boulders that key to the assemblage. The area is now mainly scrub which shades the few boulders and rock outcrops that are there.

The two species found within the AoS are *Diploschistes gypsaceus* (NS) and *Placidium pilosellum* (NT) which are found on the large boulders above the huts on West Weare. *Diploschistes gypsaceus* is a very scarce lichen of shaded and sheltered hard limestone found in scattered sites north to central Scotland, but in southern England is only known from a few sites. In Dorset the only recent records are from Portland in sheltered ravines in long abandoned quarries and on the vertical sides of boulders on the undercliffs. Other sites within the SAC include screes below Grove and boulders near Durdle Pier both on the eastern undercliffs. *Placidium pilosellum* grows on highly calcareous or basic soils and is found in scattered sites mainly on the western side of the British Isles. In southern England it is uncommon with a few sites on chalk, limestone and basic sand dunes. In Dorset it is known from Portland overgrowing thin limestone soils on boulders and rock outcrops on the undercliffs and abandoned quarries and from chalk cliffs near Swanage. Other sites within the SAC include East Weare and near Durdle Pier, and the only Dorset site off of Portland at Ballard Cliff, Swanage.

MAP 3. Location of Red Listed, Nationally Rare and Nationally Scarce lichens associated with coastal limestone and chert



2. BUTTERFLIES

**Records of either of the following butterflies occur with the proposed defined area of search:
Lulworth skipper and Adonis blue**

Lulworth Skipper *Thymelicus acteon* (S41, NT) is currently confined in Britain to the Dorset coast between Portland and Swanage (Ballard Down); there is an outlying colony to the west near Burton Bradstock. The caterpillars feed on Tor-grass *Brachypodium pinnatum* agg. which is abundant along the Dorset coast on chalk, limestone and occasionally calcareous clay, taller swards 20-50cm in height are preferred. On Portland it is a relatively recent addition (1980s) becoming established first in the south of the Island but has spread widely where Tor-grass is abundant. Within the AoS it has been recorded from Verne Common (SSSI Unit 33) and High Angle Batteries (SSSI Unit 54) with several other colonies just to the south of the AoS boundary. The Isle of Portland to Studland Cliffs will support many colonies also particularly between White Nothe and Gad Cliff, and the majority of colonies are found within the four SSSIs, Isle of Portland, South Dorset Coast Purbeck Ridge East and Purbeck Ridge West.

Adonis Blue *Polyommatus bellargus* (NT) is a specialist butterfly of short, south-facing chalk and limestone grassland where there is an abundance of the larval foodplant Horseshoe Vetch *Hippocrepis comosa*. Despite the abundance of Horseshoe Vetch Adonis Blue is very local on Portland for reasons that are unclear, although the swards are generally taller than on the typical downland sites further inland in Dorset. There are colonies scattered throughout the Island, the largest seem to be in the centre and north at High Angle Batteries, Penn's Weare and Tout Quarries. Within the AoS there are recent records from the slopes east of the Verne including the Verne Moat (SSSI Unit 52) and from High Angle Batteries (SSSI Unit 54), with other just to the south of the AoS boundary in King Barrow and Tout Quarries. Dorset is a UK stronghold for Adonis Blue where it is widespread inland on the chalk and on the coastal chalk and limestone. Within the Isle of Portland to Studland Cliffs SAC there are important colonies around Lulworth and on Ballard Down.

MAP 4. Location of key butterflies: Adonis Blue & Lulworth Skipper



Interest feature: ● = Adonis Blue *Polyommatus bellargus*
 ● = Lulworth Skipper *Thymelicus acteon*

B. Isle of Portland SSSI interest features

i). LOWER PLANTS

Presence of any of the following lower plant species within the AoS:

***Eurhynchium meridionale*, *Southbya nigrella*, *Roccella phycopsis*, *Arthonia endlicheri*, *Dirina repanda*, *Lecanactis grumulosa*, *Sclerophyton circumscriptum* and *Caloplaca granulosa*. Any species from genus: *Caloplaca*, *Verrucaria* and *Collema*.**

The species above are listed on the Isle of Portland SSSI Citation sheet and form part of the 'Lichen assemblage' and 'Bryophyte assemblage' both notified features of the SSSI. The first two are bryophytes of which only *Southbya nigrella* (S41, VU) has been recorded from the AoS, recorded from a large limestone boulder on Verne Common (SSSI Unit 33) in 1997, and from a small area of sheltered scree above East Weare Camp (SSSI Unit 34) in 2010. Its wider distribution has been discussed in more detail above. The six named lichens are all with limestone and chert rocks, particularly boulders on the eastern undercliffs and are found south of the AoS and have not been recorded any nearer than Folly Pier or Grove Point. Lichens of the genera *Caloplaca*, *Verrucaria* and *Collema* are widespread on limestone rocks, both natural outcrops on the undercliffs and 'man-made' quarry ravines. Many of the species are widespread and found throughout the Island suitable habitats. The most notable species are *Collema fragile* (S41; VU) and *C. polycarpon* (NS). Both are not found within the AoS and occur to the south on the eastern undercliffs near Grove Point. *Caloplaca maritima* and *C. ochracea* are both Nationally Scarce but have not been recorded within the AoS the nearest site near Grove Point on East Weare.

The Verne area has had less survey work for lower plants compared with the undercliffs and quarries and suitable habitat for some of these species may be present within the AoS within areas such as the Verne 'moat'.

ii). INVERTEBRATES

Presence of any of the following invertebrate species within the AoS: *Truncatellina britannica*, *Helica itala*, *Polyommatus coridon*, *Polyommatus bellargus*, *Plebejus argus*, *Sterrha degeneraria*, *Tyta lactuosa*, *Ectobius panzeri* and *Platycleis denticulata*.

Portland is a key site for butterflies in Southern England and supports a very wide range of other invertebrates with many rare and scarce species present. Within the AoS much of the land has a northerly aspect or is dense scrub and therefore does not provide optimum habitats for invertebrates, therefore areas on the southern side of the Verne and around High Angle Batteries has most interest including colonies of key butterflies. The neighbouring abandoned quarries at Tout and King Barrow just outside the AoS are some of the most important sites for butterflies on the Island. **Adonis blue *Polyommatus bellargus*** (NT) and **Silver-studded Blue *Plebejus argus*** (S41, VU) are both notified features of the Isle of Portland SSSI as is an 'invertebrate assemblage', which will include a range of Red Listed, Nationally Scarce and locally rare taxa and includes the **Chalk Hill Blue *Polyommatus coridon*** (NT). All three species have been recorded from the AoS at High Angle Batteries (SSSI Unit 54) which is one of key butterfly sites on the Island. Adonis Blue and Chalk Hill Blue have also been recorded from the slopes around Verne (SSSI Units 51 & 52). On Portland Chalk Hill Blue is the most frequent of the three with sites scattered through the middle and north of the Island with some very large colonies present, especially on the eastern undercliffs around Church Ope Cove. Chalk Hill Blue is declining inland in Dorset for reasons that are not fully known, it is probably extinct on the chalk downs west of Dorchester and the main colonies are now on the northeast chalk. The Portland colonies are therefore of considerable importance within the county.

Silver-studded Blue has declined significantly and is only known now from less than 10 colonies the main ones at Broadcroft Quarries and near Nicodemus Knob, with smaller ones at High Angle Batteries, King Barrow Quarries and Tout Quarries. This limestone form of the Silver-studded Blue is not known elsewhere in Dorset, the main form being confined to the Poole Basin heaths.

Moths are very well recorded thanks to the nightly traps set out by Portland Bird Observatory and others. Recording is much patchier than butterflies and the middle and southern part of the Island. Of the two moths listed above only **Portland Ribbon Wave *Idaea degeneraria*** has been recorded within or near the AoS. It feeds on various herbaceous plants including Bramble *Rubus fruticosus* on scrubby undercliffs and as a breeding resident in Britain it is confined to Portland and Purbeck. On Portland it is known to be resident on the undercliffs, particularly on the eastern side. Within the AoS it has been recorded from a moth trap at Fortuneswell and from just outside on the West Weare.

Grey Bush-cricket *Platycleis albopunctata* is a warmth-loving species confined to coastal areas of southern England. It is widespread all along the Dorset coast but is typically found within 50-100 metres of the cliff top. Due to its mild climate and the shelter afforded by the old quarries it is found

throughout Portland in suitable habitat, which is typically calcareous grassland with pockets of bare ground and scattered low scrub. The only record within the AoS, is from 'Castletown' with no other details. The species is likely to occur elsewhere particularly on the southerly aspects of Verne slopes above Tillycombe. There are more records just outside the AoS with Tout and King Barrow Quarries. **Lesser Cockroach *Ectobius panzeri*** is one of three native cockroaches all of which are local or scarce and found mainly in Southern England and are often coastal. *E. panzeri* is the most frequent species in Dorset and is widespread on Portland and the Purbeck coast but very local elsewhere. It is found in warm, open often stony habitats on cliff tops, undercliffs and shingle, or inland on heaths and chalk grassland. On Portland it is mainly found in the middle and south of the Island in abandoned quarries or in maritime grassland where it can be found on the flowers of Wild Carrot. There are no from the AoS on the Island, but it has been recorded from the vegetated shingle on the Hamm Beach within Portland Harbour SSSI.

Mollusca are poorly recorded compared to most other invertebrate groups mainly due to a lack of recorders. The two species mentioned above, ***Helicella itala* Heath Snail** and ***Truncatellina callicratis* British Whorl Snail**, are both associated with high quality limestone grassland, the latter is very small (c. 2mm) and found in short turf. There are no records from the AoS, the nearest sites being Tout Quarries for *Truncatellina* and West Weares for *Helicella*.

MAP 6. Location of invertebrate interest features



- Interest feature:**
- = Key butterflies (Adonis Blue *Polyommatus bellargus*, Chalk Hill Blue *Polyommatus coridon* Silver-studded Blue *Plebejus argus*)
 - = Key moths (Portland Ribbon Wave *Idea degeneraria*)
 - ◆ = Key Orthoptera (Grey bush-cricket *Platycleis albopunctata* & Lesser Cockroach *Ectobius panzeri*)

C. Chesil and the Fleet SAC features

i). Lower plants found within 200m of the Beach Road occurring within NVC communities characteristic of vegetated shingle feature; SD1; SD19; MC5; MC8; SM25

Lichens and bryophytes are not a particularly prominent feature of the vegetated shingle along Chesil Beach and Hamm Beach, but they are found locally, and on the more stable areas of shingle can be abundant. Within the AoS notable species are found in three main area or habitats of the SAC:

a). Chesil Bank – the stabilised sandy-shingle area at Ferrybridge is well vegetated and dominated by Red Fescue *Festuca rubra* and Thrift *Armeria maritima* (**MC8**) with a much more diverse flora in the more open patches (**MC5**) including the uncommon annuals Dune Fescue *Vulpia fasciculata*, Four-leaved Allseed *Polycarpon tetraphyllum* and Sand Cat's-tail *Phleum arenarium*. The pleurocarpous moss *Hypnum cupressiforme* var. *lacunosum* is abundant and terricolous lichens are present locally particularly *Cladonia rangiformis* and *Peltigera canina*, with smaller quantities of *Cladonia foliacea*, *C. furcata* subsp. *furcata*, *C. pyxidata* and *Peltigera hymenina*. The uncommon *Thelenella muscorum* was found overgrowing the moss *Ceratodon purpureus* in 2009. None of these species are Red Listed or Nationally Scarce.

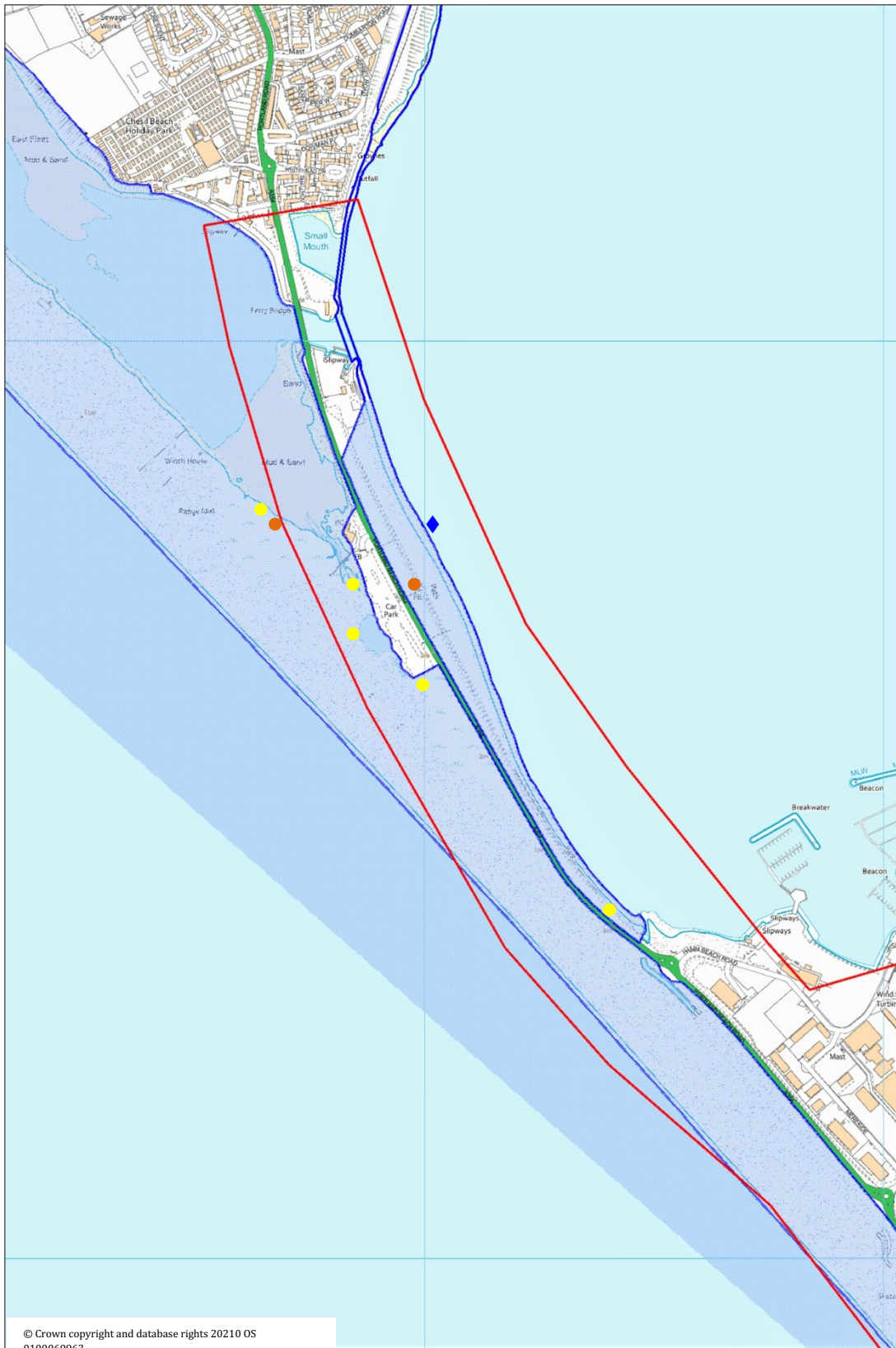
The pebbles around Ferrybridge are generally poor for lichens due to disturbance and the lack of stability, with the common *Xanthoria parietina* the only species found with any frequency. The best areas of stabilised shingle are to the north of the AoS beyond the Tern colony enclosure.

b). Hamm Beach – the more open stands of **MC8** and the few very small stands of **SD19** support the moss *Syntrichia ruralis* var. *ruraliformis* which is typical of more calcareous sand dunes, with *Hypnum cupressiforme* var. *lacunosum* forming extensive patches in places. Most notable is the acrocarpous ***Pleurochaete squarrosa*** (NS) which is found as small scattered patches among the *Syntrichia*. *Pleurochaete* is a moss of open calcareous grassland and is currently known from two sites on Portland with around 15 scattered populations in Dorset in short chalk turf. In Britain it is mainly found in Southern England and the coasts of Wales with outlying populations north to Morecombe Bay.

c). **SM25** stands – one of the SAC features are the stands of Shrubby Seablite *Suaeda vera* which fringe the Fleet and saltmarsh areas around Ferrybridge. The common yellow leafy lichen *Xanthoria parietina* is abundant on the older stems, and on closer inspection many stems and twigs support the yellow-orange crust-forming species ***Caloplaca suaedae*** (NT, NR), which was described new to science from specimens collected at Ferrybridge. Within the SAC it is found wherever there are large stands of Shrubby Seablite or very rarely Sea Purslane between Ferrybridge and Abbotsbury, and also on the Hamm Beach towards Osprey Quay. The only other locality in Dorset is from a Shrubby Seablite stand on the southern shore of Poole Harbour. In Britain it is currently only known from saltmarsh-

shingle interfaces in Dorset and North Norfolk, and is thought to be endemic (Smith *et al*, 2009), but may occur in similar habitats in Atlantic and southern Europe.

MAP 7. Location of bryophytes and lichens associated with the vegetated shingle interest



- Interest feature:**
- = Terricolous bryophytes and lichens associated with sandy shingle (MC5 & MC8)
 - = Lichens associated with *Suaeda vera* stands (SM25) (*Caloplaca suaedae*)
 - ◆ = Mollusca associated with shorelines (*Truncatella subcylindrica* & *Paludinella littorina*)

ii). Invertebrates found within the SAC; *Truncatella subcylindrica* and *Paludinella globularis*, and any species associated considered typical of the vegetated shingle habitat

The Fleet and Portland Harbour are noted for their rich marine fauna with many rare and scarce species present. Most are exclusively marine, but the molluscs *Truncatella subcylindrica* and *Paludinella globularis* (Syn. *P. littorina*) can be found at or above Mean High Water in strandline debris and among saltmarsh plants, both are scarce nationally, although are more widely known within suitable habitat than formerly due to better recording.

There are records of *Truncatella subcylindrica* from within the AoS on the shoreline of Portland Harbour at Hamm Beach and the shore of the Fleet at Ferrybridge. Elsewhere in the SAC it is only known from the old salt pans at Grove Point, Portland, and in Dorset there are further sites along the shore of the Fleet and Portland Harbour, plus an unlocalised historical record from the Poole Harbour area.

Paludinella globularis is found in similar habitat and with records from the shore of the Fleet and from Portland Harbour, but there are currently no records from within the AoS. Elsewhere within the SAC it is known the old salt pans at Grove Point and from the shore of West Weare on Portland, with two recent records from Kimmeridge Bay on the Purbeck coast. Apart from these records it also known in Dorset from the shore of the Fleet and Portland Harbour plus an unlocalised historical record from the Poole Harbour area.

Both these molluscs are found along the South Coast from Cornwall to Hampshire with a few records from South Wales. *Truncatella* extends further east to the coast of Sussex, Kent and Essex (NBN Atlas).

Other key invertebrate species

Three species have their sole British location around Ferrybridge, formerly known as Small Mouth Sands.

The darkling beetle *Omophlus pubescens* (VU) has long been known from the area the larvae found in the sandy shingle among the roots of Thrift *Armeria maritima* in open vegetation (Alexander *et al*, 2014), recent surveys have only found it in one area to the northwest of the Chesil Centre close to the AoS, there are older records from within the AoS.

Another darkling beetle *Anthicus tristis* (VU) was formerly found more widely along the South Coast in sandy habitats close to brackish or saline waters (Alexander *et al*, 2014). The only recent UK records are from Ferrybridge, one from 2014 southeast of Chesil Centre is within the AoS.

The micromoth *Scythris siccella* Least Owllet (S41) is only known in the UK from Hamm Beach where it is found in sparsely vegetated sandy habitats. The larvae feed on various herbaceous plants making a

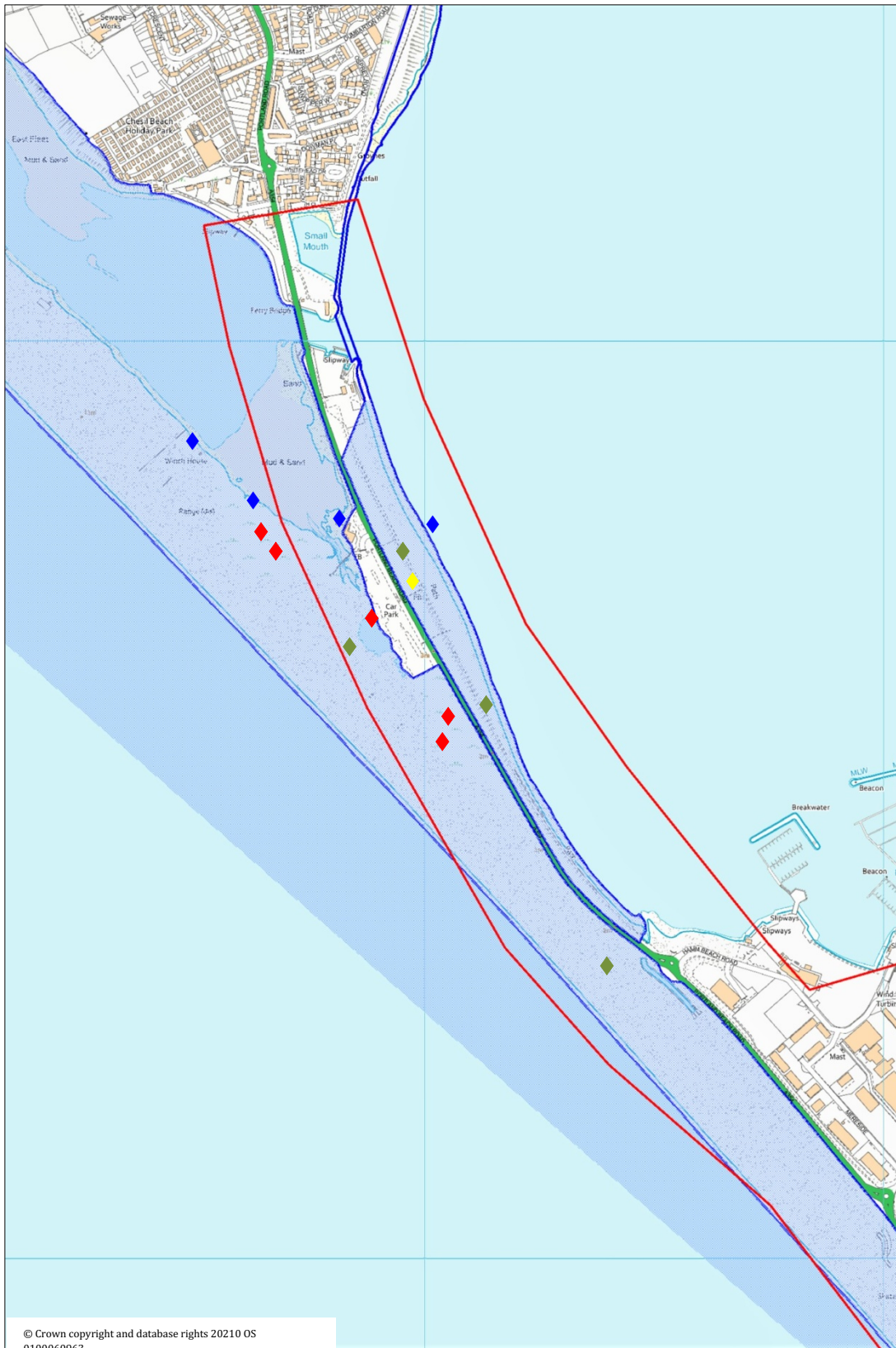
silken tube covered in sand grains down into the sand. Despite recent small-scale management and survey work there have been records of the moth in recent years, however it is too early to say whether the species is extinct or not. The site for this moth is within the AoS.

A well known species from the Ferrybridge area is **Scaly Cricket** *Pseudmogoplistes vicentae* (VU) which is a shingle specialist and is largely nocturnal and hiding under cobbles during the day. Thought to be confined to the Ferrybridge area it has now been found more widely along the Chesil Bank towards Abbotsbury. All Dorset sites are within the Chesil and the Fleet SAC. Apart from Chesil there are currently only two other known sites in Britain at Branscombe in Devon and at Marloes, Pembrokeshire.

***Hylaeus annularis* Shingle Yellow-face Bee** (NR) is a small black bee with yellow face markings confined to vegetated shingle habitats in Britain and is currently known in Britain from a handful of shingle sites from Dorset east to Suffolk. The bee has been found at flowers of Sea Mayweed and Wild Carrot and nest in dead hollow plant stems or in the ground (Else & Edwards, 2018) Within the AoS it has been found by the Chesil Centre and further south on the Chesil side of the road. All confirmed Dorset records are from the Chesil and the Fleet SAC and SSSI.

Phlegra fasciata (NT) is a small jumping spider found in coastal sand dune and sandy shingle sites along the South Coast from Devon to Kent and on the Gower Peninsula in South Wales. In Dorset it has been recorded from Chesil Beach and from Arne and Studland on the southern shore of Poole Harbour. It is uncertain whether the Chesil records are from within the AoS but one is from the Ferrybridge area.

MAP 7. Location of invertebrates associated with vegetated shingle interest feature



- Interest feature:**
- ◆ = Mollusca associated with shorelines (*Truncatella subcylindrica* & *Paludina littorina*)
 - ◆ = Beetles; *Anthicus tristis* and *Omophlus pubescens*
 - ◆ = Micromoth; *Scythris sicella*
 - ◆ = Orthoptera; Grey Bush-cricket and Lesser Cockroach

REFERENCES

- Alexander, K.N.A, Dodd, S. & Denton, J.S. 2014** *A review of the beetles of Great Britain: The darkling beetles and their allies*. Species Status No. 18. Natural England Commissioned Reports, Number 148.
- Else, G.R. & Edwards, M. E. 2018** *Handbook of the Bees of the British Isles*. The Ray Society.
- Hill, M.O. & Preston, C.D. 1998** *A geographical relationship of British and Irish Bryophytes*. In: *Journal of Bryology* **26**: 127-226.
- Hill, M.O., Blackstock, T.H., Long, D.G. & Rothero, G.P. 2008** *A Checklist and Census Catalogue of British and Irish Bryophytes*. British Bryological Society.
- Smith, C.W., Aptroot, A, Coppins, B.J., Fletcher, A., Gilbert, O.L., James, P.W. & Wolseley, P.A. 2009** *The Lichens of Great Britain and Ireland*. London, British Lichen Society.
- Woods, R.G. & Coppins, B. J. 2012** *A Conservation Evaluation of British Lichens and Lichenicolous Fungi*. Species Status 13. Joint Nature Conservation Committee, Peterborough.