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Berry Head vegetation and rare plant monitoring, 2023

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Executive summary

A number of previous projects have considered the potential impacts of an increase in housing within the vicinity of the Berry Head to Sharkham Point component of the South Hams SAC and the mitigation measures required to address these impacts. One aspect of mitigation is monitoring to assess potential changes to the designated features in the light of development and the efficacy of mitigation measures instigated. This report sets out the results of vegetation monitoring carried out in 2023 and compares them to similar surveys carried out in 2016. It also provides recommendations for a package of mitigation measures going forward, informed by this report and the accompanying visitor survey (Panter et al, 2023). Key findings are summarised here:

- There was a notable increase in the population size of many of the rare or site-distinctive species monitored at Berry Head. These included the very rare *Ononis reclinata*, a suite of winter annual species including rare clovers, and the geophytes *Scilla autumnalis* and *Poa bulbosa*. These species probably benefitted from the open more conditions created by the summer drought of 2022, the rainfall during the following autumn and the warm condition in spring/early summer of 2023.
- A small number of species had declined, particularly *Festuca longifolia* (present in reduced numbers and lost from one site, possibly due to 2022 drought) and *Medicago polymorpha* (no longer found at the one locality where it was present in 2016).
- Other species that were of some concern in 2023 were *Aster linosyris* (which although present at all previous sites is threatened by scrub encroachment) and *Helianthemum appeninum* (subsequently seen to be recovering) also *Spiranthes autumnalis*, *Trifolium ornithopodioides* and *Trinia glauca* (possibly affected by drought and trampling). However, it is difficult to say whether these changes represent long-term trends or are a response to periods of unusual weather.
- Some small changes in the extent of key vegetation communities were observed that were attributed to recreational pressure (e.g. loss of marginal vegetation along paths). These were too small to be picked up through vegetation mapping. A small number of positive changes due to scrub management were mapped.
- There were some changes in the character of the three Annex I habitats for which Berry Head is designated. The quality of the lowland heathland had declined since 2016, with the loss of species and an increase in scrub and coarse grasses due to the lack of livestock grazing (an indirect result of visitor pressure). There were also changes in species composition of the vegetated sea cliffs, with an increase in bare ground – this was not considered to be related to visitor pressure. Bare ground also increased within the calcareous grassland, with a corresponding decrease in characteristic perennial species and an increase in annual/biennial species able to regenerate from the exposed soil seed bank. These changes are likely to have been due to the droughty conditions and there may be an interaction with the drought and trampling pressure in some heavily used localities.

- The condition of 14 sensitive areas was assessed. Only 3 of these were in favourable condition (compared to 5 in 2016), with trampling and the cover of scrub and coarse grasses key factors influencing condition in other areas. Nonetheless, there were some improvements in 3 other areas since 2016.
- Key changes in the species and vegetation of Berry Head between 2016 and 2023 are mainly thought to be due to drought and the difficulty of achieving appropriate management (e.g. through livestock grazing) due to a combination of visitor presence and bovine TB. The effects of trampling and nutrient enrichment are very apparent, and there may be an interaction between climate and recreational pressure.
- A number of mitigation measures are suggested to help enable appropriate management in the face of continuing high visitor numbers, including:
 1. The creation of an adaptive site management plan that integrates habitat management, heritage management and visitor engagement and management.
 2. Increased on-site face-to-face visitor engagement
 3. Modifications to the existing visitor centre, including re-routing visitors
 4. Instigating a dogs on lead policy in the North and South Forts, a preliminary step to reintroducing grazing into sensitive areas (which will require a full-time grazing ranger)
 5. The possible creation of a dog exercise area in the field opposite the car park
 6. Instigating a programme of annual plant monitoring to inform the adaptive management plan.
 7. A review of footpaths with appropriate interventions to prevent marginal loss of vegetation alongside paths where necessary.
 8. Cessation of regular mowing of the grassland immediately north-east of the northern car park gate
 9. A trial alternating the use of paths crossing the Rabbit Lawn
 10. A review of all road signs
 11. Rare plant and vegetation monitoring.

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1. Introduction

Background

- 1.1 The Berry Head to Sharkham Point component of the [South Hams SAC](#)¹ (see Map 1) forms part of the UK's national site network and is designated for its heathland, calcareous grassland, vegetated sea cliffs and caves. These habitats are of importance for conservation at a European level and are listed under Annex I of the Habitats Directive (Council Directive 92/43/EEC).
- 1.2 At Berry Head, the areas of open grassland and cliff slope support rich and diverse plant communities characteristic of limestone, including a community possibly unique to Berry Head. Within the woodland and scrub on the western side of the plateau, more acidic conditions have enabled a small area of limestone heath to develop, with Heather *Calluna vulgaris* and Bell Heather *Erica cinerea* and much Bramble *Rubus fruticosus*, Bracken *Pteridium aquilinum* and European and Western Gorse (*Ulex Europaeus* and *U. galli*) together with species typical of limestone grassland.
- 1.3 The coastal outcrops of Devonian Limestone around Torbay have long been known for their populations of uncommon vascular plants. At Berry Head, these include the national rarities Goldilocks Aster *Aster linosyris*, Small Hare's-ear *Bupleurum baldense*, Small Restharrow *Ononis reclinata*, Honewort *Trinia glauca* and White Rock-rose *Helianthemum appenninum* and are accompanied at Berry Head by a range of less geographically-restricted species including Green-winged Orchid *Anacamptis morio*, Dwarf Mouse-ear *Cerastium pumilum*, Dodder *Cuscuta epithimum*, Nit-grass *Gastridium ventricosum*, Blue Fescue *Festuca longifolia*, Bulbous Meadow-grass *Poa bulbosa*, Autumn Squill *Scilla autumnalis*, Autumn Lady's-tresses *Spiranthes autumnalis*, Toothed Medick *Medicago polymorpha*, Rock Stonecrop *Sedum forsteranum*, Clustered Clover *Trifolium glomeratum*, Bird's-foot Clover *Trifolium ornithopodioides*, Suffocated Clover *Trifolium suffocatum*, Meadow Rue *Thalictrum minus*, Portland Spurge *Euphorbia portlandica* and Rock Sea-lavender *Limonium binervosum*.
- 1.4 The underlying geology of St Mary's Bay and Sharkham Point changes from limestone to Devonian slates, mudstones and limestone, which generally

¹ <https://sac.jncc.gov.uk/site/UK0012650>

support a less distinctive flora although still important for populations of *Aster linosyris*, *Festuca longifolia* and *Trinia glauca*

- 1.5 These habitats are vulnerable to degradation through erosion by walkers and eutrophication through dog fouling, in addition to scrub encroachment. Berry Head National Nature Reserve is also a Country Park with heritage interest (Napoleonic-era Forts) and stunning views. It is used extensively by local visitors and also visitors from further afield (Panter & Lake, 2016).

Previous work relating to visitor pressure at Berry Head

- 1.6 A report by [Lake and Liley](#)² (2014) identified that the level of growth proposed in the [Torbay Local Plan](#)³ could increase the recreation pressure on the SAC habitats, through the increased provision of local housing. As part of a suite of measures recommended in the report, the Torbay Coast and Countryside Trust commissioned a survey of the vegetation and rare plants (Wilson & Wheeler, 2016), funded through a Section 106 agreement (for the Wall Park development within Brixham). Additional measures included a visitor survey (Panter & Lake, 2016) and a detailed plan of habitat and visitor (Lake & Underhill-Day, 2016) and subsequent work has included habitat management and visitor engagement measures. In 2022, Torbay Council commissioned a review (Lake et al., 2022) of the measures identified in the 2016 Berry Head Visitor, Scrub and Grazing Plan to establish which were still relevant and outstanding and should be funded via future S106 agreements and whether the proposed growth in the local plan update would continue to be mitigated by the recommended measures, or whether an additional suite of measures would be required to prevent harm to the SAC as a result of recreational pressures. Within this report, it was recommended that programme of regular rare plant and vegetation monitoring (as recommended by Wilson and Wheeler, 2016) plus visitor monitoring should be implemented and that the results from both should be integrated to inform adaptive management at Berry Head.

² <https://www.torbay.gov.uk/media/16409/berry-head-recreational-impacts.pdf>

³ Torbay Council. [Adopted Torbay Local Plan](#)

Map 1: The Berry Head and Sharkham Point component of the South Hams SAC



2023 vegetation and rare plant monitoring

1.7 This report summarised the results of vegetation and plant monitoring carried out in 2023 and should be read in conjunction with the visitor survey report (Panter et al., 2023).

2. Methods

2.1 Vegetation and plant monitoring comprised 3 components:

- Plant monitoring – recording the size of populations of a sample of site-distinctive plant species
- Vegetation extent – revisiting National Vegetation Community (NVC) polygons mapped by Wilson and Wheeler in 2016 and recording any change to boundaries
- Vegetation quality – revisiting quadrat locations for key communities (not including scrub and woodland) and recording the percentage cover of different species.
- Condition assessment – repeating a site-specific condition assessment of sensitive areas identified by Wilson and Wheeler in 2016, to inform spatial management planning.

Rare plant monitoring

2.2 Due to dry conditions throughout May and into June, the rare plant monitoring was prioritized and largely undertaken between 29th May and 14th June, with *Aster linosyris* (which flowers later in the season) monitoring carried out in August. Tables 1 and 2 show the site distinctive species for which monitoring was carried out. The locations for previously recorded populations (Wilson & Wheeler, 2016) were visited and the presence and abundance of the relevant species recorded. Any new populations observed during the vegetation monitoring were also noted.

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monitoring, 2023

Table 1: Site-distinctive species at Berry Head for which complete monitoring was undertaken.

Species	Number of sites	Time	Survey unit
<i>Anacamptis morio</i>	1	May	Individuals
<i>Aster linosyris</i>	9	August/Sept	Number of patches/flower heads
<i>Bupleurum baldense</i>	4	June	Individuals
<i>Cerastium pumilum</i>	12	May	Individuals
<i>Festuca longifolia</i>	7	Any time	Number of patches
<i>Gastridium ventricosum</i>	1	June	Individuals
<i>Medicago polymorpha</i>	1	June	Individuals
<i>Ononis reclinata</i>	5	May-June	Individuals
<i>Poa bulbosa</i>	11	May	Individuals in sample quadrats
<i>Sedum forsteranum</i>	1	June	Number of patches
<i>Trifolium glomeratum</i>	1	May	Individuals
<i>Trifolium ornithopodioides</i>	2	May	Individuals
<i>Trifolium suffocatum</i>	1	May	Individuals

Table 2: Site-distinctive species at Berry Head for which a sample of locations were monitored.

Species	Number of sites	Time	Survey unit
<i>Helianthemum appeninum</i>	26	Any time	Number of patches
<i>Scilla autumnalis</i>	36	August/Sept	Individuals in sample quadrats
<i>Spiranthes spiralis</i>	5 (under-estimated)	August/Sept	Individuals in sample quadrats
<i>Thalictrum minus</i>	24	Any time	Number of patches
<i>Trinia glauca</i>	17	May	Individuals

Vegetation mapping

2.3 Vegetation extent was mapped to NVC community based on a site walkover and recent aerial imagery, using the 2016 survey as a baseline. Mapping was undertaken in June 2023. NVC communities mapped are shown in Table 3. All NVC community names follow Rodwell (1991, 2000).

Table 3: NVC communities present at Berry Head and Sharkham Point.

Code	Community	Sub-community
CG1b	Sheep's Fescue <i>Festuca ovina</i> – Carline Thistle <i>Carlina vulgaris</i> grassland	Autumn Squill <i>Scilla autumnalis</i> – Portland Spurge <i>Euphorbia portlandica</i> sub-community.
CG2	Meadow Oat-grass <i>Avenula pratensis</i> [<i>Helictochloa pratensis</i>] - Sheep's Fescue <i>Festuca ovina</i> grassland	

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Code	Community	Sub-community
CG3	Upright Brome <i>Bromus erectus</i> grassland	
CG6	Downy Oat-grass <i>Avenula pubescens</i> grassland	
MG1a	False Oat-grass <i>Arrhenatherum elatius</i> grassland	Red Fescue <i>Festuca rubra</i> sub-community
MG5b	Common Knapweed <i>Centaurea nigra</i> – Crested Dog's-tail <i>Cynosurus cristatus</i> grassland	Lady's Bedstraw <i>Galium verum</i> sub-community
MG5c	Common Knapweed <i>Centaurea nigra</i> – Crested Dog's-tail <i>Cynosurus cristatus</i> grassland	Heath Grass <i>Danthonia decumbens</i> sub-community
MG7	Perennial Ryegrass <i>Lolium perenne</i> related leys and related grassland	
MC5	Thrift <i>Armeria maritima</i> - Sea Mouse-ear <i>Cerastium diffusum</i> maritime therophyte community	Early Hair-grass <i>Aira praecox</i> subcommunity.
MC11b	Red Fescue <i>Festuca rubra</i> – Wild Carrot <i>Daucus carota</i> ssp <i>gummifer</i> maritime grassland	Restharrow <i>Ononis repens</i> sub-community.
MC11c	Red Fescue <i>Festuca rubra</i> – Wild Carrot <i>Daucus carota</i> ssp <i>gummifer</i> maritime grassland	Salad Burnet <i>Sanguisorba minor</i> sub-community.
H8e	Heather <i>Calluna vulgaris</i> - Western Gorse <i>Ulex gallii</i> heathland	Salad Burnet <i>Sanguisorba minor</i> sub-community
W21d	Hawthorn <i>Crataegus monogyna</i> - Ivy <i>Hedera helix</i> scrub	<i>Viburnum lantana</i> sub-community.
W22	Blackthorn <i>Prunus spinosa</i> scrub	
W23	European Gorse <i>Ulex europaeus</i> scrub	
W25	Bracken <i>Pteridium aquilinum</i> and Bramble <i>Rubus fruticosus</i> underscrub	

Vegetation sampling

2.4 The monitoring was targeted at the sensitive areas identified by Wilson and Wheeler (see Map 2-3 for an overview of quadrat locations). Previous quadrat points (see Wilson & Wheeler, 2016) were relocated using hand-held GPS. At each point, the cover of plant species and bare ground was recorded within a 2m x 2m quadrat.

Condition assessment

2.5 Areas of sensitivity (see Map 2) were identified by Wilson & Wheeler (2016). These include areas of species-rich vegetation or areas including rare species which are vulnerable to visitor pressure, nutrient enrichment or scrub

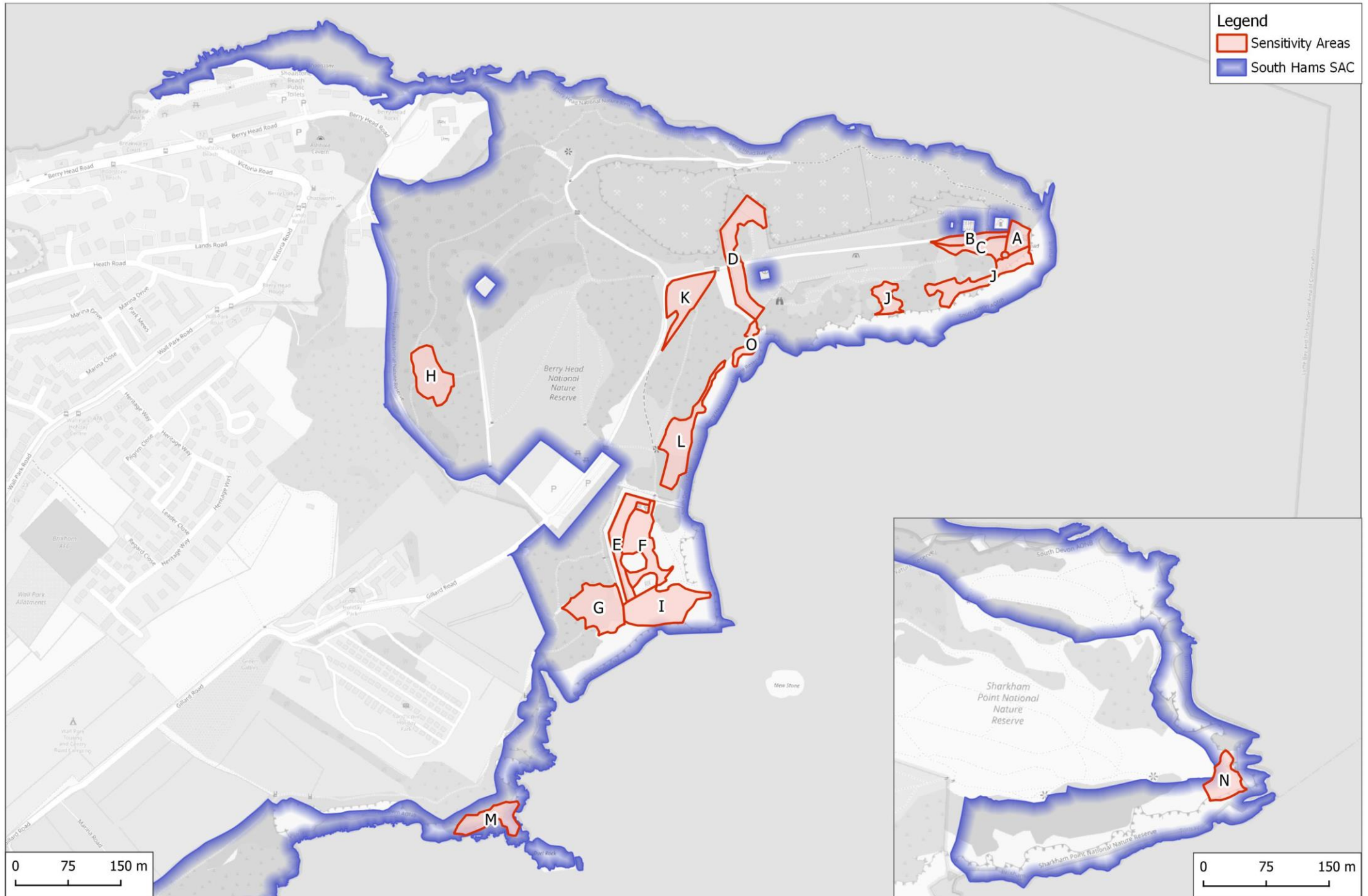
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invasion. The condition assessment carried out in 2016 was repeated in 2023. Based on the guidelines for Common Standards Monitoring produced by JNCC for calcicolous grasslands⁴ and coastal cliffs and slopes⁵ (Robertson & Jefferson, 2000) these guidelines were customised for use at Berry Head and include recording the cover of bare soil/ rock, scrub and competitive grasses (indicative of nutrient enrichment, disturbance and lack of grazing), vegetation height and frequency of negative indicator species plus the frequency of positive indicator species (see Wilson and Wheeler 2016 for community specific indicator species). All attributes are mandatory for favourable condition: failure of any attribute indicates unfavourable condition, although the surveyors used their expert opinion to determine the condition of borderline habitat patches.

⁴ http://jncc.defra.gov.uk/PDF/CSM_lowland_grassland.pdf

⁵ http://jncc.defra.gov.uk/pdf/CSM_coastal_cliff_slope.pdf

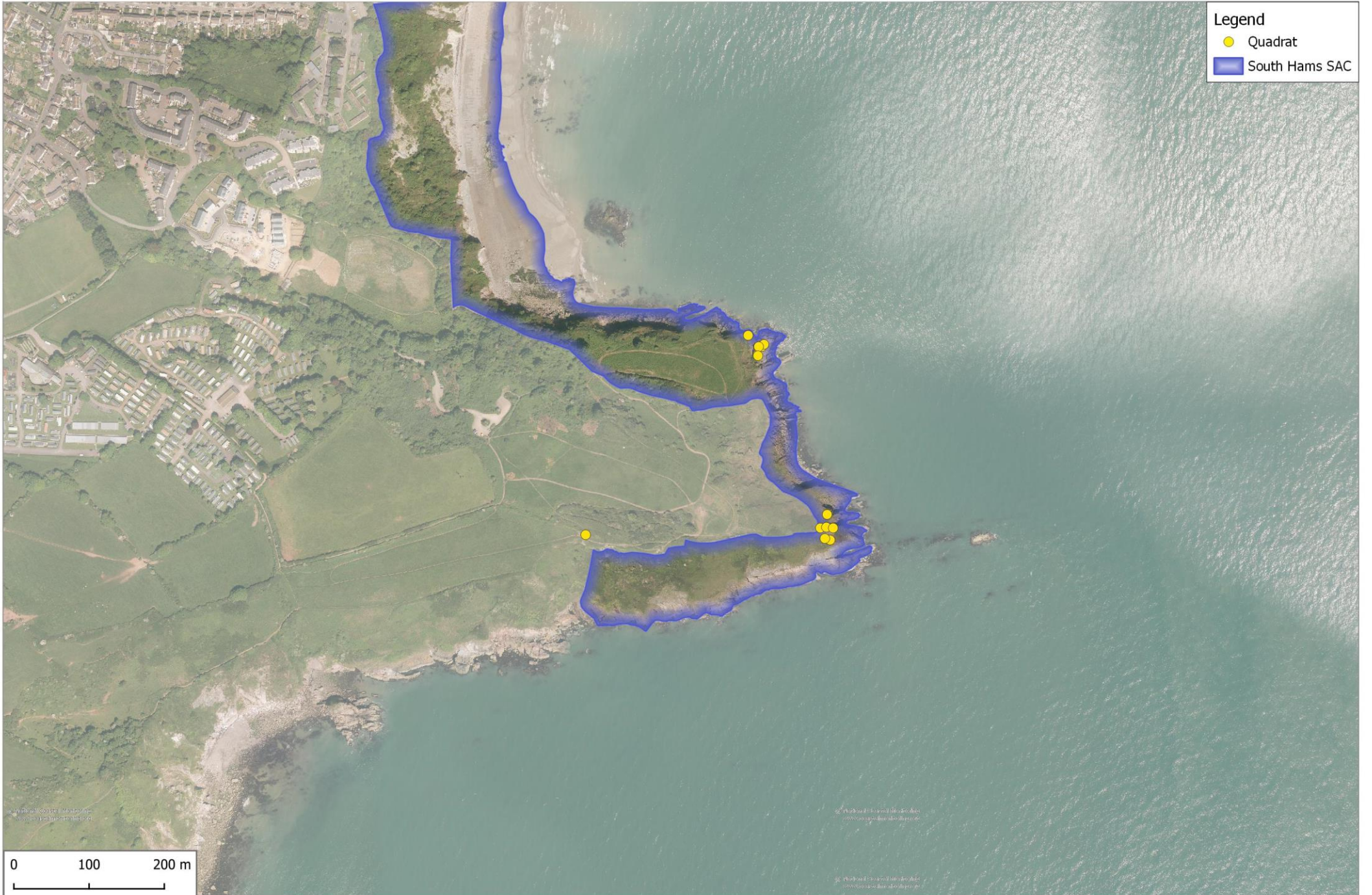
Map 2: Areas of sensitivity labelled with the associated reference letter at Berry Head. Inset map shows the area of sensitivity at Sharkham Point.



Map 3: Overview of quadrat locations at Berry Head



Map 4: Overview of quadrat locations at Sharkham Point



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3. Results

Rare plant monitoring

- 3.1 Table 4 summarises the status of rare and site-distinctive plant species at Berry Head in 2023.

Vegetation distribution and extent

- 3.2 Map 5 shows the distribution and extent in 2023 of characteristic plant communities that fall within the Annex I habitat types for which the Berry Head component of the South Hams SAC is designated. These included calcareous and maritime grassland and heathland (areas of mesotrophic grassland, scrub and woodland are not shown, but are digitized and provided within the shapefiles accompanying this report).
- 3.3 The 2016 NVC survey was mapped at a scale of 1:5000. Although small changes were observed (e.g. path widening), these were not at a scale that could be picked up by making a comparison between 2023 and the 2016 baseline map. The exception was 12 small areas where scrub had been removed, which now support grassland, heathland or Bracken communities (see Map 6). These changes are summarised in Table 5.

Map 5: NVC communities at Berry Head. Inset map shows NVC communities at Sharkham Point.

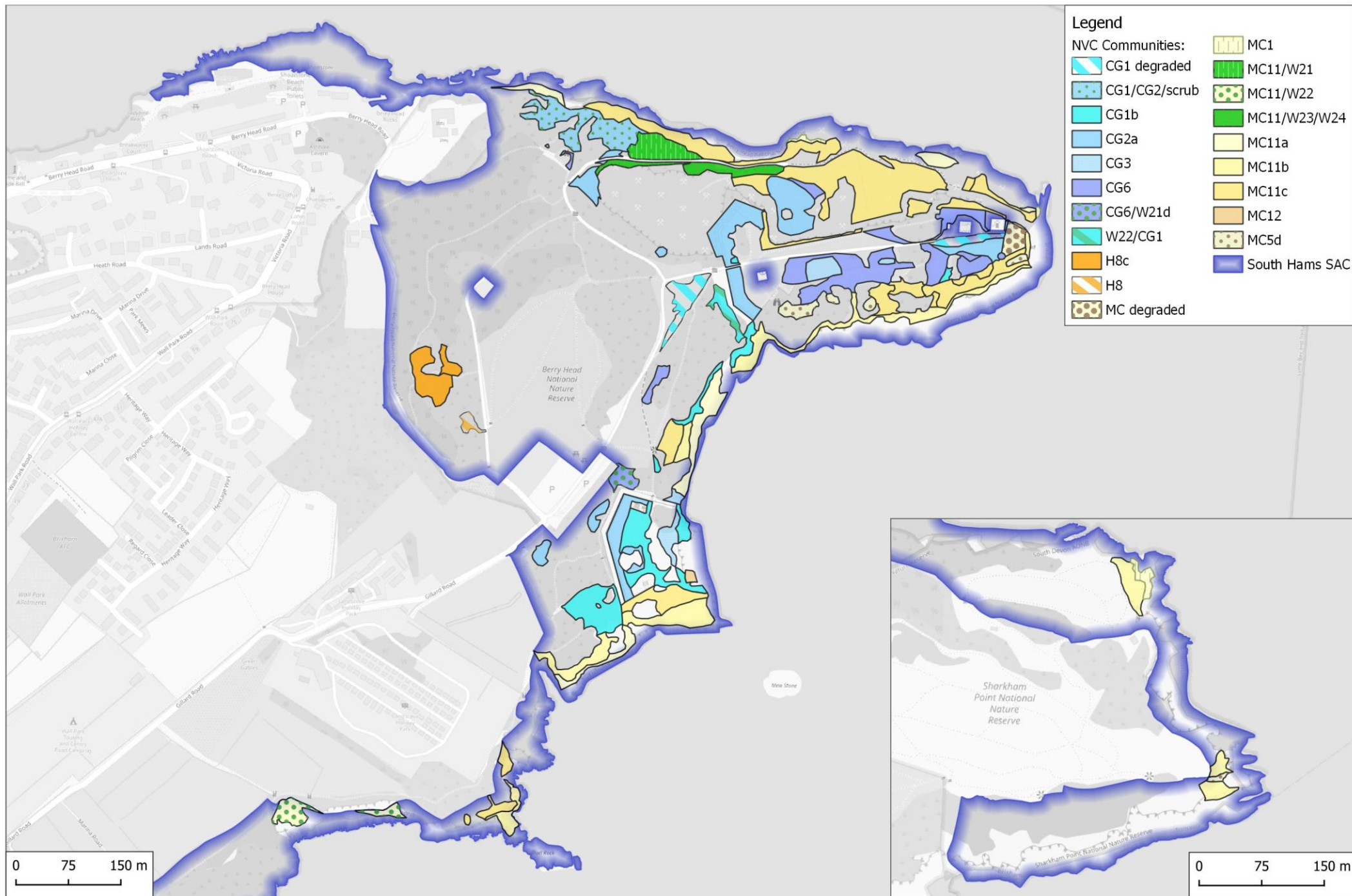


Table 4: Summary of rare plant populations at Berry Head in 2023, showing the number of sites surveyed in 2016 and 2023 and providing a brief account of the status of each in 2023 and comparison with 2016. + in the 2023 column indicates that the species was observed at several additional sites. The Red/Amber/Green rating is based on the status of the species in 2023.

Species	2016	2023	Comments
<i>Anacamptis morio</i>	1	1	There is a single small population of this species on the northern part of the ramparts of the Northern Fort. Numbers were similar in 2016 and 2023.
<i>Aster linosyris</i>	6	5	One site where it was recorded in 2016, Kiln House Cliff, was inaccessible because of scrub growth. At four of the sites this species appeared to be doing well with more than 1500 flowering spikes in total. Three sub-populations were found in areas recently cleared of scrub, but some other sub-populations were threatened by invasive scrub.
<i>Bupleurum baldense</i>	2	1	This species was only recorded on the Rabbit Lawn, where approximately 400 plants were recorded in five patches (higher numbers than 2016). The condition of this area appears to be dependent on an appropriate level of trampling and rabbit-grazing. It could not be found in 2023 at the Northern Fort location, and although suitable grassland was present, this population may have been temporarily lost to scrub invasion.
<i>Cerastium pumilum</i>	6	4	This species is present in diffuse populations on most of the scrub-free parts of the cliff slopes and cliff tops between the Rabbit Lawn and the Lighthouse. Some of the populations in 2023 were very large, probably numbering tens of thousands of plants.
<i>Cuscuta epithymum</i>	0	1	Not recorded in 2016. A large patch was present at SY 94171 56337
<i>Festuca longifolia</i>	4	3	All three of the principal sites for this species were searched in 2023. At the one site where it was re-found (cliff slope below the South Fort), and at the newly found population on the cliff slope below the Rabbit Lawn, the plants appeared to have suffered the effects of the droughts in 2022 and the early summer of 2023, and numbers were much reduced.
<i>Gastridium ventricosum</i>	1	1	Approximately 42 plants at the northern end of the ramparts of the northern fort.

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Species	2016	2023	Comments
<i>Helianthemum appeninum</i>	5	5	This species is widespread in CG1 and MC11c grasslands on the cliff top, slopes and plateau, extending from slopes below the Rabbit Lawn to the tip of Berry Head. It is dependent on moderate levels of trampling and rabbit grazing, thriving in open, rocky grassland but damaged by excessive trampling. It appeared to be badly affected by the dry weather in early summer of 2023, but plants seemed much recovered by August.
<i>Medicago polymorpha</i>	1	1	No plants found
<i>Ononis reclinata</i>	5	5	This species was recorded from five localities in 2016, with a maximum of 520 plants. In 2023 it was found at all of these, extending over larger areas and with several thousands of plants forming additional sub-populations.
<i>Poa bulbosa</i>	6	7	In 2016 this geophyte grass was recorded in six discrete areas, and was generally described as rare or occasional. In 2023 it was present and locally abundant throughout the site from the Rabbit Lawn to the Viewpoint at the eastern end of Berry Head. It was however recorded in greatest quantity in heavily trampled degraded CG1 grasslands with much exposed soil and rock, for example near the Viewpoint and on the Triangle. The small populations at Sharkham Point and south of Durl Head were not relocated.
<i>Scilla autumnalis</i>	36	36+	<i>Scilla autumnalis</i> was recorded in 2016 from 36 sub-populations throughout the site from Sharkham Point in the south to the Viewpoint at the eastern end of Berry Head, and inland as far as the heath. It was present in all of these areas in 2023, in some places flowering in very large numbers. It seems to thrive even where heavily trampled, although flowering in these places is more limited. Flowering was abundant on the ramparts of the northern fort where the grassland had been opened by the drought in 2022.
<i>Sedum forsteranum</i>	1	1	In 2016 this species was recorded at one locality on the cliff slope to the north-east of Berry Head Quarry. This was not searched in 2023, but a small population was recorded to the north of Durl Head in association with <i>Aster linosyris</i> .

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Species	2016	2023	Comments
<i>Spiranthes autumnalis</i>	5	5	This species is present in small numbers in limestone grassland on the plateau from the Rabbit Lawn to the Northern Fort. It was recorded in five places in 2016, with 300 flowering spikes on the Rabbit Lawn. Numbers of flowering plants were small in 2023, possibly as a result of dry conditions in 2022 and early summer 2023, although larger numbers of rosettes were seen over the winter. Trampling may limit flowering numbers.
<i>Trifolium glomeratum</i>	1	8	In 2016 this annual clover was recorded in very small numbers on the slope below the Southern Fort. In 2023 it was frequent on the southern slopes of the Northern Fort, on the Northern Fort plateau near the lighthouse and the Viewpoint and in small numbers in the Southern Fort and the slope below. This increase is likely to have been the result of drought in 2022.
<i>Trifolium ornithopodioides</i>	2	1/1	Present at Sharkham Point car park and the Viewpoint in 2016. Still present at the Viewpoint in 2023, but in small numbers. It was not searched for at Sharkham Point.
<i>Trifolium suffocatum</i>	1	1+	Several hundred plants were recorded in 2016 near the eastern end of Berry Head in heavily trampled vegetation at the Viewpoint. In 2023 it was abundant in all of the more open vegetation within the North Fort and on the slopes of the North Fort, especially where more trampled.
<i>Thalictrum minus</i>	6	6	Although recorded in 26 sub-populations in 2016, this referred to only 6 separate areas. It was re-found in all of these with the exception of the Heath, and a previously unrecorded clonal patch was present on the northern part of the ramparts of the Northern Fort.
<i>Trinia glauca</i>	10	7/8	This species was recorded in 10 localities in 2016, with a total of approximately 3000 plants present. The sites at Sharkham Point were not searched in 2023, but it was found at seven of the remaining eight. It was most abundant on the Rabbit Lawn, although numbers were fewer than in 2016, possibly due to the effects of the 2022 drought on germination and survival

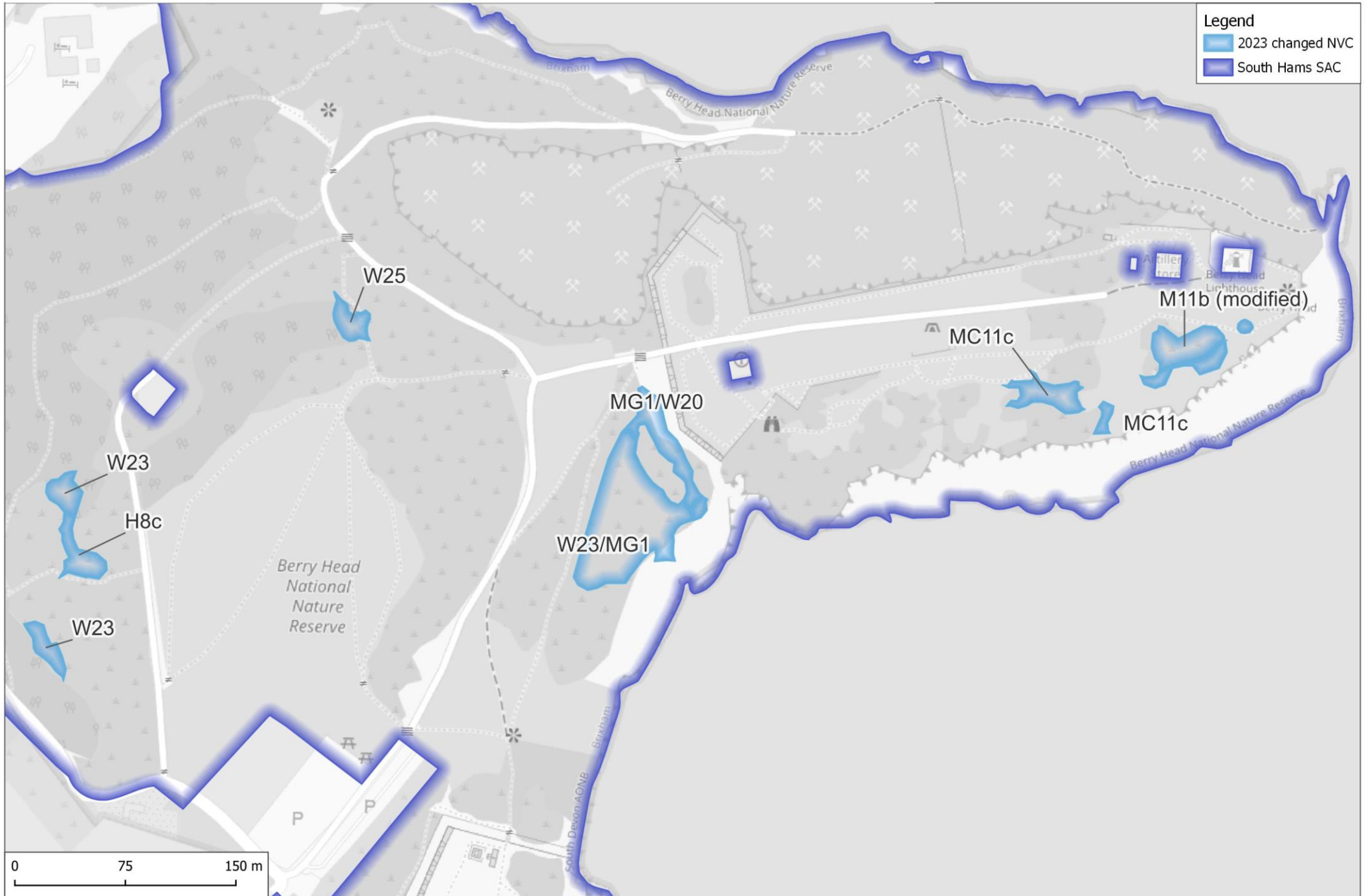
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Table 5: Summary of NVC community changes noted at Berry Head between 2016 and 2023.

NVC community in 2023	NVC community in 2016	Area of increase (ha)
CG1/MC11c	W23	0.01
CG6	W22	0.01
H8c	W21d	0.07
MC11b (modified)	W22	0.10
MC11b (modified)	W22	0.05
MC11c	W22	0.08
MC11c	W22	0.02
MG1/W20	W22	0.11
W23	W21d	0.05
W23	W21d	0.05
W23/MG1	W23	0.45
W25	W8e	0.05

- 3.4 In the west of the site, small areas of open habitat have been restored from secondary woodland. These were dominated Bracken or European Gorse with the exception of a small area of heathland, which had been restored from Hawthorn scrub. A broad interpretation was used when mapping the small remaining areas of H8c heathland, as these were very scrubbed-up with little heather cover.
- 3.5 Other changes were mainly on Berry Head itself, where scrub has been removed where it had encroached on calcareous and maritime grassland.

Map 6: Areas where NVC community changed between 2016 and 2023



Vegetation quality

3.6 Table 6 summarises the changes in the species richness of quadrats within Annex I habitat types, broken down by NVC community (full descriptions of the Berry Head vegetation including affinities with published accounts are given in Wilson and Wheeler, 2016).

Table 6: Change in the species-richness of characteristic vegetation communities at Berry Head and Sharkham Point between 2026 and 2023.

NVC community	Species-richness 2016 (mean +/-St.dev)	Species-richness 2023 (mean +/-St.dev)
Heathland		
H8c	22.4 (+/-2.5)	13.4 (+/-5.2)
Vegetated sea cliffs		
MC1	6.5 (+/-3.1)	4.0 (+/-2.1)
MC5	27.1 (+/-4.1)	17.0 (+/-6.0)
MC11a (2 samples)	7.0 (+/-2.1)	8.8 (+/-3.5)
MC11b	13.7 (+/-4.8)	12.6 (+/-5.3)
MC11c	21.5 (+/-8.0)	15.3 (+/-5.5)
Calcareous grassland		
CG1	27.5 (+/-5.2)	22.6 (+/-5.5)
CG1/2	17.5 (5.8)	18.2 (5.1)
CG2a ⁺	23.3 (+/-6.1)	16.3 (+/-6.4)
CG6 (3 samples)	23.7 (+/-6.1)	16.3 (+/-1.5)

Lowland Heath (Hc8)

3.7 There was a significant decline in the average (mean) species-richness of quadrats located within the limestone heath (T-Value = 3.31 P-Value = 0.030). The frequency and cover of characteristic species Bell Heather *Erica cinerea* and Dropwort *Filipendula vulgaris* declined notably, as did the frequency of smaller species such as Glaucous Sedge *Carex flacca*, Milkwort *Polygala vulgaris*, the moss *Pseudoscleropodium purum* and Common Dog-violet *Viola riviniana*. Another 17 species that occurred at lower frequency in 2016 were not re-recorded in 2023. These included finer grasses and sedges such as Sheep's Fescue *Festuca ovina*, Brown Bent *Agrostis vinealis*, Common Bent *A. capillaris*, Quaking Grass *Briza media* and Spring Sedge *Carex caryophyllea* together with herbs such as Yarrow *Achillea millefolium*, Bird's-foot-trefoil *Lotus corniculatus* and Slender St. John's-wort *Hypericum pulchrum*. New species included typical heathland species Heather *Calluna vulgaris* and Tormentil *Potentilla erecta* but also less characteristic species

including Honeysuckle *Lonicera periclymenum*, Common Gromwell *Lithospermum officinale* and Yorkshire Fog *Holcus lanatus*.

- 3.8 Overall, these changes are consistent with an increase in the cover of coarse species such as European Gorse *Ulex europaeus*, Cock's-foot *Dactylis glomerata*, Wild Clematis *Clematis vitalba*, False Oat-grass *Arrhenatherum elatius* and Tall Fescue *Festuca arundinacea*.

Vegetated sea cliffs

- 3.9 Within MC1a, the average number of species decreased between 2016 and 2023 and there was an increase in area of unvegetated rock. The constant species Red Fescue *Festuca rubra* and Thrift *Armeria maritima* were present in reduced quantity, while Sea Plantain *Plantago maritima* was not recorded and Buck's-Horn Plantain *Plantago coronopus* had become less frequent, together with several other species previously recorded at low frequencies.
- 3.10 Similarly, in MC5c, the mean number of species decreased from 27 to 17 between 2016 and 2023. Most of the species that declined during this period were the typical perennials of established grassland such as Sheep's Fescue *Festuca ovina* and Ribwort Plantain *Plantago lanceolata*, although others including Thrift *Armeria maritima*, Lady's Bedstraw *Galium verum* and Yorkshire Fog *Holcus lanatus* increased. White Stonecrop *Sedum album* was not re-recorded in 2023.
- 3.11 In contrast, in MC11a, there was a small increase in the mean number of species. However, much of this increase can be accounted for by results from a single quadrat in which there was an abundance of small annual herbs including *Trifolium scabrum* and *Sagina apetala* and larger biennial/annuals Parsley *Petroselinum crispum* and Common Sow-thistle *Sonchus oleraceus*. In other respects, this community was relatively unchanged.
- 3.12 MC11b remained relatively stable, although there was a decline in the frequency of several typical maritime-cliff perennials including Ox-eye Daisy *Leucanthemum vulgare*, Wood False-brome *Brachypodium sylvaticum*, White Stonecrop *Sedum album*, Sea Champion *Silene maritima*, Ribwort Plantain *Plantago lanceolata* and Creeping Bent *Agrostis stolonifera*. The overall area of bare rock and soil increased, but the only species which appeared to show a marked increase was Common Sow-thistle *Sonchus oleraceus*.
- 3.13 The majority of the dominant species in MC11c (Red Fescue *Festuca rubra*, Cocksfoot *Dactylis glomerata*, Wild Carrot *Daucus carota*, Ribwort Plantain

Plantago lanceolata and Greater Knapweed *Centaurea scabiosa*) maintained their frequencies and cover between 2016 and 2023. However, several perennial species including Sheep's Fescue *Festuca ovina*, White Rock-rose *Helianthemum appeninum*, Ox-Eye Daisy *Leucanthemum vulgare*, White Stonecrop *Sedum album*, Downy Meadow-grass *Avenula pubescens* and Lesser Meadow-rue *Thalictrum minus* decreased in frequency. There was no corresponding increase of annuals and biennials but scrub cover, mainly of Blackthorn *Prunus spinosa* and Old-man's Beard *Clematis vitalba*, had increased, particularly at Durl Head, but also below the South Fort.

Limestone grassland

- 3.14 While the overall average species number within CG1b decreased between 2016 and 2023, the three variants responded differently. The number of species declined in the typical and CG1/CG2 variants, but increased slightly in the trampled variant. The area of unvegetated soil and rock had increased since 2016 in the typical and degraded variants.
- 3.15 The majority of the most abundant perennial species maintained their frequencies albeit at reduced cover in some stands. These species included Sheep's Fescue *Festuca ovina*, Bird's-foot-trefoil *Lotus corniculatus*, Mouse-eared Hawkweed *Pilosella officinarum*, Salad Burnet *Sanguisorba minor* and Ribwort Plantain *Plantago lanceolata*. In all three variants, Cock's-foot, Wild Carrot *Daucus carota*, Dropwort *Filipendula vulgaris*, Ox-eye Daisy *Leucanthemum vulgare*, Greater Knapweed *Centaurea scabiosa*, Crested Dog's-tail *Cynosurus cristatus*, Squinancywort *Asperula cynanchica* and Common Cat's-ear *Hypochaeris radicata* decreased. Species that increased were Rough Clover *Trifolium scabrum*, Scarlet Pimpernel *Anagallis arvensis*, Small Centaury *Centaureum pulchellum*, Suffocated Clover *Trifolium suffocatum*, Sea Pearlwort *Sagina maritima*, Annual and Early Meadow-grass *Poa annua/infirma*, Common Stork's-bill *Erodium cicutarium*, Lesser Parsley Piert *Aphanes inexpectata*, Sea Hard-grass *Catapodium marinum*, Bulbous Meadow-grass *Poa bulbosa*, Autumn Squill *Scilla*, Wild Thyme *Thymus praecox*, Black Knapweed *Centaurea nigra*, also Crested Hair-grass *Koeleria macrantha* and Self-heal *Prunella vulgaris* in some stands.
- 3.16 Within CG2, there was little apparent overall change in the number of species, but there was considerable flux. Many of the most frequent species such as Red Fescue *Festuca rubra*, Salad Burnet *Sanguisorba minor*, Glaucous Sedge *Carex flacca*, Ribwort Plantain *Plantago lanceolata*, Cock's-foot *Dactylis glomerata*, Kidney Vetch *Anthyllis vulneraria* and the moss *Pseudoscleropodium purum* maintained their frequency and cover. However, some typical species

decreased, including Quaking Grass *Briza media*, Sweet Vernal-grass, Bird's-foot-trefoil *Lotus corniculatus*, Common Milkwort *Polygala vulgaris*, Small Scabious *Scabiosa columbaria*, and Common Dog-violet *Viola riviniana*. Patches of bare ground had been colonised by Viper's Bugloss *Echium*, Scarlet Pimpernel *Anagallis arvensis*, Daisy *Bellis perennis*, Pale Flax *Linum bienne*, Bulbous Buttercup *Ranunculus bulbosus* and Autumn Squill *Scilla autumnalis*.

Condition assessment of sensitive areas

3.17 Results of the condition of each sensitive area (Wilson & Wheeler 2016) are summarised in Table 7. Data for individual sensitive areas are shown in the subsequent tables. Condition was favourable in 3 out of 13 of the sensitive areas assessed. Condition has changed from favourable in 2016 to unfavourable in 2023 in 2 areas and from unfavourable to favourable in 1 area. However, there were signs of improvement in 2 unfavourable areas, although the condition of 2 others appears to be declining.

Table 7: Summary of the results from the condition assessment of sensitive areas in 2023, with the condition in 2016 for comparison (Wilson & Wheeler, 2016). Under Condition 2023, status is in bold if it represents a change since 2016. Unfavourable Recovering was not used in 2023, as this would be informed by the management in place or planned, therefore no distinction is made between Unfavourable and Unfavourable Recovering here.

Sensitivity Area	Condition 2023	Condition 2016	NVC	Rare Species
A: Viewpoint (Lighthouse Lawn)	Unfavourable (some improvement)	Unfavourable	CG1b (degraded)	<i>Trifolium glomeratum</i> , <i>Trifolium suffocatum</i> , <i>Trifolium ornithopodioides</i> , <i>Poa bulbosa</i> , <i>Scilla autumnalis</i> .
B: Lighthouse Pathside North (Flagstaff Pathside)	Unfavourable (in decline)	Unfavourable	CG1b (degraded)	<i>Trifolium glomeratum</i> , <i>Trifolium suffocatum</i> , <i>Poa bulbosa</i> , <i>Scilla autumnalis</i> .
C: Lighthouse Pathside South (Berry Head Plateau)	Unfavourable (some improvement)	Unfavourable	CG1b (degraded)	<i>Poa bulbosa</i> , <i>Scilla autumnalis</i> , <i>Trifolium suffocatum</i> , <i>Poa infirma</i> .
D: Ramparts of the Northern Fort	Favourable	Favourable	CG2	<i>Anacamptis morio</i> , <i>Gastridium ventricosum</i> , <i>Scilla autumnalis</i> , <i>Trinia glauca</i> , <i>Thalictrum minus</i> , <i>Trifolium glomeratum</i> .
E: Ramparts of the Southern Fort	Unfavourable	Favourable	CG2	No rare species recorded
F: Floor of the Southern Fort	Favourable	Favourable	CG1b	<i>Trinia glauca</i> , <i>Helianthemum appeninum</i> , <i>Scilla autumnalis</i> , <i>Poa bulbosa</i> , <i>Thalictrum minus</i> .
G: The Rabbit Lawn	Unfavourable (on unvegetated cover)	Favourable	CG1b	<i>Trinia glauca</i> , <i>Helianthemum appeninum</i> , <i>Scilla autumnalis</i> , <i>Poa bulbosa</i> , <i>Bupleurum baldense</i> , <i>Ononis reclinata</i> , <i>Cerastium pumilum</i> , <i>Festuca longifolia</i> .
H: Limestone Heath	Unfavourable (but excludes some restored areas)	Unfavourable Recovering	H8	No rare species recorded
I: Cliff slope below the Southern Fort	Unfavourable (in decline)	Unfavourable	MC11c, MC11b	<i>Helianthemum appeninum</i> , <i>Scilla autumnalis</i> , <i>Ononis reclinata</i> , <i>Festuca longifolia</i> .

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Sensitivity Area	Condition 2023	Condition 2016	NVC	Rare Species
J: Cliff slope to the south of Berry Head	No formal condition assessment was carried out	Favourable	CG1b, MC11c	<i>Helianthemum appeninum</i> , <i>Thalictrum minus</i> , <i>Cerastium pumilum</i> , <i>Festuca longifolia</i> , <i>Scilla autumnalis</i> , <i>Trifolium glomeratum</i> , <i>Trifolium suffocatum</i> , <i>Bupleurum baldense</i> .
K: The Triangle	Unfavourable	Unfavourable	CG1b (degraded)	<i>Poa bulbosa</i> , <i>Scilla autumnalis</i> , <i>Spiranthes autumnalis</i> .
L: Cliff Slope Between the Forts (Cliff above Guillemots)	Unfavourable	Unfavourable Recovering	MC11c, CG1b	<i>Ononis reclinata</i> , <i>Thalictrum minus</i> , <i>Helianthemum appeninum</i> , <i>Trinia glauca</i> , <i>Festuca longifolia</i> , <i>Scilla autumnalis</i> , <i>Trifolium glomeratum</i> .
M: Durl Head	Unfavourable	Unfavourable	MC11c	<i>Aster linosyris</i> , <i>Trinia glauca</i> , <i>Scilla autumnalis</i> , <i>Festuca longifolia</i> .
N: Sharkham Point	Favourable	Unfavourable	MC5, MC11b	<i>Festuca longifolia</i> , <i>Scilla autumnalis</i> , <i>Trinia glauca</i>

A: Viewpoint (Lighthouse Lawn)

3.18 Table 8 summarises the results of the condition assessment at sensitive area A: Viewpoint.

Table 8: Condition assessment for sensitive area A Viewpoint. Red shading indicates failed attributes.

Attribute	Target	2016	2023
% coarse grasses	<10%	30	15
Vegetation height	<5cm	1	1
% scrub	<5%	0	0
% unvegetated soil and rock	5-20%	27	27
Frequency of -ve indicator species	<5%	0	0
Positive indicator species - frequent	≥6	2	4
Positive indicator species - occasional	≥4	3	2
Positive indicator species - rare		0	0

B: Lighthouse Pathside North (Flagstaff Pathside)

3.19 Table 9 summarises the results of the condition assessment at sensitive area B: Lighthouse Pathside North.

Table 9: Condition assessment for sensitive area B Lighthouse Pathside North. Red shading indicates failed attributes.

Attribute	Target	2016	2023
% coarse grasses	<10%	13	15
Vegetation height	<5cm	1.3	1
% scrub	<5%	0	0
% unvegetated soil and rock	5-20%	52	55
Frequency of -ve indicator species	<5%	0.3	0
Positive indicator species - frequent	≥6	4	2
Positive indicator species - occasional	≥4	2	2
Positive indicator species - rare		2	1

C: Lighthouse Pathside South (Berry Head Plateau)

3.20 Table 10 summarises the results of the condition assessment at sensitive area C: Lighthouse Pathside South.

Table 10: Condition assessment for sensitive area C Lighthouse Pathside South. Red shading indicates failed attributes.

Attribute	Target	2016	2023
% coarse grasses	<10%	16	17
Vegetation height	<5cm	3.5	2
% scrub	<5%	0	0

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Attribute	Target	2016	2023
% unvegetated soil and rock	5-20%	4.6	25
Frequency of -ve indicator species	<5%	0	0
Positive indicator species – frequent	≥6	2	3
Positive indicator species - occasional	≥4	5	6
Positive indicator species – rare		3	2

D: Ramparts of the Northern Fort

3.21 Table 11 summarises the results of the condition assessment at sensitive area D: Ramparts of the Northern Fort.

Table 11: Condition assessment for sensitive area D Ramparts of the Northern Fort. Red shading indicates failed attributes.

Attribute	Target	2016	2023
% coarse grasses	<10%	8	4
Vegetation height	<5cm	9	4
% scrub	<5%	0.4	2
% unvegetated soil and rock	<5%	0	0
Frequency of -ve indicator species	<5%	2.4	<1
Positive indicator species – frequent	≥6	8	7
Positive indicator species - occasional	≥4	2	6
Positive indicator species – rare		6	6

E: Ramparts of the Southern Fort

3.22 Table 12 summarises the results of the condition assessment at sensitive area E: Ramparts of the Southern Fort.

Table 12: Condition assessment for sensitive area E Ramparts of the Southern Fort. Red shading indicates failed attributes.

Attribute	Target	2016	2023
% coarse grasses	<10%	10	3
Vegetation height	<5cm	11	5
% scrub	<5%	3.8	8
% unvegetated soil and rock	<5%	2.7	0
Frequency of -ve indicator species	<5%	0.4	<1
Positive indicator species – frequent	≥6	8	12
Positive indicator species - occasional	≥4	1	4
Positive indicator species – rare		3	5

F: Floor of the Southern Fort

3.23 Table 13 summarises the results of the condition assessment at sensitive area F: Floor of the South Fort.

Table 13: Condition assessment for sensitive area F Floor of the South Fort. Red shading indicates failed attributes.

Attribute	Target	2016	2023
% coarse grasses	<10%	5.3	3
Vegetation height	<5cm	2	2
% scrub	<5%	0	0
% unvegetated soil and rock	5-20%	13	33
Frequency of -ve indicator species	<5%	0	0
Positive indicator species – frequent	≥6	11	12
Positive indicator species – occasional	≥4	2	4
Positive indicator species – rare		3	4

G: The Rabbit Lawn

3.24 Table 14 summarises the results of the condition assessment at sensitive area G: The Rabbit Lawn.

Table 14: Condition assessment for sensitive area G The Rabbit Lawn. Red shading indicates failed attributes.

Attribute	Target	2016	2023
% coarse grasses	<10%	2.2	1
Vegetation height	<5cm	1.6	1.5
% scrub	<5%	0	0
% unvegetated soil and rock	5-20%	15	35
Frequency of -ve indicator species	<5%	0	0
Positive indicator species – frequent	≥6	14	11
Positive indicator species - occasional	≥4	5	2
Positive indicator species – rare		1	5

H: Limestone Heath

3.25 Table 15 summarises the results of the condition assessment at sensitive area H: Limestone Heath.

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Table 15: Condition assessment for sensitive area H Limestone Heath. Red shading indicates failed attributes.

Attribute	Target	2016	2023
% Dwarf shrub cover	25-90%	14	5
% European Gorse cover	<25%	25	51
Heather: pioneer	10-40%	1	0
Heather: building/mature	20-80%	13	100
Heather: degenerate	< 30%	<1	0
Heather: dead	<10%	0	0
% Fine-leaved grasses	<50%	28	15
% coarse grasses	<25%	25	14
% unvegetated soil and rock	1-10%	0	0
Frequency of -ve indicator species	<1%	0	3
% Non-native species	<1%	0	0
% Bracken	< 15%	17	8
Trees and scrub	<15%	6	15
Positive indicator species: dwarf shrubs	≥2	1	2
Positive indicator species: forbs frequent	≥4	3	2
Positive indicator species: forbs occasional	≥4	1	3

I: Cliff Slope Below the South Fort

3.26 Table 16 summarises the results of the condition assessment at sensitive area I: Cliff Slope Below the South Fort.

Table 16: Condition assessment for sensitive area I Cliff Slope Below the South Fort. Red shading indicates failed attributes.

Attribute	Target	2016	2023
% coarse grasses	<10%	9	14
Vegetation height	<5cm	16	10
% scrub	<5%	8	25
% unvegetated soil and rock	5-20%	17	15
Frequency of -ve indicator species	<5%	5	10
Positive indicator species - frequent	≥6	3	5
Positive indicator species - occasional	≥4	3	6
Positive indicator species - rare		4	0

J: Cliff slope to the south of Berry Head

3.27 Table 17 summarises the results of the condition assessment at sensitive area J: Cliff slope to the south of Berry Head.

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Table 17: Condition assessment for sensitive area J Cliff slope to the south of Berry Head. No formal condition assessment was carried out at J. Values below are estimated from a site walkover in November and previous knowledge of the area.

Attribute	Target	2016	2023
% coarse grasses	<10%	5.1	5-10%
Vegetation height	<5cm	5.8	-
% scrub	<5%	2.2	3
% unvegetated soil and rock	5-20%	13	c15
Frequency of -ve indicator species	<5%	0.5	0
Positive indicator species – frequent	≥6	7	≥6
Positive indicator species - occasional	≥4	3	≥4
Positive indicator species – rare		6	

K: The Triangle

3.28 Table 18 summarises the results of the condition assessment at sensitive area J: Cliff slope to the south of Berry Head.

Table 18: Condition assessment for sensitive area K The Triangle. Red shading indicates failed attributes.

Attribute	Target	2016	2023
% coarse grasses	<10%	37	35
Vegetation height	<5cm	2	1
% scrub	<5%	0	0
% unvegetated soil and rock	5-20%	30	35
Frequency of -ve indicator species	<5%	<1	<1
Positive indicator species – frequent	≥6	7	6
Positive indicator species - occasional	≥4	0	4
Positive indicator species – rare		5	4

L: Cliff Slope Between the Forts

3.29 Table 19 summarises the results of the condition assessment at sensitive area L: Cliff Slope Between the Forts.

Table 19: Condition assessment for sensitive area L Cliff Slope Between the Forts. Red shading indicates failed attributes.

Attribute	Target	2016	2023
% coarse grasses	<10%	9	15
Vegetation height	<5cm	10	8
% scrub (different areas assessed in 2016 and 2023)	<5%	0	25
% unvegetated soil and rock	5-20%	4	0

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Attribute	Target	2016	2023
Frequency of -ve indicator species	<5%	2	2
Positive indicator species – frequent	≥6	3	4
Positive indicator species - occasional	≥4	5	4
Positive indicator species – rare		4	1

M: Durl Head

3.30 Table 20 summarises the results of the condition assessment at sensitive area M: Durl Head.

Table 20: Condition assessment for sensitive area M Durl Head. Red shading indicates failed attributes.

Attribute	Target	2016	2023
% coarse grasses	<10%	19	13
Vegetation height	<5cm	18	10
% scrub	<5%	5	30
% unvegetated soil and rock	5-20%	1.3	5
Frequency of -ve indicator species	<5%	0.2	<1
Positive indicator species – frequent	≥6	6	8
Positive indicator species - occasional	≥4	3	4
Positive indicator species – rare		3	1

N: Sharkham Point

3.31 Table 21 summarises the results of the condition assessment at sensitive area N: Sharkham Point.

Table 21: Condition assessment for sensitive area N Sharkham Point. Red shading indicates failed attributes.

Attribute	Target	2016	2023
% coarse grasses	<10%	10	7
Vegetation height	<5cm	17	15
% scrub	<5%	1	0
% unvegetated soil and rock	5-20%	8.5	5
Frequency of -ve indicator species	<5%	2.4	0
Positive indicator species – frequent	≥6	6	6
Positive indicator species - occasional	≥4	2	4
Positive indicator species – rare			

3.32 Table 22 provides a summary of the number of species in each sensitive area. broken down by perennials, annuals/biennials and geophytes.

Table 22: Mean numbers of species in 4m² quadrats at sensitive areas (* excluding scrub species).

Area	Name	Species number		Perennials		Annuals/biennials		Geophytes	
		2016	2023	2016	2023	2016	2023	2016	2023
A	Viewpoint	8.3	16.3	6.7	6.7	1.3	7.3	0	1.7
B	Lighthouse N	16.0	13.0	11.7	7.7	2.3	3.3	1.0	1.0
C	Lighthouse S	21.0	22.3	17.0	13.3	3.3	6.0	0.7	3.0
D	North Fort	22.0	24.7	17.3	12.3	4.7	9.7	0	2.0
E	South Fort	29.7	25.3	25.3	19.7	4.3	5.7	0	0
F	S Fort floor	29.7	27.7	19.0	17.3	7.0	7.0	0.7	1.0
G	Rabbit Lawn	28.7	24.7	14.3	10.7	7.0	10.0	1.3	1.3
H	Heath	22.4	13.4	21.6m (15.6*)	13.2 (9.0*)	0.6	0.2	0	0
I	Below S Fort	17.0	12.0	12.0	7.7	5.0	4.3	0.3	0
L	Central slope	21.3	22.7	16.3	12.0	5.0	10.0	0.3	0.7
M	Durl Head	21.0	21.3	18.7	18.7	2.3	2.3	0.3	0.3
Mi	Durl Head	6.5	8.5	5.5	5.0	1.0	3.5	0	0
N	Sharkham Pt	24.0	17.0	14.7	10.0	8.3	6.8	1.0	0.3
Ni	Sharkham Pt	9.0	9.5	8.5	7.0	0.5	2.5	0	0

Volunteer survey training

3.33 An initial meeting was held with TCCT staff member Marije Zwager and three members of the regular volunteer team on 26th June 2023. Volunteers were given a brief introduction to monitoring methods (see Wilson and Wheeler, 2016) and identification of some of the critical rare species. Another meeting will be held in April/May 2024 to train volunteers in the final monitoring method protocol informed by the results of work conducted during 2023.

4. Discussion

Visitor survey

- 4.1 A short summary of the results of the 2023 visitor survey is given here to provide context (see Panter *et al* 2023 for more detail). On average, 29.1 people per hour were observed entering the site in 2023, compared to 27.4 in 2016. Group size averaged 2.2 people and there was 1 dog for every 2 people. Interviews revealed that that 65% of visitors had travelled directly from home that day (and that 75% of these lived within 8km of Berry Head). Most people visited for 1-2 hours, with an average route length of 2.0km. 74% of visitors were walking or dog-walking and 50% said they were following their usual route. The proportion of dog walkers had declined from 41% in 2016 to 30% in 2023. 5% of people interviewed were visiting mainly to go to the café.
- 4.2 A “heat map” of routes shows that, as in 2016, the route from the car park to the top of the descent down to the quarry and to the North Fort are the mostly heavily used, with frequent routes within both forts, the Cow Field and the woodland and heathland. In 2023 there were more routes through the Cow Field (which did not have cattle in at the time) and no routes on the cliff slopes below and between the forts, unlike in 2016. Most people commented positively about the site, although there were requests for more ranger presences, maps at entrances, more rubbish bins, the removal of cattle grids and bench maintenance.

Site-distinctive plant species

- 4.3 The numbers of sites for all of the rarest species around Torbay have decreased in recent years as a result of urbanisation and the cessation/relaxation of management and the localities at Berry Head are therefore crucial to the survival of these species in the UK. In addition to these factors, a third variable is the changing climate, which alone and in conjunction with the factors described above and changes in visitor pressure, may have further effects on the vegetation and on vulnerable populations of rare species. Any continuation into the future of the exceptionally dry conditions of 2022 and the spring and early summer of 2023 may have serious implications for some species, especially if these interact with increased trampling and erosion by visitors and increased phosphate deposition in dog faeces and urine. In addition, scrub encroachment has had

a long-term impact on the extent of open grassland on the cliff-top plateau and the cliff slopes in the absence of a sustained grazing regime. The control of scrub and expansion of scrub-free areas is fundamental to conservation of distinctive flora of Berry Head.

- 4.4 At Berry Head, numbers of some species appear to have increased considerably since 2016. Subjective observations in the intervening years suggest that these increases followed the hot and dry summer of 2022. Species present in particularly high numbers in 2023 were winter annuals, which probably took advantage of the very open conditions created by the drought and were able to germinate with increased rainfall in the autumn of 2022 and flower in the very warm and dry spring of 2023. These included the extreme rarity *Ononis reclinata* which was recorded at all sites found in 2016 with additional sub-populations. Many thousands of plants were present. Other species present in greatly increased numbers in 2023 were the winter annuals *Trifolium glomeratum*, *Trifolium suffocatum* and *Cerastium pumilum*. *Gastridium ventricosum* was more abundant than in 2016, but still restricted to the very small area of the ramparts of the Northern Fort. Numbers of the winter annual *Bupleurum baldense* were higher on the Rabbit Lawn than in 2016. The geophytes *Scilla autumnalis* and *Poa bulbosa* were also present in very high numbers. *Aster linosyris* is a rhizomatous perennial which forms large clonal patches and actual numbers are therefore difficult to estimate. The number of flowering spikes was higher in 2023 than in 2016, and the majority of populations appeared in good condition with small patches appearing in areas where scrub had been recently cleared. Scrub development remains a serious threat to this species however, and the site at Kiln House Cliff could not be accessed because of scrub growth on the adjacent cliff top.
- 4.5 Species which were faring less well than in 2016 included *Helianthemum appeninum* which although widespread at Berry Head appeared to have suffered from drought and in some places trampling, with die-back of some plants especially on the Rabbit Lawn. Following heavy rainfall in mid- and late-summer however, this species seemed to have recovered. Numbers of the biennial *Trinia glauca* were also reduced. This species probably germinates in late spring, forming a leaf rosette which overwinters and grows to flowering in the following early summer. The seedling phase is likely to be very vulnerable to adverse conditions. *Festuca longifolia* is a grass characteristic of very drought-prone habitats, which on the South Devon coast forms small tussocks rooted in deep rock-crevices. The poor condition

of this species in 2023 and its apparent loss from some areas is surprising. The numbers of flowering spikes of *Spiranthes autumnalis* were fewer than in 2016, although this may be deceptive as leaf-rosettes were readily found in autumn and winter 2022 and 2023. This species may be vulnerable to trampling damage.

Annex I habitats

4.6 Changes in key characteristics of the habitat types for which the Berry Head component of the South Hams SAC is designated are described here and related to apparent recreational pressure where relevant. Wilson and Wheeler (2016) provide full descriptions of all communities present.

Heathland

4.7 The limestone heath at Berry Head is found on the inland plateau towards the western boundary of the site. Scrub and secondary woodland have encroached over much of the area that are presumed to have once supported heathland, although some glades are kept open by manual scrub control and grazing.

4.8 Since 2016, there has been an overall decline in species-richness with the loss and/or decline of characteristic species such as Bell Heather and Dropwort, and an increase in European Gorse and other bulky species.

4.9 These changes are not directly related to recreational pressure – trampling may be helping to keep path sides open. However, livestock grazing is an important tool in the maintenance of lowland heathland (e.g., Lake et al., 2001), and recreational pressure is adding logistical problems to the difficulties – for example, the loss of sheep-grazing from the site.

Vegetated Sea Cliffs

4.10 The rock-crevice community MC1a is found on the most seaward edge of the cliffs. It was possible to survey stands on the north side of Sharkham Point, due to the flatter topography, where it is characterised by *Festuca rubra* and *Armeria maritima* with abundant *Plantago maritima* and *Plantago coronopus* and is typically species-poor, with 13 species recorded from the stands surveyed. It is potentially vulnerable to trampling, but many stands are not accessible, and the increase in bare rock and reduction in the number of species may be attributable to the 2022 drought.

- 4.11 MC5c is a sparse vegetation community rich in annual species and geophytes⁶ that is found on very thin, drought-prone soils over rock, generally in small patches within more continuous maritime grassland (MC11b and c). It is present on the ridge of exposed rock forming the spine of Sharkham Point, on limestone outcrops below the Southern Fort, and on the spoil-heaps below the northern fort. The stands on Berry Head do not conform well to the published account (Rodwell, 2000). At Berry Head the community includes several rare and uncommon species including *Festuca longifolia*, *Helianthemum appeninum*, the short-lived species *Stellaria pallida*, *Cerastium pumilum* and *Trifolium glomeratum* and the geophytes *Scilla autumnalis* and *Poa bulbosa*. Over 80 species have been recorded from this community at Berry Head. There is no apparent link between the reduction in species cover between 2016 and 2023 and any changes in visitor pressure. The thin soils and sparse vegetation make it vulnerable to footfall, but stands tend to be on rocky, sloping terrain where trampling is limited (as seen in the visitor heat maps for 2023). The very thin, freely draining soils and southerly aspect suggest that this community could be particularly susceptible to drought.
- 4.12 MC11 is generally a thick, tussocky sward dominated by *Festuca rubra* with *Dactylis glomerata* and *Daucus carota* but with a wide range of associated species, including calcicolous, mesotrophic and maritime species. Bare rock and soil are characteristic, (particularly in MC11a) and the thin soils are very drought prone. MC11b occupies the middle of the cliff slopes with MC11c (which tends to be more species-rich and include calcicolous species) on the upper slopes, and MC11a on the exposed cliff top. None of these areas are accessed regularly by visitors. Changes were seen in all subcommunities but were most noticeable in MC11a, where there was a localised increase in the frequency of annual species including characteristic species such as *Trifolium scabrum*. It is likely that the 2022 drought resulted in more bare ground and a more open sward, in which annuals present in the soil seedbank were able to germinate. MC11b showed a decrease in perennial species typical of vegetated sea cliffs, although only *Sonchus oleraceus* appeared to benefit from the increase in bare ground. MC11c appeared to be more stable, although there was an increase in scrub cover and a corresponding decrease in some characteristic perennials including *Helianthemum appeninum* and

⁶ Plants with underground storage organs that allow them to survive unfavourable weather conditions.

Thalictrum minus. These changes are not thought to be related to visitor pressure.

Calcareous grasslands

- 4.13 CG1b is a rare calcareous grassland sub-community that has only been recorded from Berry Head and is the principal locus for the majority of the rare plant species. It is the main calcareous grassland community at Berry Head and is found on very thin soils over limestone on the uppermost cliff slopes and the seaward part of the Berry Head plateau. The largest stands are within the South Fort and on the Rabbit Lawn to the south, with further, fragmented stands on the south-facing slope below the North Fort and between the two forts, all of which receive significant visitor pressure.
- 4.14 It is present in three variants, typical CG1b, most of which is present in the southern fort and on the Rabbit Lawn, a form intermediate with CG2, and stands modified by heavy trampling near the eastern end of Berry Head and on the Triangle. The typical variant is particularly species-rich but where the sward is degraded it includes *Lolium perenne*, *Cynosurus cristatus* and *Plantago coronopus*, species typical of nutrient-enriched and trampled grasslands (see sensitive areas C, F and K).
- 4.15 The majority of the most abundant perennial species maintained their frequencies while the species which decreased are those more characteristic of calcareous and maritime grasslands on deeper soils. Species which increased were predominantly annuals and geophytes. Both annuals and geophytes are able to take advantage of temporary increases in the area of bare soil available after drought, while the perennials Wild Thyme *Thymus praecox* and Crested Hair-grass *Koeleria macrantha* are both typical of well-drained conditions. However, the reason for an increase in some perennials including, Black Knapweed *Centaurea nigra*, and Self-heal *Prunella vulgaris* in some stands is less clear.
- 4.16 The soils of the inner banks of the forts are deeper with less exposed rock, and these areas support a rather atypical but nonetheless species-rich CG2, characterized by a range of calcicolous species with no particular dominant (almost 100 species have been recorded from this community at Berry Head). These areas are susceptible to scrub invasion, although sporadic clearance is carried out. The banks of the North Fort are in places heavily trampled (see sensitive area D). The species that decreased were typical perennial species of established calcareous grassland, and this was

particularly the case in the North Fort, where the effects of the 2022 drought were more severe. Here, exposed ground created in 2022 had been colonised locally by large numbers of Viper's Bugloss *Echium* seedlings. On these thin soils, there may be an interaction between the drought conditions in 2022 and the high level of trampling, which compacts soil and reduces its ability to hold water, in addition to directly damaging plants.

- 4.17 The observed reduction in scrub, principally Common Gorse *Ulex europaeus*, but also Bramble *Rubus fruticosus*, Hawthorn *Crataegus monogyna* and Blackthorn *Prunus spinosa*, is due to management, although there has been some regrowth.

Sensitive areas

- 4.18 Here we discuss the condition of the sensitive areas considered to be of particular botanical value by Wilson and Wheeler (2016), to support the tailored management of these key areas.

A: Viewpoint (Lighthouse Lawn)

- 4.19 The viewpoint at the tip of Berry Head is a focus for many visits to Berry Head, and the area receives much trampling, resulting in approximately 35% bare rock and soil. Despite this, the mean number of species doubled between 2016 and 2023. This is entirely due to the increase in the number of annual and geophyte species recorded, increasing from a mean of 1.3 to 7.3 per quadrat. The covers of some perennial species including the grasses *Lolium perenne*, *Festuca rubra* and *Dactylis glomerata* declined, and *Trisetum flavescens* was not recorded in 2023. The more trampling and drought-tolerant species *Plantago lanceolata* and *Plantago coronopus* maintained their cover. The only perennial species to have increased is the trampling-tolerant *Bellis perennis*. In 2023, there was a rich variety of annual, biennial and geophyte species. *Trifolium scabrum*, *Trifolium suffocatum*, *Poa annua/infirma*, *Poa bulbosa*, *Erodium cicutarium* and more locally *Scilla autumnalis*, *Trifolium micrantha* and *Trifolium ornithopodioides* were all frequent.
- 4.20 The Viewpoint failed the condition assessment (for CG1b) due to the high cover of unvegetated soil and rock and the low frequency of positive indicator species. It is likely that these two attributes fail because of the heavy visitor pressure here. However, the heavy trampling and disturbed and compacted soil form an ideal habitat for a range of uncommon annual plants and geophytes, better represented here than elsewhere within the NNR. Trampling is most intense around the Viewpoint and to the north of the path.

The effects of any change in visitor activity should be closely monitored (e.g. through fixed point photography). Condition has improved since 2016, with a reduction in cover of coarse grasses (*Lolium perenne* and *Dactylis glomerata*) and an increase in frequency of positive indicator species.

B: Lighthouse Pathside North (Flagstaff Pathside)

- 4.21 Since 2016, this area has been subjected to a considerable amount of trampling, possibly slightly more than in Area C. In 2023 more than 50% of the rock surface was unvegetated. The number of species declined between 2016 and 2023, as a result of the loss of several perennial species formerly present at low frequencies. These included *Koeleria macrantha*, *Hypochaeris radicata*, *Leontodon saxatilis* and *Cynosurus cristatus*. The cover of *Festuca rubra* also declined. The species which increased to the greatest extent was the geophyte *Poa bulbosa* and the cover of *Lolium perenne* also increased. A range of annuals and biennials not previously present were recorded in 2023, including *Erodium cicutarium*, *Echium vulgare*, *Poa infirma/annua* and *Trifolium scabrum*. Cover of *Thymus polytrichus*, *Plantago lancaolata*, *Plantago coronopus* and *Tortella nitida* remained unchanged.
- 4.22 The grassland was in unfavourable condition as a result of the effects of trampling and previous dry weather. The cover of coarse grasses and unvegetated soil and rock exceeded the thresholds, and frequency of positive indicator species was low. This heavy trampling and disturbed and compacted soil, however, forms an ideal habitat for a range of uncommon annual plants and geophytes, better represented here and in Area A than elsewhere within the NNR.

C: Lighthouse Pathside South (Berry Head Plateau)

- 4.23 The area to the south of the path to the viewpoint appeared slightly less trampled than that to the north, with approximately 25% unvegetated rock and soil. The number of species in 2023 was similar to that recorded in 2016, but in common with Areas A and B, the frequency of perennial species had decreased while that of annuals, biennial and geophytes had increased. Trampling-sensitive species in particular including *Cynosurus cristatus*, *Trifolium repens*, *Sanguisorba minor* and *Trisetum flavescens* had become very rare, and others including *Dactylis glomerata*, *Festuca ovina*, *Festuca rubra* had declined. Perennial species which had increased included *Lolium perenne*, *Plantago lanceolata*, *Plantago coronopus*, *Thymus praecox* and *Bellis perennis*, the last of which was not recorded in 2016. The species which showed the

greatest increase were the geophytes *Poa bulbosa* and *Scilla autumnalis*, and a range of annuals including *Petroselinum crispum*, *Aphanes macrocarpa*, *Crepis vesicaria*, *Trifolium scabrum* and *Filago vulgaris* were also present in 2023.

- 4.24 While this area failed the condition assessment on excessive cover of coarse grasses (*Lolium perenne* and *Dactylis glomerata*) and unvegetated soil and rock, condition had improved slightly, with a higher frequency of positive indicator species. The increased amount of unvegetated soil is of benefit to the uncommon annuals and geophytes in this area, but the effects on the vegetation of any changes in visitor pressure should be carefully monitored.

D: Ramparts of the Northern Fort

- 4.25 In 2016, grassland on the relatively deep soils of the ramparts was well-established CG2 with localised trampling on well-defined routes to view the cannon and walls. The vegetation was dominated by perennial species with few annuals or geophytes. The effects of the 2022 drought were apparent in 2023. Several of the formerly abundant components of the grassland including *Agrostis capillaris*, *Centaurea nigra*, *Festuca rubra*, *Cynosurus cristatus*, *Scabiosa columbaria*, *Briza media* and *Daucus carota* had become rare, and overall, the mean number of perennials per quadrat had declined from 17.3 to 12.3. Annuals, biennials and geophytes had become more abundant although not to the same extent as in the more heavily trampled areas A, B and C, most notably *Echium vulgare*, which in some places had a cover of more than 50%, and *Anagallis arvensis*, *Linum bienne* and *Bromus hordaceus* were also more frequent. *Scilla autumnalis* and *Ranunculus bulbosus* were not recorded in 2016, but were abundant in 2023. Some perennials including the deep-rooted *Filipendula vulgaris*, *Plantago lanceolata* and *Bellis perennis* had also increased. Some invasive scrub has been cleared from the base of the northern ramparts.
- 4.26 Despite the effects of the 2022 drought and the changes that this caused to the vegetation, this grassland remains in favourable condition. Several attributes including cover of coarse grasses, vegetation height and number of occasional positive indicator species have improved, perhaps as a result of the drought.

E: Ramparts of the Southern Fort

- 4.27 Changes in vegetation here differ from those observed in many other parts of the site. This is likely to be a result of the ongoing scrub clearance programme which has reduced the cover of *Ulex europaeus*, *Crataegus monogyna* and *Rubus* sp. The mean number of species recorded per quadrat decreased between 2016 and 2023. Species that declined include some perennials of established grassland such as *Polygala vulgaris*, *Plantago lanceolata*, *Avenula pubescens* and *Viola riviniana*, the short-lived *Rhinanthus minor* and *Daucus carota* and the shrub *Crataegus monogyna*. However, *Sanguisorba minor*, *Viola hirta*, *Anthyllis vulneraria*, *Filipendula vulgaris* and *Danthonia decumbens* had increased. Some regrowth of *Ulex europaeus* and *Rubus* sp. was evident.
- 4.28 In some respects the condition of the grassland on the ramparts has improved since 2016, the frequency of positive indicator species has increased, and the cover of coarse grasses and vegetation height have decreased. However, it still fails on the cover of scrub. Although areas of scrub have been cleared, it has subsequently regrown. Continued scrub clearance is essential to restore fully favourable condition.

F: Floor of the Southern Fort

- 4.29 While the overall composition of the vegetation here has remained less changed than in many other of the sensitive areas, it has nevertheless suffered the impact of the 2022 drought. In 2016 the area of unvegetated rock and soil was approximately 10-15%, but by 2023 this had increased to approximately 33%. There has been a slight decrease in total species number and perennial species. There was no obvious increase in proportion of short-lived species, although there were changes in frequency and cover of some species: *Plantago lanceolata*, *Briza media*, *Lotus corniculatus*, *Koeleria macrantha* and *Cynosurus cristatus* all decreased between 2016 and 2023, while *Plantago coronopus*, *Scilla autumnalis* and *Danthonia decumbens* increased.

G: The Rabbit Lawn

- 4.30 The pattern of change in the vegetation of the Rabbit Lawn between 2016 and 2023 is similar to that observed on the very skeletal, trampled soils near the eastern end of the northern fort. The Rabbit Lawn is crossed by two well-used walking routes, although neither of these is as trampled as the route across the northern fort. In the absence of livestock grazing (or intense rabbit

grazing), human trampling may be critical in maintaining suitable conditions for populations of rare plants at the Rabbit Lawn, although the impact will vary according to the weather and rabbit numbers.

- 4.31 In 2023, the extreme rarities *Bupleurum baldense*, *Trinia glauca*, *Ononis reclinata* and *Helianthemum appeninum* were all present in larger numbers than in previous years. However, the overall number of species declined as did both the frequency and abundance of several perennial species, including some that are normally tolerant of trampling and that have maintained their populations in other parts of the site. These include *Festuca ovina*, *Plantago lanceolata*, *Scilla autumnalis*, *Dactylis glomerata*, *Koeleria macrantha*, *Cladonia pocillum*, *Bellis perennis*, *Taraxacum erythrosperma* agg., *Carex caryophyllea*, *Briza media*, *Plantago coronopus* also the annuals/biennials *Anagallis arvensis*, *Trifolium scabrum*, *Dezmazeria marina*, *Anthyllis vulneraria*, *Aira caryophyllea*, *Sonchus oleraceus* and *Erodium cicutarium* and the lichen *Collema auriforme*.
- 4.32 The Rabbit Lawn fails the condition assessment on the high cover of unvegetated soil and rock. This may be a temporary effect following the 2022 and early 2023 drought in combination with trampling. In all other respects condition is favourable and populations of rare plants are healthy.

H: Limestone Heath

- 4.33 Much of the limestone heath has become invaded with secondary woodland and scrub despite periods of sheep grazing and manual clearance. Both *Erica cinerea* and a very small amount of *Calluna vulgaris* were recorded in 2023, whereas only *Erica cinerea* was recorded in 2016. However, the overall cover of dwarf shrubs had declined, and there was a substantial increase in the area of European Gorse. The percentage cover of trees/scrub had also increase.
- 4.34 The limestone heath remains in unfavourable condition due to the high cover of European Gorse and correspondingly low cover of dwarf shrubs and the lack of structural diversity in the heather. Gorse clearance and summer livestock grazing (or cut and collect if this is not possible) are needed to reverse the downward trajectory of the heath. However, it is noted that the vegetation within the sensitivity area was a mosaic of thick gorse and more open areas – given recent management, the sensitivity area could be re-drawn to include restored areas, which would result in a reduction in the area of European Gorse.

I: Cliff Slope Below the Southern Fort

- 4.35 Although the area of bare rock has not changed since 2016, the mean number of species has declined. This is principally the result of decreases in the frequency of perennials including *Brachypodium sylvaticum*, *Scabiosa columbaria*, *Scilla autumnalis* and *Festuca longifolia*, with a few species such as *Petroselinum crispum*, *Centranthus rubra*, *Echium vulgare*, *Ononis repens* and *Arenaria serpyllifolia* increasing but no overall increase in frequency and cover of annuals, biennials or geophytes. There is little visitor pressure here. Scrub invasion, principally *Prunus spinosa*, has been a local problem.
- 4.36 This area is in unfavourable condition, failing on the area of scrub present over the whole slope and the low frequency of positive indicator species. Cover of the non-native invasive species *Centranthus rubra* is high, but it is not known whether this is increasing nor whether it poses any real threat to the vegetation.

J: Cliff slope to the south of Berry Head

- 4.37 The area of scrub removed from these slopes has increased annually, and there is now a larger area of open CG1b and MC11c grassland than in 2016 (this includes areas outside of the 2016 sensitivity area). Grassland extent and condition are considered to be improving although further scrub removal is desirable between the two blocks. Populations of rare species including *Helianthemum appeninum* and *Thalictrum minus* appear to have increased, *Cerastium pumilum* is abundant, and *Festuca longifolia* is still present here.
- 4.38 This area probably fails on vegetation height. Percentage cover of coarse grasses may be borderline. However, there is good representation of positive indicator species and scrub management is ensuring that scrub encroachment is not an issue.

K: The Triangle

- 4.39 There appears to have been little overall change to this area. It is subjected to heavy visitor pressure, both from people crossing from the surrounding footpaths to the café and taking advantage of an open space to exercise dogs, and there is consequently much open, eroded and compacted soil and bare rock surfaces. This was estimated at approximately 40% of the central and eastern part of this area. In the west, there is a strip of much taller and denser, species-poor grassland which probably receives a high level of canine

phosphate deposition. Despite these pressures, the central and eastern parts have species-rich grassland related to CG1b, with in 2023, large populations of *Poa bulbosa* and *Scilla autumnalis*, and occasional *Spiranthes autumnalis*.

- 4.40 The triangle was in unfavourable condition due to the high cover of coarse grasses and unvegetated soil and rock, which appeared to have increased since 2016, probably through a combination of drought and trampling.

L: Cliff Slope Between the Forts

- 4.41 There is little visitor access to these slopes, and the area of bare rock is limited. Vegetation here is generally a well-established and continuous maritime grassland sward of MC11c transitional to CG1, although there are rock outcrops towards the base of the slope. *Ononis reclinata* occurs on these outcrops, with a particularly large population in 2023 at the end of the moat around the northern fort, where *Trinia glauca* also occurs. There has been an overall decline in the frequency and abundance of perennial species including *Plantago lanceolata*, *Lotus corniculatus*, *Brachypodium sylvaticum* and *Holcus lanatus*, but an increase in annuals and biennials such as *Bromus hordeaceus*, *Rhinanthus minor*, *Helmintotheca echioides*, *Raphanus raphanistrum* ssp *maritima*, *Trifolium dubium* and *Anagallis arvensis*. Scrub dominated by *Prunus spinosa* and *Ulex europaeus* is present on the upper slopes in the centre of the area and this has spread onto the lower slopes in places, probably increasing in cover since 2016.
- 4.42 This area fails the condition assessment on the cover of scrub, but also on vegetation height and frequency of positive indicator species. Additional scrub clearance and reintroduction of grazing to this area should restore it to favourable condition. Populations of rare species here are still good, although the rock outcrops on which they occur are of small area.

M: Durl Head

- 4.43 Access to Durl Head is possible only by a narrow fisher's path through the scrub, and there is little visitor impact. The principal threat to the grassland vegetation on the middle slopes here is from scrub development from the upper slopes. This is mainly *Clematis vitalba*, *Prunus spinosa* and *Rubus* sp. While there appears to have been little overall change in the number of species present in quadrats at Durl Head, and the proportions of perennials and annuals/biennials has remained remarkably stable, there has been considerable turnover of species. The covers of two of the main grassland

species here, *Festuca rubra* and *Centaurea scabiosa* had declined substantially, and *Polygala vulgaris*, *Agrostis stolonifera*, *Achillea millefolium*, *Avenula pubescens*, *Agrimonia eupatorium*, *Lotus corniculatus*, *Viola riviniana* and *Festuca arundinacea* were not recorded in the quadrats in 2023. Scrub species *Prunus spinosa*, *Clematis vitalba* and *Rubia peregrina* had increased. This area remains the main location for *Aster linosyris* at Berry Head.

- 4.44 This area fails the condition assessment as a result of the spread of scrub from the upper slopes which is threatening the populations of *Aster linosyris*.
- 4.45 The MC11a grassland on the lower slopes of Durl Head is much less species-rich than on the middle slopes. In 2016 it was dominated by *Festuca rubra* almost to the exclusion of all other species apart from occasional *Ononis repens*, *Dactylis glomerata*, *Daucus carota* and *Armeria maritima*. The density of *Festuca rubra* in 2023 was considerably reduced, and other species were more frequent. These included both opportunistic species such as *Sonchus oleraceus*, *Daucus carota* and *Bromus hordaceus*, and the more typical maritime perennials *Crithmum maritimum*, *Plantago maritima* and *Beta maritima*. Small patches of *Aster linosyris* were present in this vegetation in 2023. The condition of the grassland on the lower slopes of Durl Head was not assessed.

N: Sharkham Point

- 4.46 Three quadrats were located in a small area of MC5 on a very drought-prone, south-facing outcrop of rock near the tip of Sharkham Point. While there were substantial areas of bare rock in 2016, there was a well-developed and species-rich but patchy cover of *Festuca ovina*, *Festuca rubra*, *Plantago coronopus*, *Plantago lanceolata*, *Hypochaeris radicata* and *Sedum anglicum*, with abundant annuals including *Aira caryophyllea*, *Aira praecox*, *Dezmazeria marina*, *Bromus hordaceus* and *Trifolium scabrum*, and *Scilla autumnalis*. This had changed considerably by 2023, with a great reduction in cover of *Festuca spp* and *Plantago spp* and other perennials, and an overall reduction in species number. Species that have increased in cover here include *Armeria maritima*, *Holcus lanatus*, *Sanguisorba minor* and *Sonchus oleraceus*. However, this area is considered to be in favourable condition overall.
- 4.47 There is also a more extensive area of MC11b dominated in 2016 by *Festuca rubra* with *Daucus carota*, *Dactylis glomerata*, *Rumex acetosa*, *Lotus corniculatus* and *Sanguisorba minor*. By 2023, the cover of *Festuca rubra* was lower with a corresponding increase in species richness.

5. Conclusions

Summary of vegetation changes in relation to recreational pressure

- 5.1 Some changes in the abundance and distribution of rare/site-distinctive plants and the quality (but not extent) of Annex I habitats are evident since the last survey in 2016.
- 5.2 In general, annual/biennials and geophytes have increased in abundance and distribution, probably due to the open sward created by dry conditions in 2022, followed by suitable conditions for germination and flowering. Species such as *Trinia glauca* and the perennials *Helianthemum appeninum* and *Spiranthes autumnalis* have not done so well, and there may be an interaction between drought and trampling affecting these species, which should be carefully monitored. The current status of two species, *Festuca longifolia* and *Medicago polymorpha* is of concern (although the latter was only ever recorded from one site and is easily overlooked); however, neither species is thought to be unduly affected by recreational pressure.
- 5.3 Within vegetated sea cliffs, there was a general increase in bare rock and a corresponding decrease in the number of species recorded, particularly typical perennials. In some places this was compensated for by an increase in annual species, but not within all communities. Scrub encroachment is a threat on the upper slopes but direct recreational pressure is not considered to be of concern. Some areas of vegetated sea-cliff assessed were in favourable condition, some unfavourable.
- 5.4 There were similar changes within the calcareous grassland, with an increase in the area of bare ground, a reduction in the number of species recorded and a change in the balance of species. Characteristic perennials had decreased, while annuals and geophytes, particularly in some heavily trampled places, had increased. In these locations there appears to be an interaction between drought and trampling, which favours a suite of annual/biennial and geophytic species. Scrub encroachment and the abundance of coarse grasses are also problem in many areas and this is partly an indirect impact of visitor pressure, which has led to the cessation of livestock grazing. Much of the calcareous grassland assessed was found to be in unfavourable condition.
- 5.5 Within the lowland heathland, there was a decrease in the frequency and abundance of characteristic limestone heath species and an increase in

European Gorse and coarse grasses despite recent management. The lack of appropriate grazing, an indirect results of visitor pressure, is affecting this habitat, although trampling may be slightly contributing to maintaining open conditions. The heathland is in unfavourable condition overall.

- 5.6 Only 3 of the 14 sensitive areas were in favourable condition⁷, compared to 5 in 2016. Trampling was a contributing factor to unfavourable condition in 4 areas, while the amount of scrub and coarse grasses, a key factor in most unfavourable areas, is an indirect result of visitor pressure, which has constrained livestock grazing.

Proposed mitigation

- 5.7 A suite of mitigation measures relating to visitor pressure is recommended, based on a site visit and discussions with site staff and the 2023 visitor survey. This forms a package of measures that will address the risks to the designated features of the site associated with growth in recreational pressure. However, it should be noted that some of these are not directly linked to new housing growth and are linked to existing and ongoing management issues - the need to balance nature conservation and visitor pressure at Berry Head is long-standing. Issues are also exacerbated by climate change.
- 5.8 The package includes:
1. **Increased on-site face-to-face visitor engagement** to promote awareness of the heritage value of Berry Head and its status as a National Nature Reserve (NNR), and promote appropriate behaviour (ranger time allocated to be reviewed by Torbay Council)
 2. **Modifications to the existing visitor centre** including re-routing visitors through the centre to the café and reviewing interpretative materials, including future-proofing any interactive displays.
 3. **Instigating a dogs on lead policy** in the North and South Forts over the next 2 years as a preliminary step to **creating a grazing plan** for the site with a view to **reintroducing grazing** into sensitive areas. Reintroducing grazing will require a **full-time grazing ranger**. There is potential for overlap between this role and the visitor engagement role (1).

⁷ [Natural England common standards monitoring](#) of the grassland, maritime cliff and heathland was last carried out in 2009 and is on an SSSI unit basis, rather than the specific sensitive areas used here.

4. The **potential creation of a dog exercise area** in the field opposite the car park (with fencing and low-key equipment) to draw existing dog walkers away from more sensitive areas and ensure there are livestock-free dog-walking opportunities. Care should be taken not to provide a resource that will attract additional dog walkers to Berry Head and this action may be best carried out alongside off-site dog walking provision.
5. **Create an adaptive site management plan** that integrates habitat management, heritage management and visitor engagement and management. This should include objectives, actions and indicators so that monitoring can show both progress and impacts and can inform plan revisions.
6. **Instigate a programme of annual rare plant monitoring** to inform the adaptive management plan.
7. **Periodic re-recording of vegetation quadrats** in order to determine the relative contributions of exceptional weather periods and changes in visitor pressure to changes in vegetation condition

5.9 In addition, a number of interventions can be implemented without waiting for the management plan:

8. **A review of footpaths** should be carried out and interventions, such as path edging, used to reduce/prevent path widening that is leading to the marginal loss of vegetation alongside paths.
9. **Cessation of regular mowing of the grassland immediately north-east of the northern car park gate** to shift the perception of this area away from amenity grassland towards wildlife habitat.
10. **Trial alternating the paths crossing the Rabbit Lawn** using temporary barriers and information at the southern gates, with specific monitoring (e.g. fixed-point photographs and annual plant monitoring) to establish whether changes in trampling behaviour occur and are beneficial.
11. **Review all road signs** to check these refer to Berry Head nature reserve and Napoleonic forts, not country park (this has been partially actioned but needs progressing).

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Appendix 1: Management Recommendations for Areas of Sensitivity

A: Viewpoint (Lighthouse Lawn), B: Lighthouse Pathside North (Flagstaff Pathside), C: Lighthouse Pathside South (Berry Head Plateau).

- 5.10 These three areas are adjacent and are under similar pressures, so are considered together.
- 5.11 The Viewpoint at the eastern tip of Berry Head is a key destination for many of the visitors to the site. This area, the paths, and path edges leading to it suffer considerably from trampling and erosion, which may be particularly severe in dry periods. There is much exposed rock, and the compacted soil is confined to patches between the rock exposures. Vegetation is fragmentary, although cover can vary between years depending on rainfall and visitor numbers. These areas have good populations of several winter-annual and geophyte species which can thrive under these conditions in the absence of dense, competitive vegetation.
- 5.12 **Aims:** Although this grassland fails the condition assessment for CG1, it provides ideal conditions for several rare plants. The heavy footfall is unavoidable without causing damage to the more established grassland in Area J. Therefore, considering the botanical interest, an area of unvegetated soil/rock of around 30% is probably acceptable. Any encroachment of scrub should be prevented.
- 5.13 **Actions:** The only possible management option here is the temporary diversion of the route to the viewpoint. The route could alternate between north and south annually if necessary, using unobtrusive “soft” barriers, with signs informing visitors about the need to restore the vegetation. This area could also be included in a grazing enclosure with Areas D and J. If grazing were reintroduced, then the effects of this should be monitored and grazing pressure adjusted accordingly.

D: Ramparts of the Northern Fort

- 5.14 The ramparts of the Northern Fort form a backdrop to the café and visitor centre. They receive some visitor pressure, particularly at the northern and southern ends of the section, located to the north of the gate. These paths are used to reach the display cannon and the viewpoint across Torbay. The well-established vegetation here may be more resilient over the deeper soils than that in Areas F, G & K, although the more heavily trampled areas have a high percentage of bare soil. The 2022 drought had a profound effect on the

CG2 grassland here, with a lowered coverage of perennial species, and a greatly increased cover of the biennial *Echium vulgare* Viper's bugloss and the geophyte *Prospero autumnale* Autumn squill. This grassland is also important for several species which prefer relatively undisturbed conditions including *Thalictrum minus* Lesser meadow-rue and *Anacamptis morio* Green-winged orchid. Although, there are also populations of species which require disturbance and open conditions such as *Trinia glauca* Honewort, *Trifolium glomeratum* Clustered clover (first recorded in 2023) and *Gastridium ventricosum* Nit-grass, in what may be the only current Devon site. The latter species occurs in the more heavily trampled viewpoint at the northern end of the ramparts. There is an area of scrub, predominantly of *Prunus spinosa* Blackthorn, at the base of the northern section.

- 5.15 **Aims:** The principal aim is to maintain the species-rich CG2 grassland in favourable condition. The current level of visitor access is acceptable, although this should be monitored to ensure that any increase does not affect grassland quality, especially in drought periods. Current levels are essential at the northern end of the ramparts in order to maintain suitable open habitat for *Gastridium ventricosum* Nit-grass. Additionally, scrub is an important habitat at Berry Head, but it is important that this is not allowed to encroach on valuable grassland.
- 5.16 **Actions:** Visitor pressure should be monitored to ensure that any change is not detrimental to habitat condition. Particular attention should be given to maintenance of open conditions at the site for *Gastridium ventricosum* Nit-grass. The CG2 grassland is currently maintained by annual cutting and removal of cut material. In the absence of grazing, this should continue at the present annual levels. If grazing were reintroduced, then the effects of this should be monitored and grazing pressure adjusted accordingly. It should be noted that *Anacamptis morio* Green-winged orchid is sensitive to early spring sheep-grazing, and sheep should be excluded from the northern section between the end of February to the end of May.
- 5.17 Scrub should be removed from the lower parts of the northern section. If the stand of scrub has no existing importance for other organisms, then the whole of the scrub stand should be removed.

Area E: Ramparts of the Southern Fort

- 5.18 The southern fort receives fewer visitors than other parts of the NNR, and trampling effects are generally less severe. The fort has inland-facing

ramparts along its western side, with east-facing banks. The vegetation on the rampart banks is similar species-rich CG2 to that on the northern fort ramparts, but with less disturbance. The deeper soils here probably provide some resilience to dry conditions, and little effect of the 2022 drought is apparent. The main problem in this section is the development of scrub, and although much of this has been cleared recently, there has been much regeneration of *Ulex europaeus* Common gorse, *Clematis vitalba* Old-man's beard and *Rubus sp.* Bramble.

- 5.19 **Aims:** The principal aim should be to maintain the species-rich CG2 grassland in favourable condition. The main threat currently is the regeneration of scrub. Current visitor pressure is at an acceptable level.
- 5.20 **Actions:** All scrub regeneration should be cut annually. The CG2 grassland is currently maintained by annual cutting and removal of cut material. In the absence of grazing, this should continue at the present annual levels. If grazing were reintroduced, then the effects of this should be monitored and grazing pressure adjusted accordingly.

Area F: Floor of the Southern Fort

- 5.21 This area was probably stripped of soil during the construction of the fort in the early 19th century. It now has species-rich CG1 grassland with an area of bare soil and rock that probably varies depending on rainfall (13% in 2016, 33% in 2023). The grassland includes populations of several rare species including *Trinia glauca* Honewort, *Helianthemum appeninum* White rock rose and *Thalictrum minus* Lesser meadow-rue, which require open conditions but are adversely affected by trampling. The amounts of *Poa bulbosa* Bulbous meadow-grass and *Prospero autumnale* Autumn squill however are probably favoured by increased erosion and soil compaction.
- 5.22 **Aims:** Management should aim to maintain the condition of the CG1 grassland, with the area of open soil and rock between about 10% and 30% depending on weather conditions. There should be no sign of damage to plants of *Trinia glauca* Honewort or *Helianthemum appeninum* White rock rose. Principal threats to grassland condition here are the spread of scrub and eutrophication. Current levels of visitor pressure are probably sufficient to maintain open areas without damaging the vegetation.
- 5.23 **Actions:** This could be a potential area for the reintroduction of grazing. In the absence of grazing, the current cutting regime should continue at the present annual levels. If grazing were reintroduced, then the effects of this

should be monitored and grazing pressure adjusted accordingly. All visitors should be encouraged to evacuate their dogs elsewhere on the site before entering the southern fort. Scrub to the south and east should be cut back by approximately 5m to discourage encroachment on the grassland.

G: The Rabbit Lawn

- 5.24 This is one of the richest sites for rare plants in the UK. The species-rich CG1 grassland has populations of several species including *Trinia glauca* Honewort, *Helianthemum appeninum* White rock rose and *Bupleurum baldense* Small hare's-ear that all depend on open conditions, but which are likely to be sensitive to trampling. *Ononis reclinata* Small rest-harrow occurs on rock outcrops which are less likely to be affected by visitor access. Whilst *Poa bulbosa* Bulbous meadow-grass and *Prospero autumnale* Autumn squill may be favoured by increased erosion and soil compaction. The area is intersected by the South-West Coast Path, and while the intensity of trampling is not as great as that experienced at A, B, C and K, it is possible that it may be detrimental to the habitat and botanical interest in extremely dry periods such as in 2022 and 2023. Damage to *Helianthemum appeninum* White rock rose was noted in early summer 2023, although this was not apparent after rainfall in late summer. Scrub surrounds the site to the west and south, and without annual control is likely to be a threat to the grassland. This area is sufficiently remote from the car park to be less affected than other parts of the site by canine eutrophication.
- 5.25 **Aims:** The principal aims are to maintain the species-rich CG1 grassland in favourable condition and to ensure the continued health of populations of all rare species. The intensity of visitor footfall is critical to the maintenance of this grassland. Some trampling is probably essential in keeping the grassland open with sufficient exposed soil for the germination of annuals/biennials. At the same time, this should not damage trampling-sensitive species. The encroachment of scrub from the west is a continual threat. Rabbit grazing is also likely to be highly important to grassland condition here.
- 5.26 **Actions:** Introduction of grazing to this area, in conjunction with the scrub to the north, should be considered. In the absence of grazing, the current cutting regime should continue at the present annual levels. If grazing were reintroduced, then the effects of this should be monitored and grazing pressure adjusted accordingly. It is important to consider the combined effects of any additional grazing and existing rabbit grazing.

- 5.27 Factors influencing the course taken by walkers should be studied, the small area of scrub in the east of the lawn may be important in determining which route walkers take across the area. Consideration should be given to diverting walkers away from vulnerable areas in periods of very dry weather.
- 5.28 Additional scrub should be cleared back to the fence line from the northern and western margins of the area. This should have the added benefit of reducing walking pressure on the most sensitive parts of the section.

Area H: Limestone Heath

- 5.29 This is the only area of heathland vegetation over limestone in Devon, and it is a very rare vegetation type nationally. Although fenced preparatory to grazing, no grazing has taken place here recently. Much of the scrub has been cleared, but this has regenerated and in 2023 the cover of *Ulex europaeus* European gorse was estimated at 50%. Although the cover of *Erica cinerea* Bell-heather and *Calluna vulgaris* Heather have reduced.
- 5.30 **Aims:** The cover of scrub should be reduced to less than 10% and regeneration should be prevented. Visitor pressure is not a concern in this area.
- 5.31 **Actions:** Established scrub should be reduced to approximately 10% cover and young regenerated scrub should be removed entirely. The eventual aim should be a cover of less than 10% over the area, but cut on rotation to ensure a varied age structure. Cattle grazing should be reintroduced here as soon as this is possible. This will help diversify the vegetation and will reduce the amount of scrub regeneration.
- 5.32 The removal of scrub may expose buried seed of ericaceous shrubs, and enable establishment of a new cohort. If there is no or little regeneration, then other techniques such as scarification should be considered.

Area I: Cliff slope below the Southern Fort

- 5.33 This is a large area of maritime grassland, grading from CG1 at the top of the slope, through species-rich MC11b grassland on the middle slopes to less species-rich MC11c on the most exposed, lowest slopes. This is very drought-prone, and there is much exposed rock. There is however very little visitor access here and no trampling pressure. In the absence of grazing, areas of scrub have developed, and there is a high coverage of coarse, tussocky grasses. The invasive non-native *Centranthus rubra* Red valerian is abundant

on this slope, although it is not certain that this is detrimental to grassland quality. Rare species here include a small population of *Trinia glauca* Honewort in the north-west corner at the end of the fort moat, widespread *Helianthemum appeninum* White rock rose, *Festuca longifolia* in rock crevices on the upper slope, and *Ononis reclinata* Small rest-harrow on some rock outcrops. *Festuca longifolia* appears to have suffered as a result of dry weather in 2022 and 2023.

- 5.34 **Aims:** Scrub on this important area of species-rich maritime grassland should be reduced to 5%, and any regeneration should be controlled. It is particularly important that the upper slopes, where the main rare plant populations are located, are kept scrub-free. Although sheep-grazing would be ideal management here, access and welfare considerations may make this impossible. While *Centranthus rubra* Red valerian is conspicuous on this slope it may not be having an adverse effect on the botanical diversity.
- 5.35 **Actions:** Remove invasive blackthorn scrub from the western part of the area and ensure that any regrowth is controlled.

Area J: Cliff Slope to the South of Berry Head

- 5.36 Scrub has developed over much of this area in the past, but a programme of intensive and efficient scrub removal and control has succeeded in creating a mosaic of CG1 calcareous grassland and MC11 maritime grassland, divided by discrete scrub blocks. The trampling-sensitive species, *Helianthemum appeninum* White rock rose and *Thalictrum minus* Lesser meadow-rue are frequent here in the open areas. Other species which require bare soil and rock, including *Trifolium glomeratum* Clustered clover, *Trifolium suffocatum* Suffocated clover, *Poa bulbosa* Bulbous meadow-grass and *Prospero autumnale* Autumn squill were abundant in 2023. The very rare *Bupleurum baldense* Lesser hare's-ear and the moss *Chelothela chloropus* have been recorded at the western end of the slope. Scrub removal is progressive and further areas of grassland will be re-opened in future years. The remaining scrub has value for breeding birds, invertebrates and for directing visitors. This area is crossed by paths, but has relatively little use by visitors, and is valued for its relative seclusion and peace in comparison with the heavily used Viewpoint, immediately adjacent to the north.
- 5.37 **Aims:** The principal aim here is to maintain and expand the areas of open, species-rich grassland by progressive clearance of scrub and control of regeneration. The balance between scrub control and retention is important

for preserving the character of this area and for its value to breeding birds and invertebrates. A 50:50 ratio of scrub to grassland over the whole slope may be appropriate. Scrub on the lower slopes and particularly the more mature stands at the western end are likely to be difficult to clear and could be allowed to remain. The small quarries on the upper slopes to the south-west of the café are of particular importance for rare plants, and should remain scrub-free.

- 5.38 **Actions:** Expand the grassland areas by clearing scrub from their margins. Ensure that these grassland patches remain scrub-free by clearing any regeneration. Retain approximately 50% scrub cover over the whole slope, this includes the large stands on the lower slopes at the western end. Clear scrub surrounding the small quarries.
- 5.39 This area could be grazed as a unit together with Area B and the whole of the northern fort. This would greatly help with the maintenance of the grassland and suppression of scrub regeneration. If grazing were to be reintroduced, then the effects of this should be monitored and grazing pressure adjusted accordingly.

Area K: The Triangle

- 5.40 This area is situated at the junction of tracks from the car park, and from Brixham to the north-west. Smaller paths along the cliff-top from the south and across the meadow to the west also join here. The resulting triangle of land is surrounded by well-used access routes. Visitors not only use the established routes, but also cut across Area K, and use it as an open area for exercising dogs. Vegetation is entirely open grassland, but this is subject to heavy trampling and also eutrophication around the margins, especially to the west. The distribution of eutrophic and eroded grassland can be easily seen on aerial photography. Despite these pressures, much of the grassland is still recognisable as CG1, although with much bare soil and rock and rare species such as *Poa bulbosa* Bulbous meadow-grass and *Prospero autumnale* Autumn squill, which can tolerate heavy trampling are frequent. *Spiranthes autumnalis* Lady's tresses orchid is frequent, but flowers are easily snapped off.
- 5.41 **Aims:** The CG1 grassland should be restored to favourable condition, with a reduction in disturbance, trampling and phosphate input. Some visitor pressure may be helpful in maintaining grassland condition following restoration.

- 5.42 **Actions:** Visitors should be encouraged to exercise and drain dogs in the field to the north-west of the car park before walking to the café and viewpoint. Access to the Triangle should be temporarily restricted using unobtrusive “soft” barriers to allow vegetation to recover. Eutrophicated grassland should be regularly cut and cuttings removed in order to deplete nutrients.

Area L: Cliff Slope Between the Forts

- 5.43 This includes the whole of the cliff slope between the outer wall of the southern fort and the moat of the northern fort. The area has been fenced and is stockproof. There is little visitor access here, although there is a gate providing access at the southern end. Scrub has developed over much of the uppermost slope, with the exception of the southern part, although it is difficult to determine the extent of the spread of scrub since 2016. Scrub on the plateau here is of value to breeding birds. The remaining grassland on the thin soils of the uppermost slope is species-rich CG1, with areas of exposed rock. Several rare plants are present here, the best area being at the northernmost end, where the moat of the fort meets the cliff top, and there are populations of *Ononis reclinata* Small rest-harrow, *Trinia glauca* Honewort and *Helianthemum appeninum* White rock-rose. *Ononis reclinata* Small rest-harrow also occurs on a rock outcrop on the mid-slope to the south.
- 5.44 **Aims:** The main management problem in this area is the encroachment of scrub on the upper slopes and the loss of species-rich CG1 grassland. Scrub has also developed around the rock outcrop at the extreme southern end of the area, although some scrub here is probably important to deter public access to the seabird nesting cliff.
- 5.45 **Actions:** Scrub should be removed from the whole of the upper slope and subsequent regeneration should be controlled. Scrub on the plateau and at the base of the southernmost outcrop should be retained as bird-breeding habitat, and as a screen for the seabird cliff. This area could be grazed, which would greatly help with the maintenance of the grassland and suppression of scrub regeneration. If grazing were reintroduced, then the effects of this should be monitored and grazing pressure adjusted accordingly.

Area M: Durl Head

- 5.46 The middle and lower cliff slopes at Durl Head contain some very species-rich MC11b maritime grassland grading into less species-rich grassland on the lower slopes. One of the largest populations in Britain of the very rare *Aster linosyris* Goldilocks aster is present over an approximately 50m length of slope, extending from the scrub line to the cliff top in one place. These grasslands are however at serious threat from scrub development, and scrub has spread down the slope since 2016. Additional plants of *Aster linosyris* Goldilocks aster were recorded in 2023 from cleared scrub on the cliff top, and larger patches from the sides of the gully to the north of Durl Head and the limestone outcrop immediately to the west. All of these *Aster* sites should be treated as high importance. *Trinia glauca* Honewort is also present on Durl Head.
- 5.47 **Aims:** The mid- and lower slopes of Durl Head, the gully to the north, the top of the outcrop to the west, and the open areas where *Aster linosyris* Goldilocks aster was recorded in 2023 should be kept scrub-free. The grassland areas should be expanded. Managed scrub is very valuable for breeding birds and invertebrates and is useful for directing visitors away from sensitive sites. The value of clearing additional scrub areas has been shown by the appearance of *Aster linosyris* Goldilocks aster in recently cleared stands.
- 5.48 **Actions:** Clear scrub on Durl Head to a distance of c10m from the current lower scrub boundary. Clear all recently regenerated scrub from the middle slopes. Clear scrub from the top of the outcrop to the west of Durl Head. Maintain scrub belts on the upper slope of Durl Head and along the seaward side of the coastal path. Grazing here is not possible, and in the absence of grazing the current cutting regime should continue.

Area M: Sharkham Point

- 5.49 Species-rich grassland at Sharkham Point is confined to MC11b on a small area of cliff slope and MC5 on the plateau at the eastern end of the point. While these remain open, scrub forms dense stands in the surrounding areas. *Festuca longifolia* Long-leaved fescue is frequent in the plateau grassland. A small population of *Trinia glauca* Honewort is present in a very small quarry just outside and to the west of the TCCT boundary. Visitor pressure at Sharkham Point is considerably lower than at Berry Head.

- 5.50 **Aims:** The remaining areas of species-rich grassland should be maintained and expanded by clearing surrounding scrub. Further areas of species-rich grassland could be created elsewhere at Sharkham Point.
- 5.51 **Actions:** Clear scrub around the species-rich grassland. Consider the reintroduction of grazing over a larger area of Sharkham Point with aim of creating larger areas of semi-natural grassland.

Map 7: Areas of sensitivity and the areas identified in the management recommendations at Berry Head. The inset map shows both at Sharkham Point.

